

Technical Report No. 1

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales

Criteria Pollutant Emissions for all Sectors: Results

Prepared jointly by

**Department of Environment and Climate Change NSW
Environment Protection Authority of Victoria
Pacific Air & Environment Pty Ltd
Optimised Operations Pty Ltd**

Department of **Environment & Climate Change** NSW



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MINISTER'S FOREWORD

When people think about air pollution, they most often think of heavy traffic and big industry. Whilst these are important contributors, the fact is air pollution comes from many different sources. Understanding what and where all these sources are is the first step toward cleaner air. That is what NSW's new Air Emissions Inventory is all about.

The 2007 *Air Emissions Inventory for the Greater Metropolitan Region in New South Wales* is the accumulation of three years of data collection and analysis. It looks at both human sources of air pollution, such as factories, buses and trucks, and natural sources, such as bushfires and windborne dust. It identifies over 90 different air pollutants.



The last significant inventory of this kind in NSW was published in 1996. That inventory formed the basis of our comprehensive NSW strategy called *Action for Air*, a 25-year air quality management plan for the Greater Metropolitan Region. *Action for Air* was published in 1998 and it helped us to successfully target air pollution by introducing:

- laws requiring special low-pollution summertime fuel
- new regulations for industry which slash pollution levels by up to five times. This is the equivalent of taking 100,000 diesel trucks off NSW roads over the next 20 years
- green car benchmarks which for the first time allow buyers to consider a vehicle's environmental performance.

In 2007, after ten years of action, we are again reviewing *Action for Air*, and this latest inventory will provide us with information we will need to shape the next steps in our attack on air pollution.

I would like to congratulate all those involved in producing this excellent report. Our actions to protect the community need to be based on the very best science. This new report - the 2007 *Air Emissions Inventory for the Greater Metropolitan Region in New South Wales* - gives us the best scientific basis for action in the State's history.

Verity Firth

Minister Assisting the Minister for Climate Change, Environment and Water (Environment)

EXECUTIVE SUMMARY

The Department of Environment and Climate Change NSW (DECC), in collaboration with Environment Protection Authority of Victoria (Ng, 2006), Pacific Air & Environment (Bawden et. al., 2006a & 2006b) and Optimised Operations (Tseng et. al., 2006a & 2006b), has completed a three year air emissions inventory project. The base year of the inventory represents activities that took place during the 2003 calendar year and is accompanied by emission projections in yearly increments up to the 2031 calendar year. The area included in the study covers greater Sydney, Newcastle and Wollongong regions, known collectively as the Greater Metropolitan Region (GMR).

The study region defined as the GMR measures 210 km (east-west) by 273 km (north-south). The study region is defined in Table ES1 and shown in Figure ES1.

Table ES1 Definition of Greater Metropolitan, Sydney, Newcastle and Wollongong regions

Region	South-west corner MGA ¹ co-ordinates		North-east corner MGA ¹ co-ordinates	
	Easting (km)	Northing (km)	Easting (km)	Northing (km)
GREATER METROPOLITAN	210	6159	420	6432
SYDNEY	261	6201	360	6300
NEWCASTLE	360	6348	408	6372
WOLLONGONG	279	6174	318	6201

¹ MGA = Map Grid of Australia based on the Geocentric Datum of Australia 1994 (GDA94) (ICSM, 2002).

The air emissions inventory includes emissions from biogenic (i.e. natural) and anthropogenic (i.e. human derived) sources.

The anthropogenic source groups included in the air emissions inventory are as follows:

- Commercial businesses (i.e. non-EPA-licensed);
- Domestic-commercial activities;
- Industrial premises (i.e. EPA-licensed);
- Off-road mobile (i.e. non-registered off-road vehicles and equipment); and
- On-road mobile (i.e. registered on-road vehicles).

The pollutants inventoried include criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003), air toxics associated with the *National Pollutant Inventory (NPI) NEPM* (NEPC, 2000) and the *Air Toxics NEPM* (NEPC, 2004) and any other pollutants associated with state specific programs, including: *Load Based Licensing (Protection of the Environment Operations (General) Regulation 1998* (PCO, 1998)); and *Protection of the Environment Operations (Clean Air) Regulation 2002* (PCO, 2005).

This report focuses on emissions of criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003), including:

- Carbon monoxide (CO);
- Lead and compounds;
- Oxides of nitrogen (NO_x);
- Particulate matter < 10 μm (PM₁₀);
- Particulate matter < 2.5 μm (PM_{2.5});
- Sulfur dioxide (SO₂); and
- Total volatile organic compounds (VOCs), a surrogate for photochemical oxidants (as ozone).

More detailed information about sources and emissions of other air pollutants from the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.



Figure ES1 Definition of Greater Metropolitan, Sydney, Newcastle and Wollongong regions

Table ES2 shows total estimated annual emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES2 Total estimated annual biogenic and anthropogenic emissions in each region

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total Annual Emissions (tonnes/year)					
CARBON MONOXIDE	27,346	176	145	160,737	188,405
LEAD AND COMPOUNDS	0.813	0.113	5.27×10^{-3}	4.099	5.030
OXIDES OF NITROGEN	1,585	103	52.034	11,604	13,344
PARTICULATE MATTER < 10 µm	2,699	93.261	15.767	14,629	17,436
PARTICULATE MATTER < 2.5 µm	2,331	44.245	13.530	12,680	15,069
SULFUR DIOXIDE	69.393	0.474	0.322	450	520
TOTAL VOCS	33,989	3,285	3,371	151,949	192,594
Anthropogenic Total Annual Emissions (tonnes/year)					
CARBON MONOXIDE	528,011	86,739	545,500	126,391	1,286,641
LEAD AND COMPOUNDS	29.044	2.405	6.497	42.982	80.929
OXIDES OF NITROGEN	92,768	9,864	12,299	177,123	292,054
PARTICULATE MATTER < 10 µm	21,305	2,948	3,034	47,841	75,128
PARTICULATE MATTER < 2.5 µm	13,126	1,687	2,193	13,493	30,499
SULFUR DIOXIDE	13,764	10,673	10,607	266,820	301,863
TOTAL VOCS	130,834	9,728	6,457	24,048	171,067
Biogenic and Anthropogenic Total Annual Emissions (tonnes/year)					
CARBON MONOXIDE	555,357	86,915	545,645	287,129	1,475,045
LEAD AND COMPOUNDS	29.858	2.518	6.503	47.081	85.960
OXIDES OF NITROGEN	94,353	9,967	12,351	188,727	305,398
PARTICULATE MATTER < 10 µm	24,004	3,041	3,050	62,470	92,564
PARTICULATE MATTER < 2.5 µm	15,457	1,731	2,207	26,173	45,568
SULFUR DIOXIDE	13,833	10,673	10,607	267,269	302,383
TOTAL VOCS	164,822	13,013	9,828	175,998	363,661

Table ES3 shows the proportion of total estimated annual biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES3 Proportion of total estimated annual emissions from biogenic and anthropogenic sources in each region

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
Proportion of Annual Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	4.92	0.20	0.03	56.0	12.8
LEAD AND COMPOUNDS	2.72	4.49	0.08	8.71	5.85
OXIDES OF NITROGEN	1.68	1.03	0.42	6.15	4.37
PARTICULATE MATTER < 10 µm	11.2	3.07	0.52	23.4	18.8
PARTICULATE MATTER < 2.5 µm	15.1	2.56	0.61	48.4	33.1
SULFUR DIOXIDE	0.50	4.44×10^{-3}	3.04×10^{-3}	0.17	0.17
TOTAL VOCS	20.6	25.2	34.3	86.3	53.0
Anthropogenic Total					
Proportion of Annual Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	95.1	99.8	100.0	44.0	87.2
LEAD AND COMPOUNDS	97.3	95.5	99.9	91.3	94.1
OXIDES OF NITROGEN	98.3	99.0	99.6	93.9	95.6
PARTICULATE MATTER < 10 µm	88.8	96.9	99.5	76.6	81.2
PARTICULATE MATTER < 2.5 µm	84.9	97.4	99.4	51.6	66.9
SULFUR DIOXIDE	99.5	100.0	100.0	99.8	99.8
TOTAL VOCS	79.4	74.8	65.7	13.7	47.0

Figure ES2 shows the proportion of total estimated annual GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

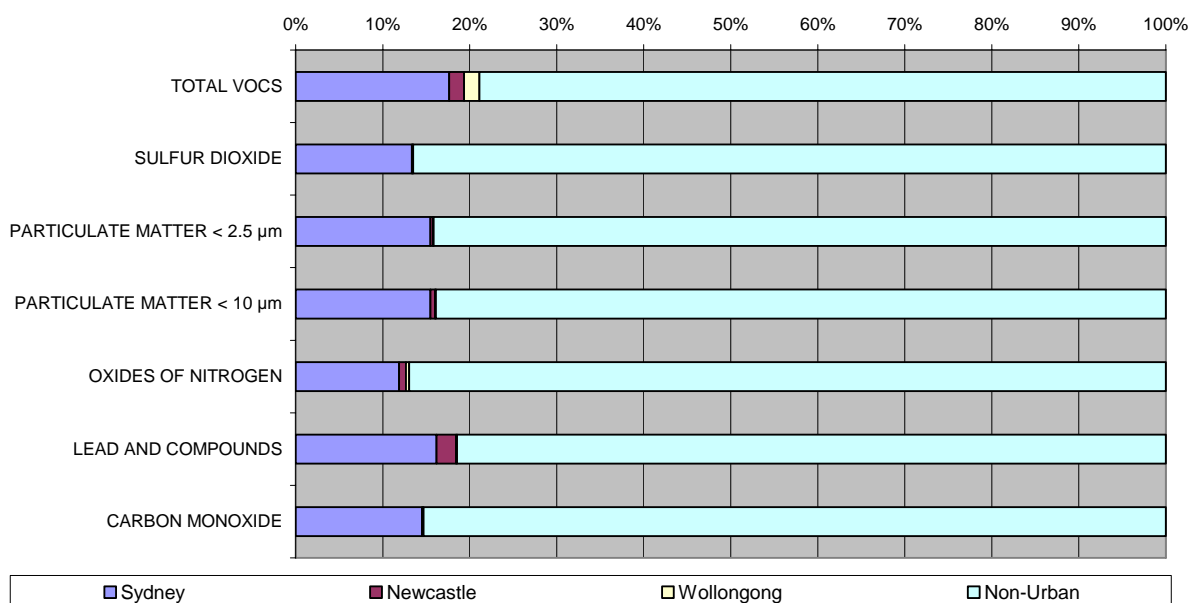


Figure ES2 Proportion of total estimated annual emissions from biogenic sources in each region

Figure ES3 shows the proportion of total estimated annual GMR anthropogenic emissions from all anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

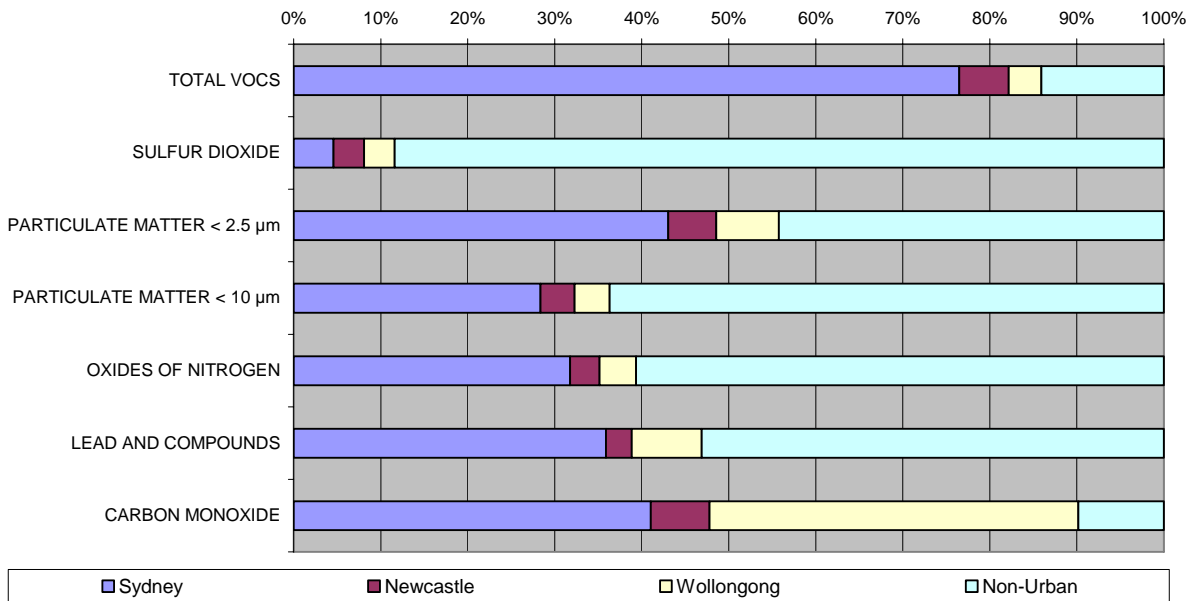


Figure ES3 Proportion of total estimated annual emissions from anthropogenic sources in each region

Figure ES4 shows the proportion of total estimated annual GMR biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

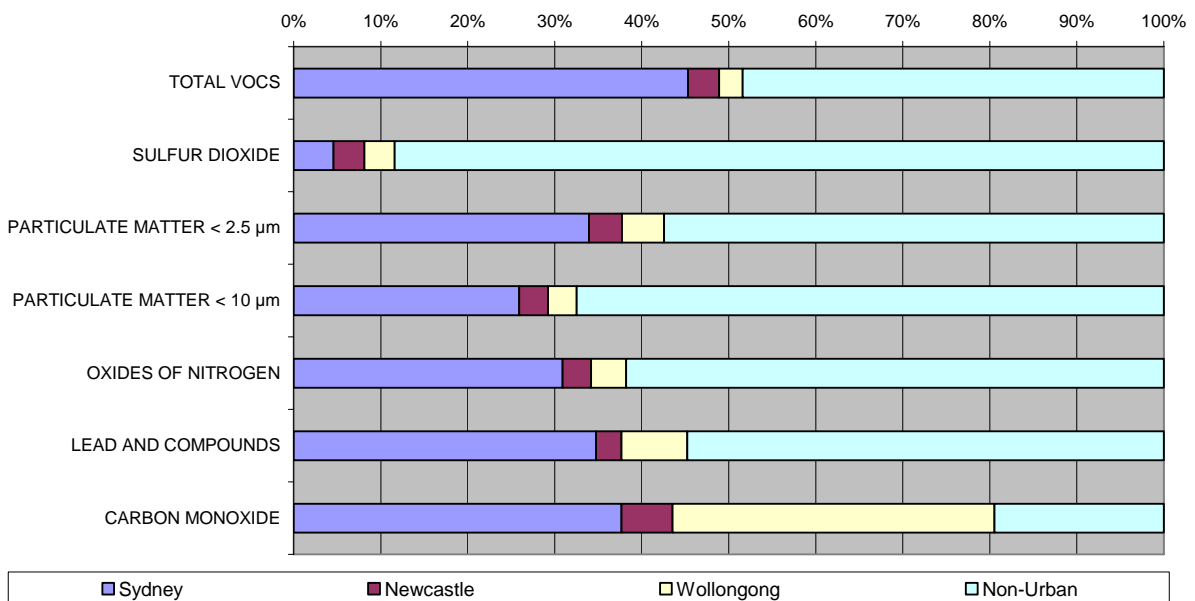


Figure ES4 Proportion of total estimated annual emissions from biogenic and anthropogenic sources in each region

Table ES4 shows total estimated annual emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES5 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES4 Total estimated annual anthropogenic emissions by source type in each region

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Annual Emissions (tonnes/year) - GMR						
CARBON MONOXIDE	1,801	90,516	603,133	32,144	559,047	1,286,641
LEAD AND COMPOUNDS	0.194	0.153	11.964	54.917	13.701	80.929
OXIDES OF NITROGEN	2,648	1,791	175,537	23,470	88,609	292,054
PARTICULATE MATTER < 10 µm	4,032	6,651	46,530	14,566	3,349	75,128
PARTICULATE MATTER < 2.5 µm	1,270	6,428	13,127	6,486	3,188	30,499
SULFUR DIOXIDE	71.005	143	295,819	4,170	1,660	301,863
TOTAL VOCS	13,844	67,303	17,786	7,640	64,493	171,067
Annual Emissions (tonnes/year) - Sydney						
CARBON MONOXIDE	1,265	67,221	8,004	20,251	431,270	528,011
LEAD AND COMPOUNDS	0.189	0.114	4.703	13.325	10.713	29.044
OXIDES OF NITROGEN	1,870	1,356	14,032	9,514	65,996	92,768
PARTICULATE MATTER < 10 µm	2,143	4,993	7,911	3,707	2,552	21,305
PARTICULATE MATTER < 2.5 µm	723	4,826	3,390	1,761	2,426	13,126
SULFUR DIOXIDE	48.074	108	10,980	1,374	1,254	13,764
TOTAL VOCS	9,973	51,929	13,989	4,772	50,171	130,834
Annual Emissions (tonnes/year) - Newcastle						
CARBON MONOXIDE	68.243	5,781	47,763	1,452	31,675	86,739
LEAD AND COMPOUNDS	8.18×10^{-4}	9.65×10^{-3}	0.246	1.441	0.708	2.405
OXIDES OF NITROGEN	134	105	1,728	2,950	4,947	9,864
PARTICULATE MATTER < 10 µm	173	423	1,706	469	177	2,948
PARTICULATE MATTER < 2.5 µm	49.137	408	808	253	169	1,687
SULFUR DIOXIDE	0.867	8.871	9,300	1,264	98.113	10,673
TOTAL VOCS	799	3,786	1,274	312	3,556	9,728

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Annual Emissions (tonnes/year) - Wollongong						
CARBON MONOXIDE	104	3,636	521,795	793	19,173	545,500
LEAD AND COMPOUNDS	7.58×10^{-4}	6.15×10^{-3}	4.128	1.890	0.473	6.497
OXIDES OF NITROGEN	132	68.345	7,929	914	3,255	12,299
PARTICULATE MATTER < 10 µm	64.334	274	2,069	508	119	3,034
PARTICULATE MATTER < 2.5 µm	30.576	265	1,556	228	113	2,193
SULFUR DIOXIDE	1.225	5.757	10,290	250	59.448	10,607
TOTAL VOCS	624	2,618	788	232	2,195	6,457
Annual Emissions (tonnes/year) - Non-Urban						
CARBON MONOXIDE	364	13,877	25,571	9,649	76,929	126,391
LEAD AND COMPOUNDS	4.23×10^{-3}	0.023	2.887	38.260	1.807	42.982
OXIDES OF NITROGEN	512	262	151,847	10,092	14,410	177,123
PARTICULATE MATTER < 10 µm	1,652	961	34,844	9,883	501	47,841
PARTICULATE MATTER < 2.5 µm	467	929	7,373	4,244	479	13,493
SULFUR DIOXIDE	20.840	20.825	265,248	1,281	249	266,820
TOTAL VOCS	2,448	8,971	1,734	2,323	8,572	24,048

Table ES5 Proportion of total estimated annual anthropogenic emissions by source type in each region

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of Annual Anthropogenic Emissions (%) - GMR						
CARBON MONOXIDE	0.14	7.04	46.9	2.50	43.5	100.0
LEAD AND COMPOUNDS	0.24	0.19	14.8	67.9	16.9	100.0
OXIDES OF NITROGEN	0.91	0.61	60.1	8.04	30.3	100.0
PARTICULATE MATTER < 10 µm	5.37	8.85	61.9	19.4	4.46	100.0
PARTICULATE MATTER < 2.5 µm	4.16	21.1	43.0	21.3	10.5	100.0
SULFUR DIOXIDE	0.02	0.05	98.0	1.38	0.55	100.0
TOTAL VOCS	8.09	39.3	10.4	4.47	37.7	100.0
Proportion of Annual Anthropogenic Emissions (%) - Sydney						
CARBON MONOXIDE	0.24	12.7	1.52	3.84	81.7	100.0
LEAD AND COMPOUNDS	0.65	0.39	16.2	45.9	36.9	100.0
OXIDES OF NITROGEN	2.02	1.46	15.1	10.3	71.1	100.0
PARTICULATE MATTER < 10 µm	10.1	23.4	37.1	17.4	12.0	100.0
PARTICULATE MATTER < 2.5 µm	5.51	36.8	25.8	13.4	18.5	100.0
SULFUR DIOXIDE	0.35	0.78	79.8	9.98	9.11	100.0
TOTAL VOCS	7.62	39.7	10.7	3.65	38.3	100.0
Proportion of Annual Anthropogenic Emissions (%) - Newcastle						
CARBON MONOXIDE	0.08	6.67	55.1	1.67	36.5	100.0
LEAD AND COMPOUNDS	0.03	0.40	10.2	59.9	29.4	100.0
OXIDES OF NITROGEN	1.36	1.06	17.5	29.9	50.2	100.0
PARTICULATE MATTER < 10 µm	5.88	14.3	57.9	15.9	6.02	100.0
PARTICULATE MATTER < 2.5 µm	2.91	24.2	47.9	15.0	10.0	100.0
SULFUR DIOXIDE	8.12×10^{-3}	0.08	87.1	11.8	0.92	100.0
TOTAL VOCS	8.22	38.9	13.1	3.21	36.6	100.0

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of Annual Anthropogenic Emissions (%) - Wollongong						
CARBON MONOXIDE	0.02	0.67	95.7	0.15	3.51	100.0
LEAD AND COMPOUNDS	0.01	0.09	63.5	29.1	7.27	100.0
OXIDES OF NITROGEN	1.07	0.56	64.5	7.43	26.5	100.0
PARTICULATE MATTER < 10 µm	2.12	9.03	68.2	16.7	3.92	100.0
PARTICULATE MATTER < 2.5 µm	1.39	12.1	71.0	10.4	5.17	100.0
SULFUR DIOXIDE	0.01	0.05	97.0	2.36	0.56	100.0
TOTAL VOCS	9.66	40.5	12.2	3.59	34.0	100.0
Proportion of Annual Anthropogenic Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.29	11.0	20.2	7.63	60.9	100.0
LEAD AND COMPOUNDS	9.84×10^{-3}	0.05	6.72	89.0	4.20	100.0
OXIDES OF NITROGEN	0.29	0.15	85.7	5.70	8.14	100.0
PARTICULATE MATTER < 10 µm	3.45	2.01	72.8	20.7	1.05	100.0
PARTICULATE MATTER < 2.5 µm	3.46	6.88	54.6	31.5	3.55	100.0
SULFUR DIOXIDE	7.81×10^{-3}	7.80×10^{-3}	99.4	0.48	0.09	100.0
TOTAL VOCS	10.2	37.3	7.21	9.66	35.6	100.0

Figure ES5 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the GMR.

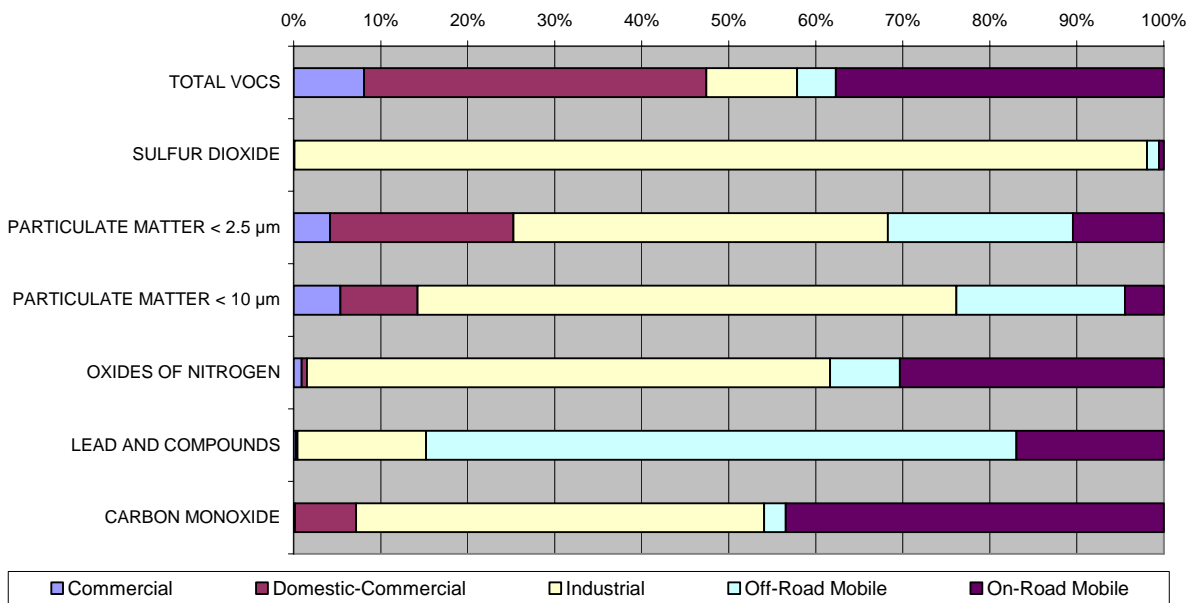


Figure ES5 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the GMR

Figure ES6 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Sydney region.

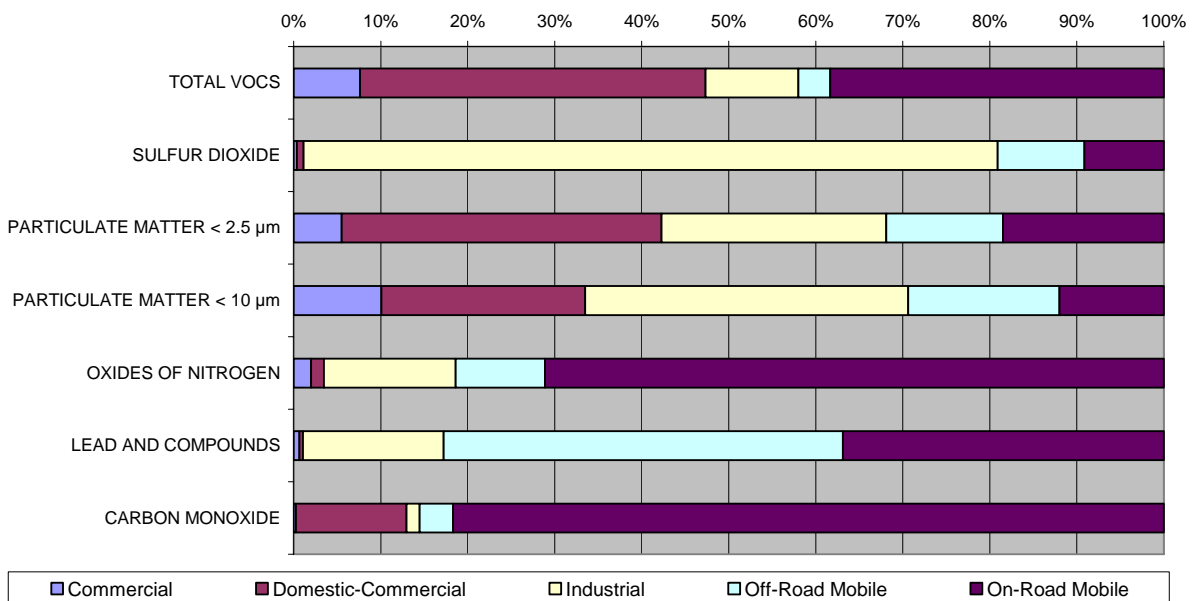


Figure ES6 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Sydney region

Figure ES7 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Newcastle region.

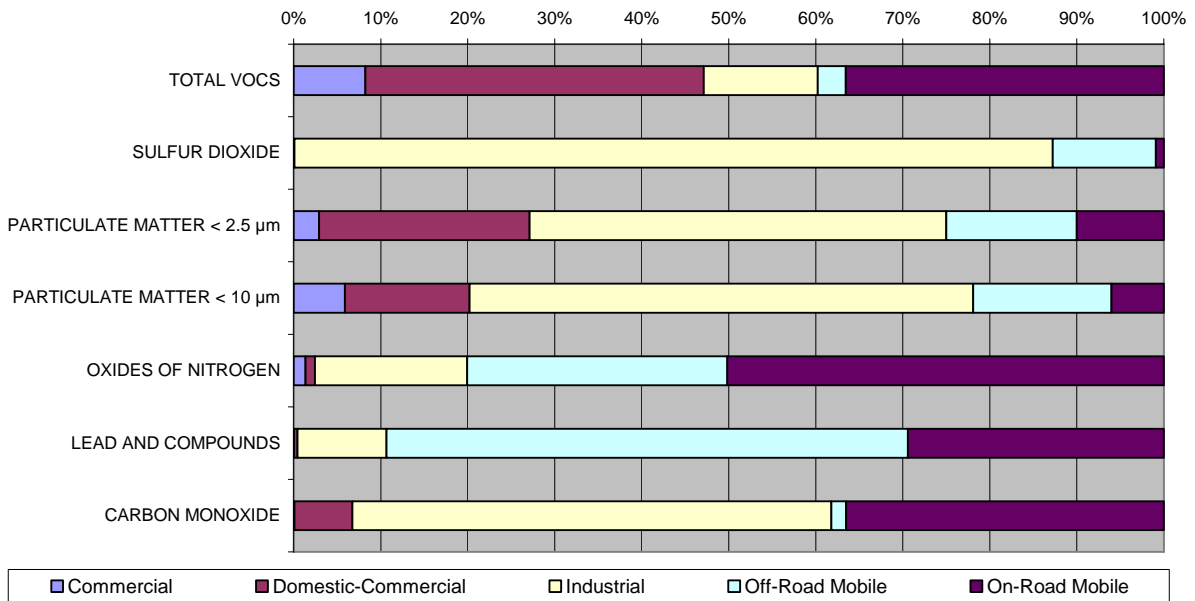


Figure ES7 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Newcastle region

Figure ES8 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Wollongong region.

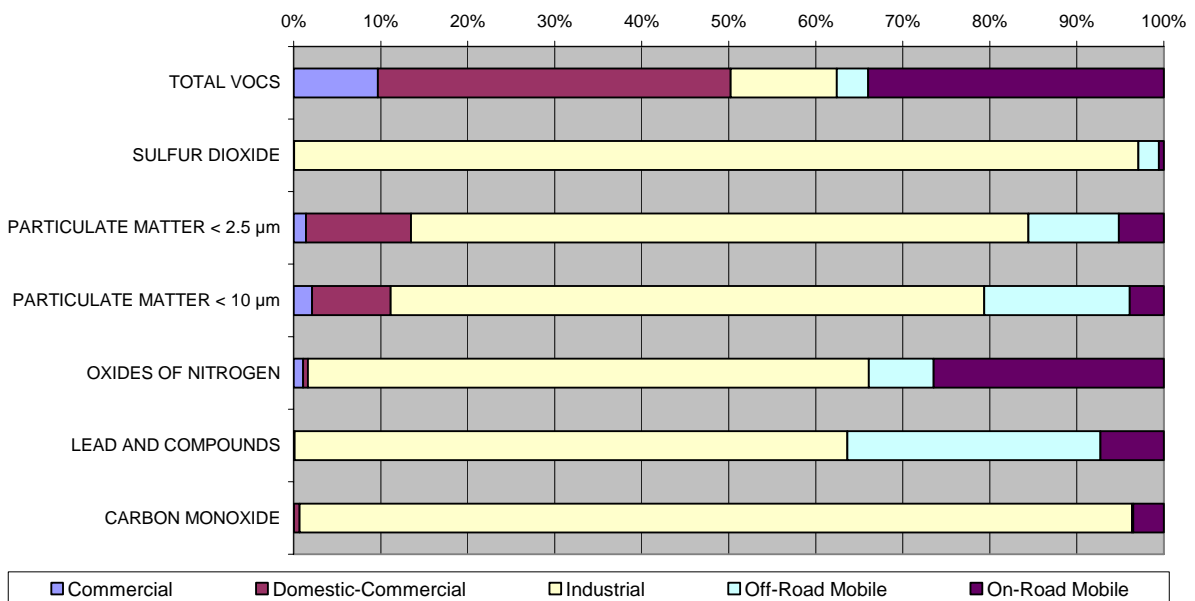


Figure ES8 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Wollongong region

Figure ES9 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Non-Urban region.

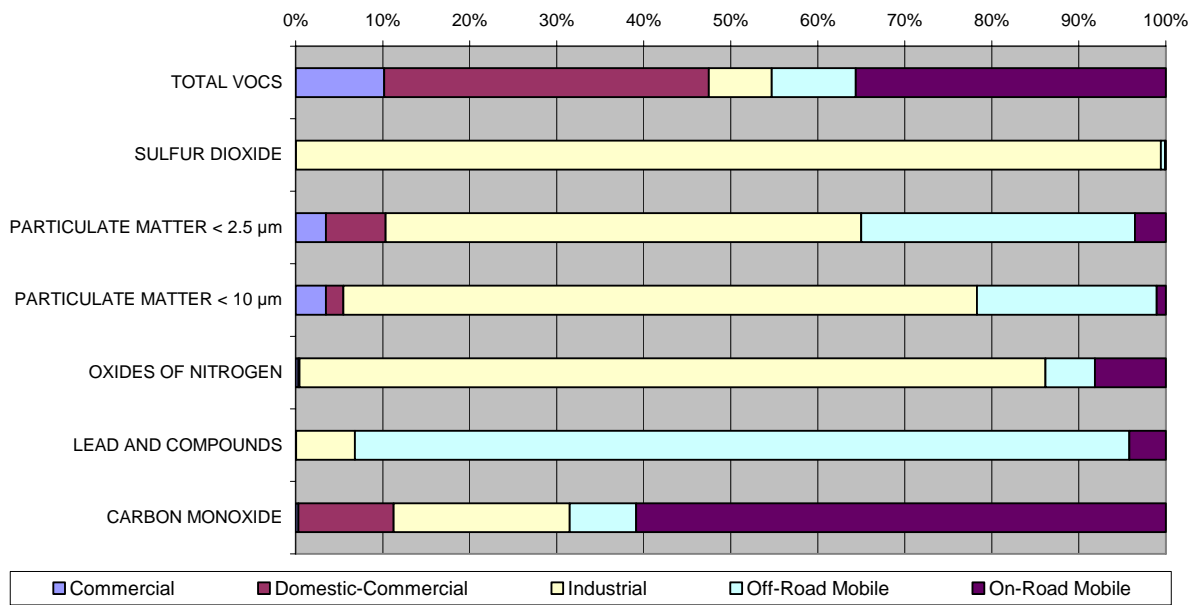


Figure ES9 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Non-Urban region

Table ES6 shows the ten largest anthropogenic sources of carbon monoxide emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES6 Ten largest anthropogenic sources of carbon monoxide

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Primary iron and steel production	520,451	40.5	40.5
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	413,721	32.2	72.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	71,129	5.53	78.1
Industrial	Primary aluminium production	57,393	4.46	82.6
On-Road Mobile	Exhaust Emissions - Other	51,579	4.01	86.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	41,580	3.23	89.8
Domestic-Commercial	Solid Fuel Combustion	37,079	2.88	92.7
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	12,424	0.97	93.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	11,292	0.88	94.6
Off-Road Mobile	Aircraft	10,489	0.82	95.4
All	Other	59,503	4.62	100.0
Sydney				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	323,953	61.4	61.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	55,294	10.5	71.8
On-Road Mobile	Exhaust Emissions - Other	35,554	6.73	78.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	31,274	5.92	84.5
Domestic-Commercial	Solid Fuel Combustion	27,889	5.28	89.8
Off-Road Mobile	Aircraft	9,979	1.89	91.7
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	8,534	1.62	93.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	7,935	1.50	94.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	7,617	1.44	96.2
Off-Road Mobile	Recreational Boats	6,088	1.15	97.4
All	Other	13,894	2.63	100.0
Newcastle				
Industrial	Primary aluminium production	44,697	51.5	51.5
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	24,897	28.7	80.2
On-Road Mobile	Exhaust Emissions - Other	2,788	3.21	83.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	2,784	3.21	86.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	2,645	3.05	89.7
Industrial	Secondary iron and steel production	2,597	2.99	92.7
Domestic-Commercial	Solid Fuel Combustion	2,358	2.72	95.4
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	749	0.86	96.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	638	0.74	97.0
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	568	0.65	97.7
All	Other	2,018	2.33	100.0

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
Industrial	Primary iron and steel production	520,451	95.4	95.4
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	14,415	2.64	98.1
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	2,050	0.38	98.4
On-Road Mobile	Exhaust Emissions - Other	1,848	0.34	98.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	1,725	0.32	99.1
Domestic-Commercial	Solid Fuel Combustion	1,538	0.28	99.4
Industrial	Metal plating or coating works	1,182	0.22	99.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	513	0.09	99.7
Off-Road Mobile	Recreational Boats	393	0.07	99.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	352	0.06	99.8
All	Other	1,033	0.19	100.0
Non-Urban				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	50,456	39.9	39.9
Industrial	Primary aluminium production	12,696	10.0	50.0
On-Road Mobile	Exhaust Emissions - Other	11,388	9.01	59.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	11,001	8.70	67.7
Industrial	Generation of electrical power from coal	6,856	5.42	73.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	5,937	4.70	77.8
Domestic-Commercial	Solid Fuel Combustion	5,294	4.19	82.0
Off-Road Mobile	Commercial Boats	3,274	2.59	84.6
Industrial	Cement or lime production	3,197	2.53	87.1
Off-Road Mobile	Recreational Boats	2,862	2.26	89.4
All	Other	13,429	10.6	100.0

Figure ES10 shows the ten largest anthropogenic sources of carbon monoxide emissions in the GMR.

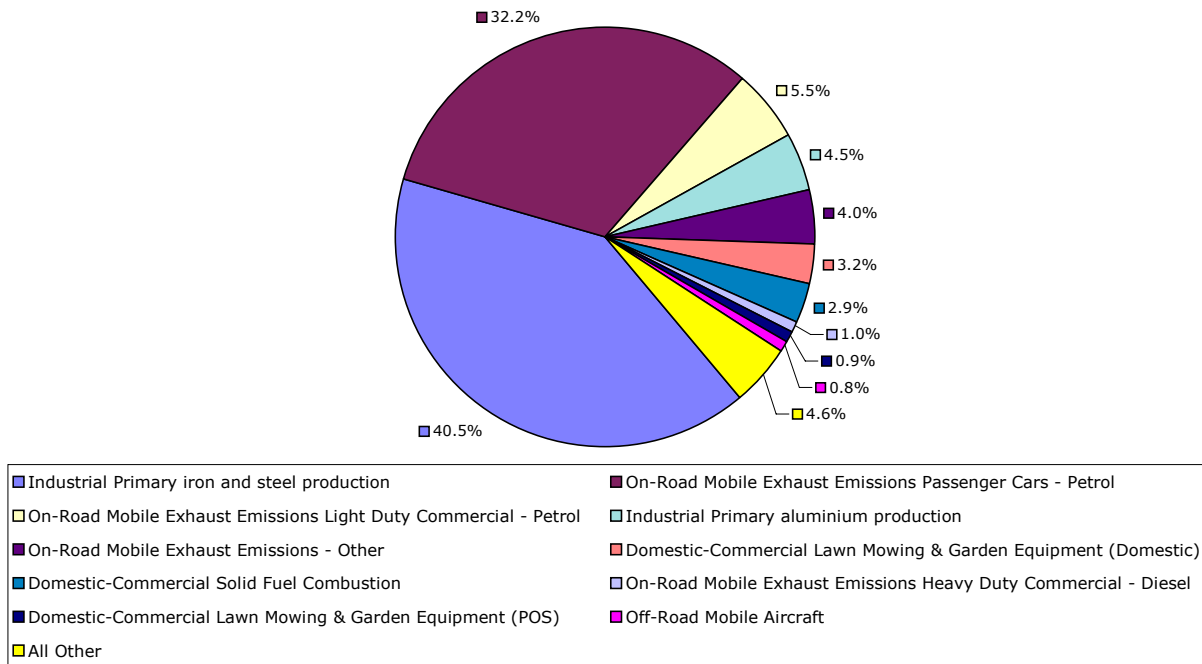


Figure ES10 Ten largest anthropogenic sources of carbon monoxide emissions in the GMR

Figure ES11 shows the ten largest anthropogenic sources of carbon monoxide emissions in the Sydney region.

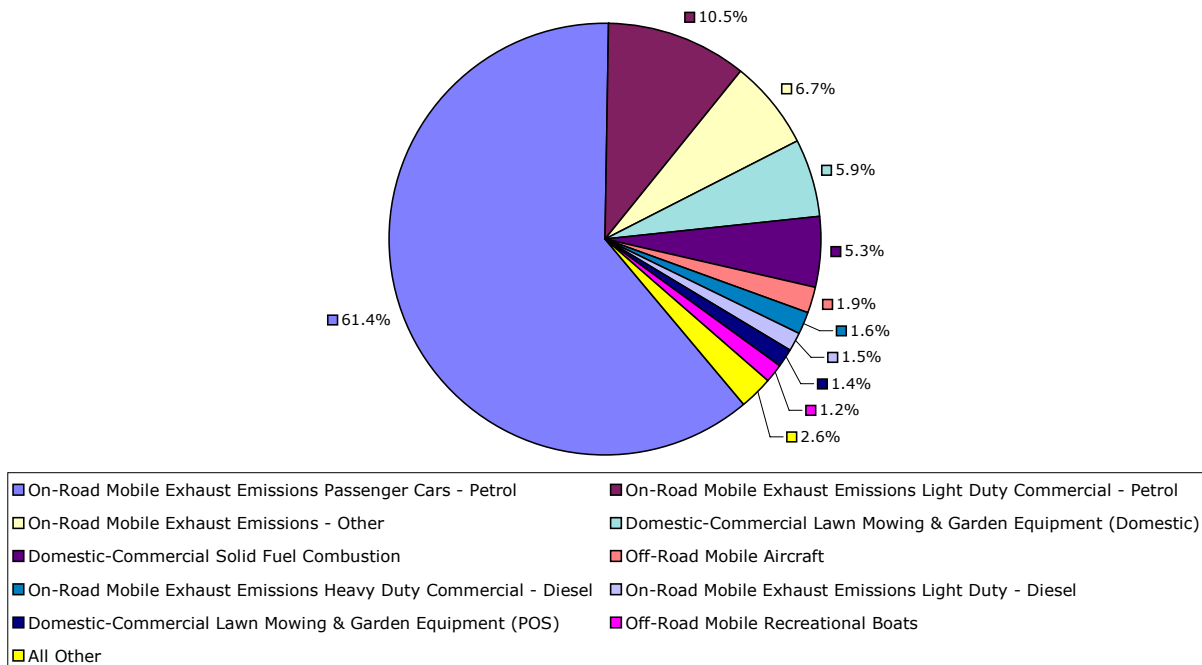


Figure ES11 Ten largest anthropogenic sources of carbon monoxide emissions in the Sydney region

Figure ES12 shows the ten largest anthropogenic sources of carbon monoxide emissions in the Newcastle region.

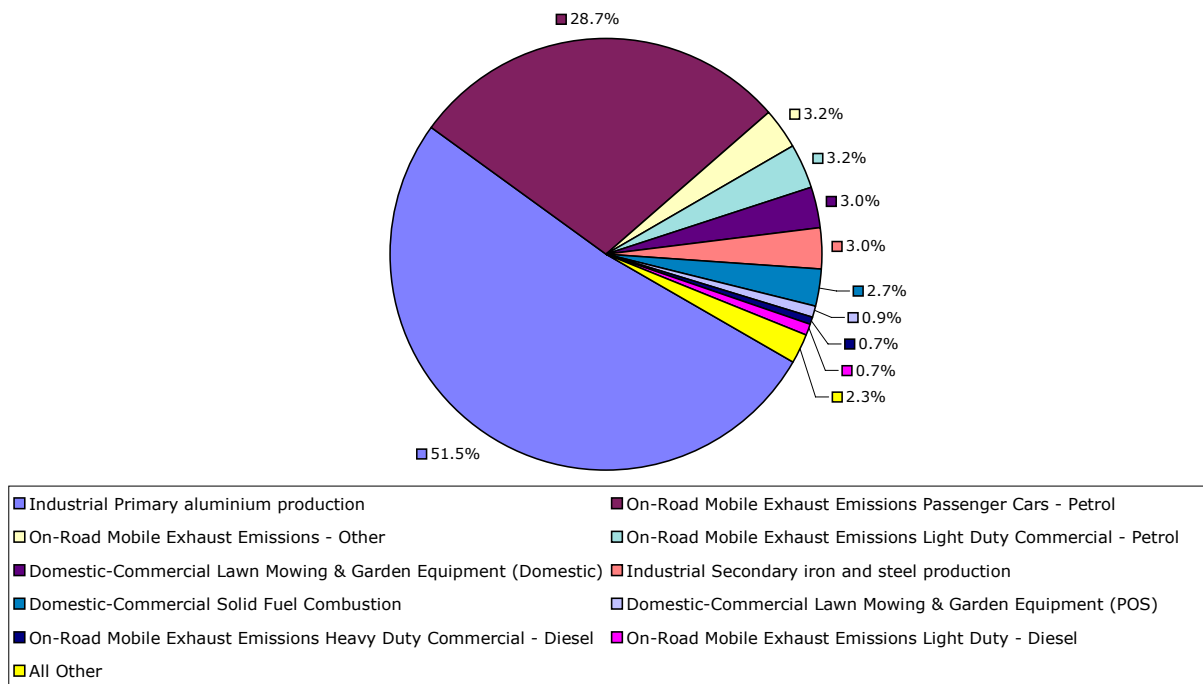


Figure ES12 Ten largest anthropogenic sources of carbon monoxide emissions in the Newcastle region

Figure ES13 shows the ten largest anthropogenic sources of carbon monoxide emissions in the Wollongong region.

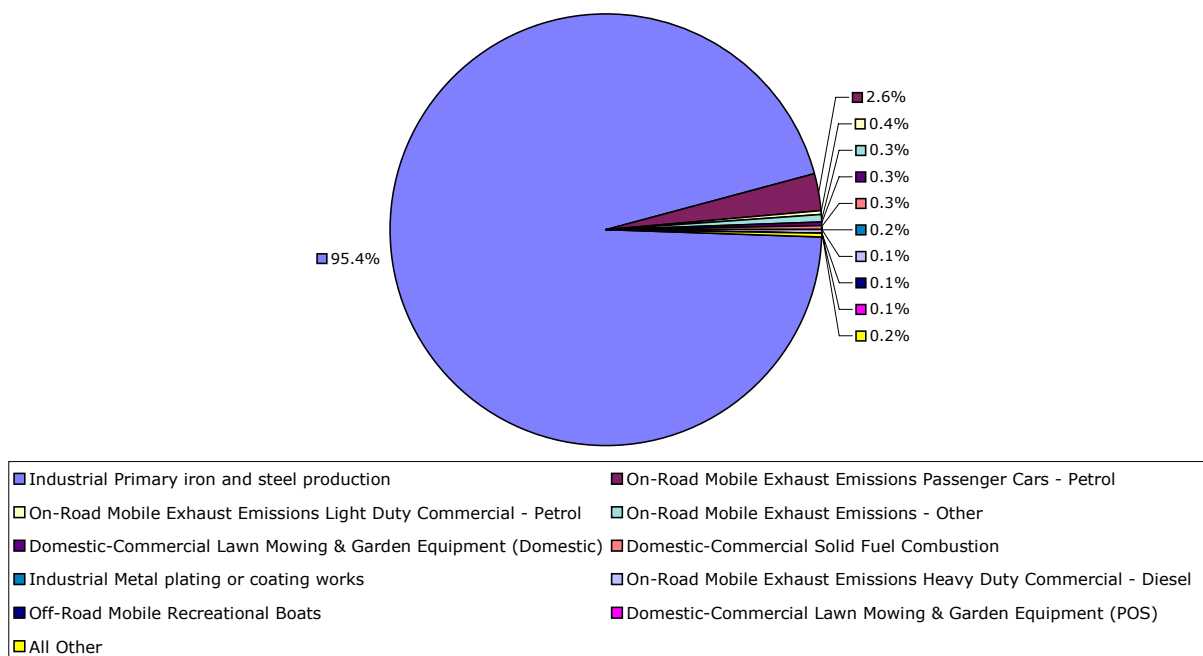


Figure ES13 Ten largest anthropogenic sources of carbon monoxide emissions in the Wollongong region

Figure ES14 shows the ten largest anthropogenic sources of carbon monoxide emissions in the Non-Urban region.

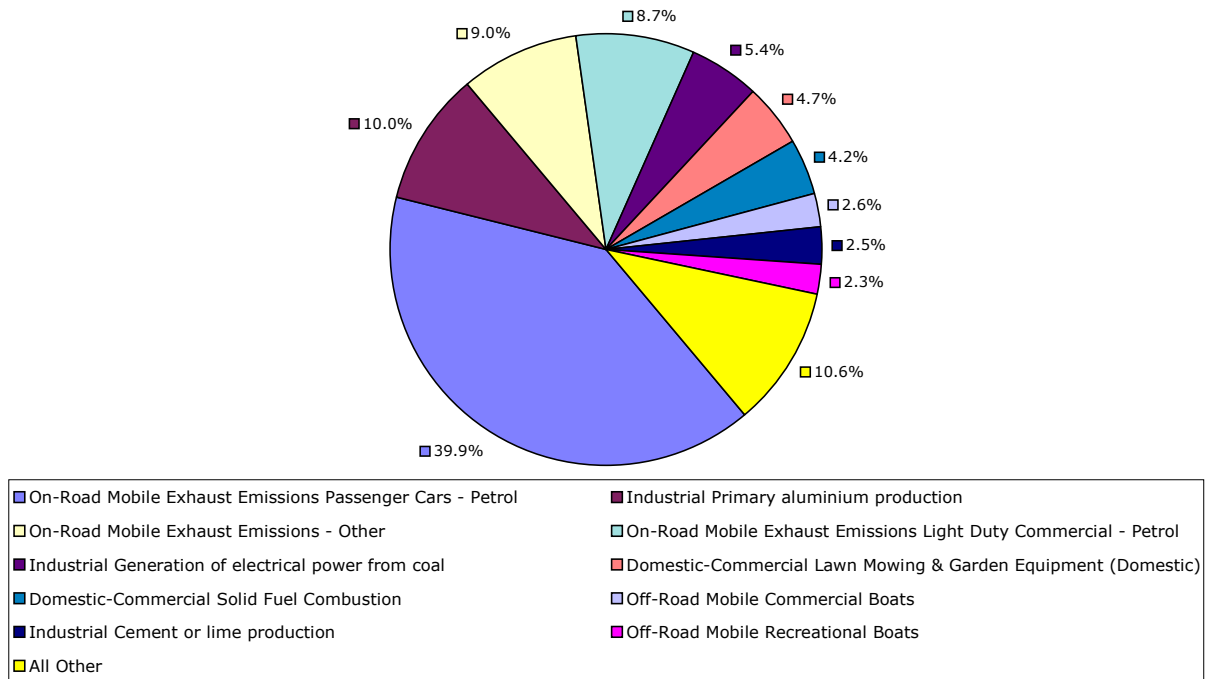


Figure ES14 Ten largest anthropogenic sources of carbon monoxide emissions in the Non-Urban region

Table ES7 shows the ten largest anthropogenic sources of lead and compounds emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES7 Ten largest anthropogenic sources of lead and compounds

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	50.364	62.2	62.2
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	8.183	10.1	72.3
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	4.216	5.21	77.6
Industrial	Primary iron and steel production	3.852	4.76	82.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	2.881	3.56	85.9
Industrial	Production of container glass	2.280	2.82	88.7
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1.440	1.78	90.5
Industrial	Coal mining	1.416	1.75	92.2
Industrial	Generation of electrical power from coal	1.033	1.28	93.5
Industrial	Battery production	0.952	1.18	94.7
All	Other	4.312	5.33	100.0
Sydney				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	11.181	38.5	38.5
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	6.715	23.1	61.6
Industrial	Production of container glass	2.280	7.85	69.5
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1.958	6.74	76.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	1.838	6.33	82.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1.128	3.88	86.4
Industrial	Battery production	0.952	3.28	89.7
Industrial	Secondary non-ferrous production (excluding aluminium)	0.723	2.49	92.2
On-Road Mobile	Exhaust Emissions - Other	0.524	1.81	94.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.388	1.34	95.3
All	Other	1.357	4.67	100.0
Newcastle				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1.209	50.3	50.3
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	0.424	17.6	67.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	0.219	9.12	77.0
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	0.150	6.26	83.2
Industrial	Primary aluminium production	0.103	4.28	87.5
Industrial	Secondary iron and steel production	0.092	3.80	91.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	0.081	3.36	94.7
On-Road Mobile	Exhaust Emissions - Other	0.036	1.51	96.2
Industrial	Coal mining	0.033	1.36	97.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.016	0.68	98.2
All	Other	0.043	1.77	100.0

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
Industrial	Primary iron and steel production	3.825	58.9	58.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1.813	27.9	86.8
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	0.267	4.11	90.9
Industrial	Coke production	0.232	3.57	94.5
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial – Diesel	0.116	1.79	96.3
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	0.076	1.17	97.4
Industrial	Metal plating or coating works	0.058	0.89	98.3
On-Road Mobile	Exhaust Emissions Light Duty – Diesel	0.049	0.75	99.1
On-Road Mobile	Exhaust Emissions – Other	0.027	0.42	99.5
On-Road Mobile	Exhaust Emissions Light Duty Commercial – Petrol	0.013	0.20	99.7
All	Other	0.021	0.32	100.0
Non-Urban				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	36.161	84.1	84.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	2.083	4.85	89.0
Industrial	Coal mining	1.374	3.20	92.2
Industrial	Generation of electrical power from coal	1.033	2.40	94.6
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	0.777	1.81	96.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial – Diesel	0.657	1.53	97.9
Industrial	Cement or lime production	0.428	1.00	98.9
On-Road Mobile	Exhaust Emissions Light Duty – Diesel	0.183	0.43	99.3
On-Road Mobile	Exhaust Emissions – Other	0.135	0.31	99.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial – Petrol	0.055	0.13	99.8
All	Other	0.097	0.22	100.0

Figure ES15 shows the ten largest anthropogenic sources of lead and compounds emissions in the GMR.

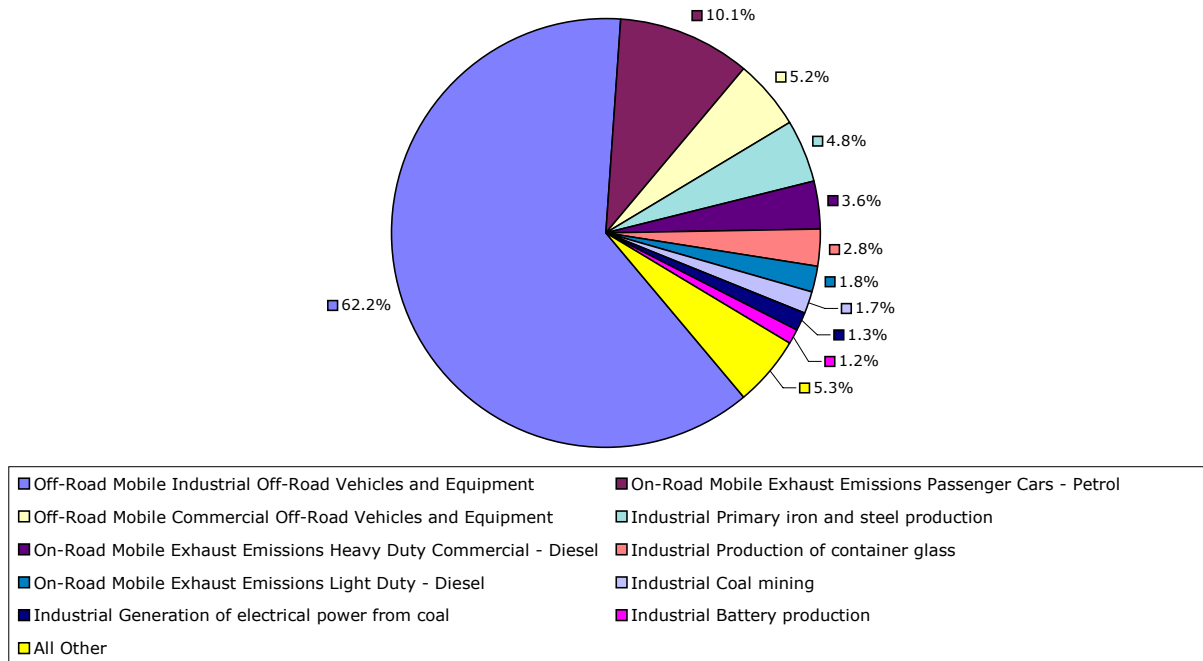


Figure ES15 Ten largest anthropogenic sources of lead and compounds emissions in the GMR

Figure ES16 shows the ten largest anthropogenic sources of lead and compounds emissions in the Sydney region.

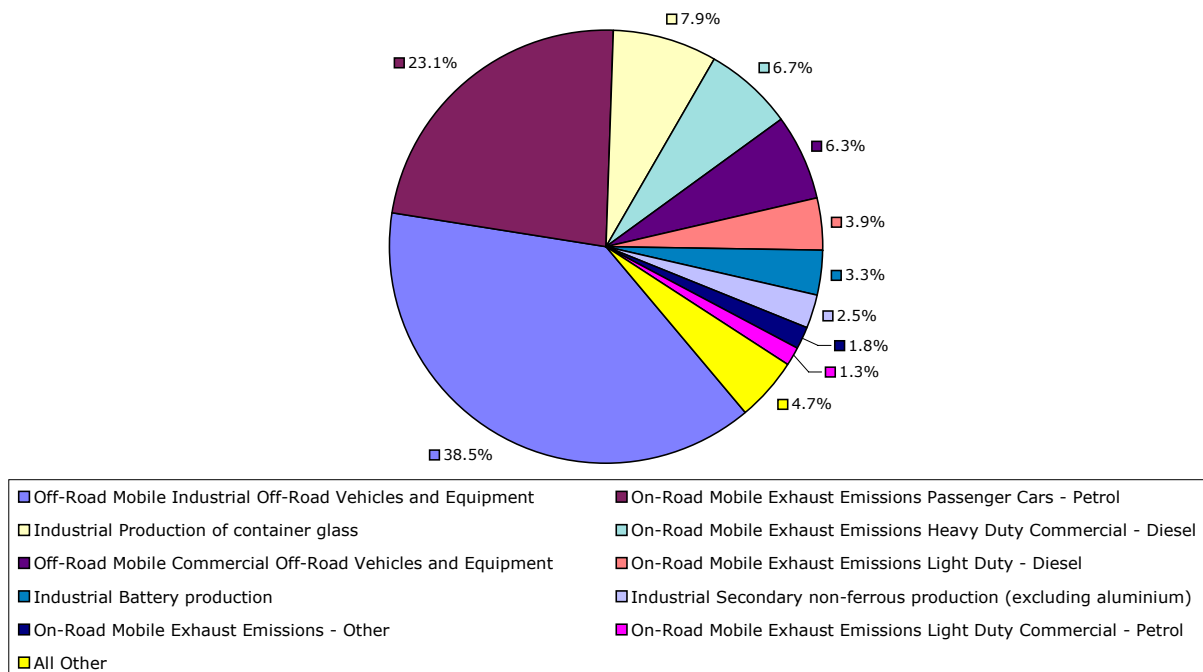


Figure ES16 Ten largest anthropogenic sources of lead and compounds emissions in the Sydney region

Figure ES17 shows the ten largest anthropogenic sources of lead and compounds emissions in the Newcastle region.

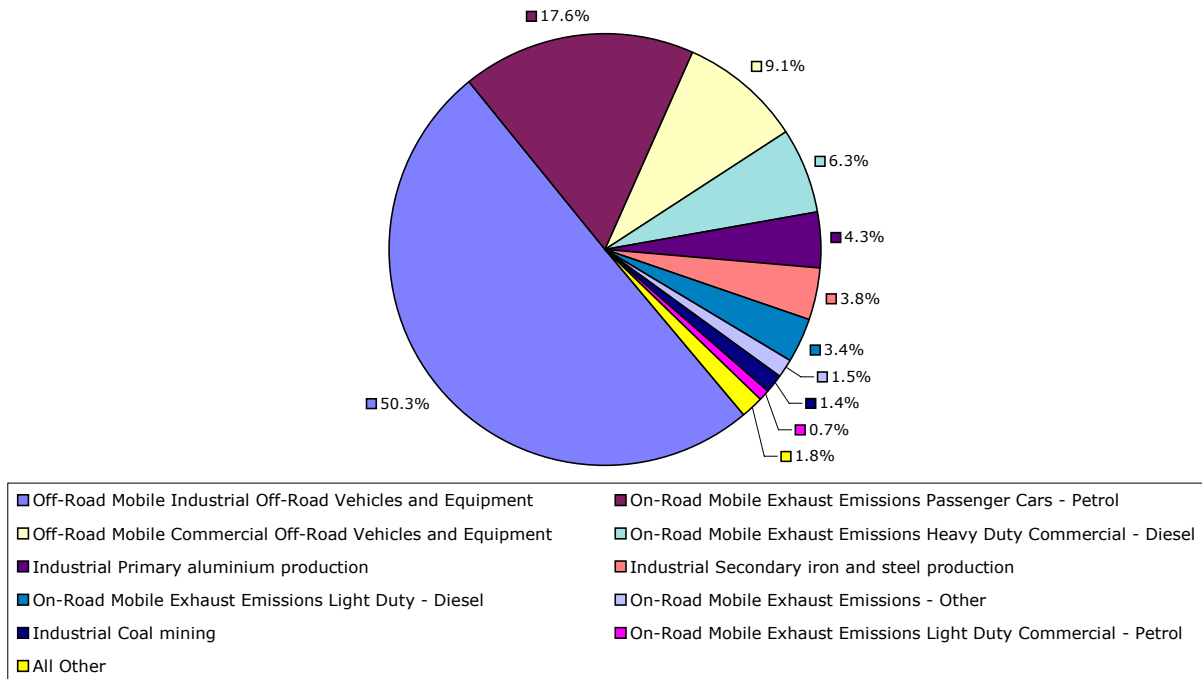


Figure ES17 Ten largest anthropogenic sources of lead and compounds emissions in the Newcastle region

Figure ES18 shows the ten largest anthropogenic sources of lead and compounds emissions in the Wollongong region.

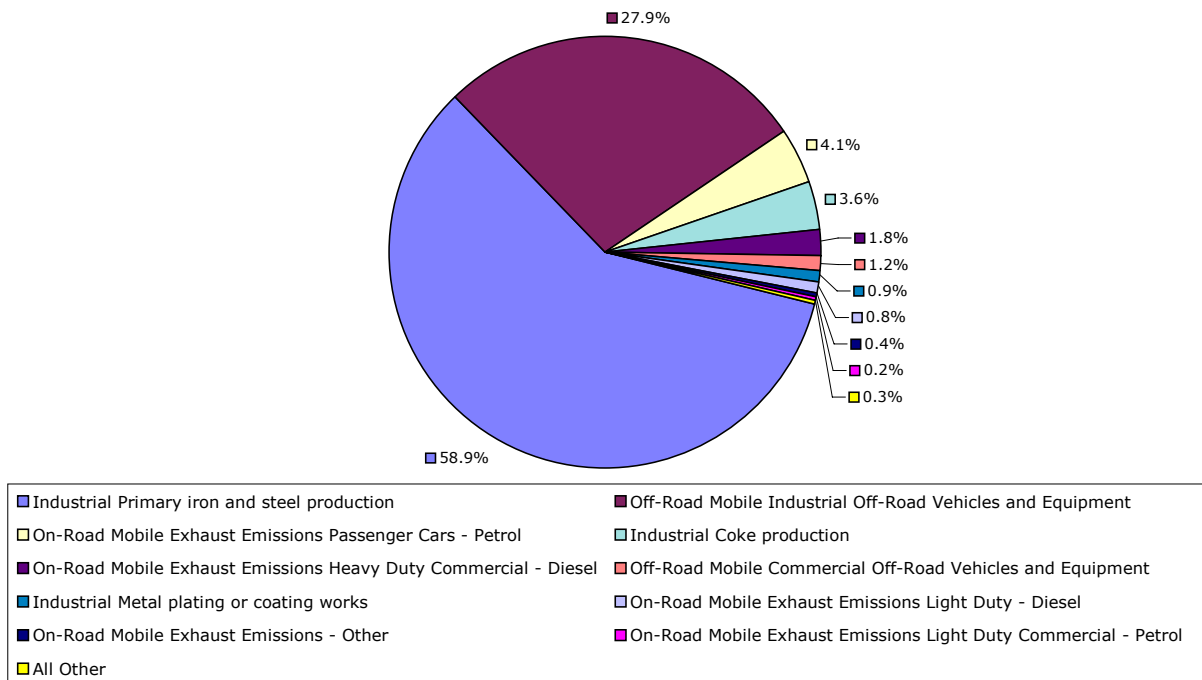


Figure ES18 Ten largest anthropogenic sources of lead and compounds emissions in the Wollongong region

Figure ES19 shows the ten largest anthropogenic sources of lead and compounds emissions in the Non-Urban region.

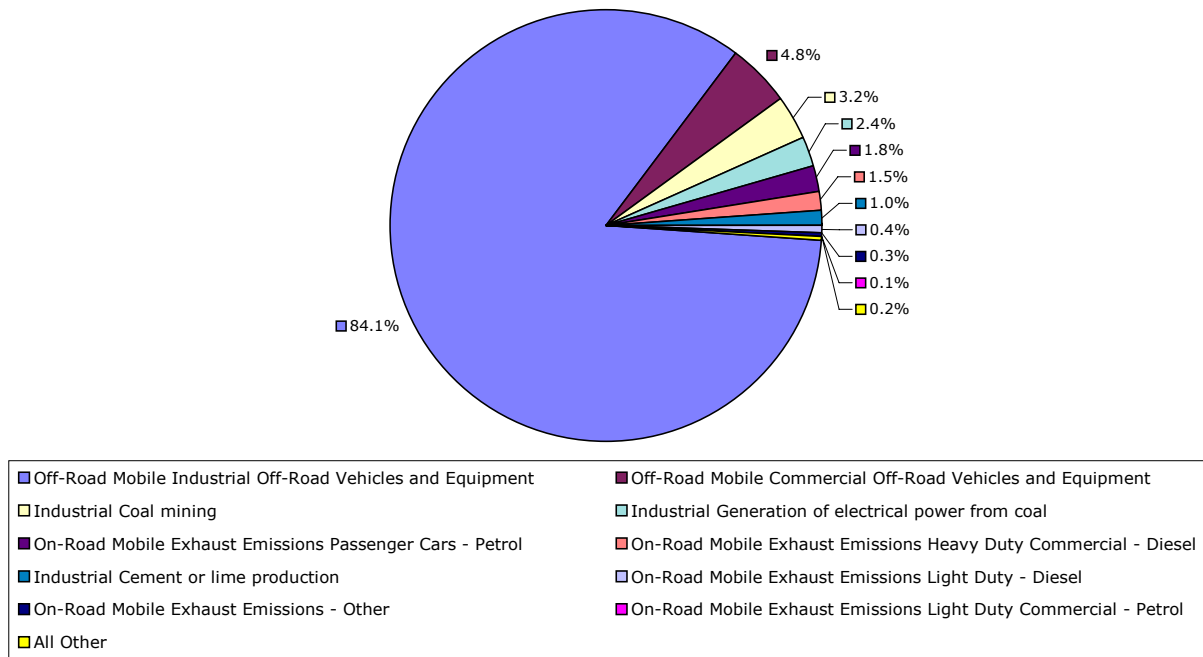


Figure ES19 Ten largest anthropogenic sources of lead and compounds emissions in the Non-Urban region

Table ES8 shows the ten largest anthropogenic sources of oxides of nitrogen emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES8 Ten largest anthropogenic sources of oxides of nitrogen

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Generation of electrical power from coal	145,440	49.8	49.8
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	49,011	16.8	66.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	25,289	8.66	75.2
Industrial	Primary iron and steel production	7,827	2.68	77.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	6,800	2.33	80.2
Off-Road Mobile	Commercial Ships	6,176	2.11	82.4
Industrial	Cement or lime production	6,115	2.09	84.5
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	5,851	2.00	86.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	5,287	1.81	88.3
Off-Road Mobile	Railways	3,350	1.15	89.4
All	Other	30,908	10.6	100.0
Sydney				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	38,175	41.2	41.2
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	16,908	18.2	59.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	4,534	4.89	64.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	4,245	4.58	68.8
Off-Road Mobile	Aircraft	3,218	3.47	72.3
Industrial	Petroleum refining	2,789	3.01	75.3
Industrial	Generation of electrical power from gas	2,681	2.89	78.2
On-Road Mobile	Exhaust Emissions - Other	2,135	2.30	80.5
Industrial	Production of container glass	1,609	1.73	82.2
Off-Road Mobile	Railways	1,608	1.73	84.0
All	Other	14,866	16.0	100.0
Newcastle				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	2,952	29.9	29.9
Off-Road Mobile	Commercial Ships	2,409	24.4	54.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1,340	13.6	67.9
Industrial	Production of ammonium nitrate	1,056	10.7	78.6
Industrial	Primary aluminium production	296	3.00	81.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	265	2.69	84.3
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	217	2.20	86.5
On-Road Mobile	Exhaust Emissions - Other	173	1.76	88.3
Off-Road Mobile	Railways	168	1.70	90.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	163	1.65	91.6
All	Other	825	8.37	100.0

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
Industrial	Primary iron and steel production	7,826	63.6	63.6
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	1,743	14.2	77.8
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial – Diesel	1,067	8.68	86.5
Off-Road Mobile	Commercial Ships	432	3.52	90.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	245	1.99	92.0
On-Road Mobile	Exhaust Emissions Light Duty – Diesel	170	1.38	93.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial – Petrol	164	1.33	94.7
Off-Road Mobile	Railways	137	1.12	95.8
On-Road Mobile	Exhaust Emissions – Other	112	0.91	96.7
Commercial	Hospitals (Except Psychiatric Hospitals)	84.673	0.69	97.4
All	Other	318	2.59	100.0
Non-Urban				
Industrial	Generation of electrical power from coal	145,440	82.1	82.1
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	6,142	3.47	85.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial – Diesel	5,974	3.37	89.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	4,882	2.76	91.7
Industrial	Cement or lime production	4,778	2.70	94.4
Off-Road Mobile	Commercial Ships	1,729	0.98	95.4
Off-Road Mobile	Commercial Boats	1,452	0.82	96.2
Off-Road Mobile	Railways	1,437	0.81	97.0
Industrial	Coal mining	1,336	0.75	97.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial – Petrol	937	0.53	98.3
All	Other	3,016	1.70	100.0

Figure ES20 shows the ten largest anthropogenic sources of oxides of nitrogen emissions in the GMR.

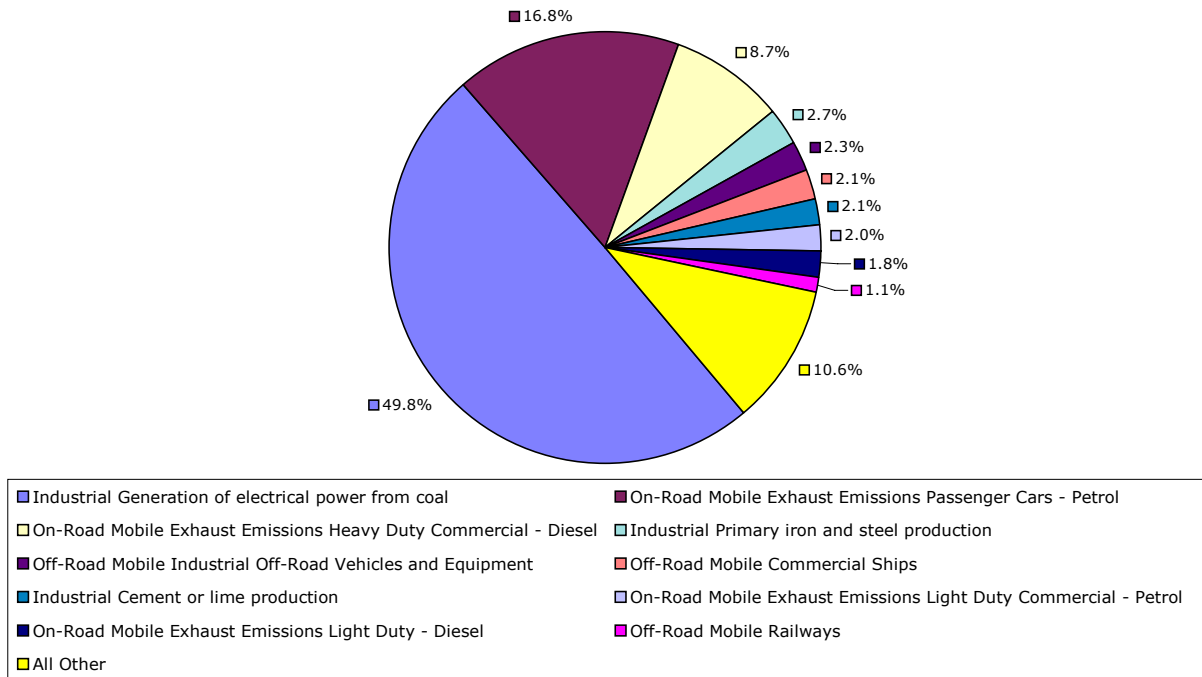


Figure ES20 Ten largest anthropogenic sources of oxides of nitrogen emissions in the GMR

Figure ES21 shows the ten largest anthropogenic sources of oxides of nitrogen emissions in the Sydney region.

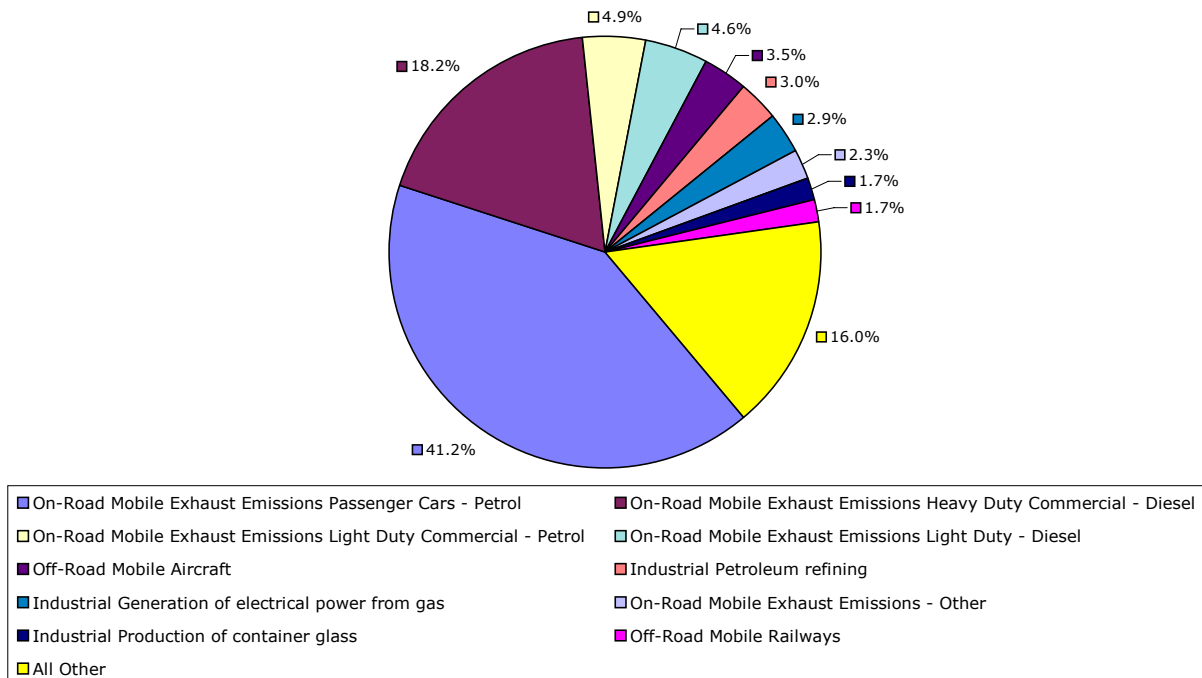


Figure ES21 Ten largest anthropogenic sources of oxides of nitrogen emissions in the Sydney region

Figure ES22 shows the ten largest anthropogenic sources of oxides of nitrogen emissions in the Newcastle region.

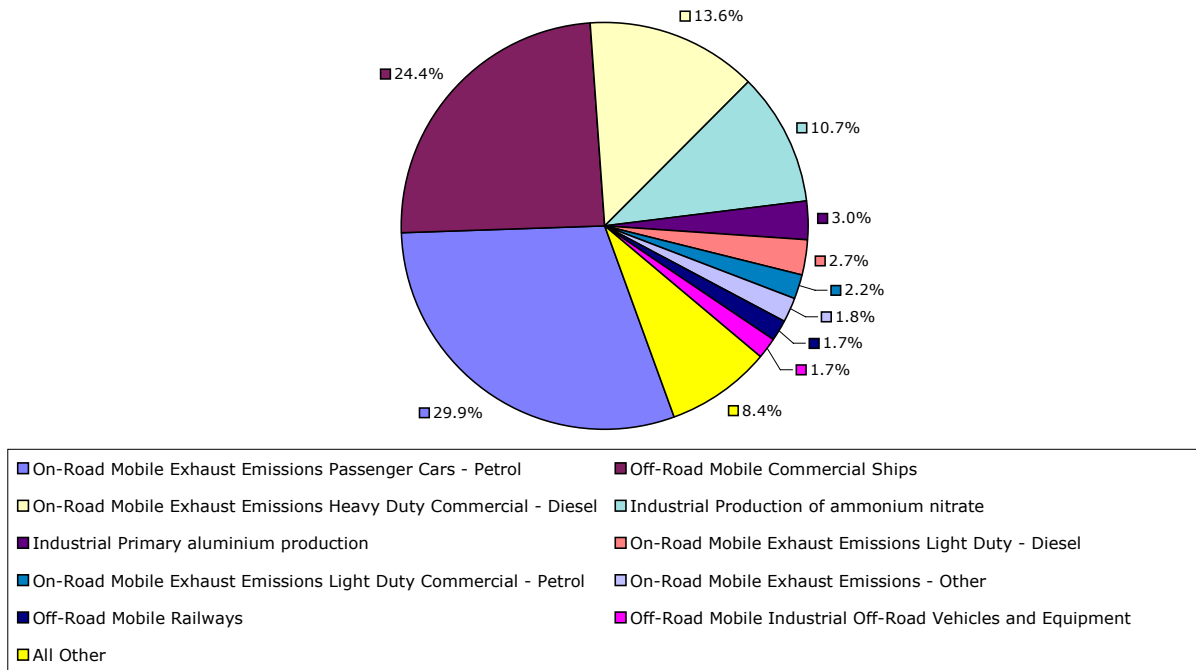


Figure ES22 Ten largest anthropogenic sources of oxides of nitrogen emissions in the Newcastle region

Figure ES23 shows the ten largest anthropogenic sources of oxides of nitrogen emissions in the Wollongong region.

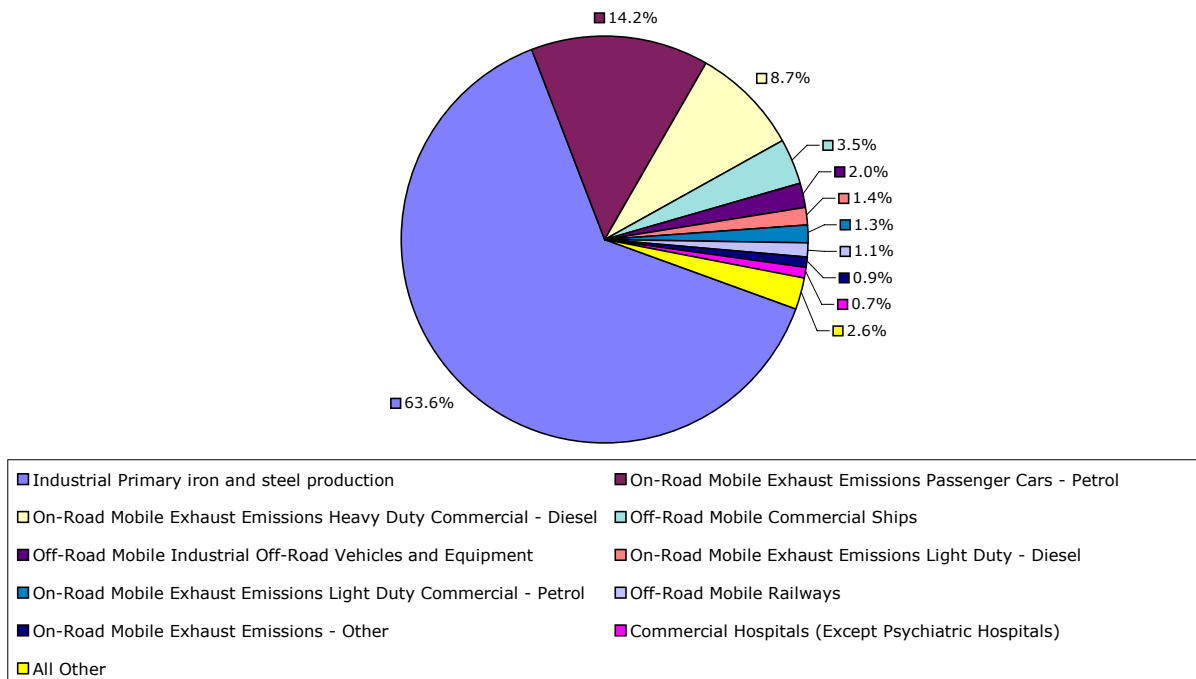
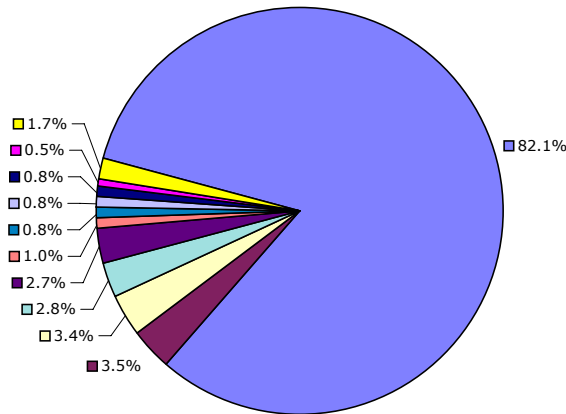


Figure ES23 Ten largest anthropogenic sources of oxides of nitrogen emissions in the Wollongong region

Figure ES24 shows the ten largest anthropogenic sources of oxides of nitrogen emissions in the Non-Urban region.



Industrial Generation of electrical power from coal	On-Road Mobile Exhaust Emissions Passenger Cars - Petrol
On-Road Mobile Exhaust Emissions Heavy Duty Commercial - Diesel	Off-Road Mobile Industrial Off-Road Vehicles and Equipment
Industrial Cement or lime production	Off-Road Mobile Commercial Ships
Off-Road Mobile Commercial Boats	Off-Road Mobile Railways
Industrial Coal mining	On-Road Mobile Exhaust Emissions Light Duty Commercial - Petrol
All Other	

Figure ES24 Ten largest anthropogenic sources of oxides of nitrogen emissions in the Non-Urban region

Table ES9 shows the ten largest anthropogenic sources of particulate matter < 10 µm emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES9 Ten largest anthropogenic sources of particulate matter < 10 µm

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Coal mining	25,256	33.6	33.6
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	12,584	16.8	50.4
Domestic-Commercial	Solid Fuel Combustion	6,172	8.22	58.6
Industrial	Generation of electrical power from coal	4,816	6.41	65.0
Industrial	Other land-based extraction	3,472	4.62	69.6
Industrial	Crushing, grinding or separating works	2,513	3.34	73.0
Commercial	Poultry Farming (Meat)	1,841	2.45	75.4
Industrial	Hard-rock gravel quarrying	1,687	2.25	77.7
Industrial	Primary iron and steel production	1,620	2.16	79.8
Commercial	Gravel and Sand Quarrying	1,252	1.67	81.5
All	Other	13,915	18.5	100.0
Sydney				
Domestic-Commercial	Solid Fuel Combustion	4,642	21.8	21.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	2,794	13.1	34.9
Industrial	Crushing, grinding or separating works	2,051	9.63	44.5
Industrial	Other land-based extraction	1,768	8.30	52.8
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	867	4.07	56.9
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	866	4.06	61.0
Industrial	Ceramics production (excluding glass)	841	3.95	64.9
Commercial	Poultry Farming (Meat)	831	3.90	68.8
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	702	3.29	72.1
Commercial	Gravel and Sand Quarrying	560	2.63	74.7
All	Other	5,383	25.3	100.0
Newcastle				
Industrial	Coal mining	494	16.8	16.8
Domestic-Commercial	Solid Fuel Combustion	393	13.3	30.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	302	10.2	40.3
Industrial	Production of ammonium nitrate	210	7.13	47.5
Industrial	Hard-rock gravel quarrying	158	5.37	52.8
Industrial	Primary aluminium production	153	5.20	58.0
Industrial	Bitumen pre-mix or hotmix production	129	4.38	62.4
Industrial	Crushing, grinding or separating works	93,085	3.16	65.6
Off-Road Mobile	Commercial Ships	83,227	2.82	68.4
Commercial	Gravel and Sand Quarrying	80,570	2.73	71.1
All	Other	851	28.9	100.0

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
Industrial	Primary iron and steel production	1,618	53.3	53.3
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	453	14.9	68.3
Domestic-Commercial	Solid Fuel Combustion	256	8.44	76.7
Industrial	Coal loading	180	5.94	82.6
Industrial	Coal mining	65,076	2.15	84.8
Industrial	Coal washery reject or slag landfilling	56,748	1.87	86.7
Industrial	Inert waste landfilling	44,668	1.47	88.1
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	41,731	1.38	89.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	37,628	1.24	90.7
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	34,438	1.14	91.9
All	Other	246	8.12	100.0
Non-Urban				
Industrial	Coal mining	24,587	51.4	51.4
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	9,036	18.9	70.3
Industrial	Generation of electrical power from coal	4,816	10.1	80.3
Industrial	Other land-based extraction	1,639	3.43	83.8
Industrial	Hard-rock gravel quarrying	1,404	2.93	86.7
Commercial	Poultry Farming (Meat)	953	1.99	88.7
Domestic-Commercial	Solid Fuel Combustion	881	1.84	90.5
Commercial	Gravel and Sand Quarrying	578	1.21	91.7
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	572	1.20	92.9
Industrial	Solid waste landfilling	392	0.82	93.8
All	Other	2,984	6.24	100.0

Figure ES25 shows the ten largest anthropogenic sources of particulate matter < 10 µm emissions in the GMR.

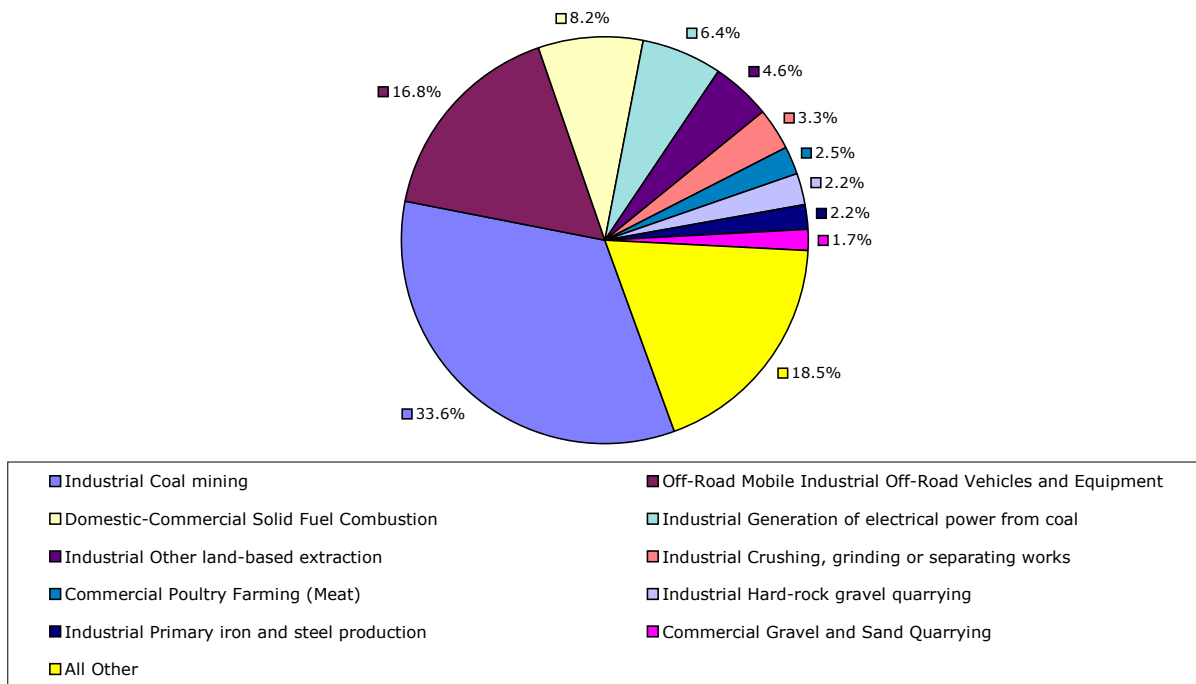


Figure ES25 Ten largest anthropogenic sources of particulate matter < 10 µm emissions in the GMR

Figure ES26 shows the ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Sydney region.

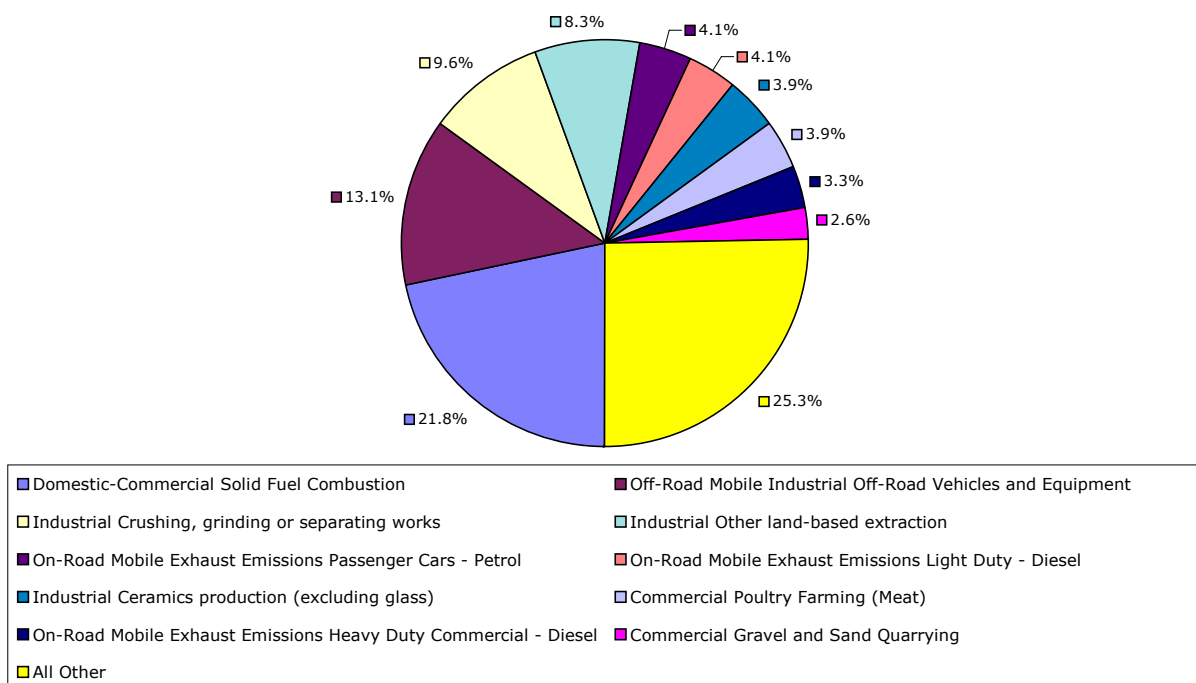


Figure ES26 Ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Sydney region

Figure ES27 shows the ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Newcastle region.

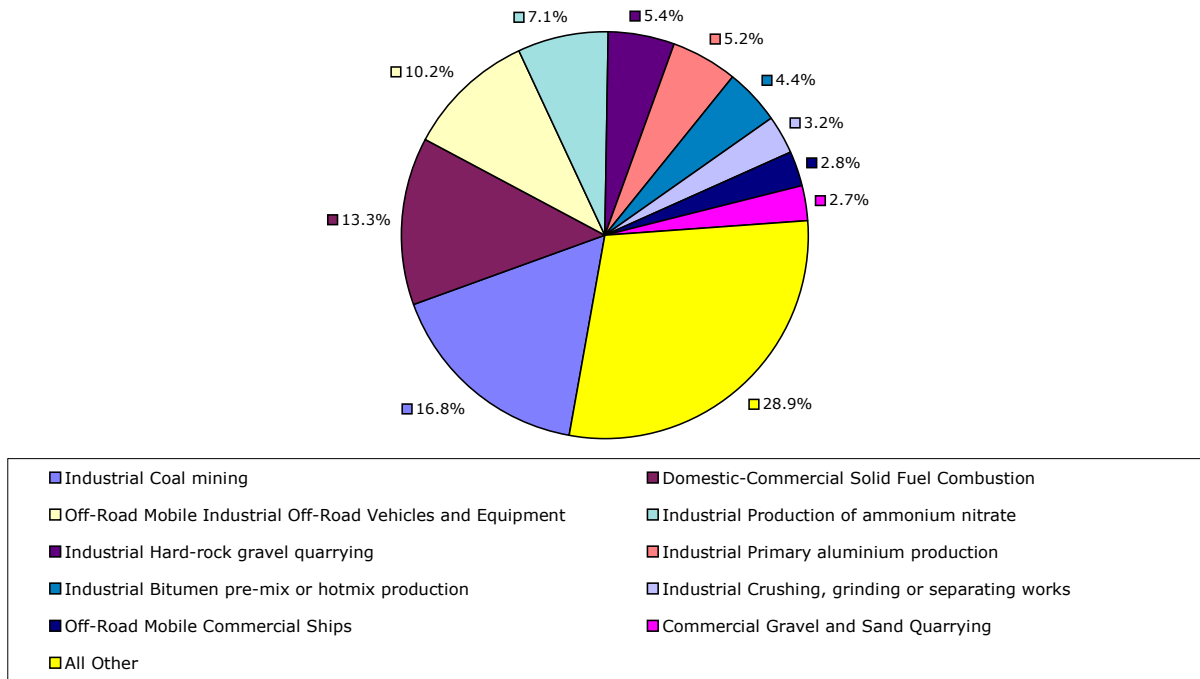


Figure ES27 Ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Newcastle region

Figure ES28 shows the ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Wollongong region.

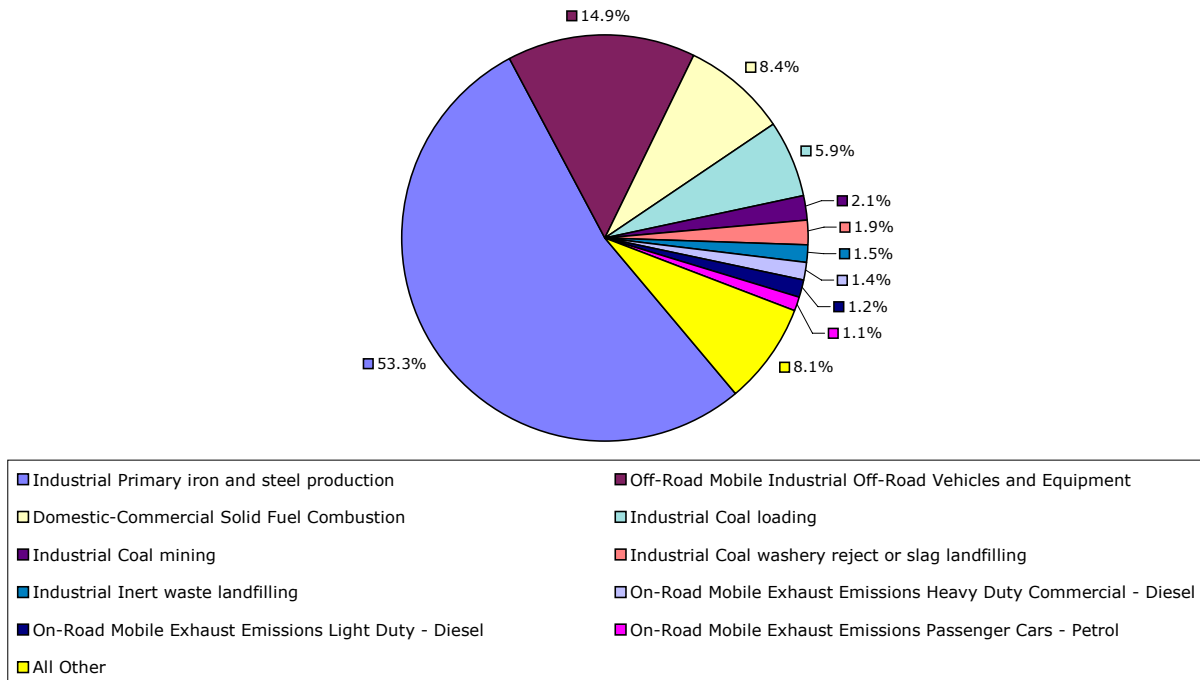


Figure ES28 Ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Wollongong region

Figure ES29 shows the ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Non-Urban region.

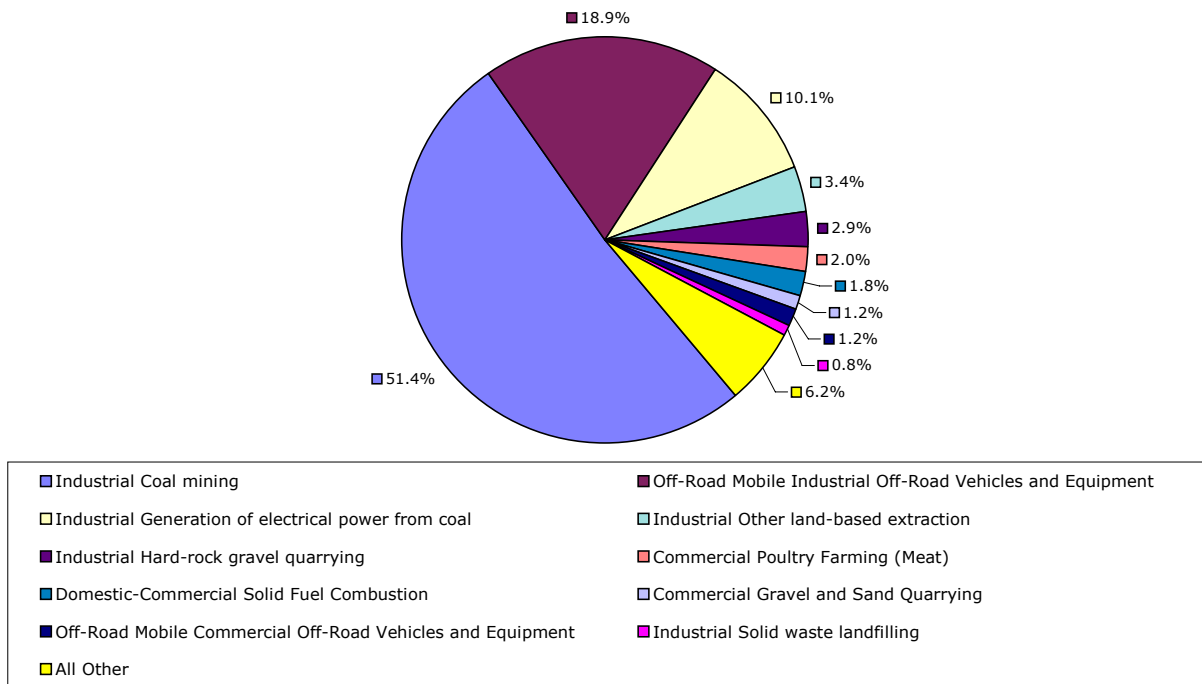


Figure ES29 Ten largest anthropogenic sources of particulate matter < 10 µm emissions in the Non-Urban region

Table ES10 shows the ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES10 Ten largest anthropogenic sources of particulate matter < 2.5 µm

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Domestic-Commercial	Solid Fuel Combustion	5,986	19.6	19.6
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	5,191	17.0	36.6
Industrial	Coal mining	4,154	13.6	50.3
Industrial	Generation of electrical power from coal	1,708	5.60	55.9
Industrial	Primary iron and steel production	1,444	4.73	60.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1,073	3.52	64.1
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1,002	3.28	67.4
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	972	3.19	70.6
Industrial	Crushing, grinding or separating works	918	3.01	73.6
Industrial	Other land-based extraction	799	2.62	76.2
All	Other	7,253	23.8	100.0
Sydney				
Domestic-Commercial	Solid Fuel Combustion	4,503	34.3	34.3
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1,152	8.78	43.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	840	6.40	49.5
Industrial	Crushing, grinding or separating works	807	6.15	55.6
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	797	6.08	61.7
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	681	5.19	66.9
Industrial	Ceramics production (excluding glass)	606	4.62	71.5
Industrial	Other land-based extraction	418	3.18	74.7
Commercial	Poultry Farming (Meat)	237	1.81	76.5
Industrial	Petroleum refining	237	1.80	78.3
All	Other	2,848	21.7	100.0
Newcastle				
Domestic-Commercial	Solid Fuel Combustion	381	22.6	22.6
Industrial	Production of ammonium nitrate	207	12.3	34.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	125	7.39	42.2
Industrial	Bitumen pre-mix or hotmix production	114	6.78	49.0
Industrial	Primary aluminium production	111	6.56	55.6
Off-Road Mobile	Commercial Ships	79.627	4.72	60.3
Industrial	Production of phosphate fertilizer	77.586	4.60	64.9
Industrial	Coal mining	70.989	4.21	69.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	60.125	3.56	72.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	52.316	3.10	75.7
All	Other	409	24.3	100.0

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
Industrial	Primary iron and steel production	1,442	65.8	65.8
Domestic-Commercial	Solid Fuel Combustion	248	11.3	77.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	187	8.52	85.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	40,480	1.85	87.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	36,499	1.66	89.1
Industrial	Coke production	33,407	1.52	90.6
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	31,683	1.44	92.1
Industrial	Coal loading	19,440	0.89	93.0
Off-Road Mobile	Commercial Ships	14,292	0.65	93.6
Industrial	Coal mining	13,595	0.62	94.2
All	Other	126	5.76	100.0
Non-Urban				
Industrial	Coal mining	4,056	30.1	30.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	3,727	27.6	57.7
Industrial	Generation of electrical power from coal	1,708	12.7	70.3
Domestic-Commercial	Solid Fuel Combustion	855	6.33	76.7
Industrial	Other land-based extraction	368	2.73	79.4
Industrial	Hard-rock gravel quarrying	360	2.67	82.1
Commercial	Poultry Farming (Meat)	272	2.02	84.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	261	1.93	86.0
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	228	1.69	87.7
Industrial	Primary aluminium production	202	1.50	89.2
All	Other	1,456	10.8	100.0

Figure ES30 shows the ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the GMR.

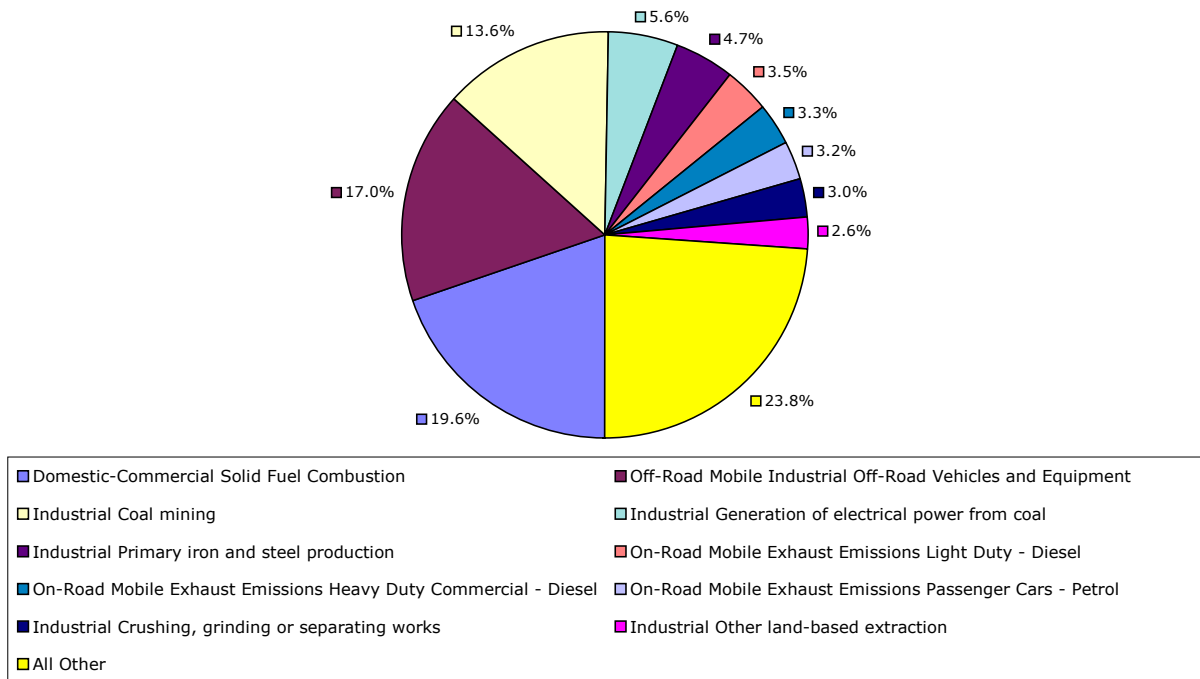


Figure ES30 Ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the GMR

Figure ES31 shows the ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Sydney region.

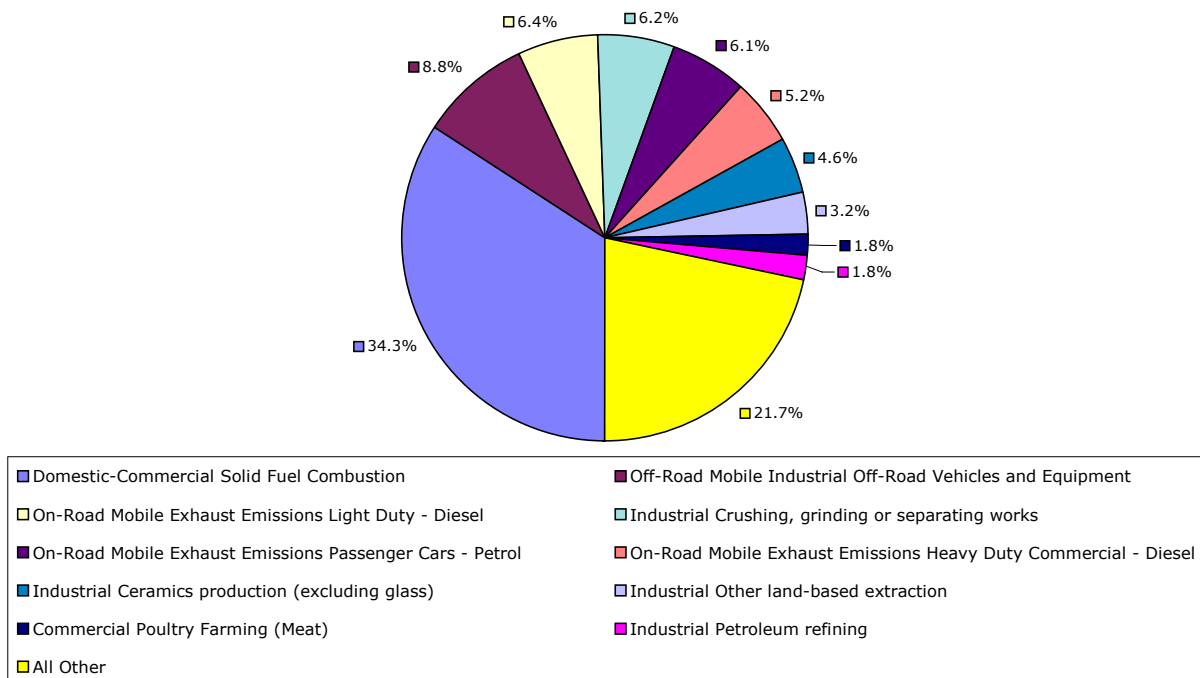


Figure ES31 Ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Sydney region

Figure ES32 shows the ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Newcastle region.

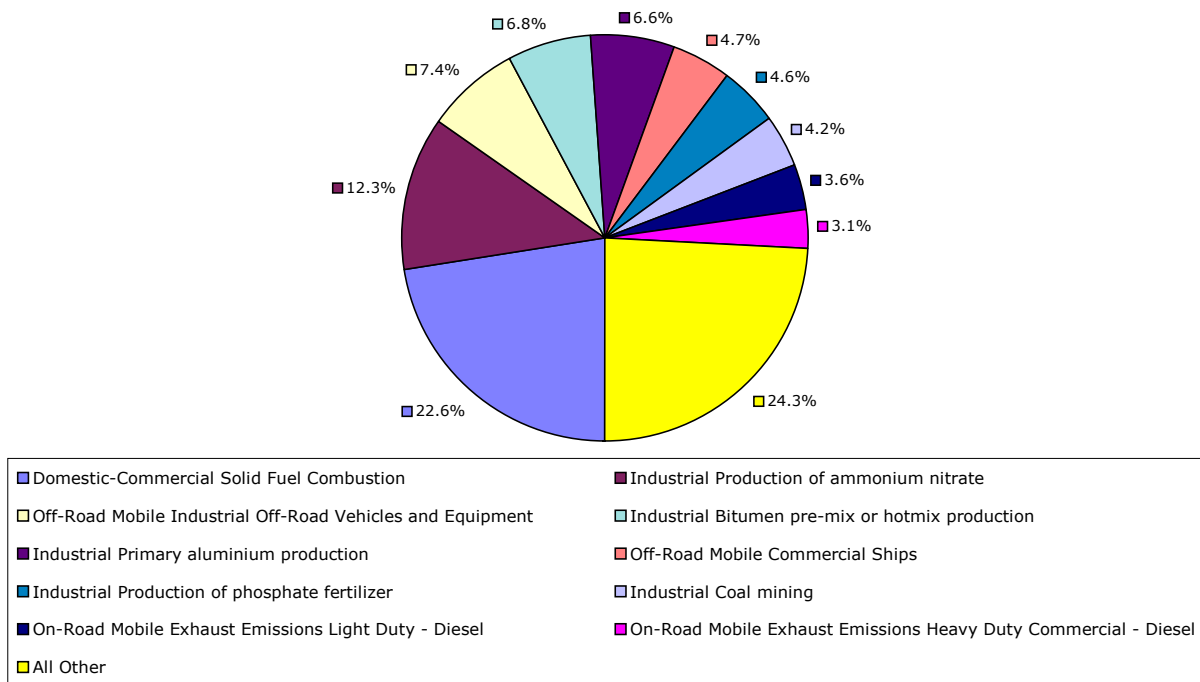


Figure ES32 Ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Newcastle region

Figure ES33 shows the ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Wollongong region.

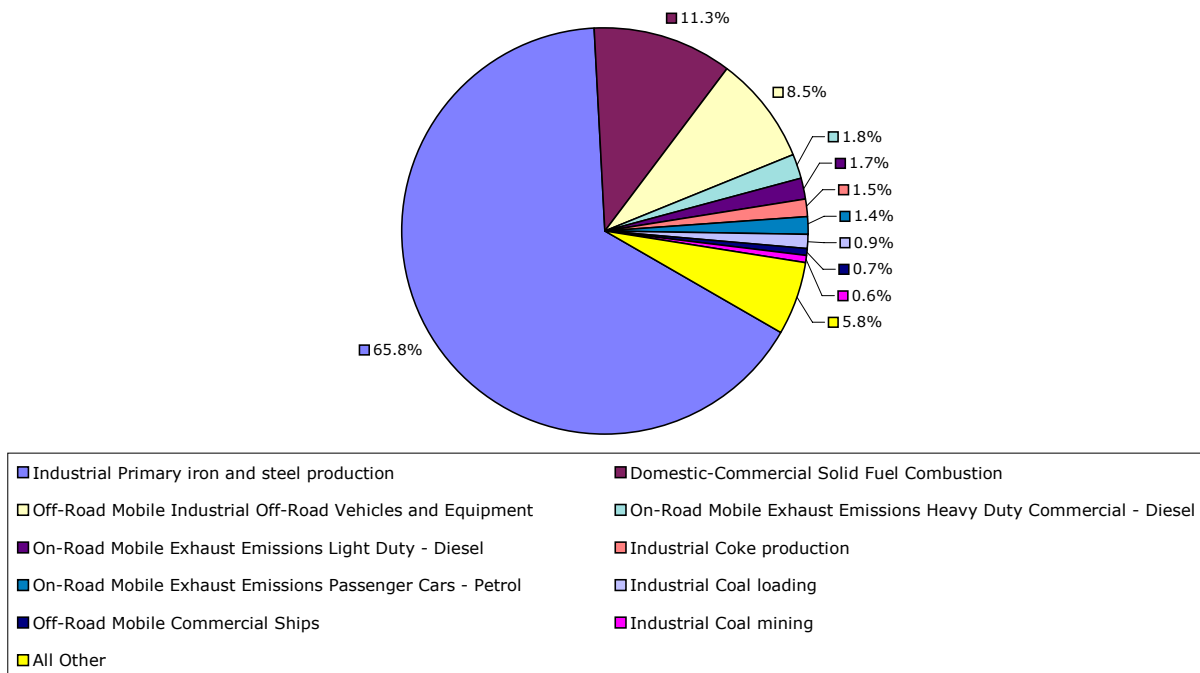


Figure ES33 Ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Wollongong region

Figure ES34 shows the ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Non-Urban region.

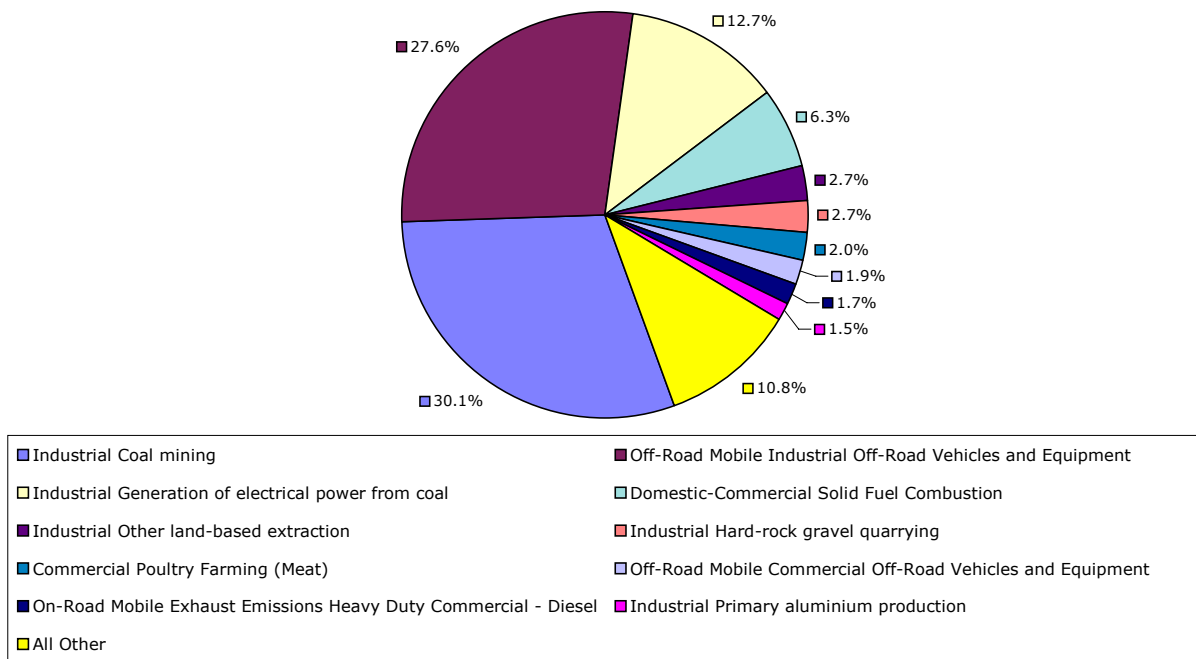


Figure ES34 Ten largest anthropogenic sources of particulate matter < 2.5 µm emissions in the Non-Urban region

Table ES11 shows the ten largest anthropogenic sources of sulfur dioxide emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES11 Ten largest anthropogenic sources of sulfur dioxide

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Generation of electrical power from coal	261,317	86.6	86.6
Industrial	Primary aluminium production	12,589	4.17	90.7
Industrial	Primary iron and steel production	9,972	3.30	94.0
Industrial	Petroleum refining	6,953	2.30	96.3
Off-Road Mobile	Commercial Ships	3,148	1.04	97.4
Industrial	Storage of Petroleum and/or Petroleum Products	1,397	0.46	97.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	821	0.27	98.1
Industrial	Ceramics production (excluding glass)	690	0.23	98.4
Industrial	Production of container glass	646	0.21	98.6
Industrial	Coke production	553	0.18	98.7
All	Other	3,776	1.25	100.0
Sydney				
Industrial	Petroleum refining	6,953	50.5	50.5
Industrial	Storage of Petroleum and/or Petroleum Products	1,397	10.1	60.7
Off-Road Mobile	Commercial Ships	818	5.95	66.6
Industrial	Production of container glass	646	4.69	71.3
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	645	4.69	76.0
Industrial	Ceramics production (excluding glass)	522	3.79	79.8
Industrial	Petrochemical production	357	2.60	82.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	288	2.09	84.5
Industrial	Coke production	287	2.09	86.6
Industrial	Crushing, grinding or separating works	257	1.87	88.4
All	Other	1,593	11.6	100.0
Newcastle				
Industrial	Primary aluminium production	9,156	85.8	85.8
Off-Road Mobile	Commercial Ships	1,228	11.5	97.3
Industrial	Animal slaughtering	75.858	0.71	98.0
Industrial	Other chemical processing	52.787	0.49	98.5
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	51.490	0.48	99.0
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	23.706	0.22	99.2
Off-Road Mobile	Railways	23.413	0.22	99.4
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	18.499	0.17	99.6
Industrial	Primary non-ferrous production (excluding aluminium)	8.442	0.08	99.7
Domestic-Commercial	Solid Fuel Combustion	6.145	0.06	99.7
All	Other	28.519	0.27	100.0

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
Industrial	Primary iron and steel production	9,972	94.0	94.0
Industrial	Coke production	266	2.51	96.5
Off-Road Mobile	Commercial Ships	220	2.08	98.6
Industrial	Metal plating or coating works	30.121	0.28	98.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	29.384	0.28	99.2
Industrial	Production of phosphate fertilizer	20.720	0.20	99.4
Off-Road Mobile	Railways	19.198	0.18	99.5
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	15.945	0.15	99.7
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	10.968	0.10	99.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	7.011	0.07	99.9
All	Other	14.498	0.14	100.0
Non-Urban				
Industrial	Generation of electrical power from coal	261,317	97.9	97.9
Industrial	Primary aluminium production	3,433	1.29	99.2
Off-Road Mobile	Commercial Ships	881	0.33	99.6
Off-Road Mobile	Railways	201	0.08	99.6
Industrial	Cement or lime production	193	0.07	99.7
Industrial	Ceramics production (excluding glass)	168	0.06	99.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	140	0.05	99.8
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	97.738	0.04	99.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	95.640	0.04	99.9
Industrial	Coal mining	75.536	0.03	99.9
All	Other	218	0.08	100.0

Figure ES35 shows the ten largest anthropogenic sources of sulfur dioxide emissions in the GMR.

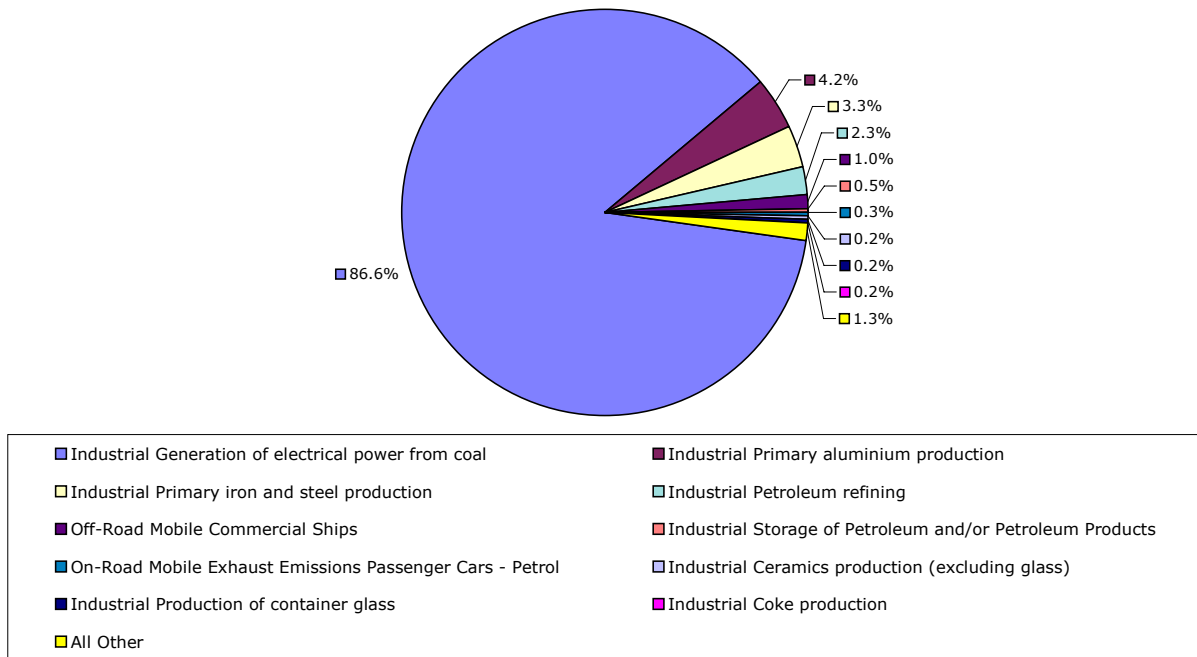


Figure ES35 Ten largest anthropogenic sources of sulfur dioxide emissions in the GMR

Figure ES36 shows the ten largest anthropogenic sources of sulfur dioxide emissions in the Sydney region.

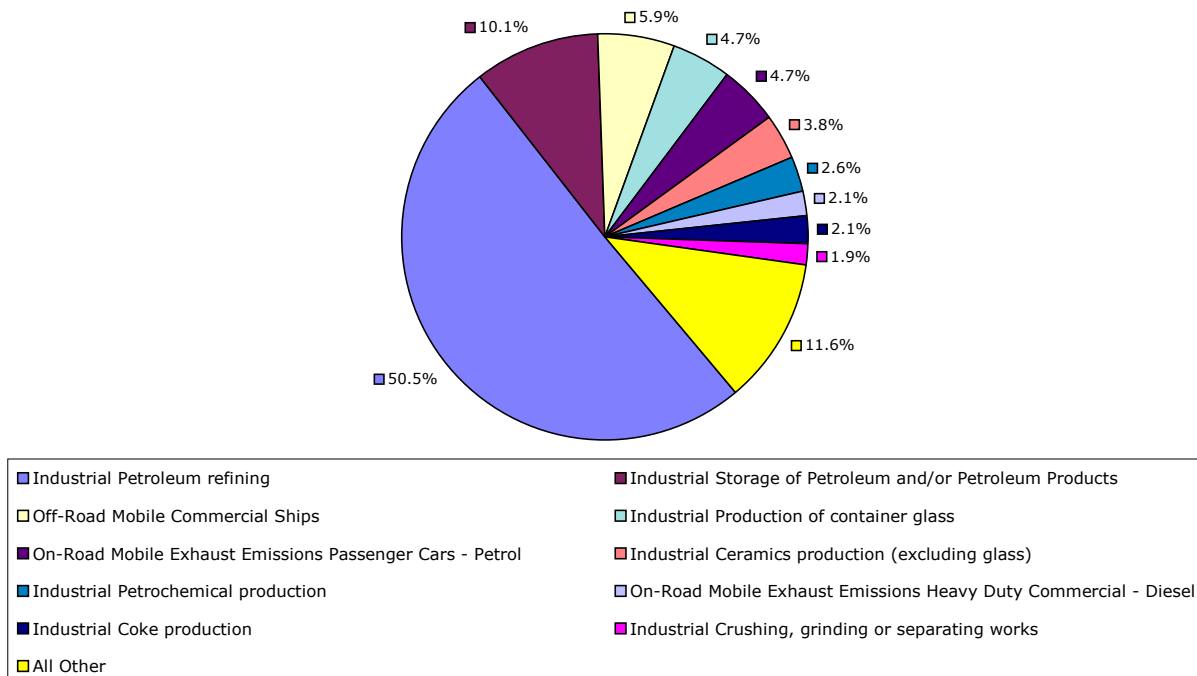


Figure ES36 Ten largest anthropogenic sources of sulfur dioxide emissions in the Sydney region

Figure ES37 shows the ten largest anthropogenic sources of sulfur dioxide emissions in the Newcastle region.

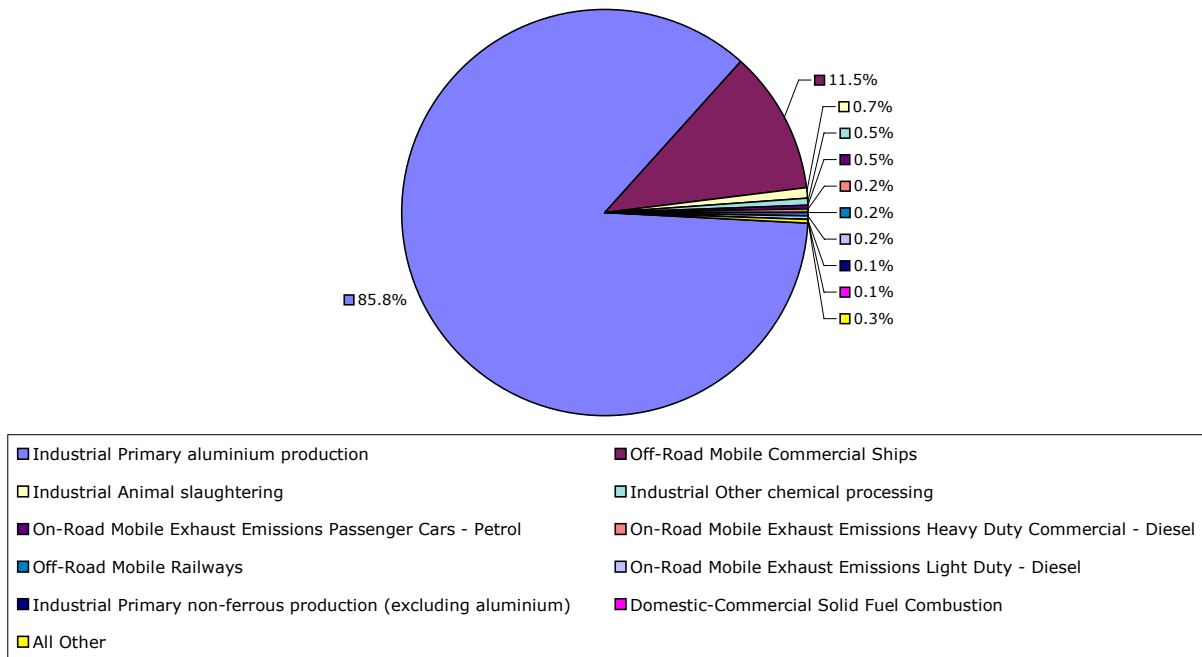


Figure ES37 Ten largest anthropogenic sources of sulfur dioxide emissions in the Newcastle region

Figure ES38 shows the ten largest anthropogenic sources of sulfur dioxide emissions in the Wollongong region.

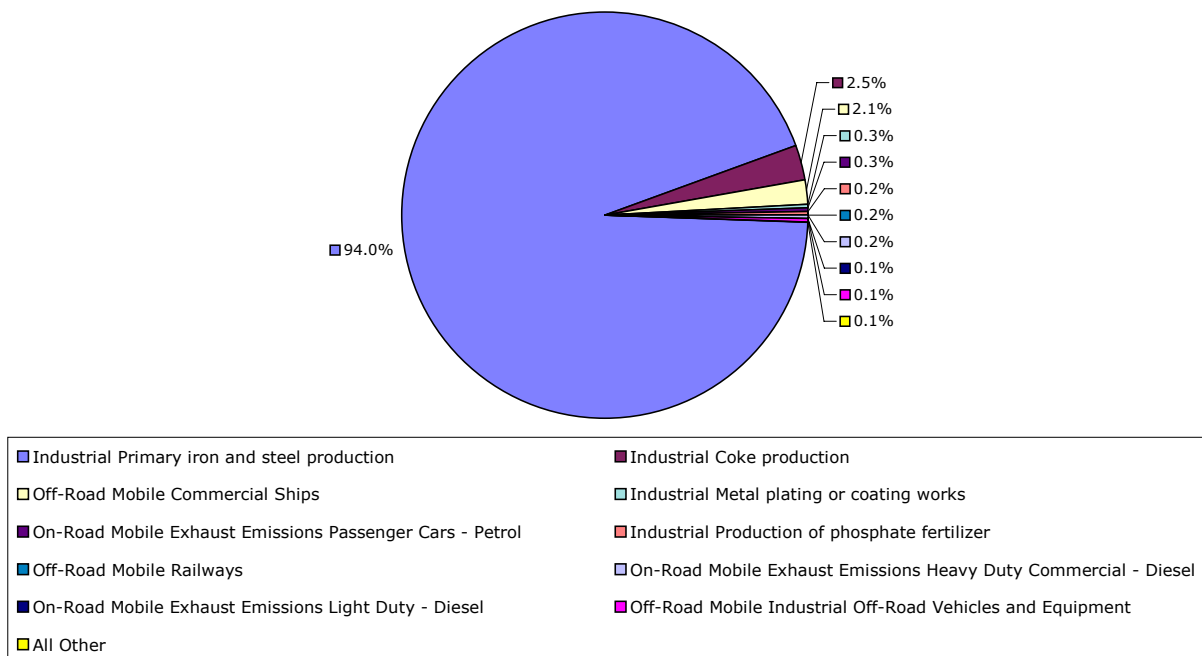
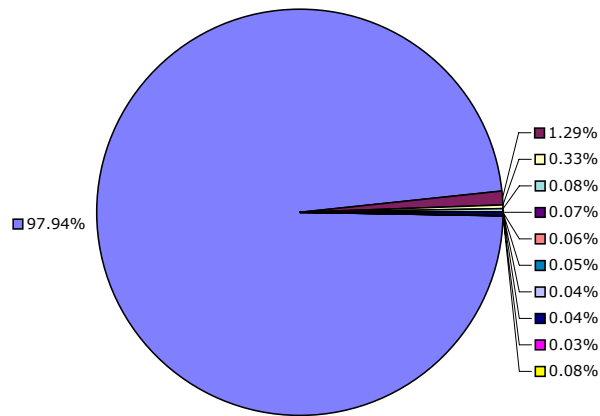


Figure ES38 Ten largest anthropogenic sources of sulfur dioxide emissions in the Wollongong region

Figure ES39 shows the ten largest anthropogenic sources of sulfur dioxide emissions in the Non-Urban region.



Industrial Generation of electrical power from coal	Industrial Primary aluminium production
Off-Road Mobile Commercial Ships	Off-Road Mobile Railways
Industrial Cement or lime production	Industrial Ceramics production (excluding glass)
Off-Road Mobile Industrial Off-Road Vehicles and Equipment	On-Road Mobile Exhaust Emissions Heavy Duty Commercial - Diesel
On-Road Mobile Exhaust Emissions Passenger Cars - Petrol	Industrial Coal mining
All Other	

Figure ES39 Ten largest anthropogenic sources of sulfur dioxide emissions in the Non-Urban region

Table ES12 shows the ten largest sources of total VOCs emissions in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table ES12 Ten largest anthropogenic sources of total VOCs

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	33,062	19.3	19.3
Domestic-Commercial	Aerosols and Solvents	26,220	15.3	34.7
Domestic-Commercial	Surface Coating	16,898	9.88	44.5
On-Road Mobile	Evaporative Emissions - Petrol	14,956	8.74	53.3
Domestic-Commercial	Solid Fuel Combustion	12,663	7.40	60.7
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	5,916	3.46	64.1
On-Road Mobile	Exhaust Emissions - Other	5,829	3.41	67.5
Commercial	Automotive Fuel Retailing	5,625	3.29	70.8
Commercial	Smash Repairing	5,445	3.18	74.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	5,419	3.17	77.2
All	Other	39,033	22.8	100.0
Sydney				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	26,066	19.9	19.9
Domestic-Commercial	Aerosols and Solvents	20,637	15.8	35.7
Domestic-Commercial	Surface Coating	13,112	10.0	45.7
On-Road Mobile	Evaporative Emissions - Petrol	11,783	9.01	54.7
Domestic-Commercial	Solid Fuel Combustion	9,524	7.28	62.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	4,627	3.54	65.5
Commercial	Smash Repairing	4,271	3.26	68.8
On-Road Mobile	Exhaust Emissions - Other	4,143	3.17	72.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	4,076	3.12	75.1
Commercial	Automotive Fuel Retailing	3,445	2.63	77.7
All	Other	29,149	22.3	100.0
Newcastle				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	1,925	19.8	19.8
Domestic-Commercial	Aerosols and Solvents	1,360	14.0	33.8
Domestic-Commercial	Surface Coating	911	9.37	43.1
On-Road Mobile	Evaporative Emissions - Petrol	872	8.96	52.1
Domestic-Commercial	Solid Fuel Combustion	805	8.28	60.4
Commercial	Automotive Fuel Retailing	427	4.39	64.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	345	3.54	68.3
On-Road Mobile	Exhaust Emissions - Other	316	3.25	71.6
Commercial	Smash Repairing	289	2.97	74.5
Industrial	Production of ammonium nitrate	265	2.73	77.3
All	Other	2,212	22.7	100.0

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Wollongong				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	1,133	17.6	17.6
Domestic-Commercial	Aerosols and Solvents	989	15.3	32.9
Domestic-Commercial	Surface Coating	660	10.2	43.1
Industrial	Primary iron and steel production	579	8.97	52.0
Domestic-Commercial	Solid Fuel Combustion	525	8.13	60.2
On-Road Mobile	Evaporative Emissions - Petrol	507	7.85	68.0
Commercial	Automotive Fuel Retailing	320	4.96	73.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	225	3.48	76.5
Commercial	Smash Repairing	210	3.25	79.7
On-Road Mobile	Exhaust Emissions - Other	206	3.20	82.9
All	Other	1,103	17.1	100.0
Non-Urban				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	3,937	16.4	16.4
Domestic-Commercial	Aerosols and Solvents	3,236	13.5	29.8
Domestic-Commercial	Surface Coating	2,215	9.21	39.0
Domestic-Commercial	Solid Fuel Combustion	1,808	7.52	46.6
On-Road Mobile	Evaporative Emissions - Petrol	1,795	7.46	54.0
Commercial	Automotive Fuel Retailing	1,433	5.96	60.0
On-Road Mobile	Exhaust Emissions - Other	1,163	4.83	64.8
Off-Road Mobile	Recreational Boats	1,077	4.48	69.3
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	895	3.72	73.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	774	3.22	76.2
All	Other	5,717	23.8	100.0

Figure ES40 shows the ten largest anthropogenic sources of total VOCs emissions in the GMR.

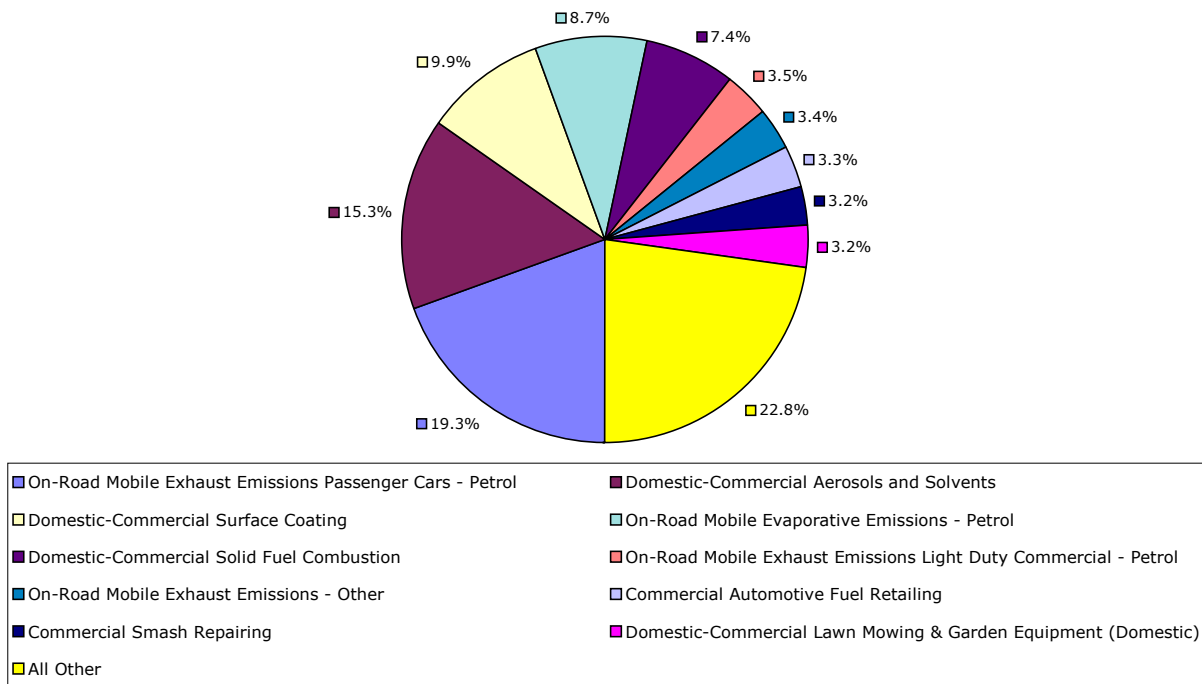


Figure ES40 Ten largest anthropogenic sources of total VOCs emissions in the GMR

Figure ES41 shows the ten largest anthropogenic sources of total VOCs emissions in the Sydney region.

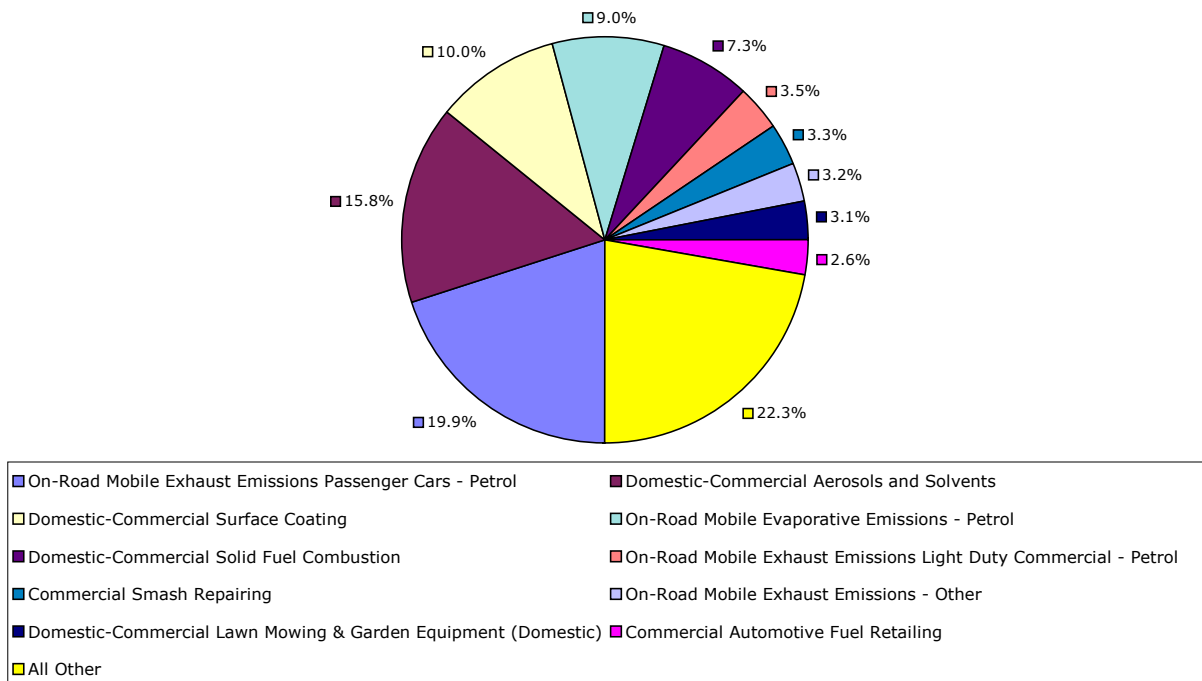


Figure ES41 Ten largest anthropogenic sources of total VOCs emissions in the Sydney region

Figure ES42 shows the ten largest anthropogenic sources of total VOCs emissions in the Newcastle region.

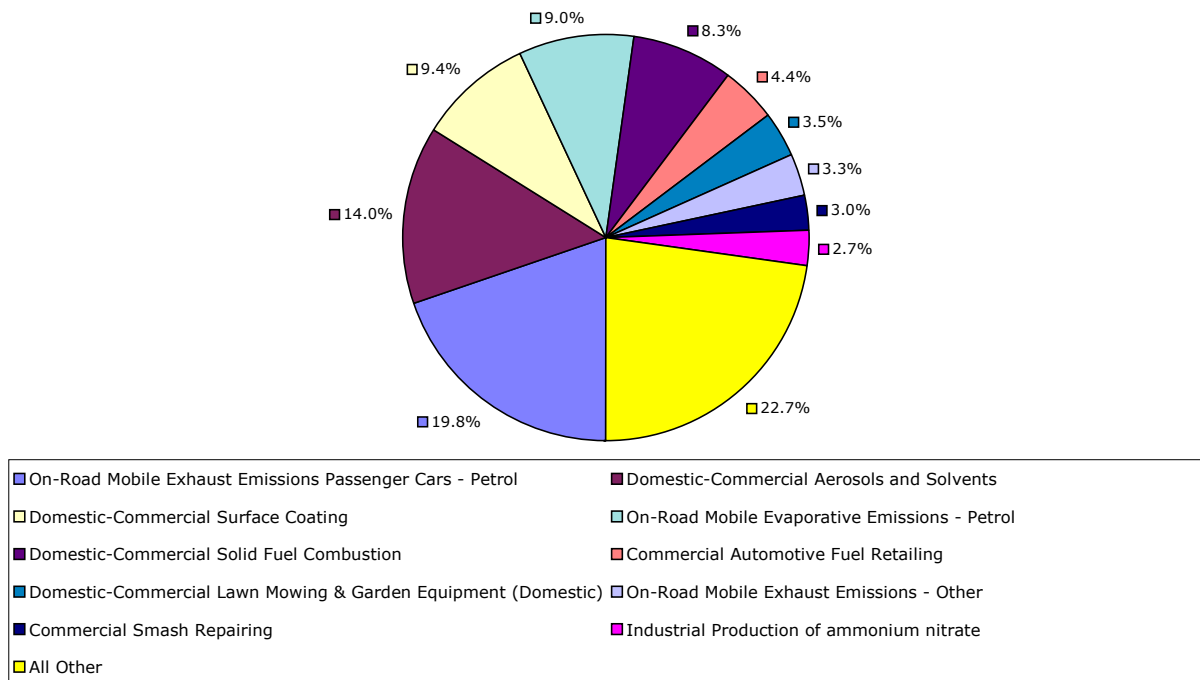


Figure ES42 Ten largest anthropogenic sources of total VOCs emissions in the Newcastle region

Figure ES43 shows the ten largest anthropogenic sources of total VOCs emissions in the Wollongong region.

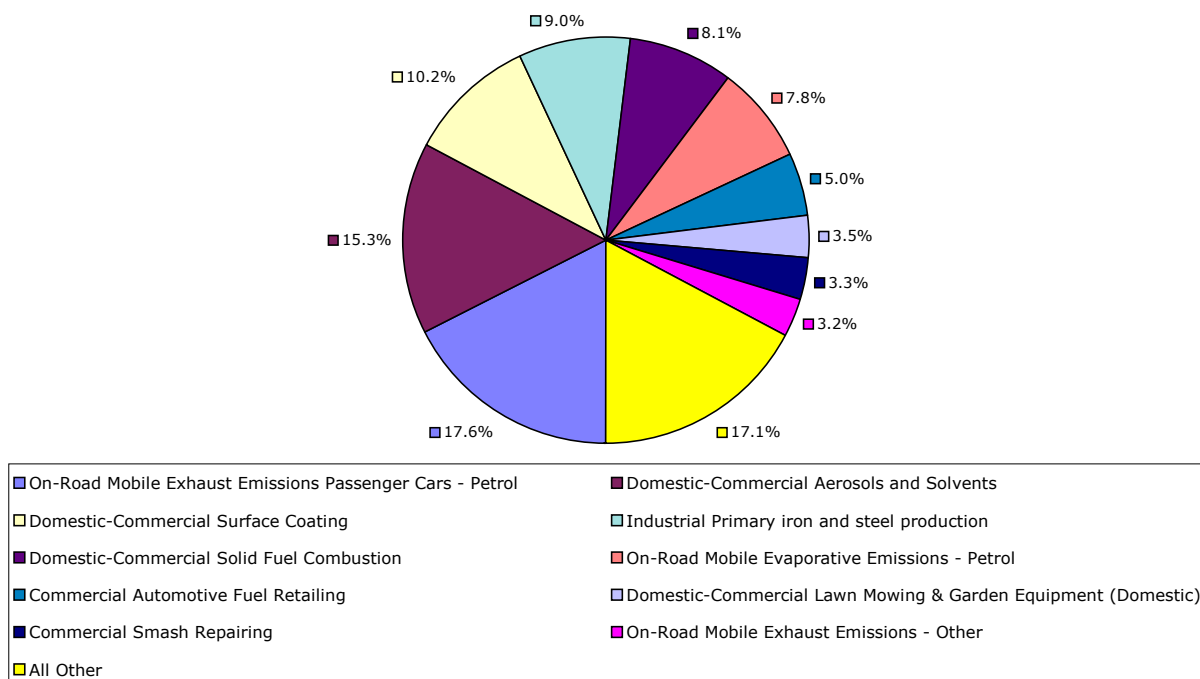


Figure ES43 Ten largest anthropogenic sources of total VOCs emissions in the Wollongong region

Figure ES44 shows the ten largest anthropogenic sources of total VOCs emissions in the Non-Urban region.

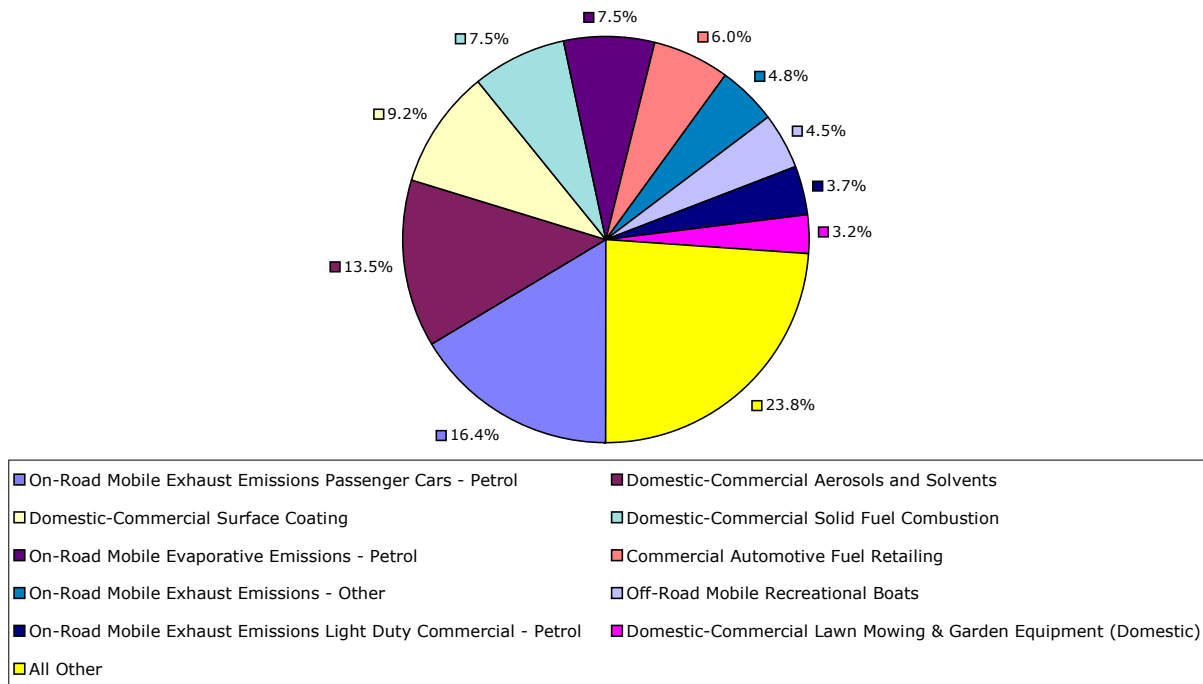


Figure ES44 Ten largest anthropogenic sources of total VOCs emissions in the Non-Urban region

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ABBREVIATIONS

CO	Carbon monoxide
DEC	Department of Environment and Conservation NSW
DECC	Department of Environment and Climate Change NSW
GMR	Greater Metropolitan Region
NO _x	Oxides of nitrogen
NPI	National Pollutant Inventory
LGA	Local government area
NEPM	National Environment Protection Measure
PM _{2.5}	Particulate matter with an aerodynamic diameter less than 2.5 µm
PM ₁₀	Particulate matter with an aerodynamic diameter less than 10 µm
SO ₂	Sulfur dioxide
VOC	Volatile organic compounds

1 INTRODUCTION

The Department of Environment and Climate Change NSW (DECC), in collaboration with Environment Protection Authority of Victoria (Ng, 2006), Pacific Air & Environment (Bawden et. al., 2006a & 2006b) and Optimised Operations (Tseng et. al., 2006a & 2006b), has completed a three year air emissions inventory project. The base year of the inventory represents activities that took place during the 2003 calendar year and is accompanied by emission projections in yearly increments up to the 2031 calendar year. The area included in the study covers greater Sydney, Newcastle and Wollongong regions, known collectively as the Greater Metropolitan Region (GMR).

The air emissions inventory includes emissions from biogenic (i.e. natural) and anthropogenic (i.e. human derived) sources. The anthropogenic source groups included in the air emissions inventory include:

- Commercial businesses (i.e. non-EPA-licensed);
- Domestic-commercial activities;
- Industrial premises (i.e. EPA-licensed);
- Off-road mobile (i.e. non-registered off-road vehicles and equipment); and
- On-road mobile (i.e. registered on-road vehicles).

This report focuses on emissions of criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003), including:

- Carbon monoxide (CO);
- Lead and compounds;
- Oxides of nitrogen (NO_x);
- Particulate matter < 10 µm (PM₁₀);
- Particulate matter < 2.5 µm (PM_{2.5});
- Sulfur dioxide (SO₂); and
- Total volatile organic compounds (VOCs), a surrogate for photochemical oxidants (as ozone).

More detailed information about sources and emissions of other air pollutants from the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

The information in this report is structured as follows:

- A description of the air emissions inventory specification (Section 2) including:
 - ◆ The study year of the inventory (Section 2.1);
 - ◆ A description of the study region (Section 2.2);
 - ◆ A description of the grid coordinate system (Section 2.3);
 - ◆ A description of the emission sources considered (Section 2.4);
 - ◆ A description of the pollutants evaluated (Section 2.5); and
 - ◆ A broad discussion of the methodology (Section 2.6).
- An emissions summary for the criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003) presented by source group for the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions (Section 3).
- An emissions summary for the criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003) presented for all biogenic and anthropogenic sources for the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions (Section 4).
- A list of references (Section 5).

2 INVENTORY SPECIFICATIONS

2.1 The Study Year

The air emissions inventory results presented in this report are based on activities that took place in the 2003 calendar year.

2.2 The Study Region

The study region, defined as the GMR, measures 210 km (east-west) by 273 km (north-south). The GMR incorporates an area covering greater Sydney, Newcastle and Wollongong. The remaining area of the GMR is the Non-Urban region. The study region is defined in Table 2.1 and shown in Figure 2.2.

Table 2.1 Definition of Greater Metropolitan, Sydney, Newcastle and Wollongong regions

Region	South-west corner MGA ¹ co-ordinates		North-east corner MGA ¹ co-ordinates	
	Easting (km)	Northing (km)	Easting (km)	Northing (km)
GREATER METROPOLITAN	210	6159	420	6432
SYDNEY	261	6201	360	6300
NEWCASTLE	360	6348	408	6372
WOLLONGONG	279	6174	318	6201

¹ MGA = Map Grid of Australia based on the Geocentric Datum of Australia 1994 (GDA94) (ICSM, 2002).

2.3 Grid Coordinate System

The grid coordinate system used for the air emissions inventory uses 1 km by 1 km grid cells. The grid coordinates start from the bottom left corner having index numbers with Easting (km) in the horizontal and Northing (km) in the vertical direction. The grid coordinate system is illustrated in Figure 2.1.

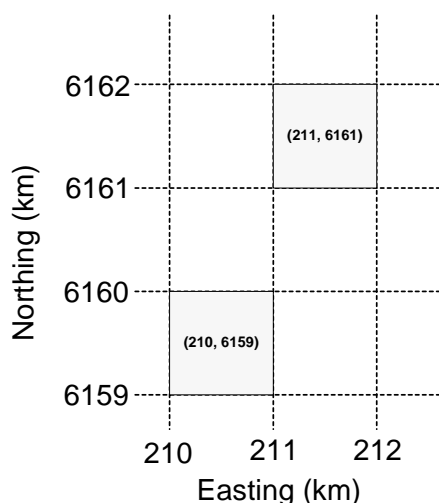


Figure 2.1 Grid Coordinate System



Figure 2.2 Definition of Greater Metropolitan, Sydney, Newcastle and Wollongong regions

2.4 Emission Sources Considered

The air emissions inventory includes emissions from biogenic (i.e. natural) and anthropogenic (i.e. human derived) sources.

The anthropogenic source groups included in the air emissions inventory include:

- Commercial businesses (i.e. non-EPA-licensed);
- Domestic-commercial activities;
- Industrial premises (i.e. EPA-licensed);
- Off-road mobile (i.e. non-registered off-road vehicles and equipment); and
- On-road mobile (i.e. registered on-road vehicles).

More detailed information about sources of other air pollutants from the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in Sections 3.1.1, 3.2.1, 3.3.1, 3.4.1, 3.5.1 and 3.6.1 of this report and the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

2.5 Pollutants Evaluated

The pollutants inventoried include:

- Air pollutants included in the *NPI NEPM* (NEPC, 2000);
- Pollutants included in the *Ambient Air Quality NEPM* (NEPC, 2003);
- Pollutants included in the *Air Toxics NEPM* (NEPC, 2004);
- Pollutants associated with the *Protection of the Environment Operations (Clean Air) Regulation 2002* (PCO, 2005);
- Air pollutants associated with the *Protection of the Environment Operations (General) Regulation 1998* (PCO, 1998);
- Speciation of oxides of nitrogen for photochemical modelling (i.e. NO and NO₂) (USEPA, 2005a);
- Speciated organic compounds for photochemical modelling sourced from Carter (2003);
- Speciated particulate emissions (i.e. TSP (total suspended particulate), PM₁₀ (particulate matter with an aerodynamic diameter < 10 µm) and PM_{2.5} (particulate matter with an aerodynamic diameter < 2.5 µm));
- Environment Protection Authority of Victoria air toxic pollutants sourced from *Hazardous Air Pollutants - A Review of Studies Performed in Australia and New Zealand* (EPAV, 1999);
- Commonwealth Government Air Toxics Program Technical Advisory Group (13 March 2000) priority air pollutants (DEH, 2001);
- U.S. Environmental Protection Agency list of 189 Hazardous Air Pollutants (USEPA, 2005b);
- Air pollutants included in the Office of Environmental Human Health Assessment (OEHHA)/Air Resources Board (ARB) 'hot spots' list (CARB, 2005);
- DEC regulated pollutants with design ground level concentrations (DEC, 2005);
- USEPA 16 priority polycyclic aromatic hydrocarbons (PAHs) (Keith et. al., 1979); and
- WHO97 polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs) (Van den Berg et. al., 1998).

This report focuses on emissions of criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003), including:

- Carbon monoxide (CO);
- Lead and compounds;
- Oxides of nitrogen (NO_x);
- Particulate matter < 10 μm (PM₁₀);
- Particulate matter < 2.5 μm (PM_{2.5});
- Sulfur dioxide (SO₂); and
- Total volatile organic compounds (VOCs), a surrogate for photochemical oxidants (as ozone).

More detailed information about emissions of other air pollutants from the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

2.6 Methodology Overview

This section contains a broad overview of the methodology used to build the air emissions inventory. The specific methodologies used for the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

The methodology used to build the air emissions inventory involved the following steps:

1. Source Identification

Air emission sources were identified from a number of different literature sources including:

- National Pollutant Inventory (NPI) aggregated emissions data (AED) sources (DEH, 2005a);
- National Pollutant Inventory (NPI) industrial emission sources (DEH, 2005b);
- USEPA AP-42 Compilation of Air Pollutant Emission Factors (USEPA, 1995);
- USEPA Emission Inventory Improvement Program (EIIP) (USEPA, 2005c; USEPA, 2005d; & USEPA, 2005e); and
- USEPA National Emissions Inventory (NEI) (ERG, 2003).

More detailed information about the specific literature sources used to identify the source types within the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

2. Emission Estimation Technique Design

Emission estimation techniques for all source groups have been typically based on published methodologies as follows.

- Biogenic Emissions Inventory (BEI) GIS Version 3.02 (Azzi et. al., 2004 & Huber, 2005);
- CARB California Air Toxics Emission Factor Database (CATEF) (CARB, 2000);
- FAA Emissions and Dispersion Modelling System (EDMS) Version 4.21 (FAA, 2004);
- National Pollutant Inventory (NPI) aggregated emissions data (AED) sources (DEH, 2005a);
- National Pollutant Inventory (NPI) industrial emission sources (DEH, 2005b);

- USEPA AP-42 Compilation of Air Pollutant Emission Factors (USEPA, 1995);
- USEPA Emission Inventory Improvement Program (EIIP) (USEPA, 2005c; USEPA, 2005d; & USEPA, 2005e);
- USEPA Final NONROAD2005 Model (USEPA, 2005f);
- USEPA National Emissions Inventory (NEI) (ERG, 2003); and
- USEPA Speciate V3.2 database (USEPA, 2002).

A number of published methodologies were utilised for each source group. Where possible, source emission test data was used in preference to emission factors.

More detailed information about the specific methodology used for the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

3. Activity Data Acquisition

A number of surveys were conducted to obtain detailed information regarding the source types in the GMR as follows:

- *Domestic survey* – Conducted in accordance with the National Pollutant Inventory (NPI) guidelines for the conduct of domestic surveys (DEH, 2005a) to provide activity data for domestic barbecues, gaseous fuel combustion, lawn mowing and garden equipment, liquid fuel combustion, recreational boating and solid fuel combustion. Random selection of 2,000 households across the GMR. Three hundred and four completed survey questionnaire forms were returned and a campaign of additional phone surveys increased the total sample size to 500.
- *Commercial survey* - Commercial survey questionnaires were designed for each commercial category to obtain detailed information on manufacturing processes, speciated emissions from stacks and fugitive sources and temporal operational details. Not all businesses were sent commercial survey questionnaires. In total, 3,748 commercial survey questionnaires were sent out and responses were received from 493 businesses. Follow up phone calls were performed by DEC to obtain the required information from businesses that did not respond and were identified to potentially have significant emissions.
- *Construction survey* - A survey of construction and equipment hire companies was conducted during 2005 to obtain activity data for construction off-road vehicles and equipment. The purpose of the survey was to obtain sufficient data so that emissions of combustion products could be estimated from the use of unregistered 2-stroke petrol, 4-stroke petrol, CNG, diesel and LPG engines on construction sites.
- *Council and golf course survey* - Data from 9 LGA including Auburn, Bankstown, Canada Bay, Great Lakes, Kiama, Ku-ring-gai, Newcastle, Port Stephens and Strathfield LGAs and 5 golf courses including Castle Hill, Killara, Manly, Pennant Hills and Saint Michael's were acquired to establish equipment type, fuel type, frequency, duration and seasonal variation of public open space lawn mowing and garden equipment use.
- *Industrial survey* - Industrial survey questionnaires were designed for each industrial category to obtain detailed information on manufacturing processes, speciated emissions from stacks and fugitive sources and temporal operational details. A total of 1,161 facilities were sent a questionnaire under a NSW EPA notice to provide information and/or records under section 191 of the *Protection of the Environment Operations Act 1997* to ensure accurate and timely responses. Emissions have been estimated from 1,037 facilities as 124 facilities either surrendered their licence, ceased operations or were subsequently found to be outside the GMR.

More detailed information about the additional sources of information used to obtain activity data for the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

4. Emission Estimation

Generally, emissions have been estimated by combining activity data with emission factors. The emissions have then been allocated spatially to MGA Eastings and Northings for point sources and each 1 km by 1 km grid cell for aggregated emission sources and temporally to months, weekdays/weekend days and hours.

More detailed information about the emission estimation techniques used for the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

5. Emission Projection Factors

Emission projection factors for each source type have been developed using either published:

- Final energy usage growth data (ABARE, 2005);
- Free standing dwelling growth data (ABS, 2001 & TPDC, 2004);
- Population growth data (ABS, 2001 & TPDC, 2004);
- Primary energy usage growth data (ABARE, 2005);
- Total dwelling growth data (ABS, 2001 & TPDC, 2004); or
- Vehicle kilometres travelled growth data (TPDC, 2005).

Emission projection factors have been developed for every year from 2004 to 2031 (emissions for the base year 2003 are based on the activity data obtained coupled with the emission estimation techniques). Emission projection factors are provided to the year 2031.

The emission projection factors for each source have been used to estimate emissions in future annual periods using the following formula (Pechan, 1999):

$$E_{i,j,k,n} = E_{i,j,k,2003} \times PF_{j,k,n}$$

where:

- | | | | |
|------------------|---|--|-----------------|
| $E_{i,j,k,n}$ | = | Emission of substance i from location j for source type k for year n | (tonnes/year) |
| $E_{i,j,k,2003}$ | = | Emission of substance i from location j for source type k for the base year 2003 | (tonnes/year) |
| $PF_{j,k,n}$ | = | Emission projection factor for location j for source type k for year n (relative to the base year) | (dimensionless) |

More detailed information about the emission projection factors developed for the commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

3 DATA SOURCES AND RESULTS

This section presents estimated emissions of the criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003) from biogenic, commercial, domestic-commercial, industrial, off-road mobile and on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for the 2003 calendar year. Annual and daily emission estimates are presented for each source group. Four types of daily emissions are presented: typical January weekday; typical January weekend day; typical July weekday; and typical July weekend day.

3.1 Biogenic

3.1.1 Emission Source Description

The biogenic air emissions inventory includes emissions from the following sources:

- burning
 - ◆ agricultural burning, bushfires and prescribed burning
- fugitive/windborne
 - ◆ agricultural lands and unpaved roads
- soil
- vegetation
 - ◆ grass and trees

Refer to DECC (2007a) for further information regarding the source types included in the biogenic air emissions inventory and the emission estimation methodology.

3.1.2 Annual Emission Estimates

Table 3.1 shows total estimated annual emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.1 Total estimated annual emissions from biogenic sources in each region

Substance	Biogenic Annual Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	27,346	176	145	160,737	188,405
LEAD AND COMPOUNDS	0.813	0.113	5.27×10^{-3}	4.099	5.030
OXIDES OF NITROGEN	1,585	103	52.034	11,604	13,344
PARTICULATE MATTER < 10 µm	2,699	93.261	15.767	14,629	17,436
PARTICULATE MATTER < 2.5 µm	2,331	44.245	13.530	12,680	15,069
SULFUR DIOXIDE	69.393	0.474	0.322	450	520
TOTAL VOCS	33,989	3,285	3,371	151,949	192,594

Table 3.2 shows the proportion of total estimated annual biogenic and anthropogenic emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.2 Proportion of total estimated annual emissions from biogenic sources in each region

Substance	Biogenic Proportion of Biogenic and Anthropogenic Total Annual Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	4.92	0.20	0.03	56.0	12.8
LEAD AND COMPOUNDS	2.72	4.49	0.08	8.71	5.85
OXIDES OF NITROGEN	1.68	1.03	0.42	6.15	4.37
PARTICULATE MATTER < 10 µm	11.2	3.07	0.52	23.4	18.8
PARTICULATE MATTER < 2.5 µm	15.1	2.56	0.61	48.4	33.1
SULFUR DIOXIDE	0.50	4.44×10^{-3}	3.04×10^{-3}	0.17	0.17
TOTAL VOCS	20.6	25.2	34.3	86.3	53.0

Figure 3.1 shows the proportion of total estimated annual GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

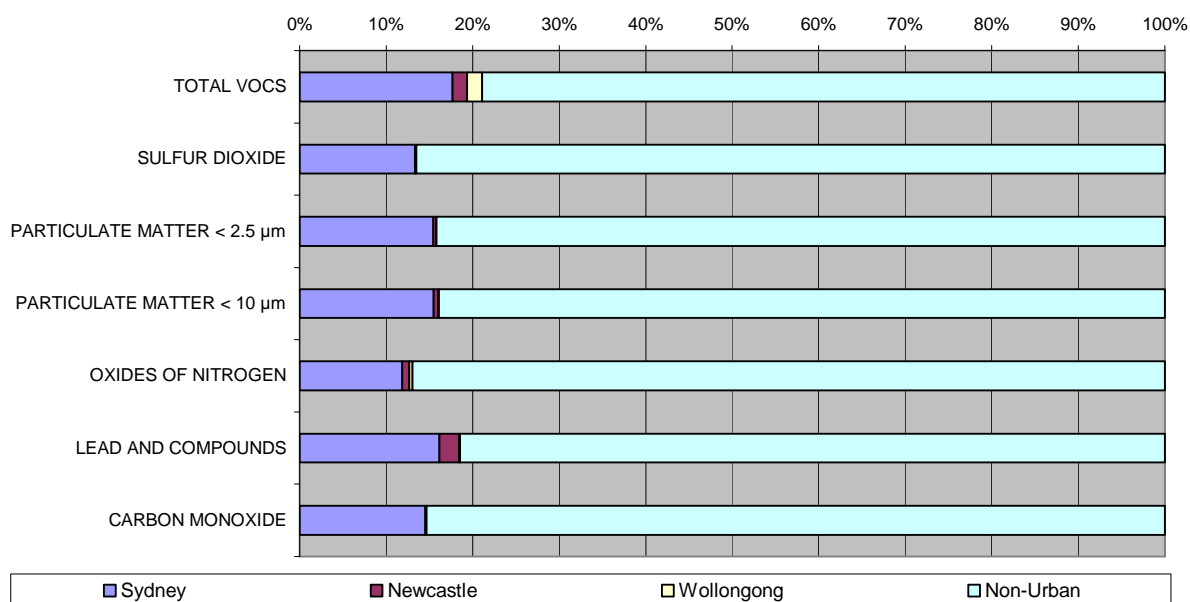


Figure 3.1 Proportion of total estimated annual emissions from biogenic sources in each region

Table 3.3 shows total estimated annual emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.4 shows the proportion of total estimated annual biogenic and anthropogenic emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.3 Total estimated annual emissions by biogenic source type in each region

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Annual Emissions (tonnes/year) – GMR						
CARBON MONOXIDE	299	188,105	0	0	0	188,405
LEAD AND COMPOUNDS	7.90×10^{-4}	2.352	2.678	0	0	5.030
OXIDES OF NITROGEN	10.634	5,190	0	8,144	0	13,344
PARTICULATE MATTER < 10 µm	57.905	15,680	1,699	0	0	17,436
PARTICULATE MATTER < 2.5 µm	33.616	14,373	662	0	0	15,069
SULFUR DIOXIDE	0.962	519	0	0	0	520
TOTAL VOCS	38.526	27,398	0	0	165,157	192,594
Annual Emissions (tonnes/year) - Sydney						
CARBON MONOXIDE	25.981	27,320	0	0	0	27,346
LEAD AND COMPOUNDS	6.86×10^{-5}	0.364	0.449	0	0	0.813
OXIDES OF NITROGEN	0.923	693	0	891	0	1,585
PARTICULATE MATTER < 10 µm	5.027	2,425	268	0	0	2,699
PARTICULATE MATTER < 2.5 µm	2.918	2,223	104	0	0	2,331
SULFUR DIOXIDE	0.084	69.309	0	0	0	69.393
TOTAL VOCS	3.345	3,428	0	0	30,557	33,989
Annual Emissions (tonnes/year) - Newcastle						
CARBON MONOXIDE	5.638	170	0	0	0	176
LEAD AND COMPOUNDS	1.49×10^{-5}	2.18×10^{-3}	0.111	0	0	0.113
OXIDES OF NITROGEN	0.200	4.556	0	98.403	0	103
PARTICULATE MATTER < 10 µm	1.091	14.554	77.615	0	0	93.261
PARTICULATE MATTER < 2.5 µm	0.633	13.341	30.270	0	0	44.245
SULFUR DIOXIDE	0.018	0.456	0	0	0	0.474
TOTAL VOCS	0.726	23.501	0	0	3,260	3,285

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 3. Data Sources and Results - Biogenic

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Annual Emissions (tonnes/year) - Wollongong						
CARBON MONOXIDE	0	145	0	0	0	145
LEAD AND COMPOUNDS	0	2.10×10^{-3}	3.17×10^{-3}	0	0	5.27×10^{-3}
OXIDES OF NITROGEN	0	3.221	0	48.813	0	52.034
PARTICULATE MATTER < 10 µm	0	14.017	1.750	0	0	15.767
PARTICULATE MATTER < 2.5 µm	0	12.849	0.681	0	0	13.530
SULFUR DIOXIDE	0	0.322	0	0	0	0.322
TOTAL VOCS	0	14.017	0	0	3,357	3,371
Annual Emissions (tonnes/year) - Non-Urban						
CARBON MONOXIDE	268	160,470	0	0	0	160,737
LEAD AND COMPOUNDS	7.06×10^{-4}	1.984	2.114	0	0	4.099
OXIDES OF NITROGEN	9.510	4,489	0	7,106	0	11,604
PARTICULATE MATTER < 10 µm	51.787	13,226	1,351	0	0	14,629
PARTICULATE MATTER < 2.5 µm	30.064	12,123	527	0	0	12,680
SULFUR DIOXIDE	0.861	449	0	0	0	450
TOTAL VOCS	34.455	23,933	0	0	127,982	151,949

Table 3.4 Proportion of total estimated annual emissions by biogenic source type in each region

Substance	Biogenic Source Type					Biogenic Total
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	
Proportion of Biogenic and Anthropogenic Total Annual Emissions (%) – GMR						
CARBON MONOXIDE	0.02	12.8	0	0	0	12.8
LEAD AND COMPOUNDS	9.19×10^{-4}	2.74	3.12	0	0	5.85
OXIDES OF NITROGEN	3.48×10^{-3}	1.70	0	2.67	0	4.37
PARTICULATE MATTER < 10 µm	0.06	16.9	1.84	0	0	18.8
PARTICULATE MATTER < 2.5 µm	0.07	31.5	1.45	0	0	33.1
SULFUR DIOXIDE	3.18×10^{-4}	0.17	0	0	0	0.17
TOTAL VOCS	0.01	7.53	0	0	45.4	53.0
Proportion of Biogenic and Anthropogenic Total Annual Emissions (%) - Sydney						
CARBON MONOXIDE	4.68×10^{-3}	4.92	0	0	0	4.92
LEAD AND COMPOUNDS	2.30×10^{-4}	1.22	1.51	0	0	2.72
OXIDES OF NITROGEN	9.78×10^{-4}	0.73	0	0.94	0	1.68
PARTICULATE MATTER < 10 µm	0.02	10.1	1.12	0	0	11.2
PARTICULATE MATTER < 2.5 µm	0.02	14.4	0.68	0	0	15.1
SULFUR DIOXIDE	6.04×10^{-4}	0.50	0	0	0	0.50
TOTAL VOCS	2.03×10^{-3}	2.08	0	0	18.5	20.6
Proportion of Biogenic and Anthropogenic Total Annual Emissions (%) - Newcastle						
CARBON MONOXIDE	6.49×10^{-3}	0.20	0	0	0	0.20
LEAD AND COMPOUNDS	5.91×10^{-4}	0.09	4.40	0	0	4.49
OXIDES OF NITROGEN	2.01×10^{-3}	0.05	0	0.99	0	1.03
PARTICULATE MATTER < 10 µm	0.04	0.48	2.55	0	0	3.07
PARTICULATE MATTER < 2.5 µm	0.04	0.77	1.75	0	0	2.56
SULFUR DIOXIDE	1.70×10^{-4}	4.27×10^{-3}	0	0	0	4.44×10^{-3}
TOTAL VOCS	5.58×10^{-3}	0.18	0	0	25.1	25.2

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total Annual Emissions (%) - Wollongong						
CARBON MONOXIDE	0	0.03	0	0	0	0.03
LEAD AND COMPOUNDS	0	0.03	0.05	0	0	0.08
OXIDES OF NITROGEN	0	0.03	0	0.40	0	0.42
PARTICULATE MATTER < 10 µm	0	0.46	0.06	0	0	0.52
PARTICULATE MATTER < 2.5 µm	0	0.58	0.03	0	0	0.61
SULFUR DIOXIDE	0	3.04×10^{-3}	0	0	0	3.04×10^{-3}
TOTAL VOCS	0	0.14	0	0	34.2	34.3
Proportion of Biogenic and Anthropogenic Total Annual Emissions (%) – Non-Urban						
CARBON MONOXIDE	0.09	55.9	0	0	0	56.0
LEAD AND COMPOUNDS	1.50×10^{-3}	4.21	4.49	0	0	8.71
OXIDES OF NITROGEN	5.04×10^{-3}	2.38	0	3.77	0	6.15
PARTICULATE MATTER < 10 µm	0.08	21.2	2.16	0	0	23.4
PARTICULATE MATTER < 2.5 µm	0.11	46.3	2.01	0	0	48.4
SULFUR DIOXIDE	3.22×10^{-4}	0.17	0	0	0	0.17
TOTAL VOCS	0.02	13.6	0	0	72.7	86.3

3.1.3 Daily Emission Estimates

Table 3.5 shows total estimated daily emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.5 Total estimated daily emissions from biogenic sources in each region for typical January weekday

Substance	Biogenic January Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	495	6.562	0	6,811	7,313
LEAD AND COMPOUNDS	9.79×10^{-3}	6.91×10^{-4}	2.95×10^{-6}	0.104	0.114
OXIDES OF NITROGEN	17.922	0.584	0.186	224	243
PARTICULATE MATTER < 10 µm	42.224	0.881	1.63×10^{-3}	563	606
PARTICULATE MATTER < 2.5 µm	37.583	0.623	6.35×10^{-4}	510	548
SULFUR DIOXIDE	1.415	0.019	0	19.460	20.894
TOTAL VOCS	363	28.037	32.035	2,303	2,726

Table 3.6 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.6 Proportion of total estimated daily emissions from biogenic sources in each region for typical January weekday

Substance	Biogenic Proportion of Biogenic and Anthropogenic Total January Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	32.9	3.16	0	96.2	71.4
LEAD AND COMPOUNDS	12.4	10.9	0.02	51.9	37.8
OXIDES OF NITROGEN	7.04	2.26	0.57	32.1	24.0
PARTICULATE MATTER < 10 µm	49.3	11.2	0.02	82.5	77.4
PARTICULATE MATTER < 2.5 µm	62.1	14.8	0.01	94.1	89.6
SULFUR DIOXIDE	3.76	0.07	0	2.62	2.49
TOTAL VOCS	54.1	55.2	67.8	97.6	87.1

Figure 3.2 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

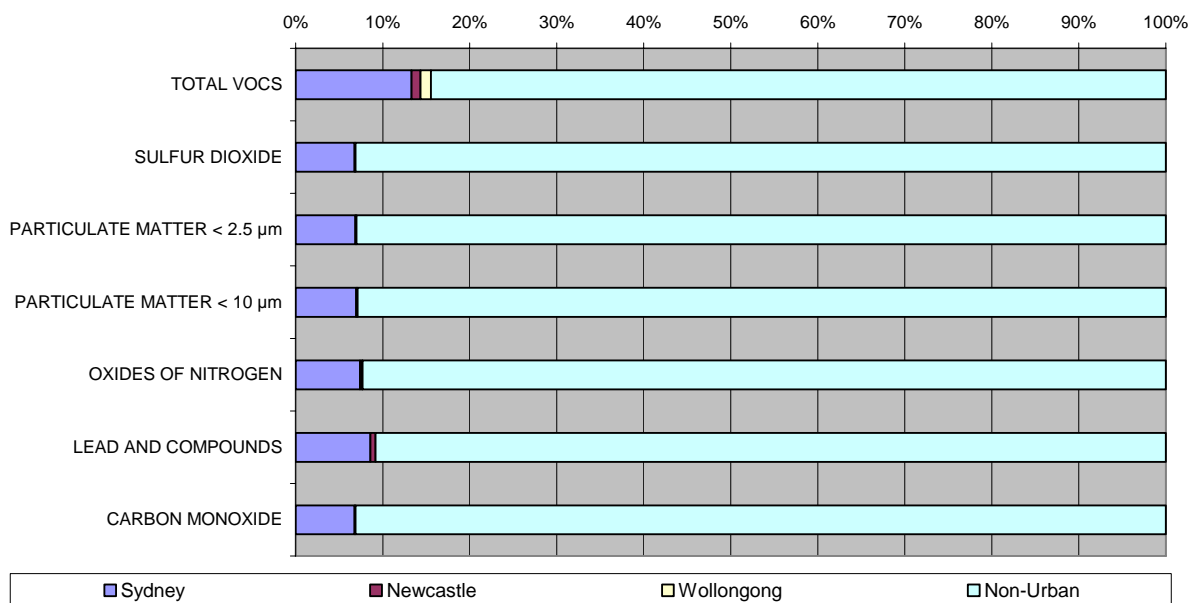


Figure 3.2 Proportion of total estimated daily emissions from biogenic sources in each region for typical January weekday

Table 3.7 shows total estimated daily emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.8 shows the proportion of total estimated daily biogenic and anthropogenic emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.7 Total estimated daily emissions by biogenic source type in each region for typical January weekday

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
January Weekday Emissions (tonnes/day) – GMR						
CARBON MONOXIDE	3.184	7,310	0	0	0	7,313
LEAD AND COMPOUNDS	8.71×10^{-6}	0.089	0.025	0	0	0.114
OXIDES OF NITROGEN	0.111	209	0	34.028	0	243
PARTICULATE MATTER < 10 µm	0.639	592	14.129	0	0	606
PARTICULATE MATTER < 2.5 µm	0.371	542	5.497	0	0	548
SULFUR DIOXIDE	0.010	20.884	0	0	0	20.894
TOTAL VOCS	0.413	1,130	0	0	1,595	2,726
January Weekday Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	0.276	495	0	0	0	495
LEAD AND COMPOUNDS	7.56×10^{-7}	6.01×10^{-3}	3.77×10^{-3}	0	0	9.79×10^{-3}
OXIDES OF NITROGEN	9.62×10^{-3}	14.145	0	3.768	0	17.922
PARTICULATE MATTER < 10 µm	0.055	40.077	2.091	0	0	42.224
PARTICULATE MATTER < 2.5 µm	0.032	36.738	0.814	0	0	37.583
SULFUR DIOXIDE	8.71×10^{-4}	1.414	0	0	0	1.415
TOTAL VOCS	0.036	76.535	0	0	287	363
January Weekday Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0.060	6.502	0	0	0	6.562
LEAD AND COMPOUNDS	1.64×10^{-7}	7.90×10^{-5}	6.12×10^{-4}	0	0	6.91×10^{-4}
OXIDES OF NITROGEN	2.09×10^{-3}	0.186	0	0.397	0	0.584
PARTICULATE MATTER < 10 µm	0.012	0.526	0.342	0	0	0.881
PARTICULATE MATTER < 2.5 µm	6.99×10^{-3}	0.482	0.133	0	0	0.623
SULFUR DIOXIDE	1.89×10^{-4}	0.019	0	0	0	0.019
TOTAL VOCS	7.77×10^{-3}	1.005	0	0	27.024	28.037

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Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
January Weekday Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	2.95×10^{-6}	0	0	2.95×10^{-6}
OXIDES OF NITROGEN	0	0	0	0.186	0	0.186
PARTICULATE MATTER < 10 µm	0	0	1.63×10^{-3}	0	0	1.63×10^{-3}
PARTICULATE MATTER < 2.5 µm	0	0	6.35×10^{-4}	0	0	6.35×10^{-4}
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	32.035	32.035
January Weekday Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	2.848	6,808	0	0	0	6,811
LEAD AND COMPOUNDS	7.79×10^{-6}	0.083	0.021	0	0	0.104
OXIDES OF NITROGEN	0.099	195	0	29.678	0	224
PARTICULATE MATTER < 10 µm	0.571	551	11.693	0	0	563
PARTICULATE MATTER < 2.5 µm	0.332	505	4.550	0	0	510
SULFUR DIOXIDE	8.97×10^{-3}	19.451	0	0	0	19.460
TOTAL VOCS	0.369	1,052	0	0	1,250	2,303

Table 3.8 Proportion of total estimated daily emissions by biogenic source type in each region for typical January weekday

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total January Weekday Emissions (%) – GMR						
CARBON MONOXIDE	0.03	71.4	0	0	0	71.4
LEAD AND COMPOUNDS	2.89×10^{-3}	29.4	8.42	0	0	37.8
OXIDES OF NITROGEN	0.01	20.6	0	3.36	0	24.0
PARTICULATE MATTER < 10 µm	0.08	75.5	1.80	0	0	77.4
PARTICULATE MATTER < 2.5 µm	0.06	88.7	0.90	0	0	89.6
SULFUR DIOXIDE	1.20×10^{-3}	2.49	0	0	0	2.49
TOTAL VOCS	0.01	36.1	0	0	51.0	87.1
Proportion of Biogenic and Anthropogenic Total January Weekday Emissions (%) – Sydney						
CARBON MONOXIDE	0.02	32.9	0	0	0	32.9
LEAD AND COMPOUNDS	9.56×10^{-4}	7.60	4.77	0	0	12.4
OXIDES OF NITROGEN	3.78×10^{-3}	5.55	0	1.48	0	7.04
PARTICULATE MATTER < 10 µm	0.06	46.8	2.44	0	0	49.3
PARTICULATE MATTER < 2.5 µm	0.05	60.7	1.35	0	0	62.1
SULFUR DIOXIDE	2.31×10^{-3}	3.75	0	0	0	3.76
TOTAL VOCS	5.34×10^{-3}	11.4	0	0	42.7	54.1
Proportion of Biogenic and Anthropogenic Total January Weekday Emissions (%) – Newcastle						
CARBON MONOXIDE	0.03	3.13	0	0	0	3.16
LEAD AND COMPOUNDS	2.60×10^{-3}	1.25	9.69	0	0	10.9
OXIDES OF NITROGEN	8.06×10^{-3}	0.72	0	1.53	0	2.26
PARTICULATE MATTER < 10 µm	0.15	6.67	4.34	0	0	11.2
PARTICULATE MATTER < 2.5 µm	0.17	11.5	3.16	0	0	14.8
SULFUR DIOXIDE	6.60×10^{-4}	0.06	0	0	0	0.07
TOTAL VOCS	0.02	1.98	0	0	53.2	55.2

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total January Weekday Emissions (%) - Wollongong						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	0.02	0	0	0.02
OXIDES OF NITROGEN	0	0	0	0.57	0	0.57
PARTICULATE MATTER < 10 µm	0	0	0.02	0	0	0.02
PARTICULATE MATTER < 2.5 µm	0	0	0.01	0	0	0.01
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	67.8	67.8
Proportion of Biogenic and Anthropogenic Total January Weekday Emissions (%) – Non-Urban						
CARBON MONOXIDE	0.04	96.2	0	0	0	96.2
LEAD AND COMPOUNDS	3.90×10^{-3}	41.3	10.5	0	0	51.9
OXIDES OF NITROGEN	0.01	27.8	0	4.25	0	32.1
PARTICULATE MATTER < 10 µm	0.08	80.7	1.71	0	0	82.5
PARTICULATE MATTER < 2.5 µm	0.06	93.2	0.84	0	0	94.1
SULFUR DIOXIDE	1.21×10^{-3}	2.62	0	0	0	2.62
TOTAL VOCS	0.02	44.6	0	0	53.0	97.6

Table 3.9 shows total estimated daily emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.9 Total estimated daily emissions from biogenic sources in each region for typical January weekend day

Substance	Biogenic January Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	845	0.037	0	8.957	854
LEAD AND COMPOUNDS	0.014	6.12×10^{-4}	2.95×10^{-6}	0.021	0.036
OXIDES OF NITROGEN	27.918	0.398	0.186	29.945	58.446
PARTICULATE MATTER < 10 µm	70.533	0.350	1.63×10^{-3}	12.631	83.516
PARTICULATE MATTER < 2.5 µm	63.541	0.138	6.35×10^{-4}	5.290	68.969
SULFUR DIOXIDE	2.415	1.18×10^{-4}	0	0.026	2.441
TOTAL VOCS	417	27.029	32.035	1,251	1,727

Table 3.10 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.10 Proportion of total estimated daily emissions from biogenic sources in each region for typical January weekend day

Substance	Biogenic Proportion of Biogenic and Anthropogenic Total January Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	42.6	0.02	0	2.90	21.6
LEAD AND COMPOUNDS	19.0	11.7	0.02	21.4	18.6
OXIDES OF NITROGEN	11.4	1.66	0.59	6.02	7.32
PARTICULATE MATTER < 10 µm	62.9	5.63	0.02	10.2	33.6
PARTICULATE MATTER < 2.5 µm	73.1	3.97	0.01	15.1	52.9
SULFUR DIOXIDE	6.23	4.14×10^{-4}	0	3.61×10^{-3}	0.30
TOTAL VOCS	56.9	54.3	66.4	95.2	80.5

Figure 3.3 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

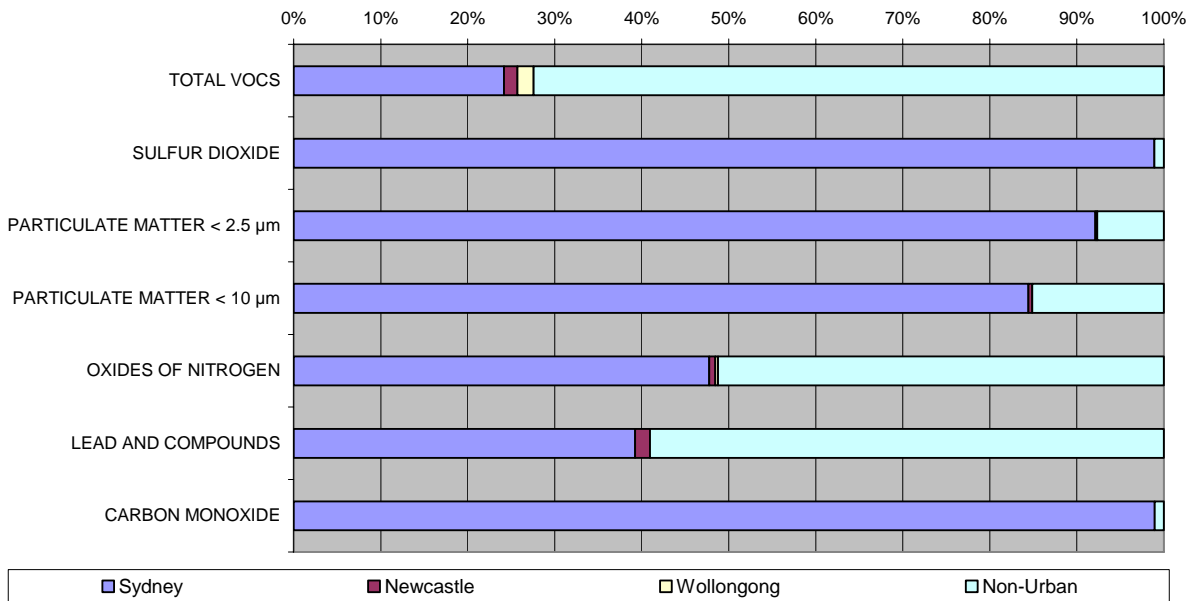


Figure 3.3 Proportion of total estimated daily emissions from biogenic sources in each region for typical January weekend day

Table 3.11 shows total estimated daily emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.12 shows the proportion of total estimated daily biogenic and anthropogenic emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.11 Total estimated daily emissions by biogenic source type in each region for typical January weekend day

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
January Weekend Day Emissions (tonnes/day) – GMR						
CARBON MONOXIDE	1.990	852	0	0	0	854
LEAD AND COMPOUNDS	5.44×10^{-6}	0.010	0.025	0	0	0.036
OXIDES OF NITROGEN	0.069	24.349	0	34.028	0	58.446
PARTICULATE MATTER < 10 µm	0.399	68.989	14.129	0	0	83.516
PARTICULATE MATTER < 2.5 µm	0.232	63.239	5.497	0	0	68.969
SULFUR DIOXIDE	6.27×10^{-3}	2.435	0	0	0	2.441
TOTAL VOCS	0.258	132	0	0	1,595	1,727
January Weekend Day Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	0.173	845	0	0	0	845
LEAD AND COMPOUNDS	4.73×10^{-7}	0.010	3.77×10^{-3}	0	0	0.014
OXIDES OF NITROGEN	6.01×10^{-3}	24.144	0	3.768	0	27.918
PARTICULATE MATTER < 10 µm	0.035	68.407	2.091	0	0	70.533
PARTICULATE MATTER < 2.5 µm	0.020	62.707	0.814	0	0	63.541
SULFUR DIOXIDE	5.44×10^{-4}	2.414	0	0	0	2.415
TOTAL VOCS	0.022	131	0	0	287	417
January Weekend Day Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0.037	0	0	0	0	0.037
LEAD AND COMPOUNDS	1.03×10^{-7}	0	6.12×10^{-4}	0	0	6.12×10^{-4}
OXIDES OF NITROGEN	1.30×10^{-3}	0	0	0.397	0	0.398
PARTICULATE MATTER < 10 µm	7.52×10^{-3}	0	0.342	0	0	0.350
PARTICULATE MATTER < 2.5 µm	4.37×10^{-3}	0	0.133	0	0	0.138
SULFUR DIOXIDE	1.18×10^{-4}	0	0	0	0	1.18×10^{-4}
TOTAL VOCS	4.86×10^{-3}	0	0	0	27.024	27.029

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Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
January Weekend Day Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	2.95×10^{-6}	0	0	2.95×10^{-6}
OXIDES OF NITROGEN	0	0	0	0.186	0	0.186
PARTICULATE MATTER < 10 µm	0	0	1.63×10^{-3}	0	0	1.63×10^{-3}
PARTICULATE MATTER < 2.5 µm	0	0	6.35×10^{-4}	0	0	6.35×10^{-4}
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	32.035	32.035
January Weekend Day Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	1.780	7.177	0	0	0	8.957
LEAD AND COMPOUNDS	4.87×10^{-6}	8.72×10^{-5}	0.021	0	0	0.021
OXIDES OF NITROGEN	0.062	0.205	0	29.678	0	29.945
PARTICULATE MATTER < 10 µm	0.357	0.581	11.693	0	0	12.631
PARTICULATE MATTER < 2.5 µm	0.207	0.533	4.550	0	0	5.290
SULFUR DIOXIDE	5.61×10^{-3}	0.021	0	0	0	0.026
TOTAL VOCS	0.231	1.110	0	0	1,250	1,251

Table 3.12 Proportion of total estimated daily emissions by biogenic source type in each region for typical January weekend day

Substance	Biogenic Source Type					Biogenic Total
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	
Proportion of Biogenic and Anthropogenic Total January Weekend Day Emissions (%) – GMR						
CARBON MONOXIDE	0.05	21.6	0	0	0	21.6
LEAD AND COMPOUNDS	2.82×10^{-3}	5.37	13.2	0	0	18.6
OXIDES OF NITROGEN	8.68×10^{-3}	3.05	0	4.26	0	7.32
PARTICULATE MATTER < 10 µm	0.16	27.7	5.68	0	0	33.6
PARTICULATE MATTER < 2.5 µm	0.18	48.5	4.21	0	0	52.9
SULFUR DIOXIDE	7.65×10^{-4}	0.30	0	0	0	0.30
TOTAL VOCS	0.01	6.14	0	0	74.4	80.5
Proportion of Biogenic and Anthropogenic Total January Weekend Day Emissions (%) - Sydney						
CARBON MONOXIDE	8.71×10^{-3}	42.6	0	0	0	42.6
LEAD AND COMPOUNDS	6.41×10^{-4}	13.9	5.12	0	0	19.0
OXIDES OF NITROGEN	2.45×10^{-3}	9.86	0	1.54	0	11.4
PARTICULATE MATTER < 10 µm	0.03	61.0	1.86	0	0	62.9
PARTICULATE MATTER < 2.5 µm	0.02	72.2	0.94	0	0	73.1
SULFUR DIOXIDE	1.40×10^{-3}	6.23	0	0	0	6.23
TOTAL VOCS	3.05×10^{-3}	17.8	0	0	39.1	56.9
Proportion of Biogenic and Anthropogenic Total January Weekend Day Emissions (%) - Newcastle						
CARBON MONOXIDE	0.02	0	0	0	0	0.02
LEAD AND COMPOUNDS	1.97×10^{-3}	0	11.7	0	0	11.7
OXIDES OF NITROGEN	5.43×10^{-3}	0	0	1.65	0	1.66
PARTICULATE MATTER < 10 µm	0.12	0	5.51	0	0	5.63
PARTICULATE MATTER < 2.5 µm	0.13	0	3.84	0	0	3.97
SULFUR DIOXIDE	4.14×10^{-4}	0	0	0	0	4.14×10^{-4}
TOTAL VOCS	9.76×10^{-3}	0	0	0	54.3	54.3

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total January Weekend Day Emissions (%) - Wollongong						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	0.02	0	0	0.02
OXIDES OF NITROGEN	0	0	0	0.59	0	0.59
PARTICULATE MATTER < 10 µm	0	0	0.02	0	0	0.02
PARTICULATE MATTER < 2.5 µm	0	0	0.01	0	0	0.01
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	66.4	66.4
Proportion of Biogenic and Anthropogenic Total January Weekend Day Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.58	2.32	0	0	0	2.90
LEAD AND COMPOUNDS	4.94×10^{-3}	0.09	21.4	0	0	21.4
OXIDES OF NITROGEN	0.01	0.04	0	5.96	0	6.02
PARTICULATE MATTER < 10 µm	0.29	0.47	9.49	0	0	10.2
PARTICULATE MATTER < 2.5 µm	0.59	1.52	13.0	0	0	15.1
SULFUR DIOXIDE	7.75×10^{-4}	2.83×10^{-3}	0	0	0	3.61×10^{-3}
TOTAL VOCS	0.02	0.08	0	0	95.1	95.2

Table 3.13 shows total estimated daily emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.13 Total estimated daily emissions from biogenic sources in each region for typical July weekday

Substance	Biogenic July Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	54.893	0	0	0.236	55.129
LEAD AND COMPOUNDS	1.75×10^{-3}	1.44×10^{-4}	2.82×10^{-6}	2.94×10^{-3}	4.83×10^{-3}
OXIDES OF NITROGEN	2.491	0.173	0.093	12.088	14.845
PARTICULATE MATTER < 10 µm	6.376	0.087	1.56×10^{-3}	1.695	8.159
PARTICULATE MATTER < 2.5 µm	5.584	0.034	6.06×10^{-4}	0.673	6.291
SULFUR DIOXIDE	0.098	0	0	4.22×10^{-4}	0.098
TOTAL VOCS	16.097	1.638	1.656	48.786	68.177

Table 3.14 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.14 Proportion of total estimated daily emissions from biogenic sources in each region for typical July weekday

Substance	Biogenic Proportion of Biogenic and Anthropogenic Total July Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	2.88	0	0	0.06	1.35
LEAD AND COMPOUNDS	2.04	1.98	0.02	2.29	2.02
OXIDES OF NITROGEN	0.93	0.62	0.27	2.40	1.78
PARTICULATE MATTER < 10 µm	7.30	0.85	0.02	1.22	3.31
PARTICULATE MATTER < 2.5 µm	8.86	0.52	8.51×10^{-3}	1.59	5.29
SULFUR DIOXIDE	0.26	0	0	5.67×10^{-5}	0.01
TOTAL VOCS	3.68	4.88	7.39	39.1	11.0

Figure 3.4 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

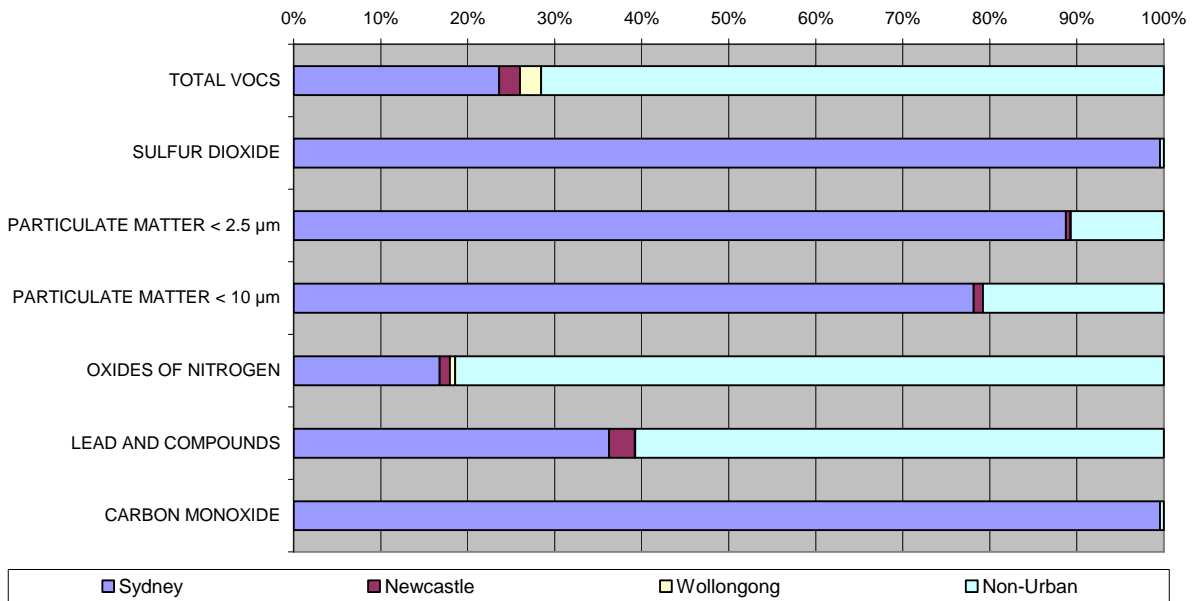


Figure 3.4 Proportion of total estimated daily emissions from biogenic sources in each region for typical July weekday

Table 3.15 shows total estimated daily emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.16 shows the proportion of total estimated daily biogenic and anthropogenic emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.15 Total estimated daily emissions by biogenic source type in each region for typical July weekday

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
July Weekday Emissions (tonnes/day) – GMR						
CARBON MONOXIDE	0	55.129	0	0	0	55.129
LEAD AND COMPOUNDS	0	8.86×10^{-4}	3.95×10^{-3}	0	0	4.83×10^{-3}
OXIDES OF NITROGEN	0	0.984	0	13.860	0	14.845
PARTICULATE MATTER < 10 µm	0	5.907	2.253	0	0	8.159
PARTICULATE MATTER < 2.5 µm	0	5.414	0.877	0	0	6.291
SULFUR DIOXIDE	0	0.098	0	0	0	0.098
TOTAL VOCS	0	3.150	0	0	65.027	68.177
July Weekday Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	0	54.893	0	0	0	54.893
LEAD AND COMPOUNDS	0	8.82×10^{-4}	8.69×10^{-4}	0	0	1.75×10^{-3}
OXIDES OF NITROGEN	0	0.980	0	1.511	0	2.491
PARTICULATE MATTER < 10 µm	0	5.881	0.494	0	0	6.376
PARTICULATE MATTER < 2.5 µm	0	5.391	0.192	0	0	5.584
SULFUR DIOXIDE	0	0.098	0	0	0	0.098
TOTAL VOCS	0	3.137	0	0	12.960	16.097
July Weekday Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	1.44×10^{-4}	0	0	1.44×10^{-4}
OXIDES OF NITROGEN	0	0	0	0.173	0	0.173
PARTICULATE MATTER < 10 µm	0	0	0.087	0	0	0.087
PARTICULATE MATTER < 2.5 µm	0	0	0.034	0	0	0.034
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	1.638	1.638

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Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
July Weekday Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	2.82×10^{-6}	0	0	2.82×10^{-6}
OXIDES OF NITROGEN	0	0	0	0.093	0	0.093
PARTICULATE MATTER < 10 µm	0	0	1.56×10^{-3}	0	0	1.56×10^{-3}
PARTICULATE MATTER < 2.5 µm	0	0	6.06×10^{-4}	0	0	6.06×10^{-4}
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	1.656	1.656
July Weekday Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	0	0.236	0	0	0	0.236
LEAD AND COMPOUNDS	0	3.80×10^{-6}	2.93×10^{-3}	0	0	2.94×10^{-3}
OXIDES OF NITROGEN	0	4.22×10^{-3}	0	12.084	0	12.088
PARTICULATE MATTER < 10 µm	0	0.025	1.670	0	0	1.695
PARTICULATE MATTER < 2.5 µm	0	0.023	0.650	0	0	0.673
SULFUR DIOXIDE	0	4.22×10^{-4}	0	0	0	4.22×10^{-4}
TOTAL VOCS	0	0.014	0	0	48.773	48.786

Table 3.16 Proportion of total estimated daily emissions by biogenic source type in each region for typical July weekday

Substance	Biogenic Source Type					Biogenic Total
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	
Proportion of Biogenic and Anthropogenic Total July Weekday Emissions (%) – GMR						
CARBON MONOXIDE	0	1.35	0	0	0	1.35
LEAD AND COMPOUNDS	0	0.37	1.65	0	0	2.02
OXIDES OF NITROGEN	0	0.12	0	1.66	0	1.78
PARTICULATE MATTER < 10 µm	0	2.40	0.91	0	0	3.31
PARTICULATE MATTER < 2.5 µm	0	4.55	0.74	0	0	5.29
SULFUR DIOXIDE	0	0.01	0	0	0	0.01
TOTAL VOCS	0	0.51	0	0	10.5	11.0
Proportion of Biogenic and Anthropogenic Total July Weekday Emissions (%) - Sydney						
CARBON MONOXIDE	0	2.88	0	0	0	2.88
LEAD AND COMPOUNDS	0	1.03	1.01	0	0	2.04
OXIDES OF NITROGEN	0	0.36	0	0.56	0	0.93
PARTICULATE MATTER < 10 µm	0	6.73	0.57	0	0	7.30
PARTICULATE MATTER < 2.5 µm	0	8.56	0.31	0	0	8.86
SULFUR DIOXIDE	0	0.26	0	0	0	0.26
TOTAL VOCS	0	0.72	0	0	2.96	3.68
Proportion of Biogenic and Anthropogenic Total July Weekday Emissions (%) - Newcastle						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	1.98	0	0	1.98
OXIDES OF NITROGEN	0	0	0	0.62	0	0.62
PARTICULATE MATTER < 10 µm	0	0	0.85	0	0	0.85
PARTICULATE MATTER < 2.5 µm	0	0	0.52	0	0	0.52
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	4.88	4.88

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total July Weekday Emissions (%) - Wollongong						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	0.02	0	0	0.02
OXIDES OF NITROGEN	0	0	0	0.27	0	0.27
PARTICULATE MATTER < 10 µm	0	0	0.02	0	0	0.02
PARTICULATE MATTER < 2.5 µm	0	0	8.51×10^{-3}	0	0	8.51×10^{-3}
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	7.39	7.39
Proportion of Biogenic and Anthropogenic Total July Weekday Emissions (%) - Non-Urban						
CARBON MONOXIDE	0	0.06	0	0	0	0.06
LEAD AND COMPOUNDS	0	2.96×10^{-3}	2.28	0	0	2.29
OXIDES OF NITROGEN	0	8.37×10^{-4}	0	2.39	0	2.40
PARTICULATE MATTER < 10 µm	0	0.02	1.20	0	0	1.22
PARTICULATE MATTER < 2.5 µm	0	0.05	1.53	0	0	1.59
SULFUR DIOXIDE	0	5.67×10^{-5}	0	0	0	5.67×10^{-5}
TOTAL VOCS	0	0.01	0	0	39.1	39.1

Table 3.17 shows total estimated daily emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.17 Total estimated daily emissions from biogenic sources in each region for typical July weekend day

Substance	Biogenic July Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	0.072	0	3.251	2.069	5.392
LEAD AND COMPOUNDS	8.70×10^{-4}	1.44×10^{-4}	5.51×10^{-5}	2.97×10^{-3}	4.03×10^{-3}
OXIDES OF NITROGEN	1.512	0.173	0.151	12.121	13.957
PARTICULATE MATTER < 10 µm	0.502	0.087	0.350	1.891	2.830
PARTICULATE MATTER < 2.5 µm	0.199	0.034	0.320	0.853	1.406
SULFUR DIOXIDE	1.31×10^{-4}	0	5.81×10^{-3}	3.69×10^{-3}	9.63×10^{-3}
TOTAL VOCS	12.964	1.638	1.842	48.891	65.335

Table 3.18 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.18 Proportion of total estimated daily emissions from biogenic sources in each region for typical July weekend day

Substance	Biogenic Proportion of Biogenic and Anthropogenic Total July Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.82×10^{-3}	0	0.22	0.48	0.13
LEAD AND COMPOUNDS	1.20	2.47	0.33	2.89	2.04
OXIDES OF NITROGEN	0.62	0.67	0.46	2.44	1.74
PARTICULATE MATTER < 10 µm	0.51	0.82	3.26	1.45	1.13
PARTICULATE MATTER < 2.5 µm	0.26	0.43	3.76	1.99	1.03
SULFUR DIOXIDE	3.49×10^{-4}	0	0.02	4.96×10^{-4}	1.15×10^{-3}
TOTAL VOCS	2.85	4.71	7.59	37.6	10.2

Figure 3.5 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

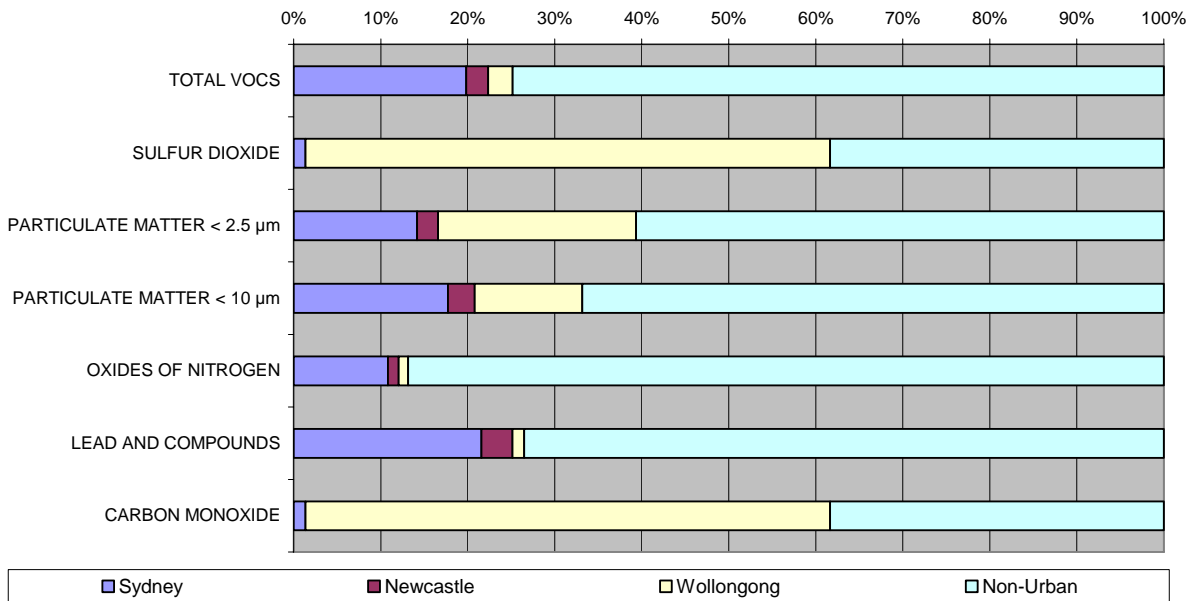


Figure 3.5 Proportion of total estimated daily emissions from biogenic sources in each region for typical July weekend day

Table 3.19 shows total estimated daily emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.20 shows the proportion of total estimated daily biogenic and anthropogenic emissions from each biogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.19 Total estimated daily emissions by biogenic source type in each region for typical July weekend day

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
July Weekend Day Emissions (tonnes/day) – GMR						
CARBON MONOXIDE	0	5.392	0	0	0	5.392
LEAD AND COMPOUNDS	0	8.67×10^{-5}	3.95×10^{-3}	0	0	4.03×10^{-3}
OXIDES OF NITROGEN	0	0.096	0	13.860	0	13.957
PARTICULATE MATTER < 10 µm	0	0.578	2.253	0	0	2.830
PARTICULATE MATTER < 2.5 µm	0	0.530	0.877	0	0	1.406
SULFUR DIOXIDE	0	9.63×10^{-3}	0	0	0	9.63×10^{-3}
TOTAL VOCS	0	0.308	0	0	65.027	65.335
July Weekend Day Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	0	0.072	0	0	0	0.072
LEAD AND COMPOUNDS	0	1.15×10^{-6}	8.69×10^{-4}	0	0	8.70×10^{-4}
OXIDES OF NITROGEN	0	1.31×10^{-3}	0	1.511	0	1.512
PARTICULATE MATTER < 10 µm	0	7.70×10^{-3}	0.494	0	0	0.502
PARTICULATE MATTER < 2.5 µm	0	7.06×10^{-3}	0.192	0	0	0.199
SULFUR DIOXIDE	0	1.31×10^{-4}	0	0	0	1.31×10^{-4}
TOTAL VOCS	0	4.34×10^{-3}	0	0	12.960	12.964
July Weekend Day Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	1.44×10^{-4}	0	0	1.44×10^{-4}
OXIDES OF NITROGEN	0	0	0	0.173	0	0.173
PARTICULATE MATTER < 10 µm	0	0	0.087	0	0	0.087
PARTICULATE MATTER < 2.5 µm	0	0	0.034	0	0	0.034
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	1.638	1.638

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Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
July Weekend Day Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0	3.251	0	0	0	3.251
LEAD AND COMPOUNDS	0	5.22×10^{-5}	2.82×10^{-6}	0	0	5.51×10^{-5}
OXIDES OF NITROGEN	0	0.058	0	0.093	0	0.151
PARTICULATE MATTER < 10 µm	0	0.348	1.56×10^{-3}	0	0	0.350
PARTICULATE MATTER < 2.5 µm	0	0.319	6.06×10^{-4}	0	0	0.320
SULFUR DIOXIDE	0	5.81×10^{-3}	0	0	0	5.81×10^{-3}
TOTAL VOCS	0	0.186	0	0	1.656	1.842
July Weekend Day Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	0	2.069	0	0	0	2.069
LEAD AND COMPOUNDS	0	3.32×10^{-5}	2.93×10^{-3}	0	0	2.97×10^{-3}
OXIDES OF NITROGEN	0	0.037	0	12.084	0	12.121
PARTICULATE MATTER < 10 µm	0	0.222	1.670	0	0	1.891
PARTICULATE MATTER < 2.5 µm	0	0.203	0.650	0	0	0.853
SULFUR DIOXIDE	0	3.69×10^{-3}	0	0	0	3.69×10^{-3}
TOTAL VOCS	0	0.118	0	0	48.773	48.891

Table 3.20 Proportion of total estimated daily emissions by biogenic source type in each region for typical July weekend day

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total July Weekend Day Emissions (%) – GMR						
CARBON MONOXIDE	0	0.13	0	0	0	0.13
LEAD AND COMPOUNDS	0	0.04	1.99	0	0	2.04
OXIDES OF NITROGEN	0	0.01	0	1.73	0	1.74
PARTICULATE MATTER < 10 µm	0	0.23	0.90	0	0	1.13
PARTICULATE MATTER < 2.5 µm	0	0.39	0.64	0	0	1.03
SULFUR DIOXIDE	0	1.15×10^{-3}	0	0	0	1.15×10^{-3}
TOTAL VOCS	0	0.05	0	0	10.1	10.2
Proportion of Biogenic and Anthropogenic Total July Weekend Day Emissions (%) - Sydney						
CARBON MONOXIDE	0	3.82×10^{-3}	0	0	0	3.82×10^{-3}
LEAD AND COMPOUNDS	0	1.59×10^{-3}	1.19	0	0	1.20
OXIDES OF NITROGEN	0	5.35×10^{-4}	0	0.62	0	0.62
PARTICULATE MATTER < 10 µm	0	7.79×10^{-3}	0.50	0	0	0.51
PARTICULATE MATTER < 2.5 µm	0	9.13×10^{-3}	0.25	0	0	0.26
SULFUR DIOXIDE	0	3.49×10^{-4}	0	0	0	3.49×10^{-4}
TOTAL VOCS	0	9.55×10^{-4}	0	0	2.85	2.85
Proportion of Biogenic and Anthropogenic Total July Weekend Day Emissions (%) - Newcastle						
CARBON MONOXIDE	0	0	0	0	0	0
LEAD AND COMPOUNDS	0	0	2.47	0	0	2.47
OXIDES OF NITROGEN	0	0	0	0.67	0	0.67
PARTICULATE MATTER < 10 µm	0	0	0.82	0	0	0.82
PARTICULATE MATTER < 2.5 µm	0	0	0.43	0	0	0.43
SULFUR DIOXIDE	0	0	0	0	0	0
TOTAL VOCS	0	0	0	0	4.71	4.71

Substance	Biogenic Source Type					
	Agricultural Burning	Bushfires and Prescribed Burning	Windborne	Soil	Vegetation	Biogenic Total
Proportion of Biogenic and Anthropogenic Total July Weekend Day Emissions (%) - Wollongong						
CARBON MONOXIDE	0	0.22	0	0	0	0.22
LEAD AND COMPOUNDS	0	0.31	0.02	0	0	0.33
OXIDES OF NITROGEN	0	0.18	0	0.28	0	0.46
PARTICULATE MATTER < 10 µm	0	3.25	0.01	0	0	3.26
PARTICULATE MATTER < 2.5 µm	0	3.75	7.13×10^{-3}	0	0	3.76
SULFUR DIOXIDE	0	0.02	0	0	0	0.02
TOTAL VOCS	0	0.77	0	0	6.82	7.59
Proportion of Biogenic and Anthropogenic Total July Weekend Day Emissions (%) - Non-Urban						
CARBON MONOXIDE	0	0.48	0	0	0	0.48
LEAD AND COMPOUNDS	0	0.03	2.85	0	0	2.89
OXIDES OF NITROGEN	0	7.44×10^{-3}	0	2.43	0	2.44
PARTICULATE MATTER < 10 µm	0	0.17	1.28	0	0	1.45
PARTICULATE MATTER < 2.5 µm	0	0.47	1.51	0	0	1.99
SULFUR DIOXIDE	0	4.96×10^{-4}	0	0	0	4.96×10^{-4}
TOTAL VOCS	0	0.09	0	0	37.5	37.6

3.2 Commercial

3.2.1 Emission Source Description

The commercial air emissions inventory includes emissions from commercial businesses that are not scheduled under the *Protection of the Environment (Operations) Act 1997* and do not hold an EPA licence. The commercial air emissions inventory includes 5,056 facilities covering 68 ANZSIC Classes. The commercial businesses included in the commercial air emissions inventory are listed as follows:

- Aircraft Manufacturing
- Automotive Component Manufacturing n.e.c
- Automotive Fuel Retailing
- Basic Iron and Steel Manufacturing
- Basic Non-Ferrous Metal Manufacturing
- Battery Manufacturing
- Biscuit Manufacturing
- Bread Manufacturing
- Cake and Pastry Manufacturing
- Ceramic Product Manufacturing
- Ceramic Product Manufacturing n.e.c
- Chemical Product Manufacturing n.e.c
- Chemical Wholesaling
- Concrete Product Manufacturing
- Confectionery Manufacturing
- Construction Material Mining
- Corrugated Paperboard Container Manufacturing
- Electric Cable and Wire Manufacturing
- Electrical Equipment Manufacturing
- Electronic Equipment Manufacturing n.e.c
- Fabricated Metal Product Manufacturing n.e.c
- Food Manufacturing n.e.c
- Fruit and Vegetable Processing
- Funeral Directors, Crematoria & Cemeteries
- Furniture Manufacturing n.e.c
- Gas Supply
- Glass & Glass Product Manufacturing
- Hospitals
- Ice Cream Manufacturing
- Industrial Gas Manufacturing
- Ink Manufacturing
- Laundries & Dry Cleaners
- Lifting and Material Handling Equipment Manufacturing

- Medicinal and Pharmaceutical Product Manufacturing
- Metal Coating and Finishing
- Milk and Cream Processing
- Mining and Construction Machinery Manufacturing
- Non-Building Construction n.e.c
- Non-Ferrous Metal Casting
- Paint Manufacturing
- Paper Product Manufacturing n.e.c
- Petroleum and Coal Product Manufacturing n.e.c
- Petroleum Product Wholesaling
- Plaster Product Manufacturing
- Plastic Bag and Film Manufacturing
- Plastic Injection Moulded Product Manufacturing
- Plastic Product Rigid Fibre Reinforced Manufacturing
- Port Operators
- Poultry Farming
- Prepared Animal and Bird Feed Manufacturing
- Printing, Publishing and Recorded Media
- Rail Transport
- Road and Bridge Construction
- Rubber Product Manufacturing
- Smash Repairing
- Soap and Other Detergent Manufacturing
- Soft Drink, Cordial and Syrup Manufacturing
- Solid Paperboard Container Manufacturing
- Spirit Manufacturing
- Spring and Wire Product Manufacturing
- Steel Pipe and Tube Manufacturing
- Structural Metal Product Manufacturing n.e.c
- Structural Steel Fabricating
- Synthetic Resin Manufacturing
- Wine Manufacturing
- Wood Product Manufacturing n.e.c
- Wooden Furniture and Upholstered Seat Manufacturing
- Wooden Structural Component Manufacturing

Refer to DECC (2007b) for further information regarding the source types included in the commercial air emissions inventory and the emission estimation methodology.

3.2.2 Annual Emission Estimates

Table 3.21 shows total estimated annual emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.21 Total estimated annual emissions from commercial sources in each region

Substance	Commercial Annual Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1,265	68.243	104	364	1,801
LEAD AND COMPOUNDS	0.189	8.18×10^{-4}	7.58×10^{-4}	4.23×10^{-3}	0.194
OXIDES OF NITROGEN	1,870	134	132	512	2,648
PARTICULATE MATTER < 10 μm	2,143	173	64.334	1,652	4,032
PARTICULATE MATTER < 2.5 μm	723	49.137	30.576	467	1,270
SULFUR DIOXIDE	48.074	0.867	1.225	20.840	71.005
TOTAL VOCS	9,973	799	624	2,448	13,844

Table 3.22 shows the proportion of total estimated annual anthropogenic emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.22 Proportion of total estimated annual emissions from commercial sources in each region

Substance	Commercial Proportion of Anthropogenic Total Annual Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	0.24	0.08	0.02	0.29	0.14
LEAD AND COMPOUNDS	0.65	0.03	0.01	9.84×10^{-3}	0.24
OXIDES OF NITROGEN	2.02	1.36	1.07	0.29	0.91
PARTICULATE MATTER < 10 μm	10.1	5.88	2.12	3.45	5.37
PARTICULATE MATTER < 2.5 μm	5.51	2.91	1.39	3.46	4.16
SULFUR DIOXIDE	0.35	8.12×10^{-3}	0.01	7.81×10^{-3}	0.02
TOTAL VOCS	7.62	8.22	9.66	10.2	8.09

Figure 3.6 shows the proportion of total estimated annual GMR commercial emissions from all commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

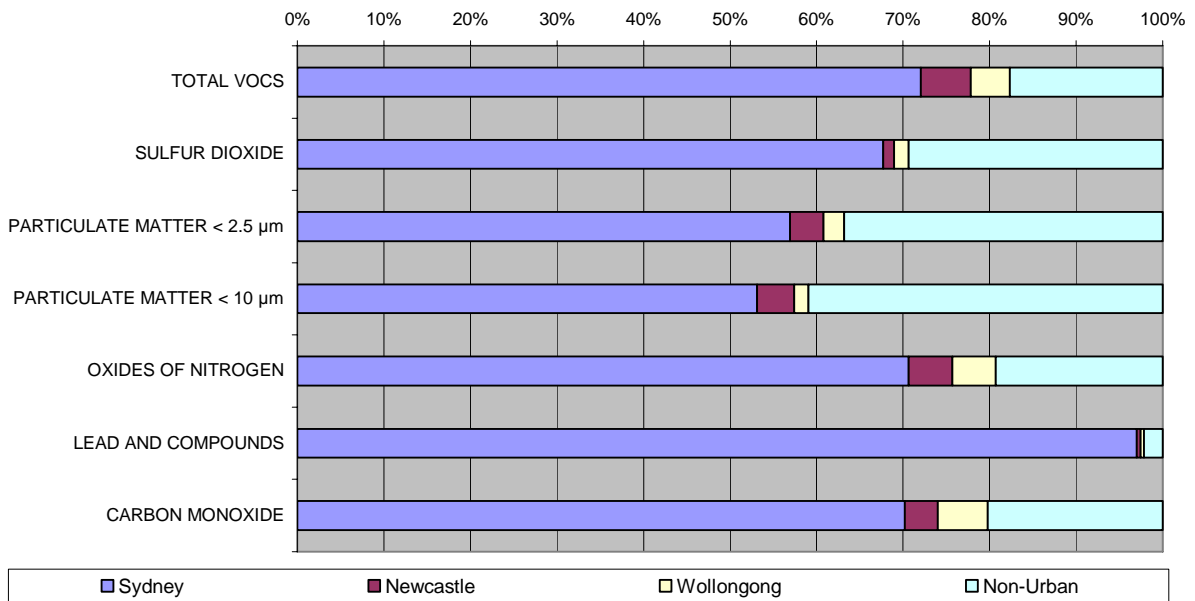


Figure 3.6 Proportion of total estimated annual emissions from commercial sources in each region

Table 3.23 shows total estimated annual emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.24 shows the proportion of total estimated annual anthropogenic emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.23 Total estimated annual emissions from commercial sources by ANZSIC class for each region

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Annual Emissions (tonnes/year) - GMR							
Aircraft Manufacturing	2.352	1.40 × 10 ⁻⁵	2.800	0.213	0.213	0.015	0.154
Automotive Component Manufacturing n.e.c.	0.210	1.25 × 10 ⁻⁶	0.251	0.022	0.022	1.31 × 10 ⁻³	13.966
Automotive Fuel Retailing	0	0	0	0	0	0	5,625
Basic Iron and Steel Manufacturing	5.214	4.84 × 10 ⁻³	8.356	7.494	6.651	0.032	47.308
Basic Non-Ferrous Metal Manufacturing n.e.c.	0.088	3.70 × 10 ⁻³	0.105	9.971	7.469	0.129	5.75 × 10 ⁻³
Biscuit Manufacturing	7.893	4.70 × 10 ⁻⁵	9.397	0.714	0.714	0.049	0.517
Bread Manufacturing	6.062	4.35 × 10 ⁻⁵	4.557	0.814	0.814	0.045	98.417
Cake and Pastry Manufacturing	1.337	7.96 × 10 ⁻⁶	1.592	0.121	0.121	8.32 × 10 ⁻³	13.615
Ceramic Product Manufacturing	11.601	2.90 × 10 ⁻⁵	3.499	7.298	6.728	0.442	0.587
Ceramic Product Manufacturing n.e.c.	4.80 × 10 ⁻³	0	0.035	1.08 × 10 ⁻³	1.07 × 10 ⁻³	1.80 × 10 ⁻⁷	8.40 × 10 ⁻⁴
Chemical Product Manufacturing n.e.c.	1.465	8.72 × 10 ⁻⁶	1.744	0.138	0.138	22.693	142
Chemical Wholesaling	0	0	0	0	0	0	0.782
Concrete Slurry Manufacturing	0	3.05 × 10 ⁻⁵	0	18.361	2.781	0	0
Confectionery Manufacturing	0.184	1.10 × 10 ⁻⁶	0.220	0.017	0.017	1.15 × 10 ⁻³	0.016
Construction Material Mining n.e.c.	0	1.31 × 10 ⁻⁴	0	50.255	10.273	0	6.03 × 10 ⁻³
Corrugated Paperboard Container Manufacturing	1.932	1.15 × 10 ⁻⁵	2.300	0.175	0.175	0.012	0.127
Electric Cable and Wire Manufacturing	0	0	0	0.840	0.629	0	84.000
Electrical and Equipment Manufacturing n.e.c.	0.037	2.19 × 10 ⁻⁷	0.422	0.429	0.429	2.29 × 10 ⁻⁴	4.183
Fabricated Metal Product Manufacturing n.e.c.	0.861	5.0 × 10 ⁻⁶	2.024	1.304	1.304	5.27 × 10 ⁻³	37.161
Food Manufacturing n.e.c.	10.777	4.61 × 10 ⁻⁴	26.602	1.395	1.127	17.803	127
Fruit and Vegetable Processing	0.564	3.36 × 10 ⁻⁶	0.672	0.051	0.051	3.51 × 10 ⁻³	0.037
Funeral Directors, Crematoria and Cemeteries	3.386	4.50 × 10 ⁻⁷	7.449	6.12 × 10 ⁻⁴	4.09 × 10 ⁻⁴	1.313	1.09 × 10 ⁻⁸
Furniture Manufacturing n.e.c.	1.594	9.49 × 10 ⁻⁶	1.898	0.144	0.144	9.91 × 10 ⁻³	7.235

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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gas Supply	1.210	7.20×10^{-6}	1.440	0.109	0.109	7.52×10^{-3}	10.019
Glass and Glass Product Manufacturing	20.664	0.019	48.936	7.739	7.598	0.153	15.141
Gravel and Sand Quarrying	0	3.01×10^{-3}	0	1,252	296	0	0.107
Hospitals (Except Psychiatric Hospitals)	1,110	6.61×10^{-3}	1,323	101	101	7.018	72.801
Ice Cream Manufacturing	1.029	6.12×10^{-6}	1.715	0.093	0.093	0.014	0.438
Industrial Gas Manufacturing	1.88×10^{-3}	0	0.014	4.23×10^{-4}	4.19×10^{-4}	7.06×10^{-8}	5.818
Ink Manufacturing	0	0	0	0.615	0.610	0	10.649
Laundries and Dry-Cleaners	0.453	2.70×10^{-6}	0.539	0.041	0.041	2.82×10^{-3}	277
Lifting and Material Handling Equipment Manufacturing	0	0	0.124	0.024	0.024	0	0.745
Medicinal and Pharmaceutical Product Manufacturing	2.959	1.75×10^{-5}	4.734	0.270	0.270	0.018	2.041
Metal Coating and Finishing	3.718	2.21×10^{-5}	30.277	3.309	3.296	0.023	7.718
Milk and Cream Processing	1.028	6.12×10^{-6}	1.224	0.093	0.093	6.40×10^{-3}	0.067
Mining and Construction Machinery Manufacturing	0	0	0	2.01×10^{-4}	2.01×10^{-4}	0	1.281
Non-Building Construction n.e.c.	0.022	0	0.160	4.98×10^{-3}	4.93×10^{-3}	8.29×10^{-7}	3.87×10^{-3}
Non-Ferrous Metal Casting	7.20×10^{-3}	1.81×10^{-6}	0.029	0.244	0.183	0.022	6.40×10^{-4}
Paint Manufacturing	0	0.138	0	21.681	21.434	0	113
Paper Product Manufacturing n.e.c.	1.822	1.04×10^{-5}	2.450	0.184	0.184	0.036	0.538
Petroleum Product Wholesaling	0	0	0	0	0	0	80.414
Plaster Product Manufacturing	132	0.013	36.074	14.402	8.642	4.599	3.411
Plastic Bag and Film Manufacturing	0	0	0	0.899	0.832	0	17.707
Plastic Injection Moulded Product Manufacturing	2.005	1.26×10^{-5}	2.410	0.182	0.182	0.088	0.172
Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.400	8.33×10^{-6}	1.700	0.127	0.127	8.71×10^{-3}	31.393
Port Operators	31.326	4.0×10^{-4}	102	8.951	8.951	9.937	13.737
Poultry Farming (Eggs)	0	0	0	594	170	0	0
Poultry Farming (Meat)	0	0	0	1,841	526	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	1.302	8.11×10^{-6}	1.555	0.118	0.118	0.010	0.085
Printing	3.020	2.15×10^{-5}	4.690	0.327	0.327	0.022	1,296
Rail Transport	0	0	0	0	0	0	0.014
Road and Bridge Construction	0	1.72×10^{-8}	0	0.095	0.019	0	0.015
Rubber Product Manufacturing n.e.c.	7.20×10^{-3}	1.91×10^{-6}	0.029	7.34×10^{-3}	1.55×10^{-3}	0.010	6.87×10^{-3}
Smash Repairing	0	0	0	0	0	0	5,445
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	0.029
Soft Drink, Cordial and Syrup Manufacturing	2.661	1.62×10^{-5}	3.250	0.247	0.247	0.017	0.179
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	15.307
Spirit Manufacturing	0	0	0	0	0	0	66.675
Spring and Wire Product Manufacturing	5.12×10^{-3}	2.69×10^{-8}	0.781	0.130	0.130	2.81×10^{-5}	0.381
Steel Pipe and Tube Manufacturing	0	0	0.744	4.530	4.530	0	1.23×10^{-3}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	2.487
Structural Steel Fabricating	0	0	0	9.79×10^{-3}	9.79×10^{-3}	0	0
Synthetic Resin Manufacturing	1.48×10^{-3}	8.80×10^{-9}	1.76×10^{-3}	1.34×10^{-4}	1.34×10^{-4}	9.20×10^{-6}	9.68×10^{-5}
Unaccounted Gaseous Fuel Combustion	429	5.37×10^{-3}	1,006	80.447	80.447	6.449	59.061
Wine Manufacturing	2.41×10^{-4}	0	1.75×10^{-3}	5.42×10^{-5}	5.37×10^{-5}	9.03×10^{-9}	84.289
Wood Product Manufacturing n.e.c.	5.0×10^{-4}	2.98×10^{-9}	5.95×10^{-4}	4.52×10^{-5}	4.52×10^{-5}	3.11×10^{-6}	5.419
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	1.773
Commercial Total	1,801	0.194	2,648	4,032	1,270	71.005	13,844
Annual Emissions (tonnes/year) - Sydney							
Aircraft Manufacturing	2.352	1.40×10^{-5}	2.800	0.213	0.213	0.015	0.154
Automotive Component Manufacturing n.e.c.	0.208	1.24×10^{-6}	0.247	0.022	0.022	1.29×10^{-3}	12.731
Automotive Fuel Retailing	0	0	0	0	0	0	3,445
Basic Iron and Steel Manufacturing	0.645	4.82×10^{-3}	2.916	7.080	6.237	4.01×10^{-3}	46.974

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Basic Non-Ferrous Metal Manufacturing n.e.c.	0.088	3.70×10^{-3}	0.105	9.971	7.469	0.129	5.75×10^{-3}
Biscuit Manufacturing	7.893	4.70×10^{-5}	9.397	0.714	0.714	0.049	0.517
Bread Manufacturing	4.380	3.35×10^{-5}	2.555	0.510	0.510	0.035	52.354
Cake and Pastry Manufacturing	1.337	7.96×10^{-6}	1.592	0.121	0.121	8.32×10^{-3}	13.615
Chemical Product Manufacturing n.e.c.	1.465	8.72×10^{-6}	1.744	0.133	0.133	22.693	132
Chemical Wholesaling	0	0	0	0	0	0	0.782
Concrete Slurry Manufacturing	0	1.86×10^{-5}	0	12.074	1.827	0	0
Confectionery Manufacturing	0.184	1.10×10^{-6}	0.220	0.017	0.017	1.15×10^{-3}	0.016
Corrugated Paperboard Container Manufacturing	1.932	1.15×10^{-5}	2.300	0.175	0.175	0.012	0.127
Electrical and Equipment Manufacturing n.e.c.	0.037	2.19×10^{-7}	0.422	0.429	0.429	2.29×10^{-4}	4.183
Fabricated Metal Product Manufacturing n.e.c.	0.095	4.44×10^{-7}	1.161	1.043	1.043	5.02×10^{-4}	36.943
Food Manufacturing n.e.c.	6.902	4.11×10^{-5}	8.217	0.624	0.624	0.043	127
Fruit and Vegetable Processing	0.564	3.36×10^{-6}	0.672	0.051	0.051	3.51×10^{-3}	0.037
Funeral Directors, Crematoria and Cemeteries	2.040	2.71×10^{-7}	4.488	3.69×10^{-4}	2.46×10^{-4}	0.791	6.59×10^{-9}
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	2.837
Gas Supply	1.210	7.20×10^{-6}	1.440	0.109	0.109	7.52×10^{-3}	7.239
Glass and Glass Product Manufacturing	20.660	0.019	48.900	7.730	7.596	0.150	15.140
Gravel and Sand Quarrying	0	1.50×10^{-3}	0	560	136	0	0.048
Hospitals (Except Psychiatric Hospitals)	695	4.14×10^{-3}	827	62.887	62.887	4.324	45.510
Ice Cream Manufacturing	1.029	6.12×10^{-6}	1.715	0.093	0.093	0.014	0.438
Industrial Gas Manufacturing	1.88×10^{-3}	0	0.014	4.23×10^{-4}	4.19×10^{-4}	7.06×10^{-8}	5.818
Ink Manufacturing	0	0	0	0.615	0.610	0	10.649
Laundries and Dry-Cleaners	0.453	2.70×10^{-6}	0.539	0.041	0.041	2.82×10^{-3}	217
Lifting and Material Handling Equipment Manufacturing	0	0	0.124	0.024	0.024	0	0.745
Medicinal and Pharmaceutical Product Manufacturing	2.439	1.44×10^{-5}	2.991	0.223	0.223	0.015	1.347

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Metal Coating and Finishing	1.260	7.50×10^{-6}	1.690	0.616	0.616	7.84×10^{-3}	7.128
Milk and Cream Processing	1.028	6.12×10^{-6}	1.224	0.093	0.093	6.40×10^{-3}	0.067
Non-Building Construction n.e.c.	0.016	0	0.119	3.71×10^{-3}	3.67×10^{-3}	6.18×10^{-7}	2.88×10^{-3}
Paint Manufacturing	0	0.138	0	21.681	21.434	0	113
Paper Product Manufacturing n.e.c.	1.741	1.04×10^{-5}	2.073	0.158	0.158	0.011	0.510
Petroleum Product Wholesaling	0	0	0	0	0	0	36.231
Plaster Product Manufacturing	132	0.013	36.074	14.402	8.642	4.599	3.411
Plastic Bag and Film Manufacturing	0	0	0	0.899	0.832	0	17.707
Plastic Injection Moulded Product Manufacturing	2.005	1.26×10^{-5}	2.410	0.182	0.182	0.088	0.172
Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.400	8.33×10^{-6}	1.700	0.127	0.127	8.71×10^{-3}	20.355
Port Operators	31.326	4.0×10^{-4}	102	8.951	8.951	9.937	13.737
Poultry Farming (Eggs)	0	0	0	534	153	0	0
Poultry Farming (Meat)	0	0	0	831	237	0	0
Prepared Animal and Bird Feed Manufacturing	1.44×10^{-3}	3.61×10^{-7}	5.76×10^{-3}	3.12×10^{-4}	3.10×10^{-4}	2.04×10^{-3}	9.60×10^{-5}
Printing	3.020	2.15×10^{-5}	4.690	0.327	0.327	0.022	1,170
Road and Bridge Construction	0	0	0	0.030	5.97×10^{-3}	0	0
Rubber Product Manufacturing n.e.c.	0	1.05×10^{-7}	0	5.78×10^{-3}	0	0	6.0×10^{-3}
Smash Repairing	0	0	0	0	0	0	4,271
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	0.029
Soft Drink, Cordial and Syrup Manufacturing	2.661	1.62×10^{-5}	3.250	0.247	0.247	0.017	0.179
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	15.307
Spirit Manufacturing	0	0	0	0	0	0	66.675
Spring and Wire Product Manufacturing	4.52×10^{-3}	2.69×10^{-8}	5.38×10^{-3}	4.09×10^{-4}	4.09×10^{-4}	2.81×10^{-5}	5.06×10^{-4}
Steel Pipe and Tube Manufacturing	0	0	0.744	1.020	1.020	0	1.23×10^{-3}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	2.487

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales

3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Structural Steel Fabricating	0	0	0	9.79×10^{-3}	9.79×10^{-3}	0	0
Unaccounted Gaseous Fuel Combustion	338	4.23×10^{-3}	791	63.316	63.316	5.076	46.484
Wine Manufacturing	2.41×10^{-4}	0	1.75×10^{-3}	5.42×10^{-5}	5.37×10^{-5}	9.03×10^{-9}	7.743
Wood Product Manufacturing n.e.c.	5.0×10^{-4}	2.98×10^{-9}	5.95×10^{-4}	4.52×10^{-5}	4.52×10^{-5}	3.11×10^{-6}	3.27×10^{-5}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	1.773
Commercial Total	1,265	0.189	1,870	2,143	723	48.074	9,973
Annual Emissions (tonnes/year) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	427
Bread Manufacturing	1.682	1.0×10^{-5}	2.002	0.304	0.304	0.010	46.063
Ceramic Product Manufacturing n.e.c.	4.80×10^{-3}	0	0.035	1.08×10^{-3}	1.07×10^{-3}	1.80×10^{-7}	8.40×10^{-4}
Chemical Product Manufacturing n.e.c.	0	0	0	0	0	0	6.337
Concrete Slurry Manufacturing	0	3.0×10^{-6}	0	1.591	0.242	0	0
Construction Material Mining n.e.c.	0	9.46×10^{-5}	0	33.879	6.583	0	4.23×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	0	0	0.413	0.192	0.192	0	0.025
Funeral Directors, Crematoria and Cemeteries	0.400	5.31×10^{-8}	0.880	7.23×10^{-5}	4.83×10^{-5}	0.155	1.29×10^{-9}
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	4.293
Gravel and Sand Quarrying	0	1.73×10^{-4}	0	80.570	17.934	0	9.0×10^{-3}
Hospitals (Except Psychiatric Hospitals)	41.452	2.45×10^{-4}	50.427	3.824	3.823	0.351	2.800
Laundries and Dry-Cleaners	0	0	0	0	0	0	13.152
Metal Coating and Finishing	2.458	1.46×10^{-5}	28.586	2.693	2.681	0.015	0.590
Mining and Construction Machinery Manufacturing	0	0	0	2.01×10^{-4}	2.01×10^{-4}	0	0.475
Petroleum Product Wholesaling	0	0	0	0	0	0	0.251
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	5.305
Poultry Farming (Meat)	0	0	0	46.195	13.198	0	0
Road and Bridge Construction	0	1.52×10^{-9}	0	0.033	6.56×10^{-3}	0	7.02×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Smash Repairing	0	0	0	0	0	0	289
Unaccounted Gaseous Fuel Combustion	22.246	2.78×10^{-4}	52.140	4.171	4.171	0.334	3.062
Wine Manufacturing	0	0	0	0	0	0	1.401
Commercial Total	68.243	8.18×10^{-4}	134	173	49.137	0.867	799
Annual Emissions (tonnes/year) - Wollongong							
Automotive Component Manufacturing n.e.c.	2.69×10^{-3}	1.60×10^{-8}	3.20×10^{-3}	2.43×10^{-4}	2.43×10^{-4}	1.67×10^{-5}	0.807
Automotive Fuel Retailing	0	0	0	0	0	0	320
Basic Iron and Steel Manufacturing	4.570	2.72×10^{-5}	5.440	0.413	0.413	0.028	0.334
Ceramic Product Manufacturing	11.601	2.90×10^{-5}	3.499	7.298	6.728	0.442	0.587
Concrete Slurry Manufacturing	0	4.96×10^{-7}	0	0.261	0.040	0	0
Fabricated Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	0.134
Funeral Directors, Crematoria and Cemeteries	0.152	2.01×10^{-8}	0.334	2.74×10^{-5}	1.83×10^{-5}	0.059	4.90×10^{-10}
Gas Supply	0	0	0	0	0	0	2.780
Gravel and Sand Quarrying	0	7.34×10^{-5}	0	32.737	7.374	0	3.60×10^{-3}
Hospitals (Except Psychiatric Hospitals)	71.125	4.23×10^{-4}	84.673	6.435	6.435	0.442	4.657
Laundries and Dry-Cleaners	0	0	0	0	0	0	10.413
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	1.387
Poultry Farming (Meat)	0	0	0	10.644	3.041	0	0
Printing	0	0	0	0	0	0	70.593
Rubber Product Manufacturing n.e.c.	7.20×10^{-3}	1.81×10^{-6}	0.029	1.56×10^{-3}	1.55×10^{-3}	0.010	8.66×10^{-4}
Smash Repairing	0	0	0	0	0	0	210
Spring and Wire Product Manufacturing	6.0×10^{-4}	0	4.35×10^{-3}	1.35×10^{-4}	1.34×10^{-4}	2.25×10^{-8}	1.05×10^{-4}
Steel Pipe and Tube Manufacturing	0	0	0	3.510	3.510	0	0
Synthetic Resin Manufacturing	1.48×10^{-3}	8.80×10^{-9}	1.76×10^{-3}	1.34×10^{-4}	1.34×10^{-4}	9.20×10^{-6}	9.68×10^{-5}
Unaccounted Gaseous Fuel Combustion	16.175	2.02×10^{-4}	37.911	3.033	3.033	0.243	2.227

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Commercial Total	104	7.58×10^{-4}	132	64.334	30.576	1.225	624
Annual Emissions (tonnes/year) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	0.429
Automotive Fuel Retailing	0	0	0	0	0	0	1,433
Chemical Product Manufacturing n.e.c.	0	0	0	5.0×10^{-3}	5.0×10^{-3}	0	4.059
Concrete Slurry Manufacturing	0	8.43×10^{-6}	0	4.435	0.673	0	0
Construction Material Mining n.e.c.	0	3.67×10^{-5}	0	16.376	3.690	0	1.80×10^{-3}
Electric Cable and Wire Manufacturing	0	0	0	0.840	0.629	0	84.000
Fabricated Metal Product Manufacturing n.e.c.	0.766	4.56×10^{-6}	0.450	0.069	0.069	4.77×10^{-3}	0.059
Food Manufacturing n.e.c.	3.875	4.20×10^{-4}	18.386	0.770	0.502	17.760	0.346
Funeral Directors, Crematoria and Cemeteries	0.795	1.06×10^{-7}	1.748	1.44×10^{-4}	9.59×10^{-5}	0.308	2.57×10^{-9}
Furniture Manufacturing n.e.c.	1.594	9.49×10^{-6}	1.898	0.144	0.144	9.91×10^{-3}	0.105
Glass and Glass Product Manufacturing	4.42×10^{-3}	1.20×10^{-5}	0.036	8.95×10^{-3}	1.96×10^{-3}	2.80×10^{-3}	9.56×10^{-4}
Gravel and Sand Quarrying	0	1.26×10^{-3}	0	578	134	0	0.046
Hospitals (Except Psychiatric Hospitals)	303	1.80×10^{-3}	361	27.397	27.397	1.901	19.834
Laundries and Dry-Cleaners	0	0	0	0	0	0	36.702
Medicinal and Pharmaceutical Product Manufacturing	0.520	3.09×10^{-6}	1.743	0.047	0.047	3.23×10^{-3}	0.693
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	0.806
Non-Building Construction n.e.c.	5.65×10^{-3}	0	0.041	1.27×10^{-3}	1.26×10^{-3}	2.12×10^{-7}	9.88×10^{-4}
Non-Ferrous Metal Casting	7.20×10^{-3}	1.81×10^{-6}	0.029	0.244	0.183	0.022	6.40×10^{-4}
Paper Product Manufacturing n.e.c.	0.081	0	0.377	0.027	0.026	0.025	0.028
Petroleum Product Wholesaling	0	0	0	0	0	0	43.932
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	4.346
Poultry Farming (Eggs)	0	0	0	60.293	17.226	0	0
Poultry Farming (Meat)	0	0	0	953	272	0	0

Criteria Pollutant Emissions for all Sectors
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	1.301	7.74×10^{-6}	1.549	0.118	0.118	8.09×10^{-3}	0.085
Printing	0	0	0	0	0	0	55.457
Rail Transport	0	0	0	0	0	0	0.014
Road and Bridge Construction	0	1.57×10^{-8}	0	0.032	6.51×10^{-3}	0	7.84×10^{-3}
Smash Repairing	0	0	0	0	0	0	676
Spring and Wire Product Manufacturing	0	0	0.772	0.129	0.129	0	0.380
Unaccounted Gaseous Fuel Combustion	52.944	6.63×10^{-4}	124	9.927	9.927	0.796	7.288
Wine Manufacturing	0	0	0	0	0	0	75.145
Wood Product Manufacturing n.e.c.	0	0	0	0	0	0	5.419
Commercial Total	364	4.23×10^{-3}	512	1,652	467	20.840	2,448

Table 3.24 Proportion of total estimated annual emissions from commercial sources by ANZSIC class for each region

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total Annual Emissions (%) - GMR							
Aircraft Manufacturing	1.83×10^{-4}	1.73×10^{-5}	9.59×10^{-4}	2.83×10^{-4}	6.98×10^{-4}	4.85×10^{-6}	9.0×10^{-5}
Automotive Component Manufacturing n.e.c.	1.64×10^{-5}	1.55×10^{-6}	8.58×10^{-5}	2.91×10^{-5}	7.18×10^{-5}	4.34×10^{-7}	8.16×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	3.29
Basic Iron and Steel Manufacturing	4.05×10^{-4}	5.98×10^{-3}	2.86×10^{-3}	9.97×10^{-3}	0.02	1.07×10^{-5}	0.03
Basic Non-Ferrous Metal Manufacturing n.e.c.	6.83×10^{-6}	4.57×10^{-3}	3.60×10^{-5}	0.01	0.02	4.27×10^{-5}	3.36×10^{-6}
Biscuit Manufacturing	6.13×10^{-4}	5.81×10^{-5}	3.22×10^{-3}	9.51×10^{-4}	2.34×10^{-3}	1.63×10^{-5}	3.02×10^{-4}
Bread Manufacturing	4.71×10^{-4}	5.38×10^{-5}	1.56×10^{-3}	1.08×10^{-3}	2.67×10^{-3}	1.51×10^{-5}	0.06
Cake and Pastry Manufacturing	1.04×10^{-4}	9.84×10^{-6}	5.45×10^{-4}	1.61×10^{-4}	3.97×10^{-4}	2.76×10^{-6}	7.96×10^{-3}
Ceramic Product Manufacturing	9.02×10^{-4}	3.58×10^{-5}	1.20×10^{-3}	9.71×10^{-3}	0.02	1.46×10^{-4}	3.43×10^{-4}
Ceramic Product Manufacturing n.e.c.	3.73×10^{-7}	0	1.19×10^{-5}	1.44×10^{-6}	3.51×10^{-6}	5.96×10^{-11}	4.91×10^{-7}
Chemical Product Manufacturing n.e.c.	1.14×10^{-4}	1.08×10^{-5}	5.97×10^{-4}	1.83×10^{-4}	4.51×10^{-4}	7.52×10^{-3}	0.08
Chemical Wholesaling	0	0	0	0	0	0	4.57×10^{-4}
Concrete Slurry Manufacturing	0	3.77×10^{-5}	0	0.02	9.12×10^{-3}	0	0
Confectionery Manufacturing	1.43×10^{-5}	1.36×10^{-6}	7.52×10^{-5}	2.22×10^{-5}	5.47×10^{-5}	3.80×10^{-7}	9.17×10^{-6}
Construction Material Mining n.e.c.	0	1.62×10^{-4}	0	0.07	0.03	0	3.53×10^{-6}
Corrugated Paperboard Container Manufacturing	1.50×10^{-4}	1.42×10^{-5}	7.88×10^{-4}	2.33×10^{-4}	5.73×10^{-4}	3.98×10^{-6}	7.39×10^{-5}
Electric Cable and Wire Manufacturing	0	0	0	1.12×10^{-3}	2.06×10^{-3}	0	0.05
Electrical and Equipment Manufacturing n.e.c.	2.86×10^{-6}	2.71×10^{-7}	1.45×10^{-4}	5.71×10^{-4}	1.41×10^{-3}	7.59×10^{-8}	2.45×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	6.69×10^{-5}	6.18×10^{-6}	6.93×10^{-4}	1.74×10^{-3}	4.28×10^{-3}	1.75×10^{-6}	0.02
Food Manufacturing n.e.c.	8.38×10^{-4}	5.70×10^{-4}	9.11×10^{-3}	1.86×10^{-3}	3.69×10^{-3}	5.90×10^{-3}	0.07
Fruit and Vegetable Processing	4.39×10^{-5}	4.15×10^{-6}	2.30×10^{-4}	6.80×10^{-5}	1.67×10^{-4}	1.16×10^{-6}	2.16×10^{-5}
Funeral Directors, Crematoria and Cemeteries	2.63×10^{-4}	5.56×10^{-7}	2.55×10^{-3}	8.14×10^{-7}	1.34×10^{-6}	4.35×10^{-4}	6.39×10^{-12}
Furniture Manufacturing n.e.c.	1.24×10^{-4}	1.17×10^{-5}	6.50×10^{-4}	1.92×10^{-4}	4.73×10^{-4}	3.28×10^{-6}	4.23×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gas Supply	9.40×10^{-5}	8.90×10^{-6}	4.93×10^{-4}	1.46×10^{-4}	3.59×10^{-4}	2.49×10^{-6}	5.86×10^{-3}
Glass and Glass Product Manufacturing	1.61×10^{-3}	0.02	0.02	0.01	0.02	5.06×10^{-5}	8.85×10^{-3}
Gravel and Sand Quarrying	0	3.71×10^{-3}	0	1.67	0.97	0	6.23×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.09	8.16×10^{-3}	0.45	0.13	0.33	2.32×10^{-3}	0.04
Ice Cream Manufacturing	8.0×10^{-5}	7.56×10^{-6}	5.87×10^{-4}	1.24×10^{-4}	3.05×10^{-4}	4.77×10^{-6}	2.56×10^{-4}
Industrial Gas Manufacturing	1.46×10^{-7}	0	4.67×10^{-6}	5.64×10^{-7}	1.38×10^{-6}	2.34×10^{-11}	3.40×10^{-3}
Ink Manufacturing	0	0	0	8.19×10^{-4}	2.0×10^{-3}	0	6.22×10^{-3}
Laundries and Dry-Cleaners	3.52×10^{-5}	3.33×10^{-6}	1.85×10^{-4}	5.45×10^{-5}	1.34×10^{-4}	9.33×10^{-7}	0.16
Lifting and Material Handling Equipment Manufacturing	0	0	4.24×10^{-5}	3.26×10^{-5}	8.03×10^{-5}	0	4.36×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	2.30×10^{-4}	2.17×10^{-5}	1.62×10^{-3}	3.59×10^{-4}	8.84×10^{-4}	6.07×10^{-6}	1.19×10^{-3}
Metal Coating and Finishing	2.89×10^{-4}	2.73×10^{-5}	0.01	4.40×10^{-3}	0.01	7.66×10^{-6}	4.51×10^{-3}
Milk and Cream Processing	7.99×10^{-5}	7.56×10^{-6}	4.19×10^{-4}	1.24×10^{-4}	3.05×10^{-4}	2.12×10^{-6}	3.94×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	2.67×10^{-7}	6.58×10^{-7}	0	7.49×10^{-4}
Non-Building Construction n.e.c.	1.72×10^{-6}	0	5.49×10^{-5}	6.62×10^{-6}	1.62×10^{-5}	2.75×10^{-10}	2.26×10^{-6}
Non-Ferrous Metal Casting	5.60×10^{-7}	2.23×10^{-6}	9.86×10^{-6}	3.24×10^{-4}	6.0×10^{-4}	7.20×10^{-6}	3.74×10^{-7}
Paint Manufacturing	0	0.17	0	0.03	0.07	0	0.07
Paper Product Manufacturing n.e.c.	1.42×10^{-4}	1.28×10^{-5}	8.39×10^{-4}	2.45×10^{-4}	6.03×10^{-4}	1.18×10^{-5}	3.14×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.05
Plaster Product Manufacturing	0.01	0.02	0.01	0.02	0.03	1.52×10^{-3}	1.99×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.20×10^{-3}	2.73×10^{-3}	0	0.01
Plastic Injection Moulded Product Manufacturing	1.56×10^{-4}	1.56×10^{-5}	8.25×10^{-4}	2.42×10^{-4}	5.95×10^{-4}	2.90×10^{-5}	1.0×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.09×10^{-4}	1.03×10^{-5}	5.82×10^{-4}	1.69×10^{-4}	4.15×10^{-4}	2.88×10^{-6}	0.02
Port Operators	2.43×10^{-3}	4.94×10^{-4}	0.04	0.01	0.03	3.29×10^{-3}	8.03×10^{-3}
Poultry Farming (Eggs)	0	0	0	0.79	0.56	0	0
Poultry Farming (Meat)	0	0	0	2.45	1.72	0	0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	1.01×10^{-4}	1.0×10^{-5}	5.32×10^{-4}	1.57×10^{-4}	3.87×10^{-4}	3.36×10^{-6}	4.99×10^{-5}
Printing	2.35×10^{-4}	2.66×10^{-5}	1.61×10^{-3}	4.35×10^{-4}	1.07×10^{-3}	7.45×10^{-6}	0.76
Rail Transport	0	0	0	0	0	0	8.14×10^{-6}
Road and Bridge Construction	0	2.13×10^{-8}	0	1.26×10^{-4}	6.24×10^{-5}	0	8.68×10^{-6}
Rubber Product Manufacturing n.e.c.	5.60×10^{-7}	2.36×10^{-6}	9.86×10^{-6}	9.77×10^{-6}	5.08×10^{-6}	3.38×10^{-6}	4.01×10^{-6}
Smash Repairing	0	0	0	0	0	0	3.18
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.69×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	2.07×10^{-4}	2.01×10^{-5}	1.11×10^{-3}	3.29×10^{-4}	8.10×10^{-4}	5.63×10^{-6}	1.04×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	8.95×10^{-3}
Spirit Manufacturing	0	0	0	0	0	0	0.04
Spring and Wire Product Manufacturing	3.98×10^{-7}	3.32×10^{-8}	2.68×10^{-4}	1.73×10^{-4}	4.25×10^{-4}	9.31×10^{-9}	2.23×10^{-4}
Steel Pipe and Tube Manufacturing	0	0	2.55×10^{-4}	6.03×10^{-3}	0.01	0	7.18×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.45×10^{-3}
Structural Steel Fabricating	0	0	0	1.30×10^{-5}	3.21×10^{-5}	0	0
Synthetic Resin Manufacturing	1.15×10^{-7}	1.09×10^{-8}	6.03×10^{-7}	1.78×10^{-7}	4.39×10^{-7}	3.05×10^{-9}	5.66×10^{-8}
Unaccounted Gaseous Fuel Combustion	0.03	6.64×10^{-3}	0.34	0.11	0.26	2.14×10^{-3}	0.03
Wine Manufacturing	1.87×10^{-8}	0	5.98×10^{-7}	7.21×10^{-8}	1.76×10^{-7}	2.99×10^{-12}	0.05
Wood Product Manufacturing n.e.c.	3.89×10^{-8}	3.68×10^{-9}	2.04×10^{-7}	6.02×10^{-8}	1.48×10^{-7}	1.03×10^{-9}	3.17×10^{-3}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	1.04×10^{-3}
Commercial Total	0.14	0.24	0.91	5.37	4.16	0.02	8.09
Proportion of Anthropogenic Total Annual Emissions (%) - Sydney							
Aircraft Manufacturing	4.45×10^{-4}	4.82×10^{-5}	3.02×10^{-3}	9.99×10^{-4}	1.62×10^{-3}	1.06×10^{-4}	1.18×10^{-4}
Automotive Component Manufacturing n.e.c.	3.94×10^{-5}	4.26×10^{-6}	2.67×10^{-4}	1.02×10^{-4}	1.65×10^{-4}	9.39×10^{-6}	9.73×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	2.63
Basic Iron and Steel Manufacturing	1.22×10^{-4}	0.02	3.14×10^{-3}	0.03	0.05	2.91×10^{-5}	0.04

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Basic Non-Ferrous Metal Manufacturing n.e.c.	1.66×10^{-5}	0.01	1.13×10^{-4}	0.05	0.06	9.36×10^{-4}	4.40×10^{-6}
Biscuit Manufacturing	1.49×10^{-3}	1.62×10^{-4}	0.01	3.35×10^{-3}	5.44×10^{-3}	3.57×10^{-4}	3.95×10^{-4}
Bread Manufacturing	8.30×10^{-4}	1.15×10^{-4}	2.75×10^{-3}	2.39×10^{-3}	3.88×10^{-3}	2.54×10^{-4}	0.04
Cake and Pastry Manufacturing	2.53×10^{-4}	2.74×10^{-5}	1.72×10^{-3}	5.68×10^{-4}	9.22×10^{-4}	6.04×10^{-5}	0.01
Chemical Product Manufacturing n.e.c.	2.77×10^{-4}	3.0×10^{-5}	1.88×10^{-3}	6.23×10^{-4}	1.01×10^{-3}	0.16	0.10
Chemical Wholesaling	0	0	0	0	0	0	5.98×10^{-4}
Concrete Slurry Manufacturing	0	6.41×10^{-5}	0	0.06	0.01	0	0
Confectionery Manufacturing	3.49×10^{-5}	3.78×10^{-6}	2.37×10^{-4}	7.83×10^{-5}	1.27×10^{-4}	8.33×10^{-6}	1.20×10^{-5}
Corrugated Paperboard Container Manufacturing	3.66×10^{-4}	3.96×10^{-5}	2.48×10^{-3}	8.20×10^{-4}	1.33×10^{-3}	8.73×10^{-5}	9.67×10^{-5}
Electrical and Equipment Manufacturing n.e.c.	6.97×10^{-6}	7.55×10^{-7}	4.55×10^{-4}	2.01×10^{-3}	3.27×10^{-3}	1.66×10^{-6}	3.20×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	1.80×10^{-5}	1.53×10^{-6}	1.25×10^{-3}	4.90×10^{-3}	7.95×10^{-3}	3.65×10^{-6}	0.03
Food Manufacturing n.e.c.	1.31×10^{-3}	1.41×10^{-4}	8.86×10^{-3}	2.93×10^{-3}	4.76×10^{-3}	3.12×10^{-4}	0.10
Fruit and Vegetable Processing	1.07×10^{-4}	1.16×10^{-5}	7.24×10^{-4}	2.40×10^{-4}	3.89×10^{-4}	2.55×10^{-5}	2.82×10^{-5}
Funeral Directors, Crematoria and Cemeteries	3.86×10^{-4}	9.33×10^{-7}	4.84×10^{-3}	1.73×10^{-6}	1.88×10^{-6}	5.75×10^{-3}	5.03×10^{-12}
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	2.17×10^{-3}
Gas Supply	2.29×10^{-4}	2.48×10^{-5}	1.55×10^{-3}	5.14×10^{-4}	8.34×10^{-4}	5.47×10^{-5}	5.53×10^{-3}
Glass and Glass Product Manufacturing	3.91×10^{-3}	0.06	0.05	0.04	0.06	1.09×10^{-3}	0.01
Gravel and Sand Quarrying	0	5.16×10^{-3}	0	2.63	1.04	0	3.65×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.13	0.01	0.89	0.30	0.48	0.03	0.03
Ice Cream Manufacturing	1.95×10^{-4}	2.11×10^{-5}	1.85×10^{-3}	4.37×10^{-4}	7.09×10^{-4}	1.05×10^{-4}	3.35×10^{-4}
Industrial Gas Manufacturing	3.56×10^{-7}	0	1.47×10^{-5}	1.99×10^{-6}	3.20×10^{-6}	5.13×10^{-10}	4.45×10^{-3}
Ink Manufacturing	0	0	0	2.89×10^{-3}	4.65×10^{-3}	0	8.14×10^{-3}
Laundries and Dry-Cleaners	8.58×10^{-5}	9.28×10^{-6}	5.81×10^{-4}	1.92×10^{-4}	3.12×10^{-4}	2.05×10^{-5}	0.17
Lifting and Material Handling Equipment Manufacturing	0	0	1.34×10^{-4}	1.15×10^{-4}	1.86×10^{-4}	0	5.70×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	4.62×10^{-4}	4.97×10^{-5}	3.22×10^{-3}	1.05×10^{-3}	1.70×10^{-3}	1.10×10^{-4}	1.03×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Metal Coating and Finishing	2.39×10^{-4}	2.58×10^{-5}	1.82×10^{-3}	2.89×10^{-3}	4.69×10^{-3}	5.70×10^{-5}	5.45×10^{-3}
Milk and Cream Processing	1.95×10^{-4}	2.11×10^{-5}	1.32×10^{-3}	4.37×10^{-4}	7.09×10^{-4}	4.65×10^{-5}	5.15×10^{-5}
Non-Building Construction n.e.c.	3.12×10^{-6}	0	1.29×10^{-4}	1.74×10^{-5}	2.80×10^{-5}	4.49×10^{-9}	2.20×10^{-6}
Paint Manufacturing	0	0.48	0	0.10	0.16	0	0.09
Paper Product Manufacturing n.e.c.	3.30×10^{-4}	3.57×10^{-5}	2.23×10^{-3}	7.39×10^{-4}	1.20×10^{-3}	7.87×10^{-5}	3.90×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.03
Plaster Product Manufacturing	0.02	0.04	0.04	0.07	0.07	0.03	2.61×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	4.22×10^{-3}	6.34×10^{-3}	0	0.01
Plastic Injection Moulded Product Manufacturing	3.80×10^{-4}	4.35×10^{-5}	2.60×10^{-3}	8.52×10^{-4}	1.38×10^{-3}	6.37×10^{-4}	1.31×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	2.65×10^{-4}	2.87×10^{-5}	1.83×10^{-3}	5.95×10^{-4}	9.65×10^{-4}	6.33×10^{-5}	0.02
Port Operators	5.93×10^{-3}	1.38×10^{-3}	0.11	0.04	0.07	0.07	0.01
Poultry Farming (Eggs)	0	0	0	2.51	1.16	0	0
Poultry Farming (Meat)	0	0	0	3.90	1.81	0	0
Prepared Animal and Bird Feed Manufacturing	2.73×10^{-7}	1.24×10^{-6}	6.21×10^{-6}	1.46×10^{-6}	2.36×10^{-6}	1.48×10^{-5}	7.34×10^{-8}
Printing	5.72×10^{-4}	7.41×10^{-5}	5.06×10^{-3}	1.53×10^{-3}	2.49×10^{-3}	1.63×10^{-4}	0.89
Road and Bridge Construction	0	0	0	1.39×10^{-4}	4.54×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	3.62×10^{-7}	0	2.71×10^{-5}	0	0	4.59×10^{-6}
Smash Repairing	0	0	0	0	0	0	3.26
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	2.21×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	5.04×10^{-4}	5.59×10^{-5}	3.50×10^{-3}	1.16×10^{-3}	1.88×10^{-3}	1.23×10^{-4}	1.37×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.01
Spirit Manufacturing	0	0	0	0	0	0	0.05
Spring and Wire Product Manufacturing	8.55×10^{-7}	9.25×10^{-8}	5.80×10^{-6}	1.92×10^{-6}	3.11×10^{-6}	2.04×10^{-7}	3.87×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	8.02×10^{-4}	4.79×10^{-3}	7.77×10^{-3}	0	9.39×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.90×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Structural Steel Fabricating	0	0	0	4.60×10^{-5}	7.46×10^{-5}	0	0
Unaccounted Gaseous Fuel Combustion	0.06	0.01	0.85	0.30	0.48	0.04	0.04
Wine Manufacturing	4.56×10^{-8}	0	1.88×10^{-6}	2.54×10^{-7}	4.09×10^{-7}	6.56×10^{-11}	5.92×10^{-3}
Wood Product Manufacturing n.e.c.	9.47×10^{-8}	1.02×10^{-8}	6.42×10^{-7}	2.12×10^{-7}	3.45×10^{-7}	2.26×10^{-8}	2.50×10^{-8}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	1.36×10^{-3}
Commercial Total	0.24	0.65	2.02	10.1	5.51	0.35	7.62
Proportion of Anthropogenic Total Annual Emissions (%) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	4.39
Bread Manufacturing	1.94×10^{-3}	4.16×10^{-4}	0.02	0.01	0.02	9.80×10^{-5}	0.47
Ceramic Product Manufacturing n.e.c.	5.53×10^{-6}	0	3.53×10^{-4}	3.66×10^{-5}	6.34×10^{-5}	1.69×10^{-9}	8.63×10^{-6}
Chemical Product Manufacturing n.e.c.	0	0	0	0	0	0	0.07
Concrete Slurry Manufacturing	0	1.25×10^{-4}	0	0.05	0.01	0	0
Construction Material Mining n.e.c.	0	3.93×10^{-3}	0	1.15	0.39	0	4.35×10^{-5}
Fabricated Metal Product Manufacturing n.e.c.	0	0	4.19×10^{-3}	6.51×10^{-3}	0.01	0	2.54×10^{-4}
Funeral Directors, Crematoria and Cemeteries	4.61×10^{-4}	2.21×10^{-6}	8.92×10^{-3}	2.45×10^{-6}	2.86×10^{-6}	1.45×10^{-3}	1.33×10^{-11}
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	0.04
Gravel and Sand Quarrying	0	7.17×10^{-3}	0	2.73	1.06	0	9.25×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.05	0.01	0.51	0.13	0.23	3.29×10^{-3}	0.03
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.14
Metal Coating and Finishing	2.83×10^{-3}	6.08×10^{-4}	0.29	0.09	0.16	1.43×10^{-4}	6.07×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	6.80×10^{-6}	1.19×10^{-5}	0	4.88×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	2.58×10^{-3}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.05
Poultry Farming (Meat)	0	0	0	1.57	0.78	0	0
Road and Bridge Construction	0	6.32×10^{-8}	0	1.11×10^{-3}	3.89×10^{-4}	0	7.22×10^{-5}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Smash Repairing	0	0	0	0	0	0	2.97
Unaccounted Gaseous Fuel Combustion	0.03	0.01	0.53	0.14	0.25	3.13×10^{-3}	0.03
Wine Manufacturing	0	0	0	0	0	0	0.01
Commercial Total	0.08	0.03	1.36	5.88	2.91	8.12×10^{-3}	8.22
Proportion of Anthropogenic Total Annual Emissions (%) - Wollongong							
Automotive Component Manufacturing n.e.c.	4.93×10^{-7}	2.46×10^{-7}	2.60×10^{-5}	8.02×10^{-6}	1.11×10^{-5}	1.58×10^{-7}	0.01
Automotive Fuel Retailing	0	0	0	0	0	0	4.96
Basic Iron and Steel Manufacturing	8.38×10^{-4}	4.19×10^{-4}	0.04	0.01	0.02	2.68×10^{-4}	5.18×10^{-3}
Ceramic Product Manufacturing	2.13×10^{-3}	4.46×10^{-4}	0.03	0.24	0.31	4.16×10^{-3}	9.09×10^{-3}
Concrete Slurry Manufacturing	0	7.63×10^{-6}	0	8.60×10^{-3}	1.81×10^{-3}	0	0
Fabricated Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	2.08×10^{-3}
Funeral Directors, Crematoria and Cemeteries	2.78×10^{-5}	3.10×10^{-7}	2.71×10^{-3}	9.03×10^{-7}	8.35×10^{-7}	5.54×10^{-4}	7.58×10^{-12}
Gas Supply	0	0	0	0	0	0	0.04
Gravel and Sand Quarrying	0	1.13×10^{-3}	0	1.08	0.34	0	5.58×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.01	6.52×10^{-3}	0.69	0.21	0.29	4.17×10^{-3}	0.07
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.16
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.02
Poultry Farming (Meat)	0	0	0	0.35	0.14	0	0
Printing	0	0	0	0	0	0	1.09
Rubber Product Manufacturing n.e.c.	1.32×10^{-6}	2.78×10^{-5}	2.34×10^{-4}	5.14×10^{-5}	7.06×10^{-5}	9.62×10^{-5}	1.34×10^{-5}
Smash Repairing	0	0	0	0	0	0	3.25
Spring and Wire Product Manufacturing	1.10×10^{-7}	0	3.54×10^{-5}	4.45×10^{-6}	6.10×10^{-6}	2.12×10^{-10}	1.63×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	0	0.12	0.16	0	0
Synthetic Resin Manufacturing	2.71×10^{-7}	1.35×10^{-7}	1.43×10^{-5}	4.41×10^{-6}	6.10×10^{-6}	8.67×10^{-8}	1.50×10^{-6}
Unaccounted Gaseous Fuel Combustion	2.97×10^{-3}	3.12×10^{-3}	0.31	0.10	0.14	2.29×10^{-3}	0.03

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Commercial Total	0.02	0.01	1.07	2.12	1.39	0.01	9.66
Proportion of Anthropogenic Total Annual Emissions (%) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.78×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	5.96
Chemical Product Manufacturing n.e.c.	0	0	0	1.05×10^{-5}	3.71×10^{-5}	0	0.02
Concrete Slurry Manufacturing	0	1.96×10^{-5}	0	9.27×10^{-3}	4.99×10^{-3}	0	0
Construction Material Mining n.e.c.	0	8.55×10^{-5}	0	0.03	0.03	0	7.48×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	1.76×10^{-3}	4.66×10^{-3}	0	0.35
Fabricated Metal Product Manufacturing n.e.c.	6.06×10^{-4}	1.06×10^{-5}	2.54×10^{-4}	1.45×10^{-4}	5.14×10^{-4}	1.79×10^{-6}	2.44×10^{-4}
Food Manufacturing n.e.c.	3.07×10^{-3}	9.78×10^{-4}	0.01	1.61×10^{-3}	3.72×10^{-3}	6.66×10^{-3}	1.44×10^{-3}
Funeral Directors, Crematoria and Cemeteries	6.29×10^{-4}	2.46×10^{-7}	9.87×10^{-4}	3.0×10^{-7}	7.11×10^{-7}	1.15×10^{-4}	1.07×10^{-11}
Furniture Manufacturing n.e.c.	1.26×10^{-3}	2.21×10^{-5}	1.07×10^{-3}	3.01×10^{-4}	1.07×10^{-3}	3.72×10^{-6}	4.36×10^{-4}
Glass and Glass Product Manufacturing	3.50×10^{-6}	2.79×10^{-5}	2.01×10^{-5}	1.87×10^{-5}	1.45×10^{-5}	1.05×10^{-6}	3.98×10^{-6}
Gravel and Sand Quarrying	0	2.93×10^{-3}	0	1.21	1.00	0	1.93×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.24	4.19×10^{-3}	0.20	0.06	0.20	7.12×10^{-4}	0.08
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.15
Medicinal and Pharmaceutical Product Manufacturing	4.11×10^{-4}	7.20×10^{-6}	9.84×10^{-4}	9.83×10^{-5}	3.48×10^{-4}	1.21×10^{-6}	2.88×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	3.35×10^{-3}
Non-Building Construction n.e.c.	4.47×10^{-6}	0	2.31×10^{-5}	2.66×10^{-6}	9.33×10^{-6}	7.94×10^{-11}	4.11×10^{-6}
Non-Ferrous Metal Casting	5.70×10^{-6}	4.20×10^{-6}	1.63×10^{-5}	5.10×10^{-4}	1.36×10^{-3}	8.14×10^{-6}	2.66×10^{-6}
Paper Product Manufacturing n.e.c.	6.42×10^{-5}	0	2.13×10^{-4}	5.54×10^{-5}	1.95×10^{-4}	9.30×10^{-6}	1.15×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.18
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.02
Poultry Farming (Eggs)	0	0	0	0.13	0.13	0	0
Poultry Farming (Meat)	0	0	0	1.99	2.02	0	0

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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	1.03×10^{-3}	1.80×10^{-5}	8.74×10^{-4}	2.46×10^{-4}	8.72×10^{-4}	3.03×10^{-6}	3.54×10^{-4}
Printing	0	0	0	0	0	0	0.23
Rail Transport	0	0	0	0	0	0	5.79×10^{-5}
Road and Bridge Construction	0	3.65×10^{-8}	0	6.79×10^{-5}	4.83×10^{-5}	0	3.26×10^{-5}
Smash Repairing	0	0	0	0	0	0	2.81
Spring and Wire Product Manufacturing	0	0	4.36×10^{-4}	2.70×10^{-4}	9.57×10^{-4}	0	1.58×10^{-3}
Unaccounted Gaseous Fuel Combustion	0.04	1.54×10^{-3}	0.07	0.02	0.07	2.98×10^{-4}	0.03
Wine Manufacturing	0	0	0	0	0	0	0.31
Wood Product Manufacturing n.e.c.	0	0	0	0	0	0	0.02
Commercial Total	0.29	9.84×10^{-3}	0.29	3.45	3.46	7.81×10^{-3}	10.2

3.2.3 Daily Emission Estimates

Table 3.25 shows total estimated daily emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.25 Total estimated daily emissions from commercial sources in each region for typical January weekday

Substance	Commercial January Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.268	0.177	0.272	0.960	4.678
LEAD AND COMPOUNDS	6.51×10^{-4}	2.19×10^{-6}	2.04×10^{-6}	1.24×10^{-5}	6.68×10^{-4}
OXIDES OF NITROGEN	4.714	0.354	0.340	1.330	6.737
PARTICULATE MATTER < 10 µm	5.874	0.460	0.177	4.561	11.072
PARTICULATE MATTER < 2.5 µm	1.978	0.134	0.083	1.297	3.492
SULFUR DIOXIDE	0.128	2.28×10^{-3}	3.23×10^{-3}	0.054	0.187
TOTAL VOCS	31.652	2.618	2.063	7.901	44.233

Table 3.26 shows the proportion of total estimated daily anthropogenic emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.26 Proportion of total estimated daily emissions from commercial sources in each region for typical January weekday

Substance	Commercial Proportion of Anthropogenic Total January Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	0.32	0.09	0.02	0.36	0.16
LEAD AND COMPOUNDS	0.94	0.04	0.01	0.01	0.36
OXIDES OF NITROGEN	1.99	1.40	1.05	0.28	0.88
PARTICULATE MATTER < 10 µm	13.5	6.56	2.43	3.82	6.25
PARTICULATE MATTER < 2.5 µm	8.64	3.74	1.60	4.07	5.50
SULFUR DIOXIDE	0.35	7.97×10^{-3}	0.01	7.46×10^{-3}	0.02
TOTAL VOCS	10.3	11.5	13.5	14.0	11.0

Figure 3.7 shows the proportion of total estimated daily GMR commercial emissions from all commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

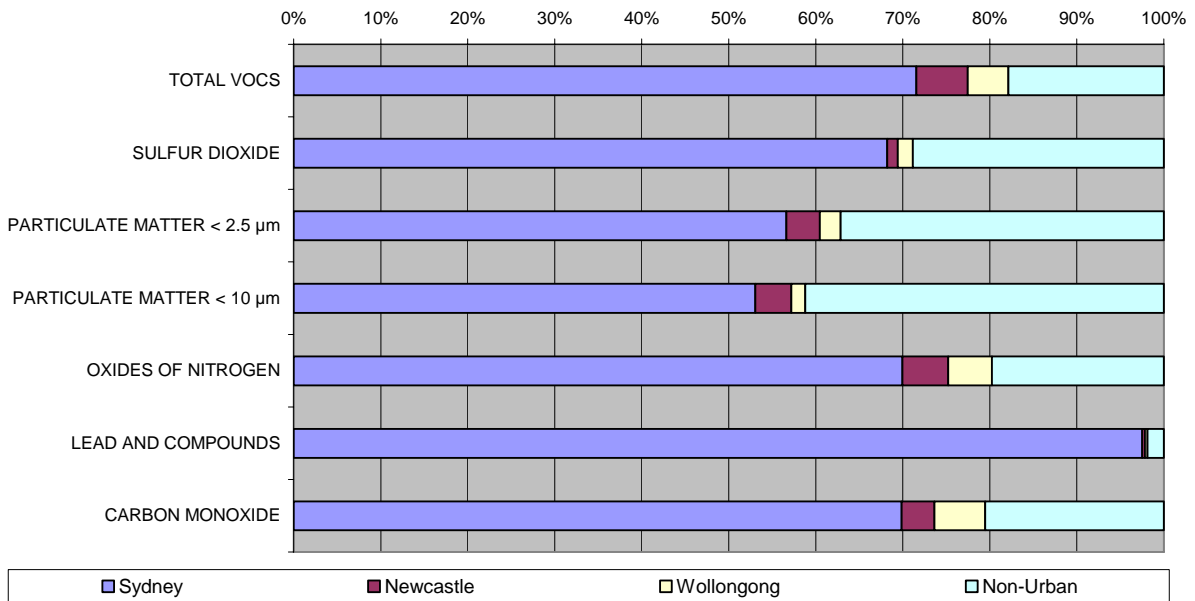


Figure 3.7 Proportion of total estimated daily emissions from commercial sources in each region for typical January weekday

Table 3.27 shows total estimated daily emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.28 shows the proportion of total estimated daily anthropogenic emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.27 Total estimated daily emissions from commercial sources by ANZSIC class in each region for typical January weekday

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
January Weekday Emissions (tonnes/day) - GMR							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	2.94×10^{-4}	1.67×10^{-9}	3.50×10^{-4}	3.06×10^{-5}	3.06×10^{-5}	1.83×10^{-6}	0.022
Automotive Fuel Retailing	0	0	0	0	0	0	19.230
Basic Iron and Steel Manufacturing	0.014	9.14×10^{-6}	0.022	0.014	0.013	8.72×10^{-5}	0.127
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.016	1.17×10^{-7}	0.012	2.19×10^{-3}	2.19×10^{-3}	1.22×10^{-4}	0.265
Cake and Pastry Manufacturing	3.59×10^{-3}	2.14×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Ceramic Product Manufacturing n.e.c.	1.55×10^{-5}	0	1.12×10^{-4}	3.48×10^{-6}	3.45×10^{-6}	5.42×10^{-10}	2.71×10^{-6}
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.74×10^{-4}	3.74×10^{-4}	0.061	0.394
Chemical Wholesaling	0	0	0	0	0	0	2.45×10^{-3}
Concrete Slurry Manufacturing	0	6.32×10^{-8}	0	0.040	6.10×10^{-3}	0	0
Confectionery Manufacturing	4.95×10^{-4}	2.94×10^{-9}	5.90×10^{-4}	4.48×10^{-5}	4.48×10^{-5}	3.08×10^{-6}	4.22×10^{-5}
Construction Material Mining n.e.c.	0	2.93×10^{-7}	0	0.119	0.025	0	1.93×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.09×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electric Cable and Wire Manufacturing	0	0	0	1.35×10^{-3}	1.01×10^{-3}	0	0.135
Electrical and Equipment Manufacturing n.e.c.	2.17×10^{-5}	9.03×10^{-11}	2.59×10^{-5}	7.70×10^{-4}	7.70×10^{-4}	1.35×10^{-7}	6.45×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	2.23×10^{-3}	1.30×10^{-8}	5.74×10^{-3}	3.89×10^{-3}	3.89×10^{-3}	1.37×10^{-5}	0.074
Food Manufacturing n.e.c.	0.028	1.19×10^{-6}	0.069	3.60×10^{-3}	2.91×10^{-3}	0.046	0.342
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	0.011	7.68×10^{-10}	0.023	1.92×10^{-6}	1.28×10^{-6}	4.12×10^{-3}	0
Furniture Manufacturing n.e.c.	5.0×10^{-3}	2.97×10^{-8}	5.95×10^{-3}	4.52×10^{-4}	4.52×10^{-4}	3.11×10^{-5}	6.15×10^{-3}

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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.027
Glass and Glass Product Manufacturing	0.056	5.05×10^{-5}	0.132	0.021	0.020	4.06×10^{-4}	0.041
Gravel and Sand Quarrying	0	1.11×10^{-5}	0	3.638	0.891	0	3.41×10^{-4}
Hospitals (Except Psychiatric Hospitals)	2.984	1.78×10^{-5}	3.557	0.270	0.270	0.019	0.196
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	7.08×10^{-6}	0	5.13×10^{-5}	1.59×10^{-6}	1.58×10^{-6}	2.26×10^{-10}	0.022
Ink Manufacturing	0	0	0	2.32×10^{-3}	2.30×10^{-3}	0	0.040
Laundries and Dry-Cleaners	1.42×10^{-3}	8.45×10^{-9}	1.69×10^{-3}	1.29×10^{-4}	1.29×10^{-4}	8.84×10^{-6}	0.869
Lifting and Material Handling Equipment Manufacturing	0	0	3.89×10^{-4}	7.68×10^{-5}	7.68×10^{-5}	0	2.31×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	0.011	6.70×10^{-8}	0.018	1.03×10^{-3}	1.03×10^{-3}	7.01×10^{-5}	6.98×10^{-3}
Metal Coating and Finishing	0.012	7.36×10^{-8}	0.093	0.011	0.011	7.71×10^{-5}	0.021
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	3.81×10^{-3}
Non-Building Construction n.e.c.	4.62×10^{-5}	0	3.35×10^{-4}	1.04×10^{-5}	1.03×10^{-5}	1.63×10^{-9}	8.08×10^{-6}
Non-Ferrous Metal Casting	2.71×10^{-5}	6.77×10^{-9}	1.08×10^{-4}	9.17×10^{-4}	6.88×10^{-4}	8.18×10^{-5}	2.32×10^{-6}
Paint Manufacturing	0	5.19×10^{-4}	0	0.077	0.076	0	0.224
Paper Product Manufacturing n.e.c.	4.90×10^{-3}	2.78×10^{-8}	6.59×10^{-3}	4.95×10^{-4}	4.94×10^{-4}	9.58×10^{-5}	1.45×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.222
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	2.24×10^{-3}	2.12×10^{-3}	0	0.036
Plastic Injection Moulded Product Manufacturing	5.39×10^{-3}	3.39×10^{-8}	6.48×10^{-3}	4.88×10^{-4}	4.88×10^{-4}	2.30×10^{-4}	4.61×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	0.114
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.598	0.457	0	0
Poultry Farming (Meat)	0	0	0	4.949	1.414	0	0

Criteria Pollutant Emissions for all Sectors
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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.17×10^{-8}	4.18×10^{-3}	3.17×10^{-4}	3.17×10^{-4}	2.72×10^{-5}	2.29×10^{-4}
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	4.124
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	2.55×10^{-4}	5.12×10^{-5}	0	4.11×10^{-5}
Rubber Product Manufacturing n.e.c.	2.71×10^{-5}	7.09×10^{-9}	1.08×10^{-4}	2.40×10^{-5}	5.83×10^{-6}	3.84×10^{-5}	2.18×10^{-5}
Smash Repairing	0	0	0	0	0	0	17.077
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	6.52×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.38×10^{-5}	4.52×10^{-11}	2.93×10^{-3}	4.87×10^{-4}	4.87×10^{-4}	7.56×10^{-8}	1.43×10^{-3}
Steel Pipe and Tube Manufacturing	0	0	2.33×10^{-3}	0.013	0.013	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	2.46×10^{-5}	2.46×10^{-5}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.60×10^{-7}	3.60×10^{-7}	2.47×10^{-8}	2.60×10^{-7}
Unaccounted Gaseous Fuel Combustion	0.983	1.23×10^{-5}	2.303	0.184	0.184	0.015	0.135
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.136
Wood Product Manufacturing n.e.c.	9.03×10^{-7}	0	1.08×10^{-6}	8.17×10^{-8}	8.17×10^{-8}	5.60×10^{-9}	0.012
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	0
Commercial Total	4.678	6.68×10^{-4}	6.737	11.072	3.492	0.187	44.233
January Weekday Emissions (tonnes/day) - Sydney							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	2.87×10^{-4}	1.67×10^{-9}	3.42×10^{-4}	2.99×10^{-5}	2.99×10^{-5}	1.78×10^{-6}	0.018
Automotive Fuel Retailing	0	0	0	0	0	0	11.635
Basic Iron and Steel Manufacturing	1.73×10^{-3}	9.07×10^{-6}	7.66×10^{-3}	0.013	0.012	1.08×10^{-5}	0.126

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.012	9.01×10^{-8}	6.87×10^{-3}	1.37×10^{-3}	1.37×10^{-3}	9.42×10^{-5}	0.141
Cake and Pastry Manufacturing	3.59×10^{-3}	2.14×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.56×10^{-4}	3.56×10^{-4}	0.061	0.356
Chemical Wholesaling	0	0	0	0	0	0	2.45×10^{-3}
Concrete Slurry Manufacturing	0	3.85×10^{-8}	0	0.026	3.96×10^{-3}	0	0
Confectionery Manufacturing	4.95×10^{-4}	2.94×10^{-9}	5.90×10^{-4}	4.48×10^{-5}	4.48×10^{-5}	3.08×10^{-6}	4.22×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.09×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electrical and Equipment Manufacturing n.e.c.	2.17×10^{-5}	9.03×10^{-11}	2.59×10^{-5}	7.70×10^{-4}	7.70×10^{-4}	1.35×10^{-7}	6.45×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	1.72×10^{-4}	7.23×10^{-10}	2.97×10^{-3}	2.98×10^{-3}	2.98×10^{-3}	9.07×10^{-7}	0.073
Food Manufacturing n.e.c.	0.018	1.04×10^{-7}	0.021	1.59×10^{-3}	1.59×10^{-3}	1.09×10^{-4}	0.341
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	6.40×10^{-3}	5.87×10^{-10}	0.014	1.16×10^{-6}	7.72×10^{-7}	2.48×10^{-3}	0
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	5.82×10^{-3}
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.019
Glass and Glass Product Manufacturing	0.056	5.05×10^{-5}	0.131	0.021	0.020	4.03×10^{-4}	0.041
Gravel and Sand Quarrying	0	5.45×10^{-6}	0	1.638	0.412	0	1.53×10^{-4}
Hospitals (Except Psychiatric Hospitals)	1.868	1.11×10^{-5}	2.224	0.169	0.169	0.012	0.122
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	7.08×10^{-6}	0	5.13×10^{-5}	1.59×10^{-6}	1.58×10^{-6}	2.26×10^{-10}	0.022
Ink Manufacturing	0	0	0	2.32×10^{-3}	2.30×10^{-3}	0	0.040
Laundries and Dry-Cleaners	1.42×10^{-3}	8.45×10^{-9}	1.69×10^{-3}	1.29×10^{-4}	1.29×10^{-4}	8.84×10^{-6}	0.680
Lifting and Material Handling Equipment Manufacturing	0	0	3.89×10^{-4}	7.68×10^{-5}	7.68×10^{-5}	0	2.31×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	9.18×10^{-3}	5.43×10^{-8}	0.011	8.38×10^{-4}	8.38×10^{-4}	5.68×10^{-5}	5.07×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Metal Coating and Finishing	3.20×10^{-3}	1.89×10^{-8}	4.20×10^{-3}	1.32×10^{-3}	1.32×10^{-3}	1.99×10^{-5}	0.019
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Non-Building Construction n.e.c.	3.10×10^{-5}	0	2.25×10^{-4}	6.97×10^{-6}	6.91×10^{-6}	1.08×10^{-9}	5.42×10^{-6}
Paint Manufacturing	0	5.19×10^{-4}	0	0.077	0.076	0	0.224
Paper Product Manufacturing n.e.c.	4.68×10^{-3}	2.78×10^{-8}	5.57×10^{-3}	4.23×10^{-4}	4.23×10^{-4}	2.91×10^{-5}	1.37×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.101
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	2.24×10^{-3}	2.12×10^{-3}	0	0.036
Plastic Injection Moulded Product Manufacturing	5.39×10^{-3}	3.39×10^{-8}	6.48×10^{-3}	4.88×10^{-4}	4.88×10^{-4}	2.30×10^{-4}	4.61×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	0.077
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.436	0.410	0	0
Poultry Farming (Meat)	0	0	0	2.234	0.638	0	0
Prepared Animal and Bird Feed Manufacturing	3.87×10^{-6}	9.48×10^{-10}	1.55×10^{-5}	8.39×10^{-7}	8.32×10^{-7}	5.48×10^{-6}	2.58×10^{-7}
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	3.729
Road and Bridge Construction	0	0	0	7.96×10^{-5}	1.60×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	3.16×10^{-10}	0	1.81×10^{-5}	0	0	1.88×10^{-5}
Smash Repairing	0	0	0	0	0	0	13.393
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	6.52×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.21×10^{-5}	4.52×10^{-11}	1.45×10^{-5}	1.10×10^{-6}	1.10×10^{-6}	7.55×10^{-8}	1.36×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	2.33×10^{-3}	3.18×10^{-3}	3.18×10^{-3}	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Structural Steel Fabricating	0	0	0	2.46×10^{-5}	2.46×10^{-5}	0	0
Unaccounted Gaseous Fuel Combustion	0.773	9.68×10^{-6}	1.813	0.145	0.145	0.012	0.106
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.012
Wood Product Manufacturing n.e.c.	9.03×10^{-7}	0	1.08×10^{-6}	8.17×10^{-8}	8.17×10^{-8}	5.60×10^{-9}	5.91×10^{-8}
Commercial Total	3.268	6.51×10^{-4}	4.714	5.874	1.978	0.128	31.652
January Weekday Emissions (tonnes/day) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	1.487
Bread Manufacturing	4.52×10^{-3}	2.68×10^{-8}	5.38×10^{-3}	8.18×10^{-4}	8.18×10^{-4}	2.81×10^{-5}	0.124
Ceramic Product Manufacturing n.e.c.	1.55×10^{-5}	0	1.12×10^{-4}	3.48×10^{-6}	3.45×10^{-6}	5.42×10^{-10}	2.71×10^{-6}
Chemical Product Manufacturing n.e.c.	0	0	0	0	0	0	0.024
Concrete Slurry Manufacturing	0	6.01×10^{-9}	0	3.42×10^{-3}	5.21×10^{-4}	0	0
Construction Material Mining n.e.c.	0	1.55×10^{-7}	0	0.073	0.014	0	1.35×10^{-5}
Fabricated Metal Product Manufacturing n.e.c.	0	0	1.56×10^{-3}	7.22×10^{-4}	7.22×10^{-4}	0	9.28×10^{-5}
Funeral Directors, Crematoria and Cemeteries	1.25×10^{-3}	9.03×10^{-11}	2.76×10^{-3}	2.27×10^{-7}	1.51×10^{-7}	4.87×10^{-4}	0
Gravel and Sand Quarrying	0	6.49×10^{-7}	0	0.228	0.052	0	2.88×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.111	6.58×10^{-7}	0.136	0.010	0.010	9.44×10^{-4}	7.53×10^{-3}
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.041
Metal Coating and Finishing	9.20×10^{-3}	5.46×10^{-8}	0.089	0.010	0.010	5.73×10^{-5}	2.22×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	1.28×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	6.94×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.016
Poultry Farming (Meat)	0	0	0	0.124	0.035	0	0
Road and Bridge Construction	0	0	0	8.76×10^{-5}	1.76×10^{-5}	0	1.94×10^{-5}
Smash Repairing	0	0	0	0	0	0	0.905
Unaccounted Gaseous Fuel Combustion	0.051	6.38×10^{-7}	0.119	9.55×10^{-3}	9.55×10^{-3}	7.66×10^{-4}	7.01×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wine Manufacturing	0	0	0	0	0	0	2.26×10^{-3}
Commercial Total	0.177	2.19×10^{-6}	0.354	0.460	0.134	2.28×10^{-3}	2.618
January Weekday Emissions (tonnes/day) - Wollongong							
Automotive Component Manufacturing n.e.c.	7.23×10^{-6}	0	8.60×10^{-6}	6.54×10^{-7}	6.54×10^{-7}	4.49×10^{-8}	2.17×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	1.116
Basic Iron and Steel Manufacturing	0.012	7.31×10^{-8}	0.015	1.11×10^{-3}	1.11×10^{-3}	7.64×10^{-5}	8.98×10^{-4}
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Concrete Slurry Manufacturing	0	1.04×10^{-9}	0	5.93×10^{-4}	9.02×10^{-5}	0	0
Fabricated Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	5.06×10^{-4}
Funeral Directors, Crematoria and Cemeteries	4.76×10^{-4}	0	1.05×10^{-3}	8.59×10^{-8}	5.74×10^{-8}	1.84×10^{-4}	0
Gas Supply	0	0	0	0	0	0	7.47×10^{-3}
Gravel and Sand Quarrying	0	2.76×10^{-7}	0	0.093	0.022	0	1.15×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.191	1.14×10^{-6}	0.228	0.017	0.017	1.19×10^{-3}	0.013
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.033
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	5.22×10^{-3}
Poultry Farming (Meat)	0	0	0	0.029	8.18×10^{-3}	0	0
Printing	0	0	0	0	0	0	0.221
Rubber Product Manufacturing n.e.c.	2.71×10^{-5}	6.77×10^{-9}	1.08×10^{-4}	5.87×10^{-6}	5.83×10^{-6}	3.84×10^{-5}	3.03×10^{-6}
Smash Repairing	0	0	0	0	0	0	0.658
Spring and Wire Product Manufacturing	1.61×10^{-6}	0	1.17×10^{-5}	3.63×10^{-7}	3.60×10^{-7}	4.52×10^{-11}	2.82×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	0	9.44×10^{-3}	9.44×10^{-3}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.60×10^{-7}	3.60×10^{-7}	2.47×10^{-8}	2.60×10^{-7}
Unaccounted Gaseous Fuel Combustion	0.037	4.64×10^{-7}	0.087	6.95×10^{-3}	6.95×10^{-3}	5.57×10^{-4}	5.10×10^{-3}
Commercial Total	0.272	2.04×10^{-6}	0.340	0.177	0.083	3.23×10^{-3}	2.063

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
January Weekday Emissions (tonnes/day) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.15×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	4.993
Chemical Product Manufacturing n.e.c.	0	0	0	1.81×10^{-5}	1.81×10^{-5}	0	0.015
Concrete Slurry Manufacturing	0	1.77×10^{-8}	0	0.010	1.53×10^{-3}	0	0
Construction Material Mining n.e.c.	0	1.38×10^{-7}	0	0.047	0.011	0	5.76×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	1.35×10^{-3}	1.01×10^{-3}	0	0.135
Fabricated Metal Product Manufacturing n.e.c.	2.06×10^{-3}	1.22×10^{-8}	1.21×10^{-3}	1.86×10^{-4}	1.86×10^{-4}	1.28×10^{-5}	1.57×10^{-4}
Food Manufacturing n.e.c.	0.010	1.09×10^{-6}	0.048	2.02×10^{-3}	1.32×10^{-3}	0.046	9.16×10^{-4}
Funeral Directors, Crematoria and Cemeteries	2.49×10^{-3}	9.03×10^{-11}	5.48×10^{-3}	4.50×10^{-7}	3.01×10^{-7}	9.66×10^{-4}	0
Furniture Manufacturing n.e.c.	5.0×10^{-3}	2.97×10^{-8}	5.95×10^{-3}	4.52×10^{-4}	4.52×10^{-4}	3.11×10^{-5}	3.29×10^{-4}
Glass and Glass Product Manufacturing	1.17×10^{-5}	1.09×10^{-8}	8.81×10^{-5}	9.91×10^{-6}	3.50×10^{-6}	2.56×10^{-6}	2.22×10^{-6}
Gravel and Sand Quarrying	0	4.74×10^{-6}	0	1.678	0.405	0	1.48×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.813	4.84×10^{-6}	0.970	0.074	0.074	5.11×10^{-3}	0.053
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.115
Medicinal and Pharmaceutical Product Manufacturing	2.13×10^{-3}	1.27×10^{-8}	7.16×10^{-3}	1.93×10^{-4}	1.93×10^{-4}	1.33×10^{-5}	1.91×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	2.53×10^{-3}
Non-Building Construction n.e.c.	1.52×10^{-5}	0	1.10×10^{-4}	3.42×10^{-6}	3.38×10^{-6}	5.42×10^{-10}	2.66×10^{-6}
Non-Ferrous Metal Casting	2.71×10^{-5}	6.77×10^{-9}	1.08×10^{-4}	9.17×10^{-4}	6.88×10^{-4}	8.18×10^{-5}	2.32×10^{-6}
Paper Product Manufacturing n.e.c.	2.18×10^{-4}	0	1.01×10^{-3}	7.13×10^{-5}	7.06×10^{-5}	6.67×10^{-5}	7.41×10^{-5}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.120
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.016
Poultry Farming (Eggs)	0	0	0	0.162	0.046	0	0
Poultry Farming (Meat)	0	0	0	2.562	0.732	0	0
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.08×10^{-8}	4.16×10^{-3}	3.16×10^{-4}	3.16×10^{-4}	2.18×10^{-5}	2.29×10^{-4}

Criteria Pollutant Emissions for all Sectors
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	0	0	0	0	0	0	0.173
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	8.73×10^{-5}	1.75×10^{-5}	0	2.17×10^{-5}
Smash Repairing	0	0	0	0	0	0	2.121
Spring and Wire Product Manufacturing	0	0	2.90×10^{-3}	4.86×10^{-4}	4.86×10^{-4}	0	1.43×10^{-3}
Unaccounted Gaseous Fuel Combustion	0.121	1.52×10^{-6}	0.284	0.023	0.023	1.82×10^{-3}	0.017
Wine Manufacturing	0	0	0	0	0	0	0.121
Wood Product Manufacturing n.e.c.	0	0	0	0	0	0	0.012
Commercial Total	0.960	1.24×10^{-5}	1.330	4.561	1.297	0.054	7.901

Table 3.28 Proportion of total estimated daily emissions from commercial sources by ANZSIC class in each region for typical January weekday

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total January Weekday Emissions (%) - GMR							
Aircraft Manufacturing	2.16×10^{-4}	2.0×10^{-5}	9.79×10^{-4}	3.23×10^{-4}	9.01×10^{-4}	4.82×10^{-6}	1.03×10^{-4}
Automotive Component Manufacturing n.e.c.	1.01×10^{-5}	8.90×10^{-7}	4.56×10^{-5}	1.73×10^{-5}	4.81×10^{-5}	2.24×10^{-7}	5.41×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	4.78
Basic Iron and Steel Manufacturing	4.79×10^{-4}	4.87×10^{-3}	2.90×10^{-3}	8.18×10^{-3}	0.02	1.07×10^{-5}	0.03
Basic Non-Ferrous Metal Manufacturing n.e.c.	8.07×10^{-6}	5.30×10^{-3}	3.67×10^{-5}	0.02	0.03	4.24×10^{-5}	3.84×10^{-6}
Biscuit Manufacturing	7.26×10^{-4}	6.73×10^{-5}	3.29×10^{-3}	1.08×10^{-3}	3.02×10^{-3}	1.62×10^{-5}	3.45×10^{-4}
Bread Manufacturing	5.57×10^{-4}	6.23×10^{-5}	1.59×10^{-3}	1.24×10^{-3}	3.45×10^{-3}	1.50×10^{-5}	0.07
Cake and Pastry Manufacturing	1.23×10^{-4}	1.14×10^{-5}	5.57×10^{-4}	1.84×10^{-4}	5.12×10^{-4}	2.74×10^{-6}	9.10×10^{-3}
Ceramic Product Manufacturing	1.07×10^{-3}	4.15×10^{-5}	1.22×10^{-3}	0.01	0.03	1.45×10^{-4}	3.92×10^{-4}
Ceramic Product Manufacturing n.e.c.	5.29×10^{-7}	0	1.46×10^{-5}	1.97×10^{-6}	5.44×10^{-6}	6.64×10^{-11}	6.74×10^{-7}
Chemical Product Manufacturing n.e.c.	1.35×10^{-4}	1.25×10^{-5}	6.10×10^{-4}	2.11×10^{-4}	5.90×10^{-4}	7.47×10^{-3}	0.10
Chemical Wholesaling	0	0	0	0	0	0	6.10×10^{-4}
Concrete Slurry Manufacturing	0	3.37×10^{-5}	0	0.02	9.61×10^{-3}	0	0
Confectionery Manufacturing	1.69×10^{-5}	1.56×10^{-6}	7.67×10^{-5}	2.53×10^{-5}	7.06×10^{-5}	3.77×10^{-7}	1.05×10^{-5}
Construction Material Mining n.e.c.	0	1.56×10^{-4}	0	0.07	0.04	0	4.80×10^{-6}
Corrugated Paperboard Container Manufacturing	1.78×10^{-4}	1.65×10^{-5}	8.04×10^{-4}	2.65×10^{-4}	7.40×10^{-4}	3.96×10^{-6}	8.45×10^{-5}
Electric Cable and Wire Manufacturing	0	0	0	7.65×10^{-4}	1.60×10^{-3}	0	0.03
Electrical and Equipment Manufacturing n.e.c.	7.44×10^{-7}	4.81×10^{-8}	3.37×10^{-6}	4.35×10^{-4}	1.21×10^{-3}	1.66×10^{-8}	1.60×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	7.63×10^{-5}	6.91×10^{-6}	7.46×10^{-4}	2.20×10^{-3}	6.13×10^{-3}	1.68×10^{-6}	0.02
Food Manufacturing n.e.c.	9.53×10^{-4}	6.35×10^{-4}	8.94×10^{-3}	2.03×10^{-3}	4.59×10^{-3}	5.63×10^{-3}	0.09
Fruit and Vegetable Processing	5.19×10^{-5}	4.81×10^{-6}	2.35×10^{-4}	7.75×10^{-5}	2.16×10^{-4}	1.16×10^{-6}	2.47×10^{-5}
Funeral Directors, Crematoria and Cemeteries	3.63×10^{-4}	4.09×10^{-7}	3.04×10^{-3}	1.08×10^{-6}	2.02×10^{-6}	5.04×10^{-4}	0
Furniture Manufacturing n.e.c.	1.71×10^{-4}	1.58×10^{-5}	7.74×10^{-4}	2.55×10^{-4}	7.12×10^{-4}	3.81×10^{-6}	1.53×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gas Supply	1.11×10^{-4}	1.03×10^{-5}	5.04×10^{-4}	1.66×10^{-4}	4.63×10^{-4}	2.48×10^{-6}	6.70×10^{-3}
Glass and Glass Product Manufacturing	1.90×10^{-3}	0.03	0.02	0.01	0.03	4.97×10^{-5}	0.01
Gravel and Sand Quarrying	0	5.92×10^{-3}	0	2.05	1.40	0	8.48×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.10	9.46×10^{-3}	0.46	0.15	0.43	2.31×10^{-3}	0.05
Ice Cream Manufacturing	9.46×10^{-5}	8.76×10^{-6}	6.0×10^{-4}	1.41×10^{-4}	3.94×10^{-4}	4.74×10^{-6}	2.93×10^{-4}
Industrial Gas Manufacturing	2.42×10^{-7}	0	6.68×10^{-6}	8.99×10^{-7}	2.49×10^{-6}	2.76×10^{-11}	5.44×10^{-3}
Ink Manufacturing	0	0	0	1.31×10^{-3}	3.62×10^{-3}	0	9.96×10^{-3}
Laundries and Dry-Cleaners	4.86×10^{-5}	4.50×10^{-6}	2.20×10^{-4}	7.26×10^{-5}	2.02×10^{-4}	1.08×10^{-6}	0.22
Lifting and Material Handling Equipment Manufacturing	0	0	5.06×10^{-5}	4.33×10^{-5}	1.21×10^{-4}	0	5.75×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	3.87×10^{-4}	3.57×10^{-5}	2.40×10^{-3}	5.82×10^{-4}	1.62×10^{-3}	8.58×10^{-6}	1.74×10^{-3}
Metal Coating and Finishing	4.24×10^{-4}	3.92×10^{-5}	0.01	6.46×10^{-3}	0.02	9.44×10^{-6}	5.31×10^{-3}
Milk and Cream Processing	9.45×10^{-5}	8.76×10^{-6}	4.28×10^{-4}	1.41×10^{-4}	3.94×10^{-4}	2.11×10^{-6}	4.50×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	3.04×10^{-7}	8.49×10^{-7}	0	9.48×10^{-4}
Non-Building Construction n.e.c.	1.58×10^{-6}	0	4.36×10^{-5}	5.86×10^{-6}	1.62×10^{-5}	1.99×10^{-10}	2.01×10^{-6}
Non-Ferrous Metal Casting	9.27×10^{-7}	3.61×10^{-6}	1.41×10^{-5}	5.18×10^{-4}	1.08×10^{-3}	1.0×10^{-5}	5.76×10^{-7}
Paint Manufacturing	0	0.28	0	0.04	0.12	0	0.06
Paper Product Manufacturing n.e.c.	1.67×10^{-4}	1.48×10^{-5}	8.57×10^{-4}	2.79×10^{-4}	7.78×10^{-4}	1.17×10^{-5}	3.59×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.06
Plaster Product Manufacturing	0.01	0.02	0.01	0.02	0.04	1.51×10^{-3}	2.28×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.27×10^{-3}	3.34×10^{-3}	0	8.98×10^{-3}
Plastic Injection Moulded Product Manufacturing	1.84×10^{-4}	1.80×10^{-5}	8.43×10^{-4}	2.75×10^{-4}	7.68×10^{-4}	2.81×10^{-5}	1.15×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.29×10^{-4}	1.19×10^{-5}	5.95×10^{-4}	1.92×10^{-4}	5.36×10^{-4}	2.87×10^{-6}	0.03
Port Operators	2.88×10^{-3}	5.73×10^{-4}	0.04	0.01	0.04	3.27×10^{-3}	9.18×10^{-3}
Poultry Farming (Eggs)	0	0	0	0.90	0.72	0	0
Poultry Farming (Meat)	0	0	0	2.79	2.23	0	0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	1.20×10^{-4}	1.16×10^{-5}	5.44×10^{-4}	1.79×10^{-4}	5.0×10^{-4}	3.34×10^{-6}	5.70×10^{-5}
Printing	2.78×10^{-4}	3.08×10^{-5}	1.64×10^{-3}	4.96×10^{-4}	1.38×10^{-3}	7.40×10^{-6}	1.03
Rail Transport	0	0	0	0	0	0	9.31×10^{-6}
Road and Bridge Construction	0	0	0	1.44×10^{-4}	8.06×10^{-5}	0	1.02×10^{-5}
Rubber Product Manufacturing n.e.c.	9.27×10^{-7}	3.78×10^{-6}	1.41×10^{-5}	1.35×10^{-5}	9.17×10^{-6}	4.70×10^{-6}	5.43×10^{-6}
Smash Repairing	0	0	0	0	0	0	4.25
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.62×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	2.45×10^{-4}	2.32×10^{-5}	1.14×10^{-3}	3.75×10^{-4}	1.05×10^{-3}	5.59×10^{-6}	1.19×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.01
Spirit Manufacturing	0	0	0	0	0	0	0.04
Spring and Wire Product Manufacturing	4.70×10^{-7}	2.41×10^{-8}	3.81×10^{-4}	2.75×10^{-4}	7.68×10^{-4}	9.25×10^{-9}	3.56×10^{-4}
Steel Pipe and Tube Manufacturing	0	0	3.03×10^{-4}	7.12×10^{-3}	0.02	0	8.21×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.66×10^{-3}
Structural Steel Fabricating	0	0	0	1.39×10^{-5}	3.88×10^{-5}	0	0
Synthetic Resin Manufacturing	1.36×10^{-7}	0	6.16×10^{-7}	2.03×10^{-7}	5.66×10^{-7}	3.02×10^{-9}	6.47×10^{-8}
Unaccounted Gaseous Fuel Combustion	0.03	6.55×10^{-3}	0.30	0.10	0.29	1.81×10^{-3}	0.03
Wine Manufacturing	2.21×10^{-8}	0	6.10×10^{-7}	8.22×10^{-8}	2.27×10^{-7}	0	0.03
Wood Product Manufacturing n.e.c.	3.09×10^{-8}	0	1.40×10^{-7}	4.61×10^{-8}	1.29×10^{-7}	6.86×10^{-10}	3.04×10^{-3}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	0
Commercial Total	0.16	0.36	0.88	6.25	5.50	0.02	11.0
Proportion of Anthropogenic Total January Weekday Emissions (%) - Sydney							
Aircraft Manufacturing	6.25×10^{-4}	5.43×10^{-5}	3.18×10^{-3}	1.32×10^{-3}	2.50×10^{-3}	1.08×10^{-4}	1.35×10^{-4}
Automotive Component Manufacturing n.e.c.	2.84×10^{-5}	2.41×10^{-6}	1.44×10^{-4}	6.88×10^{-5}	1.31×10^{-4}	4.92×10^{-6}	5.99×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	3.78
Basic Iron and Steel Manufacturing	1.71×10^{-4}	0.01	3.24×10^{-3}	0.03	0.05	2.97×10^{-5}	0.04

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.34×10^{-5}	0.01	1.19×10^{-4}	0.06	0.09	9.55×10^{-4}	5.03×10^{-6}
Biscuit Manufacturing	2.10×10^{-3}	1.82×10^{-4}	0.01	4.42×10^{-3}	8.39×10^{-3}	3.64×10^{-4}	4.52×10^{-4}
Bread Manufacturing	1.16×10^{-3}	1.30×10^{-4}	2.90×10^{-3}	3.15×10^{-3}	5.98×10^{-3}	2.60×10^{-4}	0.05
Cake and Pastry Manufacturing	3.56×10^{-4}	3.08×10^{-5}	1.81×10^{-3}	7.48×10^{-4}	1.42×10^{-3}	6.17×10^{-5}	0.01
Chemical Product Manufacturing n.e.c.	3.90×10^{-4}	3.38×10^{-5}	1.98×10^{-3}	8.20×10^{-4}	1.56×10^{-3}	0.17	0.12
Chemical Wholesaling	0	0	0	0	0	0	7.97×10^{-4}
Concrete Slurry Manufacturing	0	5.55×10^{-5}	0	0.06	0.02	0	0
Confectionery Manufacturing	4.90×10^{-5}	4.23×10^{-6}	2.49×10^{-4}	1.03×10^{-4}	1.96×10^{-4}	8.50×10^{-6}	1.37×10^{-5}
Corrugated Paperboard Container Manufacturing	5.14×10^{-4}	4.46×10^{-5}	2.61×10^{-3}	1.08×10^{-3}	2.05×10^{-3}	8.91×10^{-5}	1.11×10^{-4}
Electrical and Equipment Manufacturing n.e.c.	2.15×10^{-6}	1.30×10^{-7}	1.09×10^{-5}	1.77×10^{-3}	3.36×10^{-3}	3.73×10^{-7}	2.10×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	1.70×10^{-5}	1.04×10^{-6}	1.25×10^{-3}	6.86×10^{-3}	0.01	2.50×10^{-6}	0.02
Food Manufacturing n.e.c.	1.74×10^{-3}	1.50×10^{-4}	8.83×10^{-3}	3.66×10^{-3}	6.94×10^{-3}	3.01×10^{-4}	0.11
Fruit and Vegetable Processing	1.50×10^{-4}	1.30×10^{-5}	7.63×10^{-4}	3.16×10^{-4}	6.0×10^{-4}	2.60×10^{-5}	3.23×10^{-5}
Funeral Directors, Crematoria and Cemeteries	6.33×10^{-4}	8.47×10^{-7}	5.94×10^{-3}	2.66×10^{-6}	3.37×10^{-6}	6.84×10^{-3}	0
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	1.89×10^{-3}
Gas Supply	3.22×10^{-4}	2.79×10^{-5}	1.63×10^{-3}	6.77×10^{-4}	1.29×10^{-3}	5.58×10^{-5}	6.33×10^{-3}
Glass and Glass Product Manufacturing	5.49×10^{-3}	0.07	0.06	0.05	0.09	1.11×10^{-3}	0.01
Gravel and Sand Quarrying	0	7.86×10^{-3}	0	3.77	1.80	0	4.96×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.18	0.02	0.94	0.39	0.74	0.03	0.04
Ice Cream Manufacturing	2.74×10^{-4}	2.37×10^{-5}	1.95×10^{-3}	5.75×10^{-4}	1.09×10^{-3}	1.07×10^{-4}	3.83×10^{-4}
Industrial Gas Manufacturing	7.01×10^{-7}	0	2.17×10^{-5}	3.67×10^{-6}	6.90×10^{-6}	6.23×10^{-10}	7.12×10^{-3}
Ink Manufacturing	0	0	0	5.33×10^{-3}	0.01	0	0.01
Laundries and Dry-Cleaners	1.41×10^{-4}	1.22×10^{-5}	7.14×10^{-4}	2.96×10^{-4}	5.61×10^{-4}	2.44×10^{-5}	0.22
Lifting and Material Handling Equipment Manufacturing	0	0	1.64×10^{-4}	1.77×10^{-4}	3.35×10^{-4}	0	7.52×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	9.08×10^{-4}	7.83×10^{-5}	4.75×10^{-3}	1.93×10^{-3}	3.66×10^{-3}	1.57×10^{-4}	1.65×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Metal Coating and Finishing	3.16×10^{-4}	2.73×10^{-5}	1.77×10^{-3}	3.04×10^{-3}	5.76×10^{-3}	5.48×10^{-5}	6.23×10^{-3}
Milk and Cream Processing	2.73×10^{-4}	2.37×10^{-5}	1.39×10^{-3}	5.75×10^{-4}	1.09×10^{-3}	4.74×10^{-5}	5.88×10^{-5}
Non-Building Construction n.e.c.	3.07×10^{-6}	0	9.49×10^{-5}	1.60×10^{-5}	3.02×10^{-5}	2.99×10^{-9}	1.76×10^{-6}
Paint Manufacturing	0	0.75	0	0.18	0.33	0	0.07
Paper Product Manufacturing n.e.c.	4.63×10^{-4}	4.01×10^{-5}	2.35×10^{-3}	9.74×10^{-4}	1.85×10^{-3}	8.03×10^{-5}	4.46×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.03
Plaster Product Manufacturing	0.03	0.05	0.04	0.09	0.10	0.03	2.98×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	5.16×10^{-3}	9.25×10^{-3}	0	0.01
Plastic Injection Moulded Product Manufacturing	5.33×10^{-4}	4.89×10^{-5}	2.74×10^{-3}	1.12×10^{-3}	2.13×10^{-3}	6.34×10^{-4}	1.50×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.72×10^{-4}	3.23×10^{-5}	1.93×10^{-3}	7.83×10^{-4}	1.49×10^{-3}	6.45×10^{-5}	0.02
Port Operators	8.33×10^{-3}	1.55×10^{-3}	0.12	0.06	0.11	0.07	0.01
Poultry Farming (Eggs)	0	0	0	3.30	1.79	0	0
Poultry Farming (Meat)	0	0	0	5.14	2.79	0	0
Prepared Animal and Bird Feed Manufacturing	3.83×10^{-7}	1.37×10^{-6}	6.54×10^{-6}	1.93×10^{-6}	3.64×10^{-6}	1.51×10^{-5}	8.39×10^{-8}
Printing	8.03×10^{-4}	8.34×10^{-5}	5.32×10^{-3}	2.02×10^{-3}	3.84×10^{-3}	1.67×10^{-4}	1.21
Road and Bridge Construction	0	0	0	1.83×10^{-4}	7.01×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	4.56×10^{-7}	0	4.17×10^{-5}	0	0	6.12×10^{-6}
Smash Repairing	0	0	0	0	0	0	4.35
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	2.12×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	7.08×10^{-4}	6.29×10^{-5}	3.69×10^{-3}	1.53×10^{-3}	2.90×10^{-3}	1.26×10^{-4}	1.56×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.01
Spirit Manufacturing	0	0	0	0	0	0	0.06
Spring and Wire Product Manufacturing	1.20×10^{-6}	6.51×10^{-8}	6.10×10^{-6}	2.53×10^{-6}	4.80×10^{-6}	2.08×10^{-7}	4.42×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	9.85×10^{-4}	7.32×10^{-3}	0.01	0	1.07×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	2.17×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Structural Steel Fabricating	0	0	0	5.67×10^{-5}	1.08×10^{-4}	0	0
Unaccounted Gaseous Fuel Combustion	0.08	0.01	0.77	0.33	0.63	0.03	0.03
Wine Manufacturing	6.40×10^{-8}	0	1.98×10^{-6}	3.35×10^{-7}	6.30×10^{-7}	0	4.06×10^{-3}
Wood Product Manufacturing n.e.c.	8.93×10^{-8}	0	4.54×10^{-7}	1.88×10^{-7}	3.57×10^{-7}	1.54×10^{-8}	1.92×10^{-8}
Commercial Total	0.32	0.94	1.99	13.5	8.64	0.35	10.3
Proportion of Anthropogenic Total January Weekday Emissions (%) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	6.53
Bread Manufacturing	2.25×10^{-3}	4.77×10^{-4}	0.02	0.01	0.02	9.83×10^{-5}	0.54
Ceramic Product Manufacturing n.e.c.	7.69×10^{-6}	0	4.44×10^{-4}	4.97×10^{-5}	9.62×10^{-5}	1.89×10^{-9}	1.19×10^{-5}
Chemical Product Manufacturing n.e.c.	0	0	0	0	0	0	0.10
Concrete Slurry Manufacturing	0	1.07×10^{-4}	0	0.05	0.01	0	0
Construction Material Mining n.e.c.	0	2.76×10^{-3}	0	1.04	0.40	0	5.95×10^{-5}
Fabricated Metal Product Manufacturing n.e.c.	0	0	6.15×10^{-3}	0.01	0.02	0	4.08×10^{-4}
Funeral Directors, Crematoria and Cemeteries	6.23×10^{-4}	1.61×10^{-6}	0.01	3.23×10^{-6}	4.22×10^{-6}	1.70×10^{-3}	0
Gravel and Sand Quarrying	0	0.01	0	3.25	1.46	0	1.26×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.06	0.01	0.54	0.15	0.29	3.30×10^{-3}	0.03
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.18
Metal Coating and Finishing	4.57×10^{-3}	9.72×10^{-4}	0.35	0.14	0.28	2.0×10^{-4}	9.74×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	7.69×10^{-6}	1.50×10^{-5}	0	5.64×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	3.05×10^{-3}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.07
Poultry Farming (Meat)	0	0	0	1.77	0.99	0	0
Road and Bridge Construction	0	0	0	1.25×10^{-3}	4.92×10^{-4}	0	8.51×10^{-5}
Smash Repairing	0	0	0	0	0	0	3.97
Unaccounted Gaseous Fuel Combustion	0.03	0.01	0.47	0.14	0.27	2.68×10^{-3}	0.03

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wine Manufacturing	0	0	0	0	0	0	9.92×10^{-3}
Commercial Total	0.09	0.04	1.40	6.56	3.74	7.97×10^{-3}	11.5
Proportion of Anthropogenic Total January Weekday Emissions (%) - Wollongong							
Automotive Component Manufacturing n.e.c.	4.99×10^{-7}	0	2.66×10^{-5}	8.99×10^{-6}	1.27×10^{-5}	1.58×10^{-7}	0.01
Automotive Fuel Retailing	0	0	0	0	0	0	7.32
Basic Iron and Steel Manufacturing	8.49×10^{-4}	4.45×10^{-4}	0.05	0.02	0.02	2.69×10^{-4}	5.89×10^{-3}
Ceramic Product Manufacturing	2.16×10^{-3}	4.75×10^{-4}	0.03	0.27	0.35	4.17×10^{-3}	0.01
Concrete Slurry Manufacturing	0	6.32×10^{-6}	0	8.16×10^{-3}	1.75×10^{-3}	0	0
Fabricated Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	3.32×10^{-3}
Funeral Directors, Crematoria and Cemeteries	3.29×10^{-5}	0	3.24×10^{-3}	1.18×10^{-6}	1.11×10^{-6}	6.48×10^{-4}	0
Gas Supply	0	0	0	0	0	0	0.05
Gravel and Sand Quarrying	0	1.68×10^{-3}	0	1.28	0.42	0	7.56×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.01	6.93×10^{-3}	0.70	0.24	0.33	4.18×10^{-3}	0.08
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.21
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.03
Poultry Farming (Meat)	0	0	0	0.39	0.16	0	0
Printing	0	0	0	0	0	0	1.45
Rubber Product Manufacturing n.e.c.	1.87×10^{-6}	4.12×10^{-5}	3.36×10^{-4}	8.08×10^{-5}	1.13×10^{-4}	1.35×10^{-4}	1.99×10^{-5}
Smash Repairing	0	0	0	0	0	0	4.32
Spring and Wire Product Manufacturing	1.11×10^{-7}	0	3.62×10^{-5}	4.99×10^{-6}	6.96×10^{-6}	1.59×10^{-10}	1.85×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	0	0.13	0.18	0	0
Synthetic Resin Manufacturing	2.75×10^{-7}	0	1.47×10^{-5}	4.95×10^{-6}	6.96×10^{-6}	8.68×10^{-8}	1.71×10^{-6}
Unaccounted Gaseous Fuel Combustion	2.56×10^{-3}	2.82×10^{-3}	0.27	0.10	0.13	1.96×10^{-3}	0.03
Commercial Total	0.02	0.01	1.05	2.43	1.60	0.01	13.5

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total January Weekday Emissions (%) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	2.03×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	8.82
Chemical Product Manufacturing n.e.c.	0	0	0	1.51×10^{-5}	5.67×10^{-5}	0	0.03
Concrete Slurry Manufacturing	0	1.83×10^{-5}	0	8.44×10^{-3}	4.81×10^{-3}	0	0
Construction Material Mining n.e.c.	0	1.43×10^{-4}	0	0.04	0.03	0	1.02×10^{-5}
Electric Cable and Wire Manufacturing	0	0	0	1.13×10^{-3}	3.18×10^{-3}	0	0.24
Fabricated Metal Product Manufacturing n.e.c.	7.76×10^{-4}	1.27×10^{-5}	2.55×10^{-4}	1.56×10^{-4}	5.85×10^{-4}	1.77×10^{-6}	2.78×10^{-4}
Food Manufacturing n.e.c.	3.88×10^{-3}	1.13×10^{-3}	0.01	1.69×10^{-3}	4.15×10^{-3}	6.34×10^{-3}	1.62×10^{-3}
Funeral Directors, Crematoria and Cemeteries	9.39×10^{-4}	9.38×10^{-8}	1.16×10^{-3}	3.77×10^{-7}	9.44×10^{-7}	1.34×10^{-4}	0
Furniture Manufacturing n.e.c.	1.88×10^{-3}	3.09×10^{-5}	1.26×10^{-3}	3.79×10^{-4}	1.42×10^{-3}	4.30×10^{-6}	5.81×10^{-4}
Glass and Glass Product Manufacturing	4.41×10^{-6}	1.14×10^{-5}	1.86×10^{-5}	8.30×10^{-6}	1.10×10^{-5}	3.54×10^{-7}	3.91×10^{-6}
Gravel and Sand Quarrying	0	4.92×10^{-3}	0	1.41	1.27	0	2.62×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.31	5.03×10^{-3}	0.20	0.06	0.23	7.06×10^{-4}	0.09
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.20
Medicinal and Pharmaceutical Product Manufacturing	8.04×10^{-4}	1.32×10^{-5}	1.51×10^{-3}	1.62×10^{-4}	6.06×10^{-4}	1.83×10^{-6}	3.38×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	4.47×10^{-3}
Non-Building Construction n.e.c.	5.72×10^{-6}	0	2.32×10^{-5}	2.86×10^{-6}	1.06×10^{-5}	7.49×10^{-11}	4.69×10^{-6}
Non-Ferrous Metal Casting	1.02×10^{-5}	7.04×10^{-6}	2.29×10^{-5}	7.68×10^{-4}	2.16×10^{-3}	1.13×10^{-5}	4.09×10^{-6}
Paper Product Manufacturing n.e.c.	8.22×10^{-5}	0	2.14×10^{-4}	5.97×10^{-5}	2.22×10^{-4}	9.22×10^{-6}	1.31×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.21
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.03
Poultry Farming (Eggs)	0	0	0	0.14	0.15	0	0
Poultry Farming (Meat)	0	0	0	2.15	2.30	0	0
Prepared Animal and Bird Feed Manufacturing	1.32×10^{-3}	2.16×10^{-5}	8.78×10^{-4}	2.65×10^{-4}	9.93×10^{-4}	3.01×10^{-6}	4.04×10^{-4}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	0	0	0	0	0	0	0.31
Rail Transport	0	0	0	0	0	0	6.61×10^{-5}
Road and Bridge Construction	0	0	0	7.32×10^{-5}	5.49×10^{-5}	0	3.83×10^{-5}
Smash Repairing	0	0	0	0	0	0	3.74
Spring and Wire Product Manufacturing	0	0	6.13×10^{-4}	4.07×10^{-4}	1.53×10^{-3}	0	2.53×10^{-3}
Unaccounted Gaseous Fuel Combustion	0.05	1.58×10^{-3}	0.06	0.02	0.07	2.52×10^{-4}	0.03
Wine Manufacturing	0	0	0	0	0	0	0.21
Wood Product Manufacturing n.e.c.	0	0	0	0	0	0	0.02
Commercial Total	0.36	0.01	0.28	3.82	4.07	7.46×10^{-3}	14.0

Table 3.29 shows total estimated daily emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.29 Total estimated daily emissions from commercial sources in each region for typical January weekend day

Substance	Commercial January Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.253	0.168	0.272	0.955	4.647
LEAD AND COMPOUNDS	1.22×10^{-4}	1.40×10^{-6}	1.75×10^{-6}	7.51×10^{-6}	1.32×10^{-4}
OXIDES OF NITROGEN	4.686	0.262	0.339	1.314	6.601
PARTICULATE MATTER < 10 µm	5.251	0.391	0.158	4.106	9.906
PARTICULATE MATTER < 2.5 µm	1.714	0.106	0.076	1.136	3.031
SULFUR DIOXIDE	0.126	1.98×10^{-3}	3.10×10^{-3}	0.053	0.185
TOTAL VOCS	16.501	1.288	0.985	3.893	22.667

Table 3.30 shows the proportion of total estimated daily anthropogenic emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.30 Proportion of total estimated daily emissions from commercial sources in each region for typical January weekend day

Substance	Commercial Proportion of Anthropogenic Total January Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	0.29	0.08	0.02	0.32	0.15
LEAD AND COMPOUNDS	0.20	0.03	0.01	9.71×10^{-3}	0.08
OXIDES OF NITROGEN	2.16	1.11	1.08	0.28	0.89
PARTICULATE MATTER < 10 µm	12.6	6.67	2.22	3.71	5.99
PARTICULATE MATTER < 2.5 µm	7.35	3.17	1.47	3.83	4.93
SULFUR DIOXIDE	0.35	6.96×10^{-3}	0.01	7.38×10^{-3}	0.02
TOTAL VOCS	5.22	5.67	6.07	6.21	5.43

Figure 3.8 shows the proportion of total estimated daily GMR commercial emissions from all commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

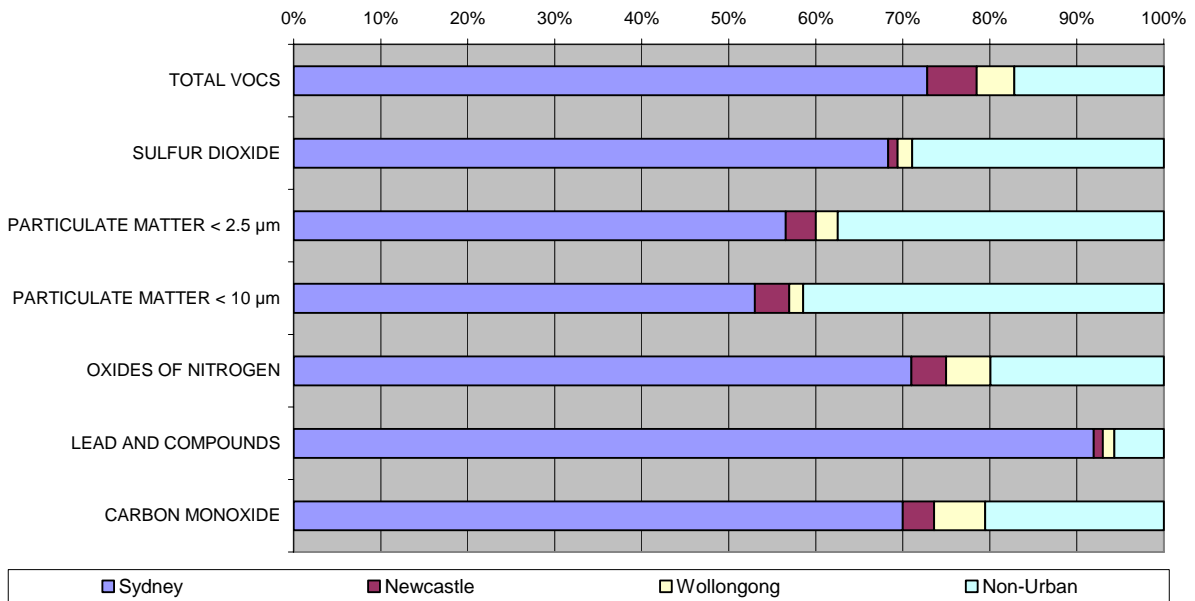


Figure 3.8 Proportion of total estimated daily emissions from commercial sources in each region for typical January weekend day

Table 3.31 shows total estimated daily emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.32 shows the proportion of total estimated daily anthropogenic emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.31 Total estimated daily emissions from commercial sources by ANZSIC class in each region for typical January weekend day

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
January Weekend Day Emissions (tonnes/day) - GMR							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	1.51×10^{-4}	7.90×10^{-10}	1.79×10^{-4}	1.56×10^{-5}	1.56×10^{-5}	9.37×10^{-7}	0.013
Automotive Fuel Retailing	0	0	0	0	0	0	9.470
Basic Iron and Steel Manufacturing	0.014	4.61×10^{-6}	0.019	7.88×10^{-3}	7.08×10^{-3}	8.72×10^{-5}	0.127
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.016	1.17×10^{-7}	0.012	2.19×10^{-3}	2.19×10^{-3}	1.22×10^{-4}	0.265
Cake and Pastry Manufacturing	3.59×10^{-3}	2.13×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Ceramic Product Manufacturing n.e.c.	1.55×10^{-5}	0	1.12×10^{-4}	3.48×10^{-6}	3.45×10^{-6}	5.65×10^{-10}	2.71×10^{-6}
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.56×10^{-4}	3.56×10^{-4}	0.061	0.353
Chemical Wholesaling	0	0	0	0	0	0	1.23×10^{-3}
Concrete Slurry Manufacturing	0	2.94×10^{-9}	0	5.14×10^{-3}	8.44×10^{-4}	0	0
Confectionery Manufacturing	4.88×10^{-4}	2.48×10^{-9}	5.81×10^{-4}	4.41×10^{-5}	4.41×10^{-5}	3.03×10^{-6}	4.17×10^{-5}
Construction Material Mining n.e.c.	0	7.77×10^{-8}	0	0.096	0.019	0	1.93×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.08×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electric Cable and Wire Manufacturing	0	0	0	1.35×10^{-3}	1.01×10^{-3}	0	0.135
Electrical and Equipment Manufacturing n.e.c.	1.09×10^{-5}	0	1.29×10^{-5}	3.85×10^{-4}	3.85×10^{-4}	6.76×10^{-8}	3.22×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	2.06×10^{-3}	1.22×10^{-8}	2.37×10^{-3}	1.65×10^{-3}	1.65×10^{-3}	1.28×10^{-5}	0.014
Food Manufacturing n.e.c.	0.027	1.19×10^{-6}	0.068	3.54×10^{-3}	2.85×10^{-3}	0.046	0.342
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	5.31×10^{-3}	1.13×10^{-10}	0.012	9.58×10^{-7}	6.39×10^{-7}	2.06×10^{-3}	0
Furniture Manufacturing n.e.c.	2.50×10^{-3}	1.48×10^{-8}	2.98×10^{-3}	2.26×10^{-4}	2.26×10^{-4}	1.55×10^{-5}	1.66×10^{-4}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.027
Glass and Glass Product Manufacturing	0.056	5.06×10^{-5}	0.132	0.021	0.020	4.07×10^{-4}	0.041
Gravel and Sand Quarrying	0	1.92×10^{-7}	0	2.625	0.534	0	3.41×10^{-4}
Hospitals (Except Psychiatric Hospitals)	2.984	1.78×10^{-5}	3.557	0.270	0.270	0.019	0.196
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	3.54×10^{-6}	0	2.57×10^{-5}	7.97×10^{-7}	7.89×10^{-7}	1.13×10^{-10}	0.011
Ink Manufacturing	0	0	0	0	0	0	4.89×10^{-7}
Laundries and Dry-Cleaners	7.10×10^{-4}	4.18×10^{-9}	8.46×10^{-4}	6.43×10^{-5}	6.43×10^{-5}	4.42×10^{-6}	0.435
Lifting and Material Handling Equipment Manufacturing	0	0	1.94×10^{-4}	3.84×10^{-5}	3.84×10^{-5}	0	1.24×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	1.77×10^{-3}
Metal Coating and Finishing	2.57×10^{-3}	1.50×10^{-8}	3.06×10^{-3}	2.33×10^{-4}	2.33×10^{-4}	1.60×10^{-5}	0.019
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	2.55×10^{-3}
Non-Building Construction n.e.c.	3.07×10^{-5}	0	2.22×10^{-4}	6.90×10^{-6}	6.84×10^{-6}	1.02×10^{-9}	5.37×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	5.12×10^{-7}
Paint Manufacturing	0	0	0	0.011	0.011	0	0.018
Paper Product Manufacturing n.e.c.	4.90×10^{-3}	2.78×10^{-8}	6.59×10^{-3}	4.95×10^{-4}	4.94×10^{-4}	9.58×10^{-5}	1.45×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.222
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	5.70×10^{-4}	5.07×10^{-4}	0	0.015
Plastic Injection Moulded Product Manufacturing	5.38×10^{-3}	3.20×10^{-8}	6.41×10^{-3}	4.87×10^{-4}	4.87×10^{-4}	3.35×10^{-5}	4.60×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	0.014
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.598	0.457	0	0
Poultry Farming (Meat)	0	0	0	4.949	1.414	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.17×10^{-8}	4.18×10^{-3}	3.17×10^{-4}	3.17×10^{-4}	2.72×10^{-5}	2.29×10^{-4}
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	1.811
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	2.55×10^{-4}	5.12×10^{-5}	0	4.11×10^{-5}
Rubber Product Manufacturing n.e.c.	0	1.13×10^{-10}	0	9.06×10^{-6}	0	0	1.06×10^{-5}
Smash Repairing	0	0	0	0	0	0	8.540
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	7.50×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.38×10^{-5}	0	2.61×10^{-5}	1.46×10^{-6}	1.46×10^{-6}	7.54×10^{-8}	1.64×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	1.17×10^{-3}	0.011	0.011	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	1.23×10^{-5}	1.23×10^{-5}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.59×10^{-7}	3.59×10^{-7}	2.46×10^{-8}	2.60×10^{-7}
Unaccounted Gaseous Fuel Combustion	0.983	1.23×10^{-5}	2.303	0.184	0.184	0.015	0.135
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.136
Commercial Total	4.647	1.32×10^{-4}	6.601	9.906	3.031	0.185	22.667
January Weekend Day Emissions (tonnes/day) - Sydney							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	1.43×10^{-4}	7.90×10^{-10}	1.71×10^{-4}	1.50×10^{-5}	1.50×10^{-5}	8.92×10^{-7}	0.010
Automotive Fuel Retailing	0	0	0	0	0	0	6.067
Basic Iron and Steel Manufacturing	1.73×10^{-3}	4.54×10^{-6}	4.86×10^{-3}	6.76×10^{-3}	5.97×10^{-3}	1.08×10^{-5}	0.126
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Bread Manufacturing	0.012	9.0×10^{-8}	6.87×10^{-3}	1.37×10^{-3}	1.37×10^{-3}	9.42×10^{-5}	0.141
Cake and Pastry Manufacturing	3.59×10^{-3}	2.13×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.56×10^{-4}	3.56×10^{-4}	0.061	0.353
Chemical Wholesaling	0	0	0	0	0	0	1.23×10^{-3}
Concrete Slurry Manufacturing	0	2.03×10^{-9}	0	4.07×10^{-3}	6.53×10^{-4}	0	0
Confectionery Manufacturing	4.88×10^{-4}	2.48×10^{-9}	5.81×10^{-4}	4.41×10^{-5}	4.41×10^{-5}	3.03×10^{-6}	4.17×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.08×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electrical and Equipment Manufacturing n.e.c.	1.09×10^{-5}	0	1.29×10^{-5}	3.85×10^{-4}	3.85×10^{-4}	6.76×10^{-8}	3.22×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	0	0	1.17×10^{-3}	1.46×10^{-3}	1.46×10^{-3}	0	0.014
Food Manufacturing n.e.c.	0.017	9.96×10^{-8}	0.020	1.52×10^{-3}	1.52×10^{-3}	1.05×10^{-4}	0.341
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	3.20×10^{-3}	1.13×10^{-10}	7.04×10^{-3}	5.77×10^{-7}	3.85×10^{-7}	1.24×10^{-3}	0
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.019
Glass and Glass Product Manufacturing	0.056	5.05×10^{-5}	0.131	0.021	0.020	4.03×10^{-4}	0.041
Gravel and Sand Quarrying	0	1.92×10^{-7}	0	1.119	0.231	0	1.53×10^{-4}
Hospitals (Except Psychiatric Hospitals)	1.868	1.11×10^{-5}	2.224	0.169	0.169	0.012	0.122
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	3.54×10^{-6}	0	2.57×10^{-5}	7.97×10^{-7}	7.89×10^{-7}	1.13×10^{-10}	0.011
Ink Manufacturing	0	0	0	0	0	0	4.89×10^{-7}
Laundries and Dry-Cleaners	7.10×10^{-4}	4.18×10^{-9}	8.46×10^{-4}	6.43×10^{-5}	6.43×10^{-5}	4.42×10^{-6}	0.340
Lifting and Material Handling Equipment Manufacturing	0	0	1.94×10^{-4}	3.84×10^{-5}	3.84×10^{-5}	0	1.24×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	5.34×10^{-7}
Metal Coating and Finishing	2.45×10^{-3}	1.45×10^{-8}	2.92×10^{-3}	2.22×10^{-4}	2.22×10^{-4}	1.53×10^{-5}	0.019
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Non-Building Construction n.e.c.	1.55×10^{-5}	0	1.12×10^{-4}	3.49×10^{-6}	3.45×10^{-6}	4.52×10^{-10}	2.71×10^{-6}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paint Manufacturing	0	0	0	0.011	0.011	0	0.018
Paper Product Manufacturing n.e.c.	4.68×10^{-3}	2.78×10^{-8}	5.57×10^{-3}	4.23×10^{-4}	4.23×10^{-4}	2.91×10^{-5}	1.37×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.101
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	5.70×10^{-4}	5.07×10^{-4}	0	0.015
Plastic Injection Moulded Product Manufacturing	5.38×10^{-3}	3.20×10^{-8}	6.41×10^{-3}	4.87×10^{-4}	4.87×10^{-4}	3.35×10^{-5}	4.60×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	9.91×10^{-3}
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.436	0.410	0	0
Poultry Farming (Meat)	0	0	0	2.234	0.638	0	0
Prepared Animal and Bird Feed Manufacturing	3.87×10^{-6}	9.03×10^{-10}	1.55×10^{-5}	8.39×10^{-7}	8.32×10^{-7}	5.48×10^{-6}	2.58×10^{-7}
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	1.614
Road and Bridge Construction	0	0	0	7.96×10^{-5}	1.60×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	1.13×10^{-10}	0	9.06×10^{-6}	0	0	9.41×10^{-6}
Smash Repairing	0	0	0	0	0	0	6.697
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	7.50×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.21×10^{-5}	0	1.45×10^{-5}	1.10×10^{-6}	1.10×10^{-6}	7.54×10^{-8}	1.36×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	1.17×10^{-3}	1.64×10^{-3}	1.64×10^{-3}	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	1.23×10^{-5}	1.23×10^{-5}	0	0
Unaccounted Gaseous Fuel Combustion	0.773	9.68×10^{-6}	1.813	0.145	0.145	0.012	0.106
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.012

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Commercial Total	3.253	1.22 × 10 ⁻⁴	4.686	5.251	1.714	0.126	16.501
January Weekend Day Emissions (tonnes/day) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	0.669
Bread Manufacturing	4.52 × 10 ⁻³	2.66 × 10 ⁻⁸	5.38 × 10 ⁻³	8.18 × 10 ⁻⁴	8.18 × 10 ⁻⁴	2.81 × 10 ⁻⁵	0.124
Ceramic Product Manufacturing n.e.c.	1.55 × 10 ⁻⁵	0	1.12 × 10 ⁻⁴	3.48 × 10 ⁻⁶	3.45 × 10 ⁻⁶	5.65 × 10 ⁻¹⁰	2.71 × 10 ⁻⁶
Concrete Slurry Manufacturing	0	9.03 × 10 ⁻¹⁰	0	6.47 × 10 ⁻⁴	1.05 × 10 ⁻⁴	0	0
Construction Material Mining n.e.c.	0	7.77 × 10 ⁻⁸	0	0.058	0.011	0	1.35 × 10 ⁻⁵
Funeral Directors, Crematoria and Cemeteries	6.27 × 10 ⁻⁴	0	1.38 × 10 ⁻³	1.13 × 10 ⁻⁷	7.54 × 10 ⁻⁸	2.43 × 10 ⁻⁴	0
Gravel and Sand Quarrying	0	0	0	0.187	0.038	0	2.88 × 10 ⁻⁵
Hospitals (Except Psychiatric Hospitals)	0.111	6.58 × 10 ⁻⁷	0.136	0.010	0.010	9.44 × 10 ⁻⁴	7.53 × 10 ⁻³
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.021
Metal Coating and Finishing	1.13 × 10 ⁻⁴	5.65 × 10 ⁻¹⁰	1.35 × 10 ⁻⁴	1.06 × 10 ⁻⁵	1.06 × 10 ⁻⁵	7.05 × 10 ⁻⁷	8.35 × 10 ⁻⁶
Mining and Construction Machinery Manufacturing	0	0	0	5.39 × 10 ⁻⁷	5.39 × 10 ⁻⁷	0	1.28 × 10 ⁻³
Petroleum Product Wholesaling	0	0	0	0	0	0	6.94 × 10 ⁻⁴
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	3.61 × 10 ⁻³
Poultry Farming (Meat)	0	0	0	0.124	0.035	0	0
Road and Bridge Construction	0	0	0	8.76 × 10 ⁻⁵	1.76 × 10 ⁻⁵	0	1.94 × 10 ⁻⁵
Smash Repairing	0	0	0	0	0	0	0.452
Unaccounted Gaseous Fuel Combustion	0.051	6.38 × 10 ⁻⁷	0.119	9.55 × 10 ⁻³	9.55 × 10 ⁻³	7.66 × 10 ⁻⁴	7.01 × 10 ⁻³
Wine Manufacturing	0	0	0	0	0	0	2.26 × 10 ⁻³
Commercial Total	0.168	1.40 × 10 ⁻⁶	0.262	0.391	0.106	1.98 × 10 ⁻³	1.288
January Weekend Day Emissions (tonnes/day) - Wollongong							
Automotive Component Manufacturing n.e.c.	7.23 × 10 ⁻⁶	0	8.60 × 10 ⁻⁶	6.54 × 10 ⁻⁷	6.54 × 10 ⁻⁷	4.49 × 10 ⁻⁸	2.17 × 10 ⁻³
Automotive Fuel Retailing	0	0	0	0	0	0	0.498
Basic Iron and Steel Manufacturing	0.012	7.30 × 10 ⁻⁸	0.015	1.11 × 10 ⁻³	1.11 × 10 ⁻³	7.64 × 10 ⁻⁵	8.98 × 10 ⁻⁴

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Concrete Slurry Manufacturing	0	0	0	2.37×10^{-5}	4.77×10^{-6}	0	0
Funeral Directors, Crematoria and Cemeteries	2.38×10^{-4}	0	5.23×10^{-4}	4.28×10^{-8}	2.86×10^{-8}	9.22×10^{-5}	0
Gas Supply	0	0	0	0	0	0	7.47×10^{-3}
Gravel and Sand Quarrying	0	0	0	0.075	0.015	0	1.15×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.191	1.14×10^{-6}	0.228	0.017	0.017	1.19×10^{-3}	0.013
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.016
Poultry Farming (Meat)	0	0	0	0.029	8.18×10^{-3}	0	0
Printing	0	0	0	0	0	0	0.111
Rubber Product Manufacturing n.e.c.	0	0	0	0	0	0	1.23×10^{-6}
Smash Repairing	0	0	0	0	0	0	0.330
Spring and Wire Product Manufacturing	1.61×10^{-6}	0	1.17×10^{-5}	3.63×10^{-7}	3.59×10^{-7}	0	2.82×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	0	9.44×10^{-3}	9.44×10^{-3}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.59×10^{-7}	3.59×10^{-7}	2.46×10^{-8}	2.60×10^{-7}
Unaccounted Gaseous Fuel Combustion	0.037	4.64×10^{-7}	0.087	6.95×10^{-3}	6.95×10^{-3}	5.57×10^{-4}	5.10×10^{-3}
Commercial Total	0.272	1.75×10^{-6}	0.339	0.158	0.076	3.10×10^{-3}	0.985
January Weekend Day Emissions (tonnes/day) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.15×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	2.237
Concrete Slurry Manufacturing	0	0	0	4.03×10^{-4}	8.11×10^{-5}	0	0
Construction Material Mining n.e.c.	0	0	0	0.037	7.55×10^{-3}	0	5.76×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	1.35×10^{-3}	1.01×10^{-3}	0	0.135
Fabricated Metal Product Manufacturing n.e.c.	2.06×10^{-3}	1.22×10^{-8}	1.21×10^{-3}	1.86×10^{-4}	1.86×10^{-4}	1.28×10^{-5}	1.57×10^{-4}
Food Manufacturing n.e.c.	0.010	1.09×10^{-6}	0.048	2.02×10^{-3}	1.32×10^{-3}	0.046	9.16×10^{-4}
Funeral Directors, Crematoria and Cemeteries	1.25×10^{-3}	0	2.74×10^{-3}	2.25×10^{-7}	1.50×10^{-7}	4.83×10^{-4}	0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Furniture Manufacturing n.e.c.	2.50×10^{-3}	1.48×10^{-8}	2.98×10^{-3}	2.26×10^{-4}	2.26×10^{-4}	1.55×10^{-5}	1.66×10^{-4}
Glass and Glass Product Manufacturing	1.18×10^{-5}	1.82×10^{-8}	9.07×10^{-5}	1.48×10^{-5}	4.11×10^{-6}	4.27×10^{-6}	2.34×10^{-6}
Gravel and Sand Quarrying	0	0	0	1.244	0.250	0	1.48×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.813	4.84×10^{-6}	0.970	0.074	0.074	5.11×10^{-3}	0.053
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.058
Lifting and Material Handling Equipment Manufacturing	0	0	0	0	0	0	0
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	1.77×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	1.26×10^{-3}
Non-Building Construction n.e.c.	1.52×10^{-5}	0	1.10×10^{-4}	3.42×10^{-6}	3.38×10^{-6}	5.65×10^{-10}	2.66×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	5.12×10^{-7}
Paper Product Manufacturing n.e.c.	2.18×10^{-4}	0	1.01×10^{-3}	7.13×10^{-5}	7.06×10^{-5}	6.67×10^{-5}	7.41×10^{-5}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.120
Poultry Farming (Eggs)	0	0	0	0.162	0.046	0	0
Poultry Farming (Meat)	0	0	0	2.562	0.732	0	0
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.08×10^{-8}	4.16×10^{-3}	3.16×10^{-4}	3.16×10^{-4}	2.18×10^{-5}	2.29×10^{-4}
Printing	0	0	0	0	0	0	0.086
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	8.73×10^{-5}	1.75×10^{-5}	0	2.17×10^{-5}
Smash Repairing	0	0	0	0	0	0	1.060
Unaccounted Gaseous Fuel Combustion	0.121	1.52×10^{-6}	0.284	0.023	0.023	1.82×10^{-3}	0.017
Wine Manufacturing	0	0	0	0	0	0	0.121
Commercial Total	0.955	7.51×10^{-6}	1.314	4.106	1.136	0.053	3.893

Table 3.32 Proportion of total estimated daily emissions from commercial sources by ANZSIC class in each region for typical January weekend day

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - GMR							
Aircraft Manufacturing	2.04×10^{-4}	2.39×10^{-5}	1.02×10^{-3}	3.46×10^{-4}	9.30×10^{-4}	4.82×10^{-6}	9.92×10^{-5}
Automotive Component Manufacturing n.e.c.	4.86×10^{-6}	5.03×10^{-7}	2.42×10^{-5}	9.44×10^{-6}	2.54×10^{-5}	1.15×10^{-7}	3.21×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	2.27
Basic Iron and Steel Manufacturing	4.52×10^{-4}	2.94×10^{-3}	2.63×10^{-3}	4.77×10^{-3}	0.01	1.07×10^{-5}	0.03
Basic Non-Ferrous Metal Manufacturing n.e.c.	7.62×10^{-6}	6.34×10^{-3}	3.82×10^{-5}	0.02	0.03	4.24×10^{-5}	3.70×10^{-6}
Biscuit Manufacturing	6.85×10^{-4}	8.04×10^{-5}	3.41×10^{-3}	1.16×10^{-3}	3.12×10^{-3}	1.62×10^{-5}	3.33×10^{-4}
Bread Manufacturing	5.26×10^{-4}	7.43×10^{-5}	1.66×10^{-3}	1.32×10^{-3}	3.56×10^{-3}	1.50×10^{-5}	0.06
Cake and Pastry Manufacturing	1.16×10^{-4}	1.36×10^{-5}	5.78×10^{-4}	1.97×10^{-4}	5.29×10^{-4}	2.74×10^{-6}	8.77×10^{-3}
Ceramic Product Manufacturing	1.01×10^{-3}	4.96×10^{-5}	1.27×10^{-3}	0.01	0.03	1.45×10^{-4}	3.78×10^{-4}
Ceramic Product Manufacturing n.e.c.	5.0×10^{-7}	0	1.52×10^{-5}	2.11×10^{-6}	5.61×10^{-6}	6.91×10^{-11}	6.49×10^{-7}
Chemical Product Manufacturing n.e.c.	1.27×10^{-4}	1.49×10^{-5}	6.34×10^{-4}	2.16×10^{-4}	5.79×10^{-4}	7.47×10^{-3}	0.08
Chemical Wholesaling	0	0	0	0	0	0	2.94×10^{-4}
Concrete Slurry Manufacturing	0	1.87×10^{-6}	0	3.11×10^{-3}	1.37×10^{-3}	0	0
Confectionery Manufacturing	1.57×10^{-5}	1.58×10^{-6}	7.85×10^{-5}	2.67×10^{-5}	7.18×10^{-5}	3.72×10^{-7}	9.98×10^{-6}
Construction Material Mining n.e.c.	0	4.95×10^{-5}	0	0.06	0.03	0	4.62×10^{-6}
Corrugated Paperboard Container Manufacturing	1.68×10^{-4}	1.96×10^{-5}	8.36×10^{-4}	2.84×10^{-4}	7.64×10^{-4}	3.96×10^{-6}	8.14×10^{-5}
Electric Cable and Wire Manufacturing	0	0	0	8.20×10^{-4}	1.65×10^{-3}	0	0.03
Electrical and Equipment Manufacturing n.e.c.	3.51×10^{-7}	0	1.75×10^{-6}	2.33×10^{-4}	6.26×10^{-4}	8.28×10^{-9}	7.72×10^{-4}
Fabricated Metal Product Manufacturing n.e.c.	6.64×10^{-5}	7.77×10^{-6}	3.21×10^{-4}	9.98×10^{-4}	2.68×10^{-3}	1.57×10^{-6}	3.31×10^{-3}
Food Manufacturing n.e.c.	8.76×10^{-4}	7.55×10^{-4}	9.17×10^{-3}	2.14×10^{-3}	4.63×10^{-3}	5.62×10^{-3}	0.08
Fruit and Vegetable Processing	4.90×10^{-5}	5.75×10^{-6}	2.44×10^{-4}	8.31×10^{-5}	2.23×10^{-4}	1.16×10^{-6}	2.38×10^{-5}
Funeral Directors, Crematoria and Cemeteries	1.71×10^{-4}	7.19×10^{-8}	1.58×10^{-3}	5.80×10^{-7}	1.04×10^{-6}	2.52×10^{-4}	0
Furniture Manufacturing n.e.c.	8.06×10^{-5}	9.42×10^{-6}	4.02×10^{-4}	1.37×10^{-4}	3.68×10^{-4}	1.90×10^{-6}	3.97×10^{-5}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gas Supply	1.05×10^{-4}	1.23×10^{-5}	5.23×10^{-4}	1.78×10^{-4}	4.78×10^{-4}	2.48×10^{-6}	6.45×10^{-3}
Glass and Glass Product Manufacturing	1.79×10^{-3}	0.03	0.02	0.01	0.03	4.99×10^{-5}	9.75×10^{-3}
Gravel and Sand Quarrying	0	1.22×10^{-4}	0	1.59	0.87	0	8.17×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.10	0.01	0.48	0.16	0.44	2.31×10^{-3}	0.05
Ice Cream Manufacturing	8.92×10^{-5}	1.04×10^{-5}	6.23×10^{-4}	1.51×10^{-4}	4.07×10^{-4}	4.74×10^{-6}	2.82×10^{-4}
Industrial Gas Manufacturing	1.14×10^{-7}	0	3.47×10^{-6}	4.82×10^{-7}	1.28×10^{-6}	1.38×10^{-11}	2.62×10^{-3}
Ink Manufacturing	0	0	0	0	0	0	1.17×10^{-7}
Laundries and Dry-Cleaners	2.29×10^{-5}	2.66×10^{-6}	1.14×10^{-4}	3.89×10^{-5}	1.05×10^{-4}	5.41×10^{-7}	0.10
Lifting and Material Handling Equipment Manufacturing	0	0	2.63×10^{-5}	2.32×10^{-5}	6.24×10^{-5}	0	2.97×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	4.25×10^{-4}
Metal Coating and Finishing	8.29×10^{-5}	9.56×10^{-6}	4.13×10^{-4}	1.41×10^{-4}	3.79×10^{-4}	1.96×10^{-6}	4.58×10^{-3}
Milk and Cream Processing	8.92×10^{-5}	1.04×10^{-5}	4.45×10^{-4}	1.51×10^{-4}	4.07×10^{-4}	2.11×10^{-6}	4.33×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	3.26×10^{-7}	8.77×10^{-7}	0	6.10×10^{-4}
Non-Building Construction n.e.c.	9.90×10^{-7}	0	3.01×10^{-5}	4.18×10^{-6}	1.11×10^{-5}	1.24×10^{-10}	1.29×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	1.23×10^{-7}
Paint Manufacturing	0	0	0	6.92×10^{-3}	0.02	0	4.33×10^{-3}
Paper Product Manufacturing n.e.c.	1.58×10^{-4}	1.77×10^{-5}	8.90×10^{-4}	2.99×10^{-4}	8.04×10^{-4}	1.17×10^{-5}	3.46×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.05
Plaster Product Manufacturing	0.01	0.02	0.01	0.02	0.04	1.51×10^{-3}	2.20×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	3.45×10^{-4}	8.24×10^{-4}	0	3.67×10^{-3}
Plastic Injection Moulded Product Manufacturing	1.74×10^{-4}	2.04×10^{-5}	8.66×10^{-4}	2.95×10^{-4}	7.92×10^{-4}	4.10×10^{-6}	1.10×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.21×10^{-4}	1.42×10^{-5}	6.18×10^{-4}	2.06×10^{-4}	5.54×10^{-4}	2.87×10^{-6}	3.24×10^{-3}
Port Operators	2.72×10^{-3}	6.85×10^{-4}	0.04	0.01	0.04	3.27×10^{-3}	8.84×10^{-3}
Poultry Farming (Eggs)	0	0	0	0.97	0.74	0	0
Poultry Farming (Meat)	0	0	0	2.99	2.30	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Prepared Animal and Bird Feed Manufacturing	1.13×10^{-4}	1.38×10^{-5}	5.65×10^{-4}	1.92×10^{-4}	5.16×10^{-4}	3.34×10^{-6}	5.49×10^{-5}
Printing	2.62×10^{-4}	3.68×10^{-5}	1.70×10^{-3}	5.32×10^{-4}	1.43×10^{-3}	7.40×10^{-6}	0.43
Rail Transport	0	0	0	0	0	0	8.97×10^{-6}
Road and Bridge Construction	0	0	0	1.54×10^{-4}	8.32×10^{-5}	0	9.83×10^{-6}
Rubber Product Manufacturing n.e.c.	0	7.19×10^{-8}	0	5.48×10^{-6}	0	0	2.55×10^{-6}
Smash Repairing	0	0	0	0	0	0	2.05
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.80×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	2.31×10^{-4}	2.78×10^{-5}	1.18×10^{-3}	4.02×10^{-4}	1.08×10^{-3}	5.59×10^{-6}	1.15×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	9.86×10^{-3}
Spirit Manufacturing	0	0	0	0	0	0	0.04
Spring and Wire Product Manufacturing	4.44×10^{-7}	0	3.53×10^{-6}	8.84×10^{-7}	2.37×10^{-6}	9.23×10^{-9}	3.93×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	1.58×10^{-4}	6.70×10^{-3}	0.02	0	7.91×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.60×10^{-3}
Structural Steel Fabricating	0	0	0	7.45×10^{-6}	2.0×10^{-5}	0	0
Synthetic Resin Manufacturing	1.28×10^{-7}	0	6.39×10^{-7}	2.18×10^{-7}	5.85×10^{-7}	3.01×10^{-9}	6.23×10^{-8}
Unaccounted Gaseous Fuel Combustion	0.03	7.83×10^{-3}	0.31	0.11	0.30	1.81×10^{-3}	0.03
Wine Manufacturing	2.09×10^{-8}	0	6.34×10^{-7}	8.81×10^{-8}	2.34×10^{-7}	0	0.03
Commercial Total	0.15	0.08	0.89	5.99	4.93	0.02	5.43
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Sydney							
Aircraft Manufacturing	5.55×10^{-4}	6.30×10^{-5}	3.47×10^{-3}	1.37×10^{-3}	2.45×10^{-3}	1.08×10^{-4}	1.31×10^{-4}
Automotive Component Manufacturing n.e.c.	1.26×10^{-5}	1.32×10^{-6}	7.87×10^{-5}	3.59×10^{-5}	6.41×10^{-5}	2.46×10^{-6}	3.19×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	1.92
Basic Iron and Steel Manufacturing	1.52×10^{-4}	7.61×10^{-3}	2.24×10^{-3}	0.02	0.03	2.97×10^{-5}	0.04
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.07×10^{-5}	0.02	1.30×10^{-4}	0.06	0.09	9.53×10^{-4}	4.89×10^{-6}
Biscuit Manufacturing	1.86×10^{-3}	2.12×10^{-4}	0.01	4.61×10^{-3}	8.23×10^{-3}	3.63×10^{-4}	4.40×10^{-4}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Bread Manufacturing	1.03×10^{-3}	1.51×10^{-4}	3.16×10^{-3}	3.29×10^{-3}	5.87×10^{-3}	2.59×10^{-4}	0.04
Cake and Pastry Manufacturing	3.16×10^{-4}	3.58×10^{-5}	1.97×10^{-3}	7.81×10^{-4}	1.39×10^{-3}	6.16×10^{-5}	0.01
Chemical Product Manufacturing n.e.c.	3.46×10^{-4}	3.92×10^{-5}	2.16×10^{-3}	8.55×10^{-4}	1.53×10^{-3}	0.17	0.11
Chemical Wholesaling	0	0	0	0	0	0	3.88×10^{-4}
Concrete Slurry Manufacturing	0	3.41×10^{-6}	0	9.77×10^{-3}	2.80×10^{-3}	0	0
Confectionery Manufacturing	4.29×10^{-5}	4.16×10^{-6}	2.68×10^{-4}	1.06×10^{-4}	1.89×10^{-4}	8.35×10^{-6}	1.32×10^{-5}
Corrugated Paperboard Container Manufacturing	4.56×10^{-4}	5.17×10^{-5}	2.85×10^{-3}	1.13×10^{-3}	2.01×10^{-3}	8.90×10^{-5}	1.08×10^{-4}
Electrical and Equipment Manufacturing n.e.c.	9.55×10^{-7}	0	5.96×10^{-6}	9.24×10^{-4}	1.65×10^{-3}	1.86×10^{-7}	1.02×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	0	0	5.37×10^{-4}	3.51×10^{-3}	6.27×10^{-3}	0	4.32×10^{-3}
Food Manufacturing n.e.c.	1.48×10^{-3}	1.67×10^{-4}	9.24×10^{-3}	3.66×10^{-3}	6.53×10^{-3}	2.89×10^{-4}	0.11
Fruit and Vegetable Processing	1.33×10^{-4}	1.51×10^{-5}	8.32×10^{-4}	3.30×10^{-4}	5.89×10^{-4}	2.60×10^{-5}	3.15×10^{-5}
Funeral Directors, Crematoria and Cemeteries	2.81×10^{-4}	1.89×10^{-7}	3.24×10^{-3}	1.39×10^{-6}	1.65×10^{-6}	3.42×10^{-3}	0
Gas Supply	2.86×10^{-4}	3.24×10^{-5}	1.78×10^{-3}	7.06×10^{-4}	1.26×10^{-3}	5.57×10^{-5}	6.16×10^{-3}
Glass and Glass Product Manufacturing	4.88×10^{-3}	0.08	0.06	0.05	0.09	1.11×10^{-3}	0.01
Gravel and Sand Quarrying	0	3.22×10^{-4}	0	2.69	0.99	0	4.83×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.16	0.02	1.02	0.41	0.72	0.03	0.04
Ice Cream Manufacturing	2.43×10^{-4}	2.74×10^{-5}	2.12×10^{-3}	6.0×10^{-4}	1.07×10^{-3}	1.07×10^{-4}	3.73×10^{-4}
Industrial Gas Manufacturing	3.11×10^{-7}	0	1.18×10^{-5}	1.91×10^{-6}	3.38×10^{-6}	3.11×10^{-10}	3.47×10^{-3}
Ink Manufacturing	0	0	0	0	0	0	1.55×10^{-7}
Laundries and Dry-Cleaners	6.24×10^{-5}	7.0×10^{-6}	3.90×10^{-4}	1.54×10^{-4}	2.75×10^{-4}	1.22×10^{-5}	0.11
Lifting and Material Handling Equipment Manufacturing	0	0	8.95×10^{-5}	9.22×10^{-5}	1.65×10^{-4}	0	3.93×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	1.69×10^{-7}
Metal Coating and Finishing	2.16×10^{-4}	2.42×10^{-5}	1.35×10^{-3}	5.33×10^{-4}	9.52×10^{-4}	4.20×10^{-5}	6.05×10^{-3}
Milk and Cream Processing	2.43×10^{-4}	2.74×10^{-5}	1.52×10^{-3}	6.0×10^{-4}	1.07×10^{-3}	4.73×10^{-5}	5.73×10^{-5}
Non-Building Construction n.e.c.	1.36×10^{-6}	0	5.18×10^{-5}	8.37×10^{-6}	1.48×10^{-5}	1.24×10^{-9}	8.58×10^{-7}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paint Manufacturing	0	0	0	0.03	0.05	0	5.72×10^{-3}
Paper Product Manufacturing n.e.c.	4.11×10^{-4}	4.66×10^{-5}	2.57×10^{-3}	1.02×10^{-3}	1.82×10^{-3}	8.02×10^{-5}	4.34×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.03
Plaster Product Manufacturing	0.03	0.06	0.04	0.09	0.10	0.03	2.90×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.37×10^{-3}	2.17×10^{-3}	0	4.85×10^{-3}
Plastic Injection Moulded Product Manufacturing	4.73×10^{-4}	5.36×10^{-5}	2.95×10^{-3}	1.17×10^{-3}	2.09×10^{-3}	9.22×10^{-5}	1.46×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.31×10^{-4}	3.75×10^{-5}	2.11×10^{-3}	8.17×10^{-4}	1.46×10^{-3}	6.45×10^{-5}	3.14×10^{-3}
Port Operators	7.40×10^{-3}	1.80×10^{-3}	0.13	0.06	0.10	0.07	0.01
Poultry Farming (Eggs)	0	0	0	3.45	1.76	0	0
Poultry Farming (Meat)	0	0	0	5.36	2.74	0	0
Prepared Animal and Bird Feed Manufacturing	3.40×10^{-7}	1.51×10^{-6}	7.13×10^{-6}	2.01×10^{-6}	3.57×10^{-6}	1.51×10^{-5}	8.17×10^{-8}
Printing	7.13×10^{-4}	9.69×10^{-5}	5.81×10^{-3}	2.11×10^{-3}	3.77×10^{-3}	1.66×10^{-4}	0.51
Road and Bridge Construction	0	0	0	1.91×10^{-4}	6.87×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	1.89×10^{-7}	0	2.18×10^{-5}	0	0	2.98×10^{-6}
Smash Repairing	0	0	0	0	0	0	2.12
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	2.37×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	6.29×10^{-4}	7.30×10^{-5}	4.03×10^{-3}	1.59×10^{-3}	2.85×10^{-3}	1.26×10^{-4}	1.52×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.01
Spirit Manufacturing	0	0	0	0	0	0	0.06
Spring and Wire Product Manufacturing	1.07×10^{-6}	0	6.66×10^{-6}	2.64×10^{-6}	4.71×10^{-6}	2.08×10^{-7}	4.30×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	5.37×10^{-4}	3.95×10^{-3}	7.05×10^{-3}	0	1.05×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	2.12×10^{-3}
Structural Steel Fabricating	0	0	0	2.96×10^{-5}	5.28×10^{-5}	0	0
Unaccounted Gaseous Fuel Combustion	0.07	0.02	0.84	0.35	0.62	0.03	0.03
Wine Manufacturing	5.68×10^{-8}	0	2.16×10^{-6}	3.49×10^{-7}	6.18×10^{-7}	0	3.95×10^{-3}

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Commercial Total	0.29	0.20	2.16	12.6	7.35	0.35	5.22
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	2.94
Bread Manufacturing	2.21×10^{-3}	5.79×10^{-4}	0.02	0.01	0.02	9.87×10^{-5}	0.54
Ceramic Product Manufacturing n.e.c.	7.56×10^{-6}	0	4.75×10^{-4}	5.94×10^{-5}	1.04×10^{-4}	1.98×10^{-9}	1.19×10^{-5}
Concrete Slurry Manufacturing	0	1.96×10^{-5}	0	0.01	3.15×10^{-3}	0	0
Construction Material Mining n.e.c.	0	1.69×10^{-3}	0	0.99	0.35	0	5.96×10^{-5}
Funeral Directors, Crematoria and Cemeteries	3.06×10^{-4}	0	5.84×10^{-3}	1.93×10^{-6}	2.26×10^{-6}	8.54×10^{-4}	0
Gravel and Sand Quarrying	0	0	0	3.20	1.13	0	1.27×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.05	0.01	0.57	0.18	0.31	3.31×10^{-3}	0.03
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.09
Metal Coating and Finishing	5.53×10^{-5}	1.23×10^{-5}	5.72×10^{-4}	1.81×10^{-4}	3.19×10^{-4}	2.47×10^{-6}	3.67×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	9.20×10^{-6}	1.62×10^{-5}	0	5.65×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	3.05×10^{-3}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.02
Poultry Farming (Meat)	0	0	0	2.12	1.07	0	0
Road and Bridge Construction	0	0	0	1.49×10^{-3}	5.30×10^{-4}	0	8.53×10^{-5}
Smash Repairing	0	0	0	0	0	0	1.99
Unaccounted Gaseous Fuel Combustion	0.02	0.01	0.51	0.16	0.29	2.69×10^{-3}	0.03
Wine Manufacturing	0	0	0	0	0	0	9.94×10^{-3}
Commercial Total	0.08	0.03	1.11	6.67	3.17	6.96×10^{-3}	5.67
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Wollongong							
Automotive Component Manufacturing n.e.c.	4.96×10^{-7}	0	2.74×10^{-5}	9.17×10^{-6}	1.26×10^{-5}	1.58×10^{-7}	0.01
Automotive Fuel Retailing	0	0	0	0	0	0	3.07
Basic Iron and Steel Manufacturing	8.44×10^{-4}	4.75×10^{-4}	0.05	0.02	0.02	2.68×10^{-4}	5.54×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Ceramic Product Manufacturing	2.14×10^{-3}	5.07×10^{-4}	0.03	0.28	0.35	4.17×10^{-3}	9.73×10^{-3}
Concrete Slurry Manufacturing	0	0	0	3.32×10^{-4}	9.20×10^{-5}	0	0
Funeral Directors, Crematoria and Cemeteries	1.63×10^{-5}	0	1.67×10^{-3}	6.0×10^{-7}	5.51×10^{-7}	3.24×10^{-4}	0
Gas Supply	0	0	0	0	0	0	0.05
Gravel and Sand Quarrying	0	0	0	1.05	0.29	0	7.10×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.01	7.40×10^{-3}	0.72	0.24	0.33	4.17×10^{-3}	0.08
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.10
Poultry Farming (Meat)	0	0	0	0.40	0.16	0	0
Printing	0	0	0	0	0	0	0.68
Rubber Product Manufacturing n.e.c.	0	0	0	0	0	0	7.55×10^{-6}
Smash Repairing	0	0	0	0	0	0	2.04
Spring and Wire Product Manufacturing	1.11×10^{-7}	0	3.72×10^{-5}	5.09×10^{-6}	6.93×10^{-6}	0	1.74×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	0	0.13	0.18	0	0
Synthetic Resin Manufacturing	2.73×10^{-7}	0	1.51×10^{-5}	5.04×10^{-6}	6.93×10^{-6}	8.64×10^{-8}	1.60×10^{-6}
Unaccounted Gaseous Fuel Combustion	2.54×10^{-3}	3.02×10^{-3}	0.28	0.10	0.13	1.95×10^{-3}	0.03
Commercial Total	0.02	0.01	1.08	2.22	1.47	0.01	6.07
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.84×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	3.57
Concrete Slurry Manufacturing	0	0	0	3.64×10^{-4}	2.74×10^{-4}	0	0
Construction Material Mining n.e.c.	0	0	0	0.03	0.03	0	9.19×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	1.22×10^{-3}	3.42×10^{-3}	0	0.22
Fabricated Metal Product Manufacturing n.e.c.	6.86×10^{-4}	1.58×10^{-5}	2.59×10^{-4}	1.68×10^{-4}	6.29×10^{-4}	1.77×10^{-6}	2.51×10^{-4}
Food Manufacturing n.e.c.	3.43×10^{-3}	1.40×10^{-3}	0.01	1.82×10^{-3}	4.47×10^{-3}	6.34×10^{-3}	1.46×10^{-3}
Funeral Directors, Crematoria and Cemeteries	4.15×10^{-4}	0	5.86×10^{-4}	2.03×10^{-7}	5.05×10^{-7}	6.68×10^{-5}	0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Furniture Manufacturing n.e.c.	8.33×10^{-4}	1.91×10^{-5}	6.36×10^{-4}	2.04×10^{-4}	7.63×10^{-4}	2.15×10^{-6}	2.64×10^{-4}
Glass and Glass Product Manufacturing	3.92×10^{-6}	2.35×10^{-5}	1.94×10^{-5}	1.34×10^{-5}	1.39×10^{-5}	5.90×10^{-7}	3.73×10^{-6}
Gravel and Sand Quarrying	0	0	0	1.12	0.84	0	2.37×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.27	6.26×10^{-3}	0.21	0.07	0.25	7.06×10^{-4}	0.09
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.09
Lifting and Material Handling Equipment Manufacturing	0	0	0	0	0	0	0
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	2.83×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	2.02×10^{-3}
Non-Building Construction n.e.c.	5.06×10^{-6}	0	2.35×10^{-5}	3.09×10^{-6}	1.14×10^{-5}	7.80×10^{-11}	4.24×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	8.17×10^{-7}
Paper Product Manufacturing n.e.c.	7.27×10^{-5}	0	2.17×10^{-4}	6.44×10^{-5}	2.38×10^{-4}	9.22×10^{-6}	1.18×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.19
Poultry Farming (Eggs)	0	0	0	0.15	0.16	0	0
Poultry Farming (Meat)	0	0	0	2.32	2.47	0	0
Prepared Animal and Bird Feed Manufacturing	1.17×10^{-3}	2.68×10^{-5}	8.90×10^{-4}	2.86×10^{-4}	1.07×10^{-3}	3.01×10^{-6}	3.66×10^{-4}
Printing	0	0	0	0	0	0	0.14
Rail Transport	0	0	0	0	0	0	5.98×10^{-5}
Road and Bridge Construction	0	0	0	7.89×10^{-5}	5.91×10^{-5}	0	3.46×10^{-5}
Smash Repairing	0	0	0	0	0	0	1.69
Unaccounted Gaseous Fuel Combustion	0.04	1.96×10^{-3}	0.06	0.02	0.08	2.52×10^{-4}	0.03
Wine Manufacturing	0	0	0	0	0	0	0.19
Commercial Total	0.32	9.71×10^{-3}	0.28	3.71	3.83	7.38×10^{-3}	6.21

Table 3.33 shows total estimated daily emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.33 Total estimated daily emissions from commercial sources in each region for typical July weekday

Substance	Commercial July Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.674	0.204	0.292	1.023	5.192
LEAD AND COMPOUNDS	6.63×10^{-4}	2.68×10^{-6}	2.28×10^{-6}	1.30×10^{-5}	6.81×10^{-4}
OXIDES OF NITROGEN	5.667	0.453	0.385	1.470	7.974
PARTICULATE MATTER < 10 µm	6.001	0.497	0.181	4.582	11.261
PARTICULATE MATTER < 2.5 µm	2.076	0.145	0.087	1.311	3.618
SULFUR DIOXIDE	0.134	2.68×10^{-3}	3.52×10^{-3}	0.045	0.185
TOTAL VOCS	30.681	2.473	1.923	7.418	42.495

Table 3.34 shows the proportion of total estimated daily anthropogenic emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.34 Proportion of total estimated daily emissions from commercial sources in each region for typical July weekday

Substance	Commercial Proportion of Anthropogenic Total July Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	0.20	0.08	0.02	0.25	0.13
LEAD AND COMPOUNDS	0.79	0.04	0.01	0.01	0.29
OXIDES OF NITROGEN	2.13	1.64	1.14	0.30	0.97
PARTICULATE MATTER < 10 µm	7.41	4.87	1.90	3.33	4.72
PARTICULATE MATTER < 2.5 µm	3.62	2.24	1.21	3.14	3.21
SULFUR DIOXIDE	0.36	9.37×10^{-3}	0.01	6.07×10^{-3}	0.02
TOTAL VOCS	7.28	7.75	9.27	9.75	7.73

Figure 3.9 shows the proportion of total estimated daily GMR commercial emissions from all commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

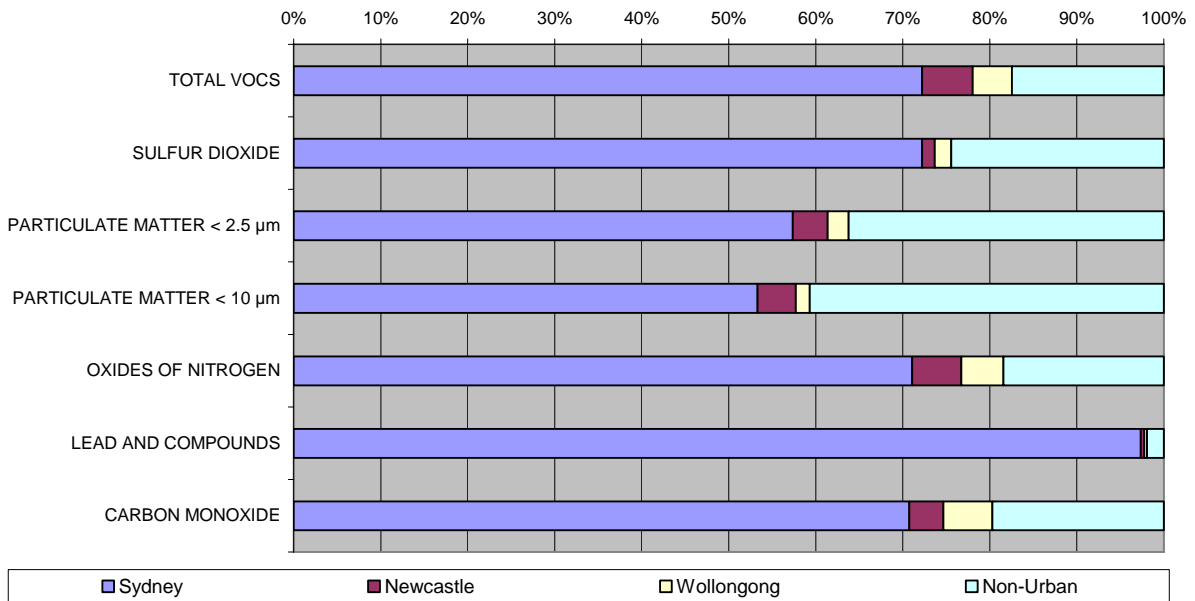


Figure 3.9 Proportion of total estimated daily emissions from commercial sources in each region for typical July weekday

Table 3.35 shows total estimated daily emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.36 shows the proportion of total estimated daily anthropogenic emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.35 Total estimated daily emissions from commercial sources by ANZSIC class in each region for typical July weekday

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
July Weekday Emissions (tonnes/day) - GMR							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	7.25×10^{-4}	4.25×10^{-9}	8.63×10^{-4}	7.54×10^{-5}	7.54×10^{-5}	4.51×10^{-6}	0.047
Automotive Fuel Retailing	0	0	0	0	0	0	16.884
Basic Iron and Steel Manufacturing	0.014	1.64×10^{-5}	0.024	0.025	0.022	8.72×10^{-5}	0.127
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.016	1.17×10^{-7}	0.012	2.19×10^{-3}	2.19×10^{-3}	1.22×10^{-4}	0.265
Cake and Pastry Manufacturing	3.59×10^{-3}	2.14×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.78×10^{-4}	3.77×10^{-4}	0.061	0.396
Chemical Wholesaling	0	0	0	0	0	0	2.45×10^{-3}
Concrete Slurry Manufacturing	0	1.18×10^{-7}	0	0.070	0.011	0	0
Confectionery Manufacturing	5.0×10^{-4}	2.94×10^{-9}	5.96×10^{-4}	4.53×10^{-5}	4.53×10^{-5}	3.11×10^{-6}	4.25×10^{-5}
Construction Material Mining n.e.c.	0	4.49×10^{-7}	0	0.148	0.031	0	1.45×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.09×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electric Cable and Wire Manufacturing	0	0	0	2.71×10^{-3}	2.03×10^{-3}	0	0.271
Electrical and Equipment Manufacturing n.e.c.	1.30×10^{-4}	7.23×10^{-10}	1.71×10^{-3}	1.01×10^{-3}	1.01×10^{-3}	8.08×10^{-7}	0.011
Fabricated Metal Product Manufacturing n.e.c.	2.46×10^{-3}	1.40×10^{-8}	7.19×10^{-3}	4.73×10^{-3}	4.73×10^{-3}	1.49×10^{-5}	0.149
Food Manufacturing n.e.c.	0.029	9.80×10^{-7}	0.063	3.48×10^{-3}	2.94×10^{-3}	0.036	0.342
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	0.011	7.68×10^{-10}	0.023	1.92×10^{-6}	1.28×10^{-6}	4.12×10^{-3}	0
Furniture Manufacturing n.e.c.	5.0×10^{-3}	2.97×10^{-8}	5.95×10^{-3}	4.52×10^{-4}	4.52×10^{-4}	3.11×10^{-5}	0.051
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.027

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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Glass and Glass Product Manufacturing	0.056	5.05×10^{-5}	0.132	0.021	0.020	4.06×10^{-4}	0.041
Gravel and Sand Quarrying	0	1.12×10^{-5}	0	3.657	0.898	0	2.56×10^{-4}
Hospitals (Except Psychiatric Hospitals)	2.984	1.78×10^{-5}	3.557	0.270	0.270	0.019	0.196
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	3.54×10^{-6}	0	2.57×10^{-5}	7.97×10^{-7}	7.89×10^{-7}	9.03×10^{-11}	0.011
Ink Manufacturing	0	0	0	2.32×10^{-3}	2.30×10^{-3}	0	0.040
Laundries and Dry-Cleaners	1.42×10^{-3}	8.45×10^{-9}	1.69×10^{-3}	1.29×10^{-4}	1.29×10^{-4}	8.84×10^{-6}	0.869
Lifting and Material Handling Equipment Manufacturing	0	0	3.89×10^{-4}	7.68×10^{-5}	7.68×10^{-5}	0	2.30×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	0.011	6.70×10^{-8}	0.018	1.03×10^{-3}	1.03×10^{-3}	7.01×10^{-5}	6.98×10^{-3}
Metal Coating and Finishing	0.013	7.75×10^{-8}	0.131	0.013	0.012	8.12×10^{-5}	0.021
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	3.80×10^{-3}
Non-Building Construction n.e.c.	5.24×10^{-5}	0	3.80×10^{-4}	1.18×10^{-5}	1.17×10^{-5}	1.90×10^{-9}	9.16×10^{-6}
Non-Ferrous Metal Casting	2.71×10^{-5}	6.77×10^{-9}	1.08×10^{-4}	9.17×10^{-4}	6.88×10^{-4}	8.18×10^{-5}	2.19×10^{-6}
Paint Manufacturing	0	5.19×10^{-4}	0	0.077	0.076	0	0.457
Paper Product Manufacturing n.e.c.	4.90×10^{-3}	2.78×10^{-8}	6.59×10^{-3}	4.95×10^{-4}	4.94×10^{-4}	9.58×10^{-5}	1.45×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.210
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	3.15×10^{-3}	2.93×10^{-3}	0	0.061
Plastic Injection Moulded Product Manufacturing	5.39×10^{-3}	3.31×10^{-8}	6.45×10^{-3}	4.88×10^{-4}	4.88×10^{-4}	1.51×10^{-4}	4.61×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	0.104
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.598	0.457	0	0
Poultry Farming (Meat)	0	0	0	4.949	1.414	0	0
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.17×10^{-8}	4.18×10^{-3}	3.17×10^{-4}	3.17×10^{-4}	2.72×10^{-5}	2.29×10^{-4}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	4.130
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	2.55×10^{-4}	5.12×10^{-5}	0	3.86×10^{-5}
Rubber Product Manufacturing n.e.c.	2.71×10^{-5}	7.09×10^{-9}	1.08×10^{-4}	2.40×10^{-5}	5.83×10^{-6}	3.84×10^{-5}	2.15×10^{-5}
Smash Repairing	0	0	0	0	0	0	17.077
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.17×10^{-4}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.38×10^{-5}	4.52×10^{-11}	2.93×10^{-3}	4.87×10^{-4}	4.87×10^{-4}	7.56×10^{-8}	1.43×10^{-3}
Steel Pipe and Tube Manufacturing	0	0	2.33×10^{-3}	0.013	0.013	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	3.68×10^{-5}	3.68×10^{-5}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.60×10^{-7}	3.60×10^{-7}	2.47×10^{-8}	2.60×10^{-7}
Unaccounted Gaseous Fuel Combustion	1.495	1.87×10^{-5}	3.503	0.280	0.280	0.022	0.206
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.136
Wood Product Manufacturing n.e.c.	2.03×10^{-6}	0	2.42×10^{-6}	1.84×10^{-7}	1.84×10^{-7}	1.26×10^{-8}	0.024
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	7.28×10^{-3}
Commercial Total	5.192	6.81×10^{-4}	7.974	11.261	3.618	0.185	42.495
July Weekday Emissions (tonnes/day) - Sydney							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	7.17×10^{-4}	4.25×10^{-9}	8.54×10^{-4}	7.48×10^{-5}	7.48×10^{-5}	4.46×10^{-6}	0.043
Automotive Fuel Retailing	0	0	0	0	0	0	10.260
Basic Iron and Steel Manufacturing	1.73×10^{-3}	1.63×10^{-5}	9.34×10^{-3}	0.024	0.021	1.08×10^{-5}	0.126
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.012	9.01×10^{-8}	6.87×10^{-3}	1.37×10^{-3}	1.37×10^{-3}	9.42×10^{-5}	0.141
Cake and Pastry Manufacturing	3.59×10^{-3}	2.14×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.57×10^{-4}	3.57×10^{-4}	0.061	0.356
Chemical Wholesaling	0	0	0	0	0	0	2.45×10^{-3}
Concrete Slurry Manufacturing	0	7.14×10^{-8}	0	0.045	6.84×10^{-3}	0	0
Confectionery Manufacturing	5.0×10^{-4}	2.94×10^{-9}	5.96×10^{-4}	4.53×10^{-5}	4.53×10^{-5}	3.11×10^{-6}	4.25×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.09×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electrical and Equipment Manufacturing n.e.c.	1.30×10^{-4}	7.23×10^{-10}	1.71×10^{-3}	1.01×10^{-3}	1.01×10^{-3}	8.08×10^{-7}	0.011
Fabricated Metal Product Manufacturing n.e.c.	4.0×10^{-4}	1.72×10^{-9}	4.43×10^{-3}	3.82×10^{-3}	3.82×10^{-3}	2.11×10^{-6}	0.148
Food Manufacturing n.e.c.	0.019	1.15×10^{-7}	0.023	1.75×10^{-3}	1.75×10^{-3}	1.20×10^{-4}	0.341
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	6.40×10^{-3}	5.87×10^{-10}	0.014	1.16×10^{-6}	7.72×10^{-7}	2.48×10^{-3}	0
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	0.012
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.019
Glass and Glass Product Manufacturing	0.056	5.05×10^{-5}	0.131	0.021	0.020	4.03×10^{-4}	0.041
Gravel and Sand Quarrying	0	5.54×10^{-6}	0	1.657	0.418	0	1.14×10^{-4}
Hospitals (Except Psychiatric Hospitals)	1.868	1.11×10^{-5}	2.224	0.169	0.169	0.012	0.122
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	3.54×10^{-6}	0	2.57×10^{-5}	7.97×10^{-7}	7.89×10^{-7}	9.03×10^{-11}	0.011
Ink Manufacturing	0	0	0	2.32×10^{-3}	2.30×10^{-3}	0	0.040
Laundries and Dry-Cleaners	1.42×10^{-3}	8.45×10^{-9}	1.69×10^{-3}	1.29×10^{-4}	1.29×10^{-4}	8.84×10^{-6}	0.680
Lifting and Material Handling Equipment Manufacturing	0	0	3.89×10^{-4}	7.68×10^{-5}	7.68×10^{-5}	0	2.30×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	9.18×10^{-3}	5.43×10^{-8}	0.011	8.38×10^{-4}	8.38×10^{-4}	5.68×10^{-5}	5.07×10^{-3}
Metal Coating and Finishing	3.86×10^{-3}	2.28×10^{-8}	5.37×10^{-3}	2.41×10^{-3}	2.41×10^{-3}	2.40×10^{-5}	0.019

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Non-Building Construction n.e.c.	3.72×10^{-5}	0	2.70×10^{-4}	8.37×10^{-6}	8.29×10^{-6}	1.35×10^{-9}	6.51×10^{-6}
Paint Manufacturing	0	5.19×10^{-4}	0	0.077	0.076	0	0.457
Paper Product Manufacturing n.e.c.	4.68×10^{-3}	2.78×10^{-8}	5.57×10^{-3}	4.23×10^{-4}	4.23×10^{-4}	2.91×10^{-5}	1.37×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.094
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	3.15×10^{-3}	2.93×10^{-3}	0	0.061
Plastic Injection Moulded Product Manufacturing	5.39×10^{-3}	3.31×10^{-8}	6.45×10^{-3}	4.88×10^{-4}	4.88×10^{-4}	1.51×10^{-4}	4.61×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	0.063
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.436	0.410	0	0
Poultry Farming (Meat)	0	0	0	2.234	0.638	0	0
Prepared Animal and Bird Feed Manufacturing	3.87×10^{-6}	9.48×10^{-10}	1.55×10^{-5}	8.39×10^{-7}	8.32×10^{-7}	5.48×10^{-6}	2.58×10^{-7}
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	3.734
Road and Bridge Construction	0	0	0	7.96×10^{-5}	1.60×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	3.16×10^{-10}	0	1.81×10^{-5}	0	0	1.88×10^{-5}
Smash Repairing	0	0	0	0	0	0	13.393
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.17×10^{-4}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.21×10^{-5}	4.52×10^{-11}	1.45×10^{-5}	1.10×10^{-6}	1.10×10^{-6}	7.55×10^{-8}	1.36×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	2.33×10^{-3}	3.18×10^{-3}	3.18×10^{-3}	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	3.68×10^{-5}	3.68×10^{-5}	0	0

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Unaccounted Gaseous Fuel Combustion	1.176	1.47×10^{-5}	2.757	0.221	0.221	0.018	0.162
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.012
Wood Product Manufacturing n.e.c.	2.03×10^{-6}	0	2.42×10^{-6}	1.84×10^{-7}	1.84×10^{-7}	1.26×10^{-8}	1.33×10^{-7}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	7.28×10^{-3}
Commercial Total	3.674	6.63×10^{-4}	5.667	6.001	2.076	0.134	30.681
July Weekday Emissions (tonnes/day) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	1.297
Bread Manufacturing	4.52×10^{-3}	2.68×10^{-8}	5.38×10^{-3}	8.18×10^{-4}	8.18×10^{-4}	2.81×10^{-5}	0.124
Chemical Product Manufacturing n.e.c.	0	0	0	0	0	0	0.024
Concrete Slurry Manufacturing	0	1.16×10^{-8}	0	6.14×10^{-3}	9.29×10^{-4}	0	0
Construction Material Mining n.e.c.	0	3.11×10^{-7}	0	0.102	0.020	0	1.02×10^{-5}
Fabricated Metal Product Manufacturing n.e.c.	0	0	1.56×10^{-3}	7.22×10^{-4}	7.22×10^{-4}	0	9.28×10^{-5}
Funeral Directors, Crematoria and Cemeteries	1.25×10^{-3}	9.03×10^{-11}	2.76×10^{-3}	2.27×10^{-7}	1.51×10^{-7}	4.87×10^{-4}	0
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	0.039
Gravel and Sand Quarrying	0	6.49×10^{-7}	0	0.228	0.052	0	2.16×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.111	6.58×10^{-7}	0.136	0.010	0.010	9.44×10^{-4}	7.53×10^{-3}
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.041
Metal Coating and Finishing	9.20×10^{-3}	5.46×10^{-8}	0.126	0.010	0.010	5.73×10^{-5}	2.22×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	1.27×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	6.53×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.019
Poultry Farming (Meat)	0	0	0	0.124	0.035	0	0
Road and Bridge Construction	0	0	0	8.76×10^{-5}	1.76×10^{-5}	0	1.83×10^{-5}
Smash Repairing	0	0	0	0	0	0	0.905
Unaccounted Gaseous Fuel Combustion	0.078	9.70×10^{-7}	0.182	0.015	0.015	1.16×10^{-3}	0.011

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wine Manufacturing	0	0	0	0	0	0	2.26×10^{-3}
Commercial Total	0.204	2.68×10^{-6}	0.453	0.497	0.145	2.68×10^{-3}	2.473
July Weekday Emissions (tonnes/day) - Wollongong							
Automotive Component Manufacturing n.e.c.	7.23×10^{-6}	0	8.60×10^{-6}	6.54×10^{-7}	6.54×10^{-7}	4.49×10^{-8}	2.17×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	0.973
Basic Iron and Steel Manufacturing	0.012	7.31×10^{-8}	0.015	1.11×10^{-3}	1.11×10^{-3}	7.64×10^{-5}	8.98×10^{-4}
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Concrete Slurry Manufacturing	0	1.94×10^{-9}	0	1.03×10^{-3}	1.55×10^{-4}	0	0
Fabricated Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	5.06×10^{-4}
Funeral Directors, Crematoria and Cemeteries	4.76×10^{-4}	0	1.05×10^{-3}	8.59×10^{-8}	5.74×10^{-8}	1.84×10^{-4}	0
Gas Supply	0	0	0	0	0	0	7.47×10^{-3}
Gravel and Sand Quarrying	0	2.76×10^{-7}	0	0.093	0.022	0	8.64×10^{-6}
Hospitals (Except Psychiatric Hospitals)	0.191	1.14×10^{-6}	0.228	0.017	0.017	1.19×10^{-3}	0.013
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.033
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	5.22×10^{-3}
Poultry Farming (Meat)	0	0	0	0.029	8.18×10^{-3}	0	0
Printing	0	0	0	0	0	0	0.221
Rubber Product Manufacturing n.e.c.	2.71×10^{-5}	6.77×10^{-9}	1.08×10^{-4}	5.87×10^{-6}	5.83×10^{-6}	3.84×10^{-5}	2.73×10^{-6}
Smash Repairing	0	0	0	0	0	0	0.658
Spring and Wire Product Manufacturing	1.61×10^{-6}	0	1.17×10^{-5}	3.63×10^{-7}	3.60×10^{-7}	4.52×10^{-11}	2.82×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	0	9.44×10^{-3}	9.44×10^{-3}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.60×10^{-7}	3.60×10^{-7}	2.47×10^{-8}	2.60×10^{-7}
Unaccounted Gaseous Fuel Combustion	0.056	7.05×10^{-7}	0.132	0.011	0.011	8.47×10^{-4}	7.76×10^{-3}
Commercial Total	0.292	2.28×10^{-6}	0.385	0.181	0.087	3.52×10^{-3}	1.923

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
July Weekday Emissions (tonnes/day) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.15×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	4.354
Chemical Product Manufacturing n.e.c.	0	0	0	2.03×10^{-5}	2.03×10^{-5}	0	0.016
Concrete Slurry Manufacturing	0	3.30×10^{-8}	0	0.017	2.64×10^{-3}	0	0
Construction Material Mining n.e.c.	0	1.38×10^{-7}	0	0.047	0.011	0	4.32×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	2.71×10^{-3}	2.03×10^{-3}	0	0.271
Fabricated Metal Product Manufacturing n.e.c.	2.06×10^{-3}	1.22×10^{-8}	1.21×10^{-3}	1.86×10^{-4}	1.86×10^{-4}	1.28×10^{-5}	1.57×10^{-4}
Food Manufacturing n.e.c.	9.75×10^{-3}	8.65×10^{-7}	0.040	1.74×10^{-3}	1.19×10^{-3}	0.036	8.35×10^{-4}
Funeral Directors, Crematoria and Cemeteries	2.49×10^{-3}	9.03×10^{-11}	5.48×10^{-3}	4.50×10^{-7}	3.01×10^{-7}	9.66×10^{-4}	0
Furniture Manufacturing n.e.c.	5.0×10^{-3}	2.97×10^{-8}	5.95×10^{-3}	4.52×10^{-4}	4.52×10^{-4}	3.11×10^{-5}	3.29×10^{-4}
Glass and Glass Product Manufacturing	1.17×10^{-5}	1.09×10^{-8}	8.81×10^{-5}	9.91×10^{-6}	3.50×10^{-6}	2.56×10^{-6}	2.22×10^{-6}
Gravel and Sand Quarrying	0	4.74×10^{-6}	0	1.678	0.405	0	1.11×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.813	4.84×10^{-6}	0.970	0.074	0.074	5.11×10^{-3}	0.053
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.115
Medicinal and Pharmaceutical Product Manufacturing	2.13×10^{-3}	1.27×10^{-8}	7.16×10^{-3}	1.93×10^{-4}	1.93×10^{-4}	1.33×10^{-5}	1.91×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	2.53×10^{-3}
Non-Building Construction n.e.c.	1.52×10^{-5}	0	1.10×10^{-4}	3.42×10^{-6}	3.38×10^{-6}	5.42×10^{-10}	2.66×10^{-6}
Non-Ferrous Metal Casting	2.71×10^{-5}	6.77×10^{-9}	1.08×10^{-4}	9.17×10^{-4}	6.88×10^{-4}	8.18×10^{-5}	2.19×10^{-6}
Paper Product Manufacturing n.e.c.	2.18×10^{-4}	0	1.01×10^{-3}	7.13×10^{-5}	7.06×10^{-5}	6.67×10^{-5}	7.41×10^{-5}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.116
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.016
Poultry Farming (Eggs)	0	0	0	0.162	0.046	0	0
Poultry Farming (Meat)	0	0	0	2.562	0.732	0	0
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.08×10^{-8}	4.16×10^{-3}	3.16×10^{-4}	3.16×10^{-4}	2.18×10^{-5}	2.29×10^{-4}

Criteria Pollutant Emissions for all Sectors
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	0	0	0	0	0	0	0.174
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	8.73×10^{-5}	1.75×10^{-5}	0	2.04×10^{-5}
Smash Repairing	0	0	0	0	0	0	2.121
Spring and Wire Product Manufacturing	0	0	2.90×10^{-3}	4.86×10^{-4}	4.86×10^{-4}	0	1.43×10^{-3}
Unaccounted Gaseous Fuel Combustion	0.184	2.31×10^{-6}	0.432	0.035	0.035	2.77×10^{-3}	0.025
Wine Manufacturing	0	0	0	0	0	0	0.121
Wood Product Manufacturing n.e.c.	0	0	0	0	0	0	0.024
Commercial Total	1.023	1.30×10^{-5}	1.470	4.582	1.311	0.045	7.418

Table 3.36 Proportion of total estimated daily emissions from commercial sources by ANZSIC class in each region for typical July weekday

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total July Weekday Emissions (%) - GMR							
Aircraft Manufacturing	1.57×10^{-4}	1.60×10^{-5}	9.18×10^{-4}	2.40×10^{-4}	5.08×10^{-4}	4.69×10^{-6}	7.53×10^{-5}
Automotive Component Manufacturing n.e.c.	1.80×10^{-5}	1.81×10^{-6}	1.05×10^{-4}	3.16×10^{-5}	6.69×10^{-5}	5.37×10^{-7}	8.50×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	3.07
Basic Iron and Steel Manufacturing	3.49×10^{-4}	6.98×10^{-3}	2.92×10^{-3}	0.01	0.02	1.04×10^{-5}	0.02
Basic Non-Ferrous Metal Manufacturing n.e.c.	5.88×10^{-6}	4.24×10^{-3}	3.44×10^{-5}	0.01	0.02	4.13×10^{-5}	2.81×10^{-6}
Biscuit Manufacturing	5.28×10^{-4}	5.38×10^{-5}	3.08×10^{-3}	8.05×10^{-4}	1.70×10^{-3}	1.57×10^{-5}	2.53×10^{-4}
Bread Manufacturing	4.06×10^{-4}	4.98×10^{-5}	1.49×10^{-3}	9.18×10^{-4}	1.94×10^{-3}	1.46×10^{-5}	0.05
Cake and Pastry Manufacturing	8.95×10^{-5}	9.10×10^{-6}	5.22×10^{-4}	1.36×10^{-4}	2.89×10^{-4}	2.67×10^{-6}	6.65×10^{-3}
Ceramic Product Manufacturing	7.76×10^{-4}	3.32×10^{-5}	1.15×10^{-3}	8.23×10^{-3}	0.02	1.42×10^{-4}	2.87×10^{-4}
Chemical Product Manufacturing n.e.c.	9.80×10^{-5}	9.99×10^{-6}	5.72×10^{-4}	1.58×10^{-4}	3.34×10^{-4}	7.27×10^{-3}	0.07
Chemical Wholesaling	0	0	0	0	0	0	4.46×10^{-4}
Concrete Slurry Manufacturing	0	5.03×10^{-5}	0	0.03	9.37×10^{-3}	0	0
Confectionery Manufacturing	1.25×10^{-5}	1.25×10^{-6}	7.26×10^{-5}	1.90×10^{-5}	4.02×10^{-5}	3.71×10^{-7}	7.73×10^{-6}
Construction Material Mining n.e.c.	0	1.91×10^{-4}	0	0.06	0.03	0	2.63×10^{-6}
Corrugated Paperboard Container Manufacturing	1.29×10^{-4}	1.32×10^{-5}	7.54×10^{-4}	1.97×10^{-4}	4.17×10^{-4}	3.85×10^{-6}	6.18×10^{-5}
Electric Cable and Wire Manufacturing	0	0	0	1.14×10^{-3}	1.80×10^{-3}	0	0.05
Electrical and Equipment Manufacturing n.e.c.	3.23×10^{-6}	3.08×10^{-7}	2.08×10^{-4}	4.22×10^{-4}	8.93×10^{-4}	9.63×10^{-8}	1.97×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	6.12×10^{-5}	5.95×10^{-6}	8.77×10^{-4}	1.98×10^{-3}	4.19×10^{-3}	1.78×10^{-6}	0.03
Food Manufacturing n.e.c.	7.24×10^{-4}	4.18×10^{-4}	7.63×10^{-3}	1.46×10^{-3}	2.61×10^{-3}	4.32×10^{-3}	0.06
Fruit and Vegetable Processing	3.78×10^{-5}	3.85×10^{-6}	2.20×10^{-4}	5.76×10^{-5}	1.22×10^{-4}	1.13×10^{-6}	1.81×10^{-5}
Funeral Directors, Crematoria and Cemeteries	2.64×10^{-4}	3.27×10^{-7}	2.85×10^{-3}	8.05×10^{-7}	1.14×10^{-6}	4.91×10^{-4}	0
Furniture Manufacturing n.e.c.	1.24×10^{-4}	1.27×10^{-5}	7.26×10^{-4}	1.90×10^{-4}	4.01×10^{-4}	3.71×10^{-6}	9.23×10^{-3}
Gas Supply	8.09×10^{-5}	8.24×10^{-6}	4.72×10^{-4}	1.23×10^{-4}	2.61×10^{-4}	2.41×10^{-6}	4.90×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Glass and Glass Product Manufacturing	1.38×10^{-3}	0.02	0.02	8.72×10^{-3}	0.02	4.84×10^{-5}	7.40×10^{-3}
Gravel and Sand Quarrying	0	4.78×10^{-3}	0	1.53	0.80	0	4.65×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.07	7.57×10^{-3}	0.43	0.11	0.24	2.25×10^{-3}	0.04
Ice Cream Manufacturing	6.88×10^{-5}	7.01×10^{-6}	5.62×10^{-4}	1.05×10^{-4}	2.22×10^{-4}	4.62×10^{-6}	2.14×10^{-4}
Industrial Gas Manufacturing	8.81×10^{-8}	0	3.13×10^{-6}	3.34×10^{-7}	7.0×10^{-7}	1.08×10^{-11}	1.99×10^{-3}
Ink Manufacturing	0	0	0	9.71×10^{-4}	2.04×10^{-3}	0	7.29×10^{-3}
Laundries and Dry-Cleaners	3.53×10^{-5}	3.60×10^{-6}	2.06×10^{-4}	5.39×10^{-5}	1.14×10^{-4}	1.05×10^{-6}	0.16
Lifting and Material Handling Equipment Manufacturing	0	0	4.74×10^{-5}	3.22×10^{-5}	6.81×10^{-5}	0	4.19×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	2.82×10^{-4}	2.85×10^{-5}	2.24×10^{-3}	4.33×10^{-4}	9.15×10^{-4}	8.35×10^{-6}	1.27×10^{-3}
Metal Coating and Finishing	3.25×10^{-4}	3.30×10^{-5}	0.02	5.26×10^{-3}	0.01	9.68×10^{-6}	3.89×10^{-3}
Milk and Cream Processing	6.88×10^{-5}	7.01×10^{-6}	4.01×10^{-4}	1.05×10^{-4}	2.22×10^{-4}	2.05×10^{-6}	3.29×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	2.26×10^{-7}	4.79×10^{-7}	0	6.90×10^{-4}
Non-Building Construction n.e.c.	1.30×10^{-6}	0	4.63×10^{-5}	4.94×10^{-6}	1.04×10^{-5}	2.26×10^{-10}	1.67×10^{-6}
Non-Ferrous Metal Casting	6.74×10^{-7}	2.89×10^{-6}	1.32×10^{-5}	3.85×10^{-4}	6.11×10^{-4}	9.75×10^{-6}	3.98×10^{-7}
Paint Manufacturing	0	0.22	0	0.03	0.07	0	0.08
Paper Product Manufacturing n.e.c.	1.22×10^{-4}	1.19×10^{-5}	8.03×10^{-4}	2.08×10^{-4}	4.38×10^{-4}	1.14×10^{-5}	2.63×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.04
Plaster Product Manufacturing	8.80×10^{-3}	0.01	0.01	0.02	0.02	1.47×10^{-3}	1.67×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.32×10^{-3}	2.60×10^{-3}	0	0.01
Plastic Injection Moulded Product Manufacturing	1.34×10^{-4}	1.41×10^{-5}	7.86×10^{-4}	2.05×10^{-4}	4.33×10^{-4}	1.80×10^{-5}	8.38×10^{-5}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	9.37×10^{-5}	9.55×10^{-6}	5.57×10^{-4}	1.43×10^{-4}	3.02×10^{-4}	2.79×10^{-6}	0.02
Port Operators	2.10×10^{-3}	4.58×10^{-4}	0.03	0.01	0.02	3.18×10^{-3}	6.71×10^{-3}
Poultry Farming (Eggs)	0	0	0	0.67	0.41	0	0
Poultry Farming (Meat)	0	0	0	2.08	1.25	0	0
Prepared Animal and Bird Feed Manufacturing	8.71×10^{-5}	9.26×10^{-6}	5.09×10^{-4}	1.33×10^{-4}	2.82×10^{-4}	3.25×10^{-6}	4.17×10^{-5}

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	2.02×10^{-4}	2.46×10^{-5}	1.54×10^{-3}	3.69×10^{-4}	7.80×10^{-4}	7.20×10^{-6}	0.75
Rail Transport	0	0	0	0	0	0	6.81×10^{-6}
Road and Bridge Construction	0	0	0	1.07×10^{-4}	4.54×10^{-5}	0	7.02×10^{-6}
Rubber Product Manufacturing n.e.c.	6.74×10^{-7}	3.02×10^{-6}	1.32×10^{-5}	1.01×10^{-5}	5.17×10^{-6}	4.58×10^{-6}	3.92×10^{-6}
Smash Repairing	0	0	0	0	0	0	3.10
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	2.13×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	1.78×10^{-4}	1.86×10^{-5}	1.07×10^{-3}	2.79×10^{-4}	5.89×10^{-4}	5.44×10^{-6}	8.74×10^{-5}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	7.48×10^{-3}
Spirit Manufacturing	0	0	0	0	0	0	0.03
Spring and Wire Product Manufacturing	3.42×10^{-7}	1.92×10^{-8}	3.57×10^{-4}	2.04×10^{-4}	4.32×10^{-4}	9.01×10^{-9}	2.60×10^{-4}
Steel Pipe and Tube Manufacturing	0	0	2.84×10^{-4}	5.29×10^{-3}	0.01	0	6.01×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.22×10^{-3}
Structural Steel Fabricating	0	0	0	1.54×10^{-5}	3.26×10^{-5}	0	0
Synthetic Resin Manufacturing	9.89×10^{-8}	0	5.77×10^{-7}	1.51×10^{-7}	3.19×10^{-7}	2.95×10^{-9}	4.73×10^{-8}
Unaccounted Gaseous Fuel Combustion	0.04	7.97×10^{-3}	0.43	0.12	0.25	2.68×10^{-3}	0.04
Wine Manufacturing	1.61×10^{-8}	0	5.72×10^{-7}	6.11×10^{-8}	1.28×10^{-7}	0	0.02
Wood Product Manufacturing n.e.c.	5.06×10^{-8}	0	2.95×10^{-7}	7.71×10^{-8}	1.63×10^{-7}	1.50×10^{-9}	4.45×10^{-3}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	1.32×10^{-3}
Commercial Total	0.13	0.29	0.97	4.72	3.21	0.02	7.73
Proportion of Anthropogenic Total July Weekday Emissions (%) - Sydney							
Aircraft Manufacturing	3.42×10^{-4}	4.48×10^{-5}	2.83×10^{-3}	7.06×10^{-4}	9.96×10^{-4}	1.05×10^{-4}	9.83×10^{-5}
Automotive Component Manufacturing n.e.c.	3.88×10^{-5}	5.05×10^{-6}	3.21×10^{-4}	9.23×10^{-5}	1.30×10^{-4}	1.19×10^{-5}	0.01
Automotive Fuel Retailing	0	0	0	0	0	0	2.44
Basic Iron and Steel Manufacturing	9.37×10^{-5}	0.02	3.51×10^{-3}	0.03	0.04	2.88×10^{-5}	0.03
Basic Non-Ferrous Metal Manufacturing n.e.c.	1.28×10^{-5}	0.01	1.06×10^{-4}	0.03	0.03	9.24×10^{-4}	3.67×10^{-6}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Biscuit Manufacturing	1.15×10^{-3}	1.50×10^{-4}	9.49×10^{-3}	2.37×10^{-3}	3.34×10^{-3}	3.52×10^{-4}	3.30×10^{-4}
Bread Manufacturing	6.37×10^{-4}	1.07×10^{-4}	2.58×10^{-3}	1.69×10^{-3}	2.39×10^{-3}	2.51×10^{-4}	0.03
Cake and Pastry Manufacturing	1.94×10^{-4}	2.54×10^{-5}	1.61×10^{-3}	4.02×10^{-4}	5.67×10^{-4}	5.96×10^{-5}	8.69×10^{-3}
Chemical Product Manufacturing n.e.c.	2.13×10^{-4}	2.79×10^{-5}	1.76×10^{-3}	4.41×10^{-4}	6.21×10^{-4}	0.16	0.08
Chemical Wholesaling	0	0	0	0	0	0	5.82×10^{-4}
Concrete Slurry Manufacturing	0	8.50×10^{-5}	0	0.06	0.01	0	0
Confectionery Manufacturing	2.71×10^{-5}	3.49×10^{-6}	2.24×10^{-4}	5.59×10^{-5}	7.89×10^{-5}	8.30×10^{-6}	1.01×10^{-5}
Corrugated Paperboard Container Manufacturing	2.81×10^{-4}	3.68×10^{-5}	2.32×10^{-3}	5.80×10^{-4}	8.18×10^{-4}	8.62×10^{-5}	8.07×10^{-5}
Electrical and Equipment Manufacturing n.e.c.	7.02×10^{-6}	8.60×10^{-7}	6.42×10^{-4}	1.24×10^{-3}	1.75×10^{-3}	2.15×10^{-6}	2.57×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	2.16×10^{-5}	2.04×10^{-6}	1.66×10^{-3}	4.71×10^{-3}	6.65×10^{-3}	5.63×10^{-6}	0.04
Food Manufacturing n.e.c.	1.05×10^{-3}	1.37×10^{-4}	8.64×10^{-3}	2.16×10^{-3}	3.05×10^{-3}	3.21×10^{-4}	0.08
Fruit and Vegetable Processing	8.21×10^{-5}	1.08×10^{-5}	6.78×10^{-4}	1.70×10^{-4}	2.39×10^{-4}	2.52×10^{-5}	2.36×10^{-5}
Funeral Directors, Crematoria and Cemeteries	3.46×10^{-4}	6.99×10^{-7}	5.29×10^{-3}	1.43×10^{-6}	1.34×10^{-6}	6.62×10^{-3}	0
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	2.76×10^{-3}
Gas Supply	1.76×10^{-4}	2.30×10^{-5}	1.45×10^{-3}	3.63×10^{-4}	5.12×10^{-4}	5.39×10^{-5}	4.62×10^{-3}
Glass and Glass Product Manufacturing	3.0×10^{-3}	0.06	0.05	0.03	0.04	1.08×10^{-3}	9.66×10^{-3}
Gravel and Sand Quarrying	0	6.60×10^{-3}	0	2.05	0.73	0	2.72×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.10	0.01	0.84	0.21	0.29	0.03	0.03
Ice Cream Manufacturing	1.50×10^{-4}	1.96×10^{-5}	1.73×10^{-3}	3.09×10^{-4}	4.35×10^{-4}	1.03×10^{-4}	2.79×10^{-4}
Industrial Gas Manufacturing	1.91×10^{-7}	0	9.64×10^{-6}	9.84×10^{-7}	1.37×10^{-6}	2.41×10^{-10}	2.60×10^{-3}
Ink Manufacturing	0	0	0	2.86×10^{-3}	4.0×10^{-3}	0	9.51×10^{-3}
Laundries and Dry-Cleaners	7.68×10^{-5}	1.01×10^{-5}	6.35×10^{-4}	1.59×10^{-4}	2.24×10^{-4}	2.36×10^{-5}	0.16
Lifting and Material Handling Equipment Manufacturing	0	0	1.46×10^{-4}	9.48×10^{-5}	1.34×10^{-4}	0	5.47×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	4.96×10^{-4}	6.46×10^{-5}	4.23×10^{-3}	1.03×10^{-3}	1.46×10^{-3}	1.51×10^{-4}	1.20×10^{-3}
Metal Coating and Finishing	2.09×10^{-4}	2.71×10^{-5}	2.02×10^{-3}	2.98×10^{-3}	4.20×10^{-3}	6.40×10^{-5}	4.55×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Milk and Cream Processing	1.49×10^{-4}	1.96×10^{-5}	1.24×10^{-3}	3.09×10^{-4}	4.36×10^{-4}	4.59×10^{-5}	4.29×10^{-5}
Non-Building Construction n.e.c.	2.01×10^{-6}	0	1.01×10^{-4}	1.03×10^{-5}	1.44×10^{-5}	3.61×10^{-9}	1.54×10^{-6}
Paint Manufacturing	0	0.62	0	0.10	0.13	0	0.11
Paper Product Manufacturing n.e.c.	2.53×10^{-4}	3.31×10^{-5}	2.09×10^{-3}	5.23×10^{-4}	7.38×10^{-4}	7.77×10^{-5}	3.25×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.02
Plaster Product Manufacturing	0.02	0.04	0.04	0.05	0.04	0.03	2.18×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	3.90×10^{-3}	5.10×10^{-3}	0	0.01
Plastic Injection Moulded Product Manufacturing	2.91×10^{-4}	3.95×10^{-5}	2.42×10^{-3}	6.02×10^{-4}	8.49×10^{-4}	4.03×10^{-4}	1.09×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	2.04×10^{-4}	2.67×10^{-5}	1.72×10^{-3}	4.20×10^{-4}	5.93×10^{-4}	6.24×10^{-5}	0.02
Port Operators	4.55×10^{-3}	1.28×10^{-3}	0.10	0.03	0.04	0.07	8.76×10^{-3}
Poultry Farming (Eggs)	0	0	0	1.77	0.71	0	0
Poultry Farming (Meat)	0	0	0	2.76	1.11	0	0
Prepared Animal and Bird Feed Manufacturing	2.09×10^{-7}	1.13×10^{-6}	5.82×10^{-6}	1.04×10^{-6}	1.45×10^{-6}	1.46×10^{-5}	6.12×10^{-8}
Printing	4.39×10^{-4}	6.88×10^{-5}	4.74×10^{-3}	1.09×10^{-3}	1.53×10^{-3}	1.61×10^{-4}	0.89
Road and Bridge Construction	0	0	0	9.83×10^{-5}	2.79×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	3.76×10^{-7}	0	2.24×10^{-5}	0	0	4.47×10^{-6}
Smash Repairing	0	0	0	0	0	0	3.18
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	2.79×10^{-5}
Soft Drink, Cordial and Syrup Manufacturing	3.87×10^{-4}	5.19×10^{-5}	3.28×10^{-3}	8.20×10^{-4}	1.16×10^{-3}	1.22×10^{-4}	1.14×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	9.77×10^{-3}
Spirit Manufacturing	0	0	0	0	0	0	0.04
Spring and Wire Product Manufacturing	6.57×10^{-7}	5.38×10^{-8}	5.43×10^{-6}	1.36×10^{-6}	1.91×10^{-6}	2.01×10^{-7}	3.23×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	8.76×10^{-4}	3.93×10^{-3}	5.54×10^{-3}	0	7.84×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.59×10^{-3}
Structural Steel Fabricating	0	0	0	4.54×10^{-5}	6.41×10^{-5}	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Unaccounted Gaseous Fuel Combustion	0.06	0.02	1.04	0.27	0.38	0.05	0.04
Wine Manufacturing	3.50×10^{-8}	0	1.76×10^{-6}	1.80×10^{-7}	2.51×10^{-7}	0	2.96×10^{-3}
Wood Product Manufacturing n.e.c.	1.10×10^{-7}	0	9.09×10^{-7}	2.27×10^{-7}	3.20×10^{-7}	3.36×10^{-8}	3.16×10^{-8}
Wooden Furniture and Upholstered Seat Manufacturing	0	0	0	0	0	0	1.73×10^{-3}
Commercial Total	0.20	0.79	2.13	7.41	3.62	0.36	7.28
Proportion of Anthropogenic Total July Weekday Emissions (%) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	4.06
Bread Manufacturing	1.68×10^{-3}	3.78×10^{-4}	0.02	8.01×10^{-3}	0.01	9.83×10^{-5}	0.39
Chemical Product Manufacturing n.e.c.	0	0	0	0	0	0	0.07
Concrete Slurry Manufacturing	0	1.63×10^{-4}	0	0.06	0.01	0	0
Construction Material Mining n.e.c.	0	4.37×10^{-3}	0	1.00	0.30	0	3.18×10^{-5}
Fabricated Metal Product Manufacturing n.e.c.	0	0	5.62×10^{-3}	7.07×10^{-3}	0.01	0	2.91×10^{-4}
Funeral Directors, Crematoria and Cemeteries	4.66×10^{-4}	1.27×10^{-6}	9.97×10^{-3}	2.22×10^{-6}	2.34×10^{-6}	1.70×10^{-3}	0
Furniture Manufacturing n.e.c.	0	0	0	0	0	0	0.12
Gravel and Sand Quarrying	0	9.13×10^{-3}	0	2.24	0.81	0	6.76×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.04	9.26×10^{-3}	0.49	0.10	0.16	3.30×10^{-3}	0.02
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.13
Metal Coating and Finishing	3.42×10^{-3}	7.69×10^{-4}	0.45	0.10	0.16	2.0×10^{-4}	6.95×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	5.28×10^{-6}	8.35×10^{-6}	0	3.97×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	2.05×10^{-3}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.06
Poultry Farming (Meat)	0	0	0	1.22	0.55	0	0
Road and Bridge Construction	0	0	0	8.58×10^{-4}	2.73×10^{-4}	0	5.72×10^{-5}
Smash Repairing	0	0	0	0	0	0	2.83
Unaccounted Gaseous Fuel Combustion	0.03	0.01	0.66	0.14	0.22	4.07×10^{-3}	0.03

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wine Manufacturing	0	0	0	0	0	0	7.08×10^{-3}
Commercial Total	0.08	0.04	1.64	4.87	2.24	9.37×10^{-3}	7.75
Proportion of Anthropogenic Total July Weekday Emissions (%) - Wollongong							
Automotive Component Manufacturing n.e.c.	4.86×10^{-7}	0	2.54×10^{-5}	6.88×10^{-6}	9.18×10^{-6}	1.58×10^{-7}	0.01
Automotive Fuel Retailing	0	0	0	0	0	0	4.69
Basic Iron and Steel Manufacturing	8.27×10^{-4}	4.05×10^{-4}	0.04	0.01	0.02	2.68×10^{-4}	4.33×10^{-3}
Ceramic Product Manufacturing	2.10×10^{-3}	4.31×10^{-4}	0.03	0.21	0.25	4.17×10^{-3}	7.60×10^{-3}
Concrete Slurry Manufacturing	0	1.07×10^{-5}	0	0.01	2.18×10^{-3}	0	0
Fabricated Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	2.44×10^{-3}
Funeral Directors, Crematoria and Cemeteries	3.20×10^{-5}	0	3.09×10^{-3}	9.04×10^{-7}	8.05×10^{-7}	6.47×10^{-4}	0
Gas Supply	0	0	0	0	0	0	0.04
Gravel and Sand Quarrying	0	1.53×10^{-3}	0	0.98	0.30	0	4.16×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.01	6.30×10^{-3}	0.67	0.18	0.24	4.17×10^{-3}	0.06
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.16
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.03
Poultry Farming (Meat)	0	0	0	0.30	0.11	0	0
Printing	0	0	0	0	0	0	1.07
Rubber Product Manufacturing n.e.c.	1.82×10^{-6}	3.75×10^{-5}	3.20×10^{-4}	6.18×10^{-5}	8.18×10^{-5}	1.35×10^{-4}	1.31×10^{-5}
Smash Repairing	0	0	0	0	0	0	3.17
Spring and Wire Product Manufacturing	1.09×10^{-7}	0	3.45×10^{-5}	3.82×10^{-6}	5.05×10^{-6}	1.58×10^{-10}	1.36×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	0	0.10	0.13	0	0
Synthetic Resin Manufacturing	2.67×10^{-7}	0	1.40×10^{-5}	3.78×10^{-6}	5.05×10^{-6}	8.66×10^{-8}	1.25×10^{-6}
Unaccounted Gaseous Fuel Combustion	3.79×10^{-3}	3.90×10^{-3}	0.39	0.11	0.15	2.97×10^{-3}	0.04
Commercial Total	0.02	0.01	1.14	1.90	1.21	0.01	9.27

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total July Weekday Emissions (%) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.51×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	5.73
Chemical Product Manufacturing n.e.c.	0	0	0	1.48×10^{-5}	4.87×10^{-5}	0	0.02
Concrete Slurry Manufacturing	0	2.63×10^{-5}	0	0.01	6.32×10^{-3}	0	0
Construction Material Mining n.e.c.	0	1.10×10^{-4}	0	0.03	0.03	0	5.68×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	1.97×10^{-3}	4.87×10^{-3}	0	0.36
Fabricated Metal Product Manufacturing n.e.c.	4.97×10^{-4}	9.75×10^{-6}	2.46×10^{-4}	1.35×10^{-4}	4.47×10^{-4}	1.72×10^{-6}	2.07×10^{-4}
Food Manufacturing n.e.c.	2.35×10^{-3}	6.90×10^{-4}	8.04×10^{-3}	1.26×10^{-3}	2.85×10^{-3}	4.85×10^{-3}	1.10×10^{-3}
Funeral Directors, Crematoria and Cemeteries	6.01×10^{-4}	7.20×10^{-8}	1.11×10^{-3}	3.27×10^{-7}	7.21×10^{-7}	1.30×10^{-4}	0
Furniture Manufacturing n.e.c.	1.21×10^{-3}	2.37×10^{-5}	1.21×10^{-3}	3.29×10^{-4}	1.08×10^{-3}	4.18×10^{-6}	4.32×10^{-4}
Glass and Glass Product Manufacturing	2.82×10^{-6}	8.71×10^{-6}	1.79×10^{-5}	7.20×10^{-6}	8.40×10^{-6}	3.44×10^{-7}	2.91×10^{-6}
Gravel and Sand Quarrying	0	3.78×10^{-3}	0	1.22	0.97	0	1.46×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.20	3.86×10^{-3}	0.20	0.05	0.18	6.87×10^{-4}	0.07
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.15
Medicinal and Pharmaceutical Product Manufacturing	5.15×10^{-4}	1.01×10^{-5}	1.45×10^{-3}	1.40×10^{-4}	4.63×10^{-4}	1.78×10^{-6}	2.51×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	3.33×10^{-3}
Non-Building Construction n.e.c.	3.66×10^{-6}	0	2.23×10^{-5}	2.48×10^{-6}	8.12×10^{-6}	7.28×10^{-11}	3.49×10^{-6}
Non-Ferrous Metal Casting	6.54×10^{-6}	5.40×10^{-6}	2.20×10^{-5}	6.66×10^{-4}	1.65×10^{-3}	1.10×10^{-5}	2.88×10^{-6}
Paper Product Manufacturing n.e.c.	5.26×10^{-5}	0	2.06×10^{-4}	5.18×10^{-5}	1.69×10^{-4}	8.96×10^{-6}	9.74×10^{-5}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.15
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.02
Poultry Farming (Eggs)	0	0	0	0.12	0.11	0	0
Poultry Farming (Meat)	0	0	0	1.86	1.76	0	0
Prepared Animal and Bird Feed Manufacturing	8.44×10^{-4}	1.66×10^{-5}	8.45×10^{-4}	2.30×10^{-4}	7.59×10^{-4}	2.92×10^{-6}	3.01×10^{-4}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	0	0	0	0	0	0	0.23
Rail Transport	0	0	0	0	0	0	4.92×10^{-5}
Road and Bridge Construction	0	0	0	6.34×10^{-5}	4.20×10^{-5}	0	2.68×10^{-5}
Smash Repairing	0	0	0	0	0	0	2.79
Spring and Wire Product Manufacturing	0	0	5.90×10^{-4}	3.53×10^{-4}	1.17×10^{-3}	0	1.88×10^{-3}
Unaccounted Gaseous Fuel Combustion	0.04	1.84×10^{-3}	0.09	0.03	0.08	3.73×10^{-4}	0.03
Wine Manufacturing	0	0	0	0	0	0	0.16
Wood Product Manufacturing n.e.c.	0	0	0	0	0	0	0.03
Commercial Total	0.25	0.01	0.30	3.33	3.14	6.07×10^{-3}	9.75

Table 3.37 shows total estimated daily emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.37 Total estimated daily emissions from commercial sources in each region for typical July weekend day

Substance	Commercial July Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.657	0.194	0.291	1.017	5.159
LEAD AND COMPOUNDS	1.30×10^{-4}	1.81×10^{-6}	1.99×10^{-6}	8.08×10^{-6}	1.42×10^{-4}
OXIDES OF NITROGEN	5.633	0.324	0.384	1.454	7.795
PARTICULATE MATTER < 10 µm	5.345	0.411	0.162	4.119	10.037
PARTICULATE MATTER < 2.5 µm	1.799	0.113	0.080	1.149	3.140
SULFUR DIOXIDE	0.132	2.38×10^{-3}	3.39×10^{-3}	0.045	0.182
TOTAL VOCS	15.923	1.216	0.931	3.778	21.848

Table 3.38 shows the proportion of total estimated daily anthropogenic emissions from all commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.38 Proportion of total estimated daily emissions from commercial sources in each region for typical July weekend day

Substance	Commercial Proportion of Anthropogenic Total July Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	0.19	0.07	0.02	0.24	0.13
LEAD AND COMPOUNDS	0.18	0.03	0.01	8.10×10^{-3}	0.07
OXIDES OF NITROGEN	2.31	1.26	1.17	0.30	0.99
PARTICULATE MATTER < 10 µm	5.44	3.87	1.56	3.20	4.05
PARTICULATE MATTER < 2.5 µm	2.33	1.45	0.97	2.73	2.32
SULFUR DIOXIDE	0.35	8.33×10^{-3}	0.01	5.99×10^{-3}	0.02
TOTAL VOCS	3.61	3.67	4.15	4.65	3.78

Figure 3.10 shows the proportion of total estimated daily GMR commercial emissions from all commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

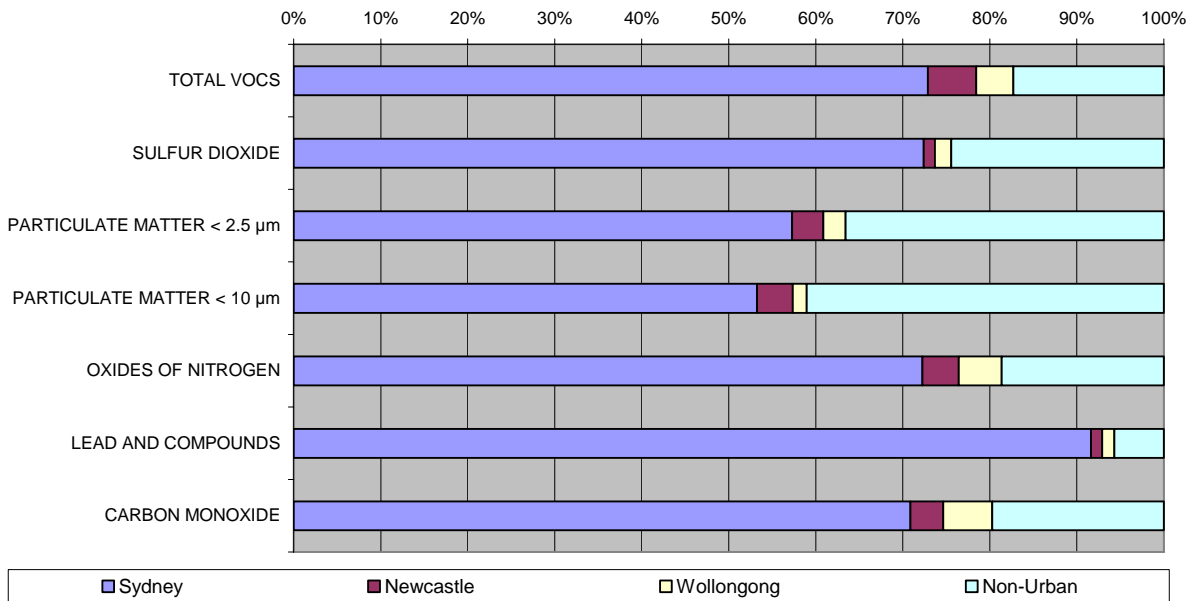


Figure 3.10 Proportion of total estimated daily emissions from commercial sources in each region for typical July weekend day

Table 3.39 shows total estimated daily emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.40 shows the proportion of total estimated daily anthropogenic emissions from each commercial source type (ANZSIC Class) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.39 Total estimated daily emissions from commercial sources by ANZSIC class in each region for typical July weekend day

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
July Weekend Day Emissions (tonnes/day) - GMR							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	3.66×10^{-4}	2.03×10^{-9}	4.36×10^{-4}	3.80×10^{-5}	3.80×10^{-5}	2.28×10^{-6}	0.026
Automotive Fuel Retailing	0	0	0	0	0	0	8.438
Basic Iron and Steel Manufacturing	0.014	8.23×10^{-6}	0.020	0.013	0.012	8.72×10^{-5}	0.127
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.016	1.17×10^{-7}	0.012	2.19×10^{-3}	2.19×10^{-3}	1.22×10^{-4}	0.265
Cake and Pastry Manufacturing	3.59×10^{-3}	2.13×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.56×10^{-4}	3.56×10^{-4}	0.061	0.353
Chemical Wholesaling	0	0	0	0	0	0	1.23×10^{-3}
Concrete Slurry Manufacturing	0	5.42×10^{-9}	0	8.10×10^{-3}	1.29×10^{-3}	0	0
Confectionery Manufacturing	4.90×10^{-4}	2.48×10^{-9}	5.84×10^{-4}	4.44×10^{-5}	4.44×10^{-5}	3.05×10^{-6}	4.18×10^{-5}
Construction Material Mining n.e.c.	0	1.55×10^{-7}	0	0.110	0.022	0	1.45×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.08×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electric Cable and Wire Manufacturing	0	0	0	2.71×10^{-3}	2.03×10^{-3}	0	0.271
Electrical and Equipment Manufacturing n.e.c.	1.30×10^{-5}	0	1.55×10^{-5}	4.62×10^{-4}	4.62×10^{-4}	8.11×10^{-8}	3.87×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	2.06×10^{-3}	1.22×10^{-8}	2.68×10^{-3}	2.03×10^{-3}	2.03×10^{-3}	1.28×10^{-5}	0.015
Food Manufacturing n.e.c.	0.027	9.70×10^{-7}	0.061	3.34×10^{-3}	2.79×10^{-3}	0.036	0.342
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	5.31×10^{-3}	1.13×10^{-10}	0.012	9.58×10^{-7}	6.39×10^{-7}	2.06×10^{-3}	0
Furniture Manufacturing n.e.c.	2.50×10^{-3}	1.48×10^{-8}	2.98×10^{-3}	2.26×10^{-4}	2.26×10^{-4}	1.55×10^{-5}	1.65×10^{-4}
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.027

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
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ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Glass and Glass Product Manufacturing	0.056	5.06×10^{-5}	0.132	0.021	0.020	4.07×10^{-4}	0.041
Gravel and Sand Quarrying	0	2.40×10^{-7}	0	2.635	0.537	0	2.56×10^{-4}
Hospitals (Except Psychiatric Hospitals)	2.984	1.78×10^{-5}	3.557	0.270	0.270	0.019	0.196
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	1.77×10^{-6}	0	1.28×10^{-5}	3.98×10^{-7}	3.95×10^{-7}	0	5.47×10^{-3}
Ink Manufacturing	0	0	0	0	0	0	3.67×10^{-7}
Laundries and Dry-Cleaners	7.10×10^{-4}	4.18×10^{-9}	8.46×10^{-4}	6.43×10^{-5}	6.43×10^{-5}	4.42×10^{-6}	0.435
Lifting and Material Handling Equipment Manufacturing	0	0	1.94×10^{-4}	3.84×10^{-5}	3.84×10^{-5}	0	1.23×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	1.77×10^{-3}
Metal Coating and Finishing	2.57×10^{-3}	1.50×10^{-8}	3.06×10^{-3}	2.33×10^{-4}	2.33×10^{-4}	1.60×10^{-5}	0.019
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	2.53×10^{-3}
Non-Building Construction n.e.c.	3.38×10^{-5}	0	2.45×10^{-4}	7.60×10^{-6}	7.53×10^{-6}	1.24×10^{-9}	5.91×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	3.84×10^{-7}
Paint Manufacturing	0	0	0	0.011	0.011	0	0.018
Paper Product Manufacturing n.e.c.	4.90×10^{-3}	2.78×10^{-8}	6.59×10^{-3}	4.95×10^{-4}	4.94×10^{-4}	9.58×10^{-5}	1.45×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.210
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.03×10^{-3}	9.12×10^{-4}	0	0.028
Plastic Injection Moulded Product Manufacturing	5.38×10^{-3}	3.20×10^{-8}	6.41×10^{-3}	4.87×10^{-4}	4.87×10^{-4}	3.35×10^{-5}	4.60×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	6.92×10^{-3}
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.598	0.457	0	0
Poultry Farming (Meat)	0	0	0	4.949	1.414	0	0
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.17×10^{-8}	4.18×10^{-3}	3.17×10^{-4}	3.17×10^{-4}	2.72×10^{-5}	2.29×10^{-4}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	1.815
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	2.55×10^{-4}	5.12×10^{-5}	0	3.86×10^{-5}
Rubber Product Manufacturing n.e.c.	0	1.13×10^{-10}	0	9.06×10^{-6}	0	0	1.03×10^{-5}
Smash Repairing	0	0	0	0	0	0	8.540
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	7.50×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.38×10^{-5}	0	2.61×10^{-5}	1.46×10^{-6}	1.46×10^{-6}	7.54×10^{-8}	1.64×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	1.17×10^{-3}	0.011	0.011	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	1.84×10^{-5}	1.84×10^{-5}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.59×10^{-7}	3.59×10^{-7}	2.46×10^{-8}	2.60×10^{-7}
Unaccounted Fuel Combustion	1.495	1.87×10^{-5}	3.503	0.280	0.280	0.022	0.206
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.136
Commercial Total	5.159	1.42×10^{-4}	7.795	10.037	3.140	0.182	21.848
July Weekend Day Emissions (tonnes/day) - Sydney							
Aircraft Manufacturing	6.32×10^{-3}	3.76×10^{-8}	7.53×10^{-3}	5.72×10^{-4}	5.72×10^{-4}	3.93×10^{-5}	4.14×10^{-4}
Automotive Component Manufacturing n.e.c.	3.59×10^{-4}	2.03×10^{-9}	4.27×10^{-4}	3.74×10^{-5}	3.74×10^{-5}	2.23×10^{-6}	0.023
Automotive Fuel Retailing	0	0	0	0	0	0	5.422
Basic Iron and Steel Manufacturing	1.73×10^{-3}	8.16×10^{-6}	5.70×10^{-3}	0.012	0.011	1.08×10^{-5}	0.126
Basic Non-Ferrous Metal Manufacturing n.e.c.	2.36×10^{-4}	9.95×10^{-6}	2.82×10^{-4}	0.027	0.020	3.46×10^{-4}	1.55×10^{-5}
Biscuit Manufacturing	0.021	1.26×10^{-7}	0.025	1.92×10^{-3}	1.92×10^{-3}	1.32×10^{-4}	1.39×10^{-3}
Bread Manufacturing	0.012	9.0×10^{-8}	6.87×10^{-3}	1.37×10^{-3}	1.37×10^{-3}	9.42×10^{-5}	0.141

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Cake and Pastry Manufacturing	3.59×10^{-3}	2.13×10^{-8}	4.28×10^{-3}	3.25×10^{-4}	3.25×10^{-4}	2.24×10^{-5}	0.037
Chemical Product Manufacturing n.e.c.	3.94×10^{-3}	2.34×10^{-8}	4.69×10^{-3}	3.56×10^{-4}	3.56×10^{-4}	0.061	0.353
Chemical Wholesaling	0	0	0	0	0	0	1.23×10^{-3}
Concrete Slurry Manufacturing	0	3.61×10^{-9}	0	6.53×10^{-3}	1.02×10^{-3}	0	0
Confectionery Manufacturing	4.90×10^{-4}	2.48×10^{-9}	5.84×10^{-4}	4.44×10^{-5}	4.44×10^{-5}	3.05×10^{-6}	4.18×10^{-5}
Corrugated Paperboard Container Manufacturing	5.19×10^{-3}	3.08×10^{-8}	6.18×10^{-3}	4.70×10^{-4}	4.70×10^{-4}	3.23×10^{-5}	3.40×10^{-4}
Electrical and Equipment Manufacturing n.e.c.	1.30×10^{-5}	0	1.55×10^{-5}	4.62×10^{-4}	4.62×10^{-4}	8.11×10^{-8}	3.87×10^{-3}
Fabricated Metal Product Manufacturing n.e.c.	0	0	1.47×10^{-3}	1.84×10^{-3}	1.84×10^{-3}	0	0.015
Food Manufacturing n.e.c.	0.018	1.05×10^{-7}	0.021	1.60×10^{-3}	1.60×10^{-3}	1.10×10^{-4}	0.341
Fruit and Vegetable Processing	1.52×10^{-3}	9.03×10^{-9}	1.81×10^{-3}	1.37×10^{-4}	1.37×10^{-4}	9.44×10^{-6}	9.94×10^{-5}
Funeral Directors, Crematoria and Cemeteries	3.20×10^{-3}	1.13×10^{-10}	7.04×10^{-3}	5.77×10^{-7}	3.85×10^{-7}	1.24×10^{-3}	0
Gas Supply	3.25×10^{-3}	1.93×10^{-8}	3.87×10^{-3}	2.94×10^{-4}	2.94×10^{-4}	2.02×10^{-5}	0.019
Glass and Glass Product Manufacturing	0.056	5.05×10^{-5}	0.131	0.021	0.020	4.03×10^{-4}	0.041
Gravel and Sand Quarrying	0	2.40×10^{-7}	0	1.129	0.234	0	1.14×10^{-4}
Hospitals (Except Psychiatric Hospitals)	1.868	1.11×10^{-5}	2.224	0.169	0.169	0.012	0.122
Ice Cream Manufacturing	2.77×10^{-3}	1.64×10^{-8}	4.61×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	3.87×10^{-5}	1.18×10^{-3}
Industrial Gas Manufacturing	1.77×10^{-6}	0	1.28×10^{-5}	3.98×10^{-7}	3.95×10^{-7}	0	5.47×10^{-3}
Ink Manufacturing	0	0	0	0	0	0	3.67×10^{-7}
Laundries and Dry-Cleaners	7.10×10^{-4}	4.18×10^{-9}	8.46×10^{-4}	6.43×10^{-5}	6.43×10^{-5}	4.42×10^{-6}	0.340
Lifting and Material Handling Equipment Manufacturing	0	0	1.94×10^{-4}	3.84×10^{-5}	3.84×10^{-5}	0	1.23×10^{-3}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	4.01×10^{-7}
Metal Coating and Finishing	2.45×10^{-3}	1.45×10^{-8}	2.92×10^{-3}	2.22×10^{-4}	2.22×10^{-4}	1.53×10^{-5}	0.019
Milk and Cream Processing	2.76×10^{-3}	1.64×10^{-8}	3.29×10^{-3}	2.50×10^{-4}	2.50×10^{-4}	1.72×10^{-5}	1.81×10^{-4}
Non-Building Construction n.e.c.	1.86×10^{-5}	0	1.35×10^{-4}	4.18×10^{-6}	4.14×10^{-6}	6.77×10^{-10}	3.25×10^{-6}
Paint Manufacturing	0	0	0	0.011	0.011	0	0.018

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paper Product Manufacturing n.e.c.	4.68×10^{-3}	2.78×10^{-8}	5.57×10^{-3}	4.23×10^{-4}	4.23×10^{-4}	2.91×10^{-5}	1.37×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.094
Plaster Product Manufacturing	0.354	3.40×10^{-5}	0.097	0.039	0.023	0.012	9.17×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.03×10^{-3}	9.12×10^{-4}	0	0.028
Plastic Injection Moulded Product Manufacturing	5.38×10^{-3}	3.20×10^{-8}	6.41×10^{-3}	4.87×10^{-4}	4.87×10^{-4}	3.35×10^{-5}	4.60×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	3.76×10^{-3}	2.24×10^{-8}	4.57×10^{-3}	3.41×10^{-4}	3.41×10^{-4}	2.34×10^{-5}	3.31×10^{-3}
Port Operators	0.084	1.08×10^{-6}	0.275	0.024	0.024	0.027	0.037
Poultry Farming (Eggs)	0	0	0	1.436	0.410	0	0
Poultry Farming (Meat)	0	0	0	2.234	0.638	0	0
Prepared Animal and Bird Feed Manufacturing	3.87×10^{-6}	9.03×10^{-10}	1.55×10^{-5}	8.39×10^{-7}	8.32×10^{-7}	5.48×10^{-6}	2.58×10^{-7}
Printing	8.12×10^{-3}	5.78×10^{-8}	0.013	8.79×10^{-4}	8.79×10^{-4}	6.04×10^{-5}	1.618
Road and Bridge Construction	0	0	0	7.96×10^{-5}	1.60×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	1.13×10^{-10}	0	9.06×10^{-6}	0	0	9.41×10^{-6}
Smash Repairing	0	0	0	0	0	0	6.697
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	7.50×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	7.15×10^{-3}	4.36×10^{-8}	8.74×10^{-3}	6.64×10^{-4}	6.64×10^{-4}	4.56×10^{-5}	4.80×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	0.041
Spirit Manufacturing	0	0	0	0	0	0	0.179
Spring and Wire Product Manufacturing	1.21×10^{-5}	0	1.45×10^{-5}	1.10×10^{-6}	1.10×10^{-6}	7.54×10^{-8}	1.36×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	1.17×10^{-3}	1.64×10^{-3}	1.64×10^{-3}	0	3.30×10^{-6}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	6.69×10^{-3}
Structural Steel Fabricating	0	0	0	1.84×10^{-5}	1.84×10^{-5}	0	0
Unaccounted Fuel Combustion	1.176	1.47×10^{-5}	2.757	0.221	0.221	0.018	0.162
Wine Manufacturing	6.47×10^{-7}	0	4.69×10^{-6}	1.46×10^{-7}	1.44×10^{-7}	0	0.012
Commercial Total	3.657	1.30×10^{-4}	5.633	5.345	1.799	0.132	15.923

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
July Weekend Day Emissions (tonnes/day) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	0.593
Bread Manufacturing	4.52×10^{-3}	2.66×10^{-8}	5.38×10^{-3}	8.18×10^{-4}	8.18×10^{-4}	2.81×10^{-5}	0.124
Concrete Slurry Manufacturing	0	1.81×10^{-9}	0	1.14×10^{-3}	1.79×10^{-4}	0	0
Construction Material Mining n.e.c.	0	1.55×10^{-7}	0	0.073	0.014	0	1.02×10^{-5}
Funeral Directors, Crematoria and Cemeteries	6.27×10^{-4}	0	1.38×10^{-3}	1.13×10^{-7}	7.54×10^{-8}	2.43×10^{-4}	0
Gravel and Sand Quarrying	0	0	0	0.187	0.038	0	2.16×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.111	6.58×10^{-7}	0.136	0.010	0.010	9.44×10^{-4}	7.53×10^{-3}
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.021
Metal Coating and Finishing	1.13×10^{-4}	5.65×10^{-10}	1.35×10^{-4}	1.06×10^{-5}	1.06×10^{-5}	7.05×10^{-7}	8.14×10^{-6}
Mining and Construction Machinery Manufacturing	0	0	0	5.39×10^{-7}	5.39×10^{-7}	0	1.27×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	6.53×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	3.61×10^{-3}
Poultry Farming (Meat)	0	0	0	0.124	0.035	0	0
Road and Bridge Construction	0	0	0	8.76×10^{-5}	1.76×10^{-5}	0	1.83×10^{-5}
Smash Repairing	0	0	0	0	0	0	0.452
Unaccounted Fuel Combustion	0.078	9.70×10^{-7}	0.182	0.015	0.015	1.16×10^{-3}	0.011
Wine Manufacturing	0	0	0	0	0	0	2.26×10^{-3}
Commercial Total	0.194	1.81×10^{-6}	0.324	0.411	0.113	2.38×10^{-3}	1.216
July Weekend Day Emissions (tonnes/day) - Wollongong							
Automotive Component Manufacturing n.e.c.	7.23×10^{-6}	0	8.60×10^{-6}	6.54×10^{-7}	6.54×10^{-7}	4.49×10^{-8}	2.17×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	0.441
Basic Iron and Steel Manufacturing	0.012	7.30×10^{-8}	0.015	1.11×10^{-3}	1.11×10^{-3}	7.64×10^{-5}	8.98×10^{-4}
Ceramic Product Manufacturing	0.031	7.79×10^{-8}	9.41×10^{-3}	0.020	0.018	1.19×10^{-3}	1.58×10^{-3}
Concrete Slurry Manufacturing	0	0	0	2.37×10^{-5}	4.77×10^{-6}	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Funeral Directors, Crematoria and Cemeteries	2.38×10^{-4}	0	5.23×10^{-4}	4.28×10^{-8}	2.86×10^{-8}	9.22×10^{-5}	0
Gas Supply	0	0	0	0	0	0	7.47×10^{-3}
Gravel and Sand Quarrying	0	0	0	0.075	0.015	0	8.64×10^{-6}
Hospitals (Except Psychiatric Hospitals)	0.191	1.14×10^{-6}	0.228	0.017	0.017	1.19×10^{-3}	0.013
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.016
Poultry Farming (Meat)	0	0	0	0.029	8.18×10^{-3}	0	0
Printing	0	0	0	0	0	0	0.111
Rubber Product Manufacturing n.e.c.	0	0	0	0	0	0	9.19×10^{-7}
Smash Repairing	0	0	0	0	0	0	0.330
Spring and Wire Product Manufacturing	1.61×10^{-6}	0	1.17×10^{-5}	3.63×10^{-7}	3.59×10^{-7}	0	2.82×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	0	9.44×10^{-3}	9.44×10^{-3}	0	0
Synthetic Resin Manufacturing	3.97×10^{-6}	0	4.73×10^{-6}	3.59×10^{-7}	3.59×10^{-7}	2.46×10^{-8}	2.60×10^{-7}
Unaccounted Fuel Combustion	0.056	7.05×10^{-7}	0.132	0.011	0.011	8.47×10^{-4}	7.76×10^{-3}
Commercial Total	0.291	1.99×10^{-6}	0.384	0.162	0.080	3.39×10^{-3}	0.931
July Weekend Day Emissions (tonnes/day) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.15×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	1.982
Concrete Slurry Manufacturing	0	0	0	4.03×10^{-4}	8.11×10^{-5}	0	0
Construction Material Mining n.e.c.	0	0	0	0.037	7.55×10^{-3}	0	4.32×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	2.71×10^{-3}	2.03×10^{-3}	0	0.271
Fabricated Metal Product Manufacturing n.e.c.	2.06×10^{-3}	1.22×10^{-8}	1.21×10^{-3}	1.86×10^{-4}	1.86×10^{-4}	1.28×10^{-5}	1.57×10^{-4}
Food Manufacturing n.e.c.	9.75×10^{-3}	8.65×10^{-7}	0.040	1.74×10^{-3}	1.19×10^{-3}	0.036	8.35×10^{-4}
Funeral Directors, Crematoria and Cemeteries	1.25×10^{-3}	0	2.74×10^{-3}	2.25×10^{-7}	1.50×10^{-7}	4.83×10^{-4}	0
Furniture Manufacturing n.e.c.	2.50×10^{-3}	1.48×10^{-8}	2.98×10^{-3}	2.26×10^{-4}	2.26×10^{-4}	1.55×10^{-5}	1.65×10^{-4}
Glass and Glass Product Manufacturing	1.18×10^{-5}	1.82×10^{-8}	9.07×10^{-5}	1.48×10^{-5}	4.11×10^{-6}	4.27×10^{-6}	2.34×10^{-6}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gravel and Sand Quarrying	0	0	0	1.244	0.250	0	1.11×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.813	4.84×10^{-6}	0.970	0.074	0.074	5.11×10^{-3}	0.053
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.058
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	1.77×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	1.26×10^{-3}
Non-Building Construction n.e.c.	1.52×10^{-5}	0	1.10×10^{-4}	3.42×10^{-6}	3.38×10^{-6}	5.65×10^{-10}	2.66×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	3.84×10^{-7}
Paper Product Manufacturing n.e.c.	2.18×10^{-4}	0	1.01×10^{-3}	7.13×10^{-5}	7.06×10^{-5}	6.67×10^{-5}	7.41×10^{-5}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.116
Poultry Farming (Eggs)	0	0	0	0.162	0.046	0	0
Poultry Farming (Meat)	0	0	0	2.562	0.732	0	0
Prepared Animal and Bird Feed Manufacturing	3.50×10^{-3}	2.08×10^{-8}	4.16×10^{-3}	3.16×10^{-4}	3.16×10^{-4}	2.18×10^{-5}	2.29×10^{-4}
Printing	0	0	0	0	0	0	0.086
Rail Transport	0	0	0	0	0	0	3.74×10^{-5}
Road and Bridge Construction	0	0	0	8.73×10^{-5}	1.75×10^{-5}	0	2.04×10^{-5}
Smash Repairing	0	0	0	0	0	0	1.060
Unaccounted Fuel Combustion	0.184	2.31×10^{-6}	0.432	0.035	0.035	2.77×10^{-3}	0.025
Wine Manufacturing	0	0	0	0	0	0	0.121
Commercial Total	1.017	8.08×10^{-6}	1.454	4.119	1.149	0.045	3.778

Table 3.40 Proportion of total estimated daily emissions from commercial sources by ANZSIC class in each region for typical July weekend day

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - GMR							
Aircraft Manufacturing	1.55×10^{-4}	1.94×10^{-5}	9.56×10^{-4}	2.31×10^{-4}	4.23×10^{-4}	4.69×10^{-6}	7.16×10^{-5}
Automotive Component Manufacturing n.e.c.	8.97×10^{-6}	1.05×10^{-6}	5.53×10^{-5}	1.53×10^{-5}	2.81×10^{-5}	2.71×10^{-7}	4.48×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	1.46
Basic Iron and Steel Manufacturing	3.44×10^{-4}	4.25×10^{-3}	2.58×10^{-3}	5.31×10^{-3}	8.68×10^{-3}	1.04×10^{-5}	0.02
Basic Non-Ferrous Metal Manufacturing n.e.c.	5.79×10^{-6}	5.13×10^{-3}	3.59×10^{-5}	0.01	0.01	4.13×10^{-5}	2.67×10^{-6}
Biscuit Manufacturing	5.20×10^{-4}	6.51×10^{-5}	3.21×10^{-3}	7.74×10^{-4}	1.42×10^{-3}	1.57×10^{-5}	2.40×10^{-4}
Bread Manufacturing	4.0×10^{-4}	6.01×10^{-5}	1.56×10^{-3}	8.82×10^{-4}	1.62×10^{-3}	1.46×10^{-5}	0.05
Cake and Pastry Manufacturing	8.82×10^{-5}	1.10×10^{-5}	5.44×10^{-4}	1.31×10^{-4}	2.41×10^{-4}	2.67×10^{-6}	6.33×10^{-3}
Ceramic Product Manufacturing	7.65×10^{-4}	4.02×10^{-5}	1.19×10^{-3}	7.91×10^{-3}	0.01	1.42×10^{-4}	2.73×10^{-4}
Chemical Product Manufacturing n.e.c.	9.66×10^{-5}	1.21×10^{-5}	5.96×10^{-4}	1.44×10^{-4}	2.64×10^{-4}	7.27×10^{-3}	0.06
Chemical Wholesaling	0	0	0	0	0	0	2.12×10^{-4}
Concrete Slurry Manufacturing	0	2.79×10^{-6}	0	3.27×10^{-3}	9.53×10^{-4}	0	0
Confectionery Manufacturing	1.20×10^{-5}	1.28×10^{-6}	7.42×10^{-5}	1.79×10^{-5}	3.28×10^{-5}	3.63×10^{-7}	7.23×10^{-6}
Construction Material Mining n.e.c.	0	8.01×10^{-5}	0	0.04	0.02	0	2.50×10^{-6}
Corrugated Paperboard Container Manufacturing	1.27×10^{-4}	1.59×10^{-5}	7.85×10^{-4}	1.89×10^{-4}	3.48×10^{-4}	3.85×10^{-6}	5.88×10^{-5}
Electric Cable and Wire Manufacturing	0	0	0	1.09×10^{-3}	1.50×10^{-3}	0	0.05
Electrical and Equipment Manufacturing n.e.c.	3.20×10^{-7}	0	1.97×10^{-6}	1.86×10^{-4}	3.42×10^{-4}	9.66×10^{-9}	6.69×10^{-4}
Fabricated Metal Product Manufacturing n.e.c.	5.05×10^{-5}	6.29×10^{-6}	3.40×10^{-4}	8.18×10^{-4}	1.50×10^{-3}	1.53×10^{-6}	2.61×10^{-3}
Food Manufacturing n.e.c.	6.74×10^{-4}	5.0×10^{-4}	7.71×10^{-3}	1.35×10^{-3}	2.07×10^{-3}	4.32×10^{-3}	0.06
Fruit and Vegetable Processing	3.72×10^{-5}	4.66×10^{-6}	2.29×10^{-4}	5.53×10^{-5}	1.02×10^{-4}	1.13×10^{-6}	1.72×10^{-5}
Funeral Directors, Crematoria and Cemeteries	1.30×10^{-4}	5.82×10^{-8}	1.48×10^{-3}	3.86×10^{-7}	4.73×10^{-7}	2.45×10^{-4}	0
Furniture Manufacturing n.e.c.	6.13×10^{-5}	7.63×10^{-6}	3.78×10^{-4}	9.12×10^{-5}	1.67×10^{-4}	1.85×10^{-6}	2.86×10^{-5}
Gas Supply	7.97×10^{-5}	9.96×10^{-6}	4.92×10^{-4}	1.19×10^{-4}	2.18×10^{-4}	2.41×10^{-6}	4.66×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Glass and Glass Product Manufacturing	1.36×10^{-3}	0.03	0.02	8.38×10^{-3}	0.02	4.86×10^{-5}	7.04×10^{-3}
Gravel and Sand Quarrying	0	1.24×10^{-4}	0	1.06	0.40	0	4.42×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.07	9.16×10^{-3}	0.45	0.11	0.20	2.25×10^{-3}	0.03
Ice Cream Manufacturing	6.78×10^{-5}	8.44×10^{-6}	5.86×10^{-4}	1.01×10^{-4}	1.85×10^{-4}	4.61×10^{-6}	2.04×10^{-4}
Industrial Gas Manufacturing	4.34×10^{-8}	0	1.63×10^{-6}	1.61×10^{-7}	2.92×10^{-7}	0	9.47×10^{-4}
Ink Manufacturing	0	0	0	0	0	0	6.35×10^{-8}
Laundries and Dry-Cleaners	1.74×10^{-5}	2.15×10^{-6}	1.07×10^{-4}	2.59×10^{-5}	4.75×10^{-5}	5.27×10^{-7}	0.08
Lifting and Material Handling Equipment Manufacturing	0	0	2.47×10^{-5}	1.55×10^{-5}	2.84×10^{-5}	0	2.13×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	3.07×10^{-4}
Metal Coating and Finishing	6.30×10^{-5}	7.74×10^{-6}	3.88×10^{-4}	9.38×10^{-5}	1.72×10^{-4}	1.90×10^{-6}	3.30×10^{-3}
Milk and Cream Processing	6.78×10^{-5}	8.44×10^{-6}	4.18×10^{-4}	1.01×10^{-4}	1.85×10^{-4}	2.05×10^{-6}	3.13×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	2.17×10^{-7}	3.99×10^{-7}	0	4.38×10^{-4}
Non-Building Construction n.e.c.	8.28×10^{-7}	0	3.11×10^{-5}	3.06×10^{-6}	5.57×10^{-6}	1.48×10^{-10}	1.02×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	6.64×10^{-8}
Paint Manufacturing	0	0	0	4.61×10^{-3}	8.36×10^{-3}	0	3.12×10^{-3}
Paper Product Manufacturing n.e.c.	1.20×10^{-4}	1.43×10^{-5}	8.37×10^{-4}	1.99×10^{-4}	3.66×10^{-4}	1.14×10^{-5}	2.50×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.04
Plaster Product Manufacturing	8.67×10^{-3}	0.02	0.01	0.02	0.02	1.47×10^{-3}	1.59×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	4.13×10^{-4}	6.75×10^{-4}	0	4.76×10^{-3}
Plastic Injection Moulded Product Manufacturing	1.32×10^{-4}	1.65×10^{-5}	8.14×10^{-4}	1.96×10^{-4}	3.60×10^{-4}	3.99×10^{-6}	7.96×10^{-5}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	9.23×10^{-5}	1.15×10^{-5}	5.81×10^{-4}	1.37×10^{-4}	2.52×10^{-4}	2.79×10^{-6}	1.20×10^{-3}
Port Operators	2.07×10^{-3}	5.54×10^{-4}	0.03	9.70×10^{-3}	0.02	3.18×10^{-3}	6.39×10^{-3}
Poultry Farming (Eggs)	0	0	0	0.64	0.34	0	0
Poultry Farming (Meat)	0	0	0	2.00	1.05	0	0
Prepared Animal and Bird Feed Manufacturing	8.59×10^{-5}	1.12×10^{-5}	5.31×10^{-4}	1.28×10^{-4}	2.35×10^{-4}	3.25×10^{-6}	3.96×10^{-5}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Printing	1.99×10^{-4}	2.98×10^{-5}	1.60×10^{-3}	3.54×10^{-4}	6.50×10^{-4}	7.20×10^{-6}	0.31
Rail Transport	0	0	0	0	0	0	6.48×10^{-6}
Road and Bridge Construction	0	0	0	1.03×10^{-4}	3.79×10^{-5}	0	6.68×10^{-6}
Rubber Product Manufacturing n.e.c.	0	5.82×10^{-8}	0	3.65×10^{-6}	0	0	1.79×10^{-6}
Smash Repairing	0	0	0	0	0	0	1.48
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.30×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	1.75×10^{-4}	2.25×10^{-5}	1.11×10^{-3}	2.68×10^{-4}	4.91×10^{-4}	5.44×10^{-6}	8.31×10^{-5}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	7.12×10^{-3}
Spirit Manufacturing	0	0	0	0	0	0	0.03
Spring and Wire Product Manufacturing	3.37×10^{-7}	0	3.32×10^{-6}	5.89×10^{-7}	1.08×10^{-6}	8.99×10^{-9}	2.84×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	1.48×10^{-4}	4.47×10^{-3}	8.20×10^{-3}	0	5.71×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.16×10^{-3}
Structural Steel Fabricating	0	0	0	7.41×10^{-6}	1.36×10^{-5}	0	0
Synthetic Resin Manufacturing	9.75×10^{-8}	0	6.01×10^{-7}	1.45×10^{-7}	2.66×10^{-7}	2.93×10^{-9}	4.50×10^{-8}
Unaccounted Fuel Combustion	0.04	9.65×10^{-3}	0.45	0.11	0.21	2.68×10^{-3}	0.04
Wine Manufacturing	1.59×10^{-8}	0	5.96×10^{-7}	5.87×10^{-8}	1.07×10^{-7}	0	0.02
Commercial Total	0.13	0.07	0.99	4.05	2.32	0.02	3.78
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Sydney							
Aircraft Manufacturing	3.33×10^{-4}	5.23×10^{-5}	3.08×10^{-3}	5.82×10^{-4}	7.42×10^{-4}	1.04×10^{-4}	9.38×10^{-5}
Automotive Component Manufacturing n.e.c.	1.89×10^{-5}	2.83×10^{-6}	1.75×10^{-4}	3.80×10^{-5}	4.85×10^{-5}	5.92×10^{-6}	5.12×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	1.23
Basic Iron and Steel Manufacturing	9.14×10^{-5}	0.01	2.34×10^{-3}	0.01	0.01	2.86×10^{-5}	0.03
Basic Non-Ferrous Metal Manufacturing n.e.c.	1.25×10^{-5}	0.01	1.16×10^{-4}	0.03	0.03	9.19×10^{-4}	3.50×10^{-6}
Biscuit Manufacturing	1.12×10^{-3}	1.76×10^{-4}	0.01	1.95×10^{-3}	2.49×10^{-3}	3.50×10^{-4}	3.15×10^{-4}
Bread Manufacturing	6.21×10^{-4}	1.25×10^{-4}	2.81×10^{-3}	1.39×10^{-3}	1.78×10^{-3}	2.50×10^{-4}	0.03

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Cake and Pastry Manufacturing	1.90×10^{-4}	2.97×10^{-5}	1.75×10^{-3}	3.31×10^{-4}	4.22×10^{-4}	5.94×10^{-5}	8.29×10^{-3}
Chemical Product Manufacturing n.e.c.	2.08×10^{-4}	3.25×10^{-5}	1.92×10^{-3}	3.63×10^{-4}	4.62×10^{-4}	0.16	0.08
Chemical Wholesaling	0	0	0	0	0	0	2.78×10^{-4}
Concrete Slurry Manufacturing	0	5.03×10^{-6}	0	6.65×10^{-3}	1.33×10^{-3}	0	0
Confectionery Manufacturing	2.59×10^{-5}	3.46×10^{-6}	2.39×10^{-4}	4.52×10^{-5}	5.75×10^{-5}	8.10×10^{-6}	9.48×10^{-6}
Corrugated Paperboard Container Manufacturing	2.74×10^{-4}	4.29×10^{-5}	2.53×10^{-3}	4.78×10^{-4}	6.09×10^{-4}	8.58×10^{-5}	7.70×10^{-5}
Electrical and Equipment Manufacturing n.e.c.	6.88×10^{-7}	0	6.36×10^{-6}	4.70×10^{-4}	5.99×10^{-4}	2.15×10^{-7}	8.76×10^{-4}
Fabricated Metal Product Manufacturing n.e.c.	0	0	6.01×10^{-4}	1.88×10^{-3}	2.39×10^{-3}	0	3.39×10^{-3}
Food Manufacturing n.e.c.	9.35×10^{-4}	1.46×10^{-4}	8.65×10^{-3}	1.63×10^{-3}	2.08×10^{-3}	2.93×10^{-4}	0.08
Fruit and Vegetable Processing	8.0×10^{-5}	1.26×10^{-5}	7.40×10^{-4}	1.40×10^{-4}	1.78×10^{-4}	2.51×10^{-5}	2.25×10^{-5}
Funeral Directors, Crematoria and Cemeteries	1.69×10^{-4}	1.57×10^{-7}	2.88×10^{-3}	5.88×10^{-7}	5.0×10^{-7}	3.29×10^{-3}	0
Gas Supply	1.71×10^{-4}	2.69×10^{-5}	1.59×10^{-3}	2.99×10^{-4}	3.82×10^{-4}	5.37×10^{-5}	4.41×10^{-3}
Glass and Glass Product Manufacturing	2.93×10^{-3}	0.07	0.05	0.02	0.03	1.07×10^{-3}	9.22×10^{-3}
Gravel and Sand Quarrying	0	3.34×10^{-4}	0	1.15	0.30	0	2.59×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.10	0.02	0.91	0.17	0.22	0.03	0.03
Ice Cream Manufacturing	1.46×10^{-4}	2.28×10^{-5}	1.89×10^{-3}	2.54×10^{-4}	3.24×10^{-4}	1.03×10^{-4}	2.67×10^{-4}
Industrial Gas Manufacturing	9.34×10^{-8}	0	5.26×10^{-6}	4.05×10^{-7}	5.12×10^{-7}	0	1.24×10^{-3}
Ink Manufacturing	0	0	0	0	0	0	8.31×10^{-8}
Laundries and Dry-Cleaners	3.75×10^{-5}	5.82×10^{-6}	3.46×10^{-4}	6.54×10^{-5}	8.33×10^{-5}	1.17×10^{-5}	0.08
Lifting and Material Handling Equipment Manufacturing	0	0	7.96×10^{-5}	3.91×10^{-5}	4.98×10^{-5}	0	2.79×10^{-4}
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	9.07×10^{-8}
Metal Coating and Finishing	1.29×10^{-4}	2.01×10^{-5}	1.20×10^{-3}	2.26×10^{-4}	2.88×10^{-4}	4.05×10^{-5}	4.33×10^{-3}
Milk and Cream Processing	1.46×10^{-4}	2.28×10^{-5}	1.35×10^{-3}	2.55×10^{-4}	3.24×10^{-4}	4.56×10^{-5}	4.10×10^{-5}
Non-Building Construction n.e.c.	9.81×10^{-7}	0	5.52×10^{-5}	4.26×10^{-6}	5.38×10^{-6}	1.80×10^{-9}	7.37×10^{-7}
Paint Manufacturing	0	0	0	0.01	0.01	0	4.09×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paper Product Manufacturing n.e.c.	2.47×10^{-4}	3.87×10^{-5}	2.28×10^{-3}	4.31×10^{-4}	5.49×10^{-4}	7.73×10^{-5}	3.11×10^{-4}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.02
Plaster Product Manufacturing	0.02	0.05	0.04	0.04	0.03	0.03	2.08×10^{-3}
Plastic Bag and Film Manufacturing	0	0	0	1.04×10^{-3}	1.18×10^{-3}	0	6.23×10^{-3}
Plastic Injection Moulded Product Manufacturing	2.84×10^{-4}	4.45×10^{-5}	2.63×10^{-3}	4.96×10^{-4}	6.32×10^{-4}	8.89×10^{-5}	1.04×10^{-4}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.98×10^{-4}	3.11×10^{-5}	1.87×10^{-3}	3.47×10^{-4}	4.42×10^{-4}	6.21×10^{-5}	7.49×10^{-4}
Port Operators	4.44×10^{-3}	1.50×10^{-3}	0.11	0.02	0.03	0.07	8.37×10^{-3}
Poultry Farming (Eggs)	0	0	0	1.46	0.53	0	0
Poultry Farming (Meat)	0	0	0	2.27	0.83	0	0
Prepared Animal and Bird Feed Manufacturing	2.04×10^{-7}	1.26×10^{-6}	6.34×10^{-6}	8.54×10^{-7}	1.08×10^{-6}	1.46×10^{-5}	5.84×10^{-8}
Printing	4.28×10^{-4}	8.05×10^{-5}	5.17×10^{-3}	8.95×10^{-4}	1.14×10^{-3}	1.60×10^{-4}	0.37
Road and Bridge Construction	0	0	0	8.10×10^{-5}	2.08×10^{-5}	0	0
Rubber Product Manufacturing n.e.c.	0	1.57×10^{-7}	0	9.22×10^{-6}	0	0	2.13×10^{-6}
Smash Repairing	0	0	0	0	0	0	1.52
Soap and Other Detergent Manufacturing	0	0	0	0	0	0	1.70×10^{-8}
Soft Drink, Cordial and Syrup Manufacturing	3.77×10^{-4}	6.07×10^{-5}	3.58×10^{-3}	6.76×10^{-4}	8.61×10^{-4}	1.21×10^{-4}	1.09×10^{-4}
Solid Paperboard Container Manufacturing	0	0	0	0	0	0	9.32×10^{-3}
Spirit Manufacturing	0	0	0	0	0	0	0.04
Spring and Wire Product Manufacturing	6.40×10^{-7}	0	5.92×10^{-6}	1.12×10^{-6}	1.42×10^{-6}	2.0×10^{-7}	3.08×10^{-7}
Steel Pipe and Tube Manufacturing	0	0	4.78×10^{-4}	1.67×10^{-3}	2.13×10^{-3}	0	7.48×10^{-7}
Structural Metal Product Manufacturing n.e.c.	0	0	0	0	0	0	1.51×10^{-3}
Structural Steel Fabricating	0	0	0	1.87×10^{-5}	2.38×10^{-5}	0	0
Unaccounted Fuel Combustion	0.06	0.02	1.13	0.22	0.29	0.05	0.04
Wine Manufacturing	3.41×10^{-8}	0	1.92×10^{-6}	1.48×10^{-7}	1.87×10^{-7}	0	2.83×10^{-3}
Commercial Total	0.19	0.18	2.31	5.44	2.33	0.35	3.61

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Newcastle							
Automotive Fuel Retailing	0	0	0	0	0	0	1.79
Bread Manufacturing	1.71×10^{-3}	4.70×10^{-4}	0.02	7.70×10^{-3}	0.01	9.84×10^{-5}	0.37
Concrete Slurry Manufacturing	0	3.18×10^{-5}	0	0.01	2.30×10^{-3}	0	0
Construction Material Mining n.e.c.	0	2.74×10^{-3}	0	0.68	0.18	0	3.06×10^{-5}
Funeral Directors, Crematoria and Cemeteries	2.38×10^{-4}	0	5.38×10^{-3}	1.06×10^{-6}	9.67×10^{-7}	8.51×10^{-4}	0
Gravel and Sand Quarrying	0	0	0	1.76	0.48	0	6.51×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.04	0.01	0.53	0.10	0.13	3.30×10^{-3}	0.02
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.06
Metal Coating and Finishing	4.30×10^{-5}	9.95×10^{-6}	5.27×10^{-4}	1.0×10^{-4}	1.36×10^{-4}	2.47×10^{-6}	2.45×10^{-5}
Mining and Construction Machinery Manufacturing	0	0	0	5.08×10^{-6}	6.91×10^{-6}	0	3.82×10^{-3}
Petroleum Product Wholesaling	0	0	0	0	0	0	1.97×10^{-3}
Plastic Product, Rigid Fibre Reinforced, Manufacturing	0	0	0	0	0	0	0.01
Poultry Farming (Meat)	0	0	0	1.17	0.45	0	0
Road and Bridge Construction	0	0	0	8.25×10^{-4}	2.26×10^{-4}	0	5.51×10^{-5}
Smash Repairing	0	0	0	0	0	0	1.36
Unaccounted Fuel Combustion	0.03	0.02	0.71	0.14	0.19	4.08×10^{-3}	0.03
Wine Manufacturing	0	0	0	0	0	0	6.81×10^{-3}
Commercial Total	0.07	0.03	1.26	3.87	1.45	8.33×10^{-3}	3.67
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Wollongong							
Automotive Component Manufacturing n.e.c.	4.85×10^{-7}	0	2.62×10^{-5}	6.30×10^{-6}	7.98×10^{-6}	1.57×10^{-7}	9.67×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	1.97
Basic Iron and Steel Manufacturing	8.24×10^{-4}	4.38×10^{-4}	0.04	0.01	0.01	2.67×10^{-4}	4.01×10^{-3}
Ceramic Product Manufacturing	2.09×10^{-3}	4.67×10^{-4}	0.03	0.19	0.22	4.16×10^{-3}	7.04×10^{-3}
Concrete Slurry Manufacturing	0	0	0	2.28×10^{-4}	5.83×10^{-5}	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Funeral Directors, Crematoria and Cemeteries	1.59×10^{-5}	0	1.59×10^{-3}	4.12×10^{-7}	3.49×10^{-7}	3.23×10^{-4}	0
Gas Supply	0	0	0	0	0	0	0.03
Gravel and Sand Quarrying	0	0	0	0.72	0.18	0	3.85×10^{-5}
Hospitals (Except Psychiatric Hospitals)	0.01	6.83×10^{-3}	0.69	0.17	0.21	4.16×10^{-3}	0.06
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.07
Poultry Farming (Meat)	0	0	0	0.28	0.10	0	0
Printing	0	0	0	0	0	0	0.49
Rubber Product Manufacturing n.e.c.	0	0	0	0	0	0	4.10×10^{-6}
Smash Repairing	0	0	0	0	0	0	1.47
Spring and Wire Product Manufacturing	1.08×10^{-7}	0	3.56×10^{-5}	3.50×10^{-6}	4.39×10^{-6}	0	1.26×10^{-6}
Steel Pipe and Tube Manufacturing	0	0	0	0.09	0.12	0	0
Synthetic Resin Manufacturing	2.67×10^{-7}	0	1.44×10^{-5}	3.46×10^{-6}	4.39×10^{-6}	8.62×10^{-8}	1.16×10^{-6}
Unaccounted Fuel Combustion	3.78×10^{-3}	4.23×10^{-3}	0.40	0.10	0.13	2.97×10^{-3}	0.03
Commercial Total	0.02	0.01	1.17	1.56	0.97	0.01	4.15
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Non-Urban							
Automotive Component Manufacturing n.e.c.	0	0	0	0	0	0	1.42×10^{-3}
Automotive Fuel Retailing	0	0	0	0	0	0	2.44
Concrete Slurry Manufacturing	0	0	0	3.13×10^{-4}	1.93×10^{-4}	0	0
Construction Material Mining n.e.c.	0	0	0	0.03	0.02	0	5.32×10^{-6}
Electric Cable and Wire Manufacturing	0	0	0	2.10×10^{-3}	4.82×10^{-3}	0	0.33
Fabricated Metal Product Manufacturing n.e.c.	4.83×10^{-4}	1.22×10^{-5}	2.50×10^{-4}	1.45×10^{-4}	4.43×10^{-4}	1.72×10^{-6}	1.94×10^{-4}
Food Manufacturing n.e.c.	2.29×10^{-3}	8.67×10^{-4}	8.17×10^{-3}	1.35×10^{-3}	2.83×10^{-3}	4.85×10^{-3}	1.03×10^{-3}
Funeral Directors, Crematoria and Cemeteries	2.92×10^{-4}	0	5.66×10^{-4}	1.74×10^{-7}	3.56×10^{-7}	6.49×10^{-5}	0
Furniture Manufacturing n.e.c.	5.86×10^{-4}	1.48×10^{-5}	6.14×10^{-4}	1.76×10^{-4}	5.38×10^{-4}	2.09×10^{-6}	2.03×10^{-4}
Glass and Glass Product Manufacturing	2.76×10^{-6}	1.82×10^{-5}	1.87×10^{-5}	1.15×10^{-5}	9.78×10^{-6}	5.73×10^{-7}	2.88×10^{-6}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results - Commercial

ANZSIC Class	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Gravel and Sand Quarrying	0	0	0	0.97	0.60	0	1.37×10^{-4}
Hospitals (Except Psychiatric Hospitals)	0.19	4.85×10^{-3}	0.20	0.06	0.18	6.87×10^{-4}	0.07
Laundries and Dry-Cleaners	0	0	0	0	0	0	0.07
Medicinal and Pharmaceutical Product Manufacturing	0	0	0	0	0	0	2.18×10^{-3}
Mining and Construction Machinery Manufacturing	0	0	0	0	0	0	1.56×10^{-3}
Non-Building Construction n.e.c.	3.56×10^{-6}	0	2.27×10^{-5}	2.65×10^{-6}	8.05×10^{-6}	7.59×10^{-11}	3.27×10^{-6}
Non-Ferrous Metal Casting	0	0	0	0	0	0	4.73×10^{-7}
Paper Product Manufacturing n.e.c.	5.11×10^{-5}	0	2.09×10^{-4}	5.53×10^{-5}	1.68×10^{-4}	8.96×10^{-6}	9.12×10^{-5}
Petroleum Product Wholesaling	0	0	0	0	0	0	0.14
Poultry Farming (Eggs)	0	0	0	0.13	0.11	0	0
Poultry Farming (Meat)	0	0	0	1.99	1.74	0	0
Prepared Animal and Bird Feed Manufacturing	8.20×10^{-4}	2.08×10^{-5}	8.59×10^{-4}	2.46×10^{-4}	7.52×10^{-4}	2.92×10^{-6}	2.82×10^{-4}
Printing	0	0	0	0	0	0	0.11
Rail Transport	0	0	0	0	0	0	4.61×10^{-5}
Road and Bridge Construction	0	0	0	6.78×10^{-5}	4.16×10^{-5}	0	2.51×10^{-5}
Smash Repairing	0	0	0	0	0	0	1.31
Unaccounted Fuel Combustion	0.04	2.31×10^{-3}	0.09	0.03	0.08	3.73×10^{-4}	0.03
Wine Manufacturing	0	0	0	0	0	0	0.15
Commercial Total	0.24	8.10×10^{-3}	0.30	3.20	2.73	5.99×10^{-3}	4.65

3.3 Domestic-Commercial

3.3.1 Emission Source Description

The domestic-commercial air emissions inventory includes emissions from the following sources:

- Aerosols and solvents (domestic & commercial)
 - ◆ adhesives and sealants, automotive aftermarket products, coatings and related products, household products, insecticide, fungicide, rodenticide and herbicide products, miscellaneous products and personal care products
- Barbecues (domestic)
 - ◆ briquette, butane, LPG and wood
- Cutback bitumen
- Gaseous fuel combustion (domestic)
 - ◆ LPG and natural gas
- Lawn mowing and garden equipment (domestic)
 - ◆ 2-stroke and 4-stroke petrol
- Lawn mowing and garden equipment (public open space)
 - ◆ 2-stroke and 4-stroke petrol and diesel
- Liquid fuel combustion (domestic)
- Natural gas leakage
- Solid fuel combustion (domestic)
 - ◆ coal and wood
- Surface coating (domestic, commercial & industrial)
 - ◆ oil based, water based, timber finishes and thinners

Refer to DECC (2007c) for further information regarding the source types included in the domestic-commercial air emissions inventory and the emission estimation methodology.

3.3.2 Annual Emission Estimates

Table 3.41 shows total estimated annual emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.41 Total estimated annual emissions from domestic-commercial sources in each region

Substance	Domestic-Commercial Annual Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	67,221	5,781	3,636	13,877	90,516
LEAD AND COMPOUNDS	0.114	9.65×10^{-3}	6.15×10^{-3}	0.023	0.153
OXIDES OF NITROGEN	1,356	105	68.345	262	1,791
PARTICULATE MATTER < 10 µm	4,993	423	274	961	6,651
PARTICULATE MATTER < 2.5 µm	4,826	408	265	929	6,428
SULFUR DIOXIDE	108	8.871	5.757	20.825	143
TOTAL VOCS	51,929	3,786	2,618	8,971	67,303

Table 3.42 shows the proportion of total estimated annual anthropogenic emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.42 Proportion of total estimated annual emissions from domestic-commercial sources in each region

Substance	Domestic-Commercial Proportion of Anthropogenic Total Annual Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	12.7	6.67	0.67	11.0	7.04
LEAD AND COMPOUNDS	0.39	0.40	0.09	0.05	0.19
OXIDES OF NITROGEN	1.46	1.06	0.56	0.15	0.61
PARTICULATE MATTER < 10 µm	23.4	14.3	9.03	2.01	8.85
PARTICULATE MATTER < 2.5 µm	36.8	24.2	12.1	6.88	21.1
SULFUR DIOXIDE	0.78	0.08	0.05	7.80×10^{-3}	0.05
TOTAL VOCS	39.7	38.9	40.5	37.3	39.3

Figure 3.11 shows the proportion of total estimated annual GMR domestic-commercial emissions from domestic-commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

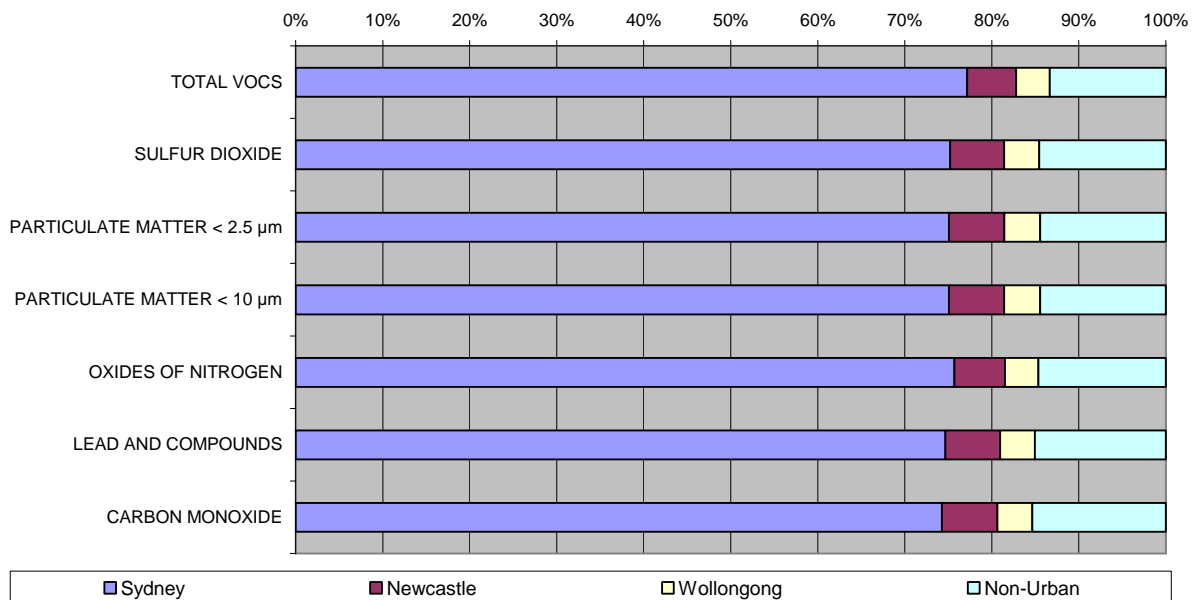


Figure 3.11 Proportion of total estimated annual emissions from domestic-commercial sources in each region

Table 3.43 shows total estimated annual emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.44 shows the proportion of total estimated annual anthropogenic emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.43 Total estimated annual emissions by domestic-commercial source type in each region

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Annual Emissions (tonnes/year) - GMR											
CARBON MONOXIDE	0	231	0	324	41,580	11,292	9.227	0	37,079	0	90,516
LEAD AND COMPOUNDS	0	6.65×10^{-3}	0	4.10×10^{-3}	0.056	0.016	2.78×10^{-3}	0	0.068	0	0.153
OXIDES OF NITROGEN	0	70.426	0	762	177	269	33.218	0	480	0	1,791
PARTICULATE MATTER < 10 µm	0	12.331	0	60.768	251	154	0.738	0	6,172	0	6,651
PARTICULATE MATTER < 2.5 µm	0	6.875	0	60.768	231	143	0.185	0	5,986	0	6,428
SULFUR DIOXIDE	0	3.989	0	4.864	15.048	9.396	13.103	0	96.610	0	143
TOTAL VOCS	26,220	51.266	2,374	44.615	5,419	1,643	1.316	1,988	12,663	16,898	67,303
Annual Emissions (tonnes/year) - Sydney											
CARBON MONOXIDE	0	179	0	255	31,274	7,617	7.262	0	27,889	0	67,221
LEAD AND COMPOUNDS	0	5.16×10^{-3}	0	3.22×10^{-3}	0.042	0.011	2.19×10^{-3}	0	0.051	0	0.114
OXIDES OF NITROGEN	0	54.648	0	599	133	181	26.144	0	361	0	1,356
PARTICULATE MATTER < 10 µm	0	9.568	0	47.827	189	104	0.581	0	4,642	0	4,993
PARTICULATE MATTER < 2.5 µm	0	5.334	0	47.827	173	96.263	0.145	0	4,503	0	4,826
SULFUR DIOXIDE	0	3.095	0	3.828	11.319	6.337	10.312	0	72.664	0	108
TOTAL VOCS	20,637	39.781	1,826	35.114	4,076	1,108	1.036	1,569	9,524	13,112	51,929
Annual Emissions (tonnes/year) - Newcastle											
CARBON MONOXIDE	0	12.456	0	16.802	2,645	749	0.478	0	2,358	0	5,781
LEAD AND COMPOUNDS	0	3.59×10^{-4}	0	2.12×10^{-4}	3.57×10^{-3}	1.06×10^{-3}	1.44×10^{-4}	0	4.30×10^{-3}	0	9.65×10^{-3}
OXIDES OF NITROGEN	0	3.798	0	39.493	11.260	17.804	1.722	0	30.525	0	105
PARTICULATE MATTER < 10 µm	0	0.665	0	3.151	15.947	10.188	0.038	0	393	0	423
PARTICULATE MATTER < 2.5 µm	0	0.371	0	3.151	14.671	9.462	9.57×10^{-3}	0	381	0	408
SULFUR DIOXIDE	0	0.215	0	0.252	0.957	0.623	0.679	0	6.145	0	8.871
TOTAL VOCS	1,360	2.765	143	2.313	345	109	0.068	109	805	911	3,786

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Annual Emissions (tonnes/year) - Wollongong											
CARBON MONOXIDE	0	9.016	0	12.217	1,725	352	0.348	0	1,538	0	3,636
LEAD AND COMPOUNDS	0	2.60×10^{-4}	0	1.54×10^{-4}	2.33×10^{-3}	5.0×10^{-4}	1.05×10^{-4}	0	2.80×10^{-3}	0	6.15×10^{-3}
OXIDES OF NITROGEN	0	2.749	0	28.716	7.343	8.378	1.252	0	19.907	0	68.345
PARTICULATE MATTER < 10 µm	0	0.481	0	2.291	10.400	4.795	0.028	0	256	0	274
PARTICULATE MATTER < 2.5 µm	0	0.268	0	2.291	9.568	4.453	6.96×10^{-3}	0	248	0	265
SULFUR DIOXIDE	0	0.156	0	0.183	0.624	0.293	0.494	0	4.007	0	5.757
TOTAL VOCS	989	2.001	84.911	1.682	225	51.264	0.050	79.651	525	660	2,618
Annual Emissions (tonnes/year) – Non-Urban											
CARBON MONOXIDE	0	30.270	0	39.986	5,937	2,575	1.139	0	5,294	0	13,877
LEAD AND COMPOUNDS	0	8.71×10^{-4}	0	5.05×10^{-4}	8.02×10^{-3}	3.65×10^{-3}	3.43×10^{-4}	0	9.65×10^{-3}	0	0.023
OXIDES OF NITROGEN	0	9.230	0	93.989	25.277	61.225	4.099	0	68.527	0	262
PARTICULATE MATTER < 10 µm	0	1.616	0	7.499	35.800	35.037	0.091	0	881	0	961
PARTICULATE MATTER < 2.5 µm	0	0.901	0	7.499	32.936	32.540	0.023	0	855	0	929
SULFUR DIOXIDE	0	0.523	0	0.600	2.149	2.142	1.617	0	13.794	0	20.825
TOTAL VOCS	3,236	6.719	321	5.505	774	375	0.162	231	1,808	2,215	8,971

Table 3.44 Proportion of total estimated annual emissions by domestic-commercial source type in each region

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total Annual Emissions (%) - GMR											
CARBON MONOXIDE	0	0.02	0	0.03	3.23	0.88	7.17×10^{-4}	0	2.88	0	7.04
LEAD AND COMPOUNDS	0	8.21×10^{-3}	0	5.06×10^{-3}	0.07	0.02	3.44×10^{-3}	0	0.08	0	0.19
OXIDES OF NITROGEN	0	0.02	0	0.26	0.06	0.09	0.01	0	0.16	0	0.61
PARTICULATE MATTER < 10 µm	0	0.02	0	0.08	0.33	0.20	9.83×10^{-4}	0	8.22	0	8.85
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.20	0.76	0.47	6.05×10^{-4}	0	19.6	0	21.1
SULFUR DIOXIDE	0	1.32×10^{-3}	0	1.61×10^{-3}	4.99×10^{-3}	3.11×10^{-3}	4.34×10^{-3}	0	0.03	0	0.05
TOTAL VOCS	15.3	0.03	1.39	0.03	3.17	0.96	7.69×10^{-4}	1.16	7.40	9.88	39.3
Proportion of Anthropogenic Total Annual Emissions (%) - Sydney											
CARBON MONOXIDE	0	0.03	0	0.05	5.92	1.44	1.38×10^{-3}	0	5.28	0	12.7
LEAD AND COMPOUNDS	0	0.02	0	0.01	0.15	0.04	7.54×10^{-3}	0	0.17	0	0.39
OXIDES OF NITROGEN	0	0.06	0	0.65	0.14	0.20	0.03	0	0.39	0	1.46
PARTICULATE MATTER < 10 µm	0	0.04	0	0.22	0.89	0.49	2.73×10^{-3}	0	21.8	0	23.4
PARTICULATE MATTER < 2.5 µm	0	0.04	0	0.36	1.32	0.73	1.11×10^{-3}	0	34.3	0	36.8
SULFUR DIOXIDE	0	0.02	0	0.03	0.08	0.05	0.07	0	0.53	0	0.78
TOTAL VOCS	15.8	0.03	1.40	0.03	3.12	0.85	7.92×10^{-4}	1.20	7.28	10.0	39.7
Proportion of Anthropogenic Total Annual Emissions (%) - Newcastle											
CARBON MONOXIDE	0	0.01	0	0.02	3.05	0.86	5.52×10^{-4}	0	2.72	0	6.67
LEAD AND COMPOUNDS	0	0.01	0	8.83×10^{-3}	0.15	0.04	6.0×10^{-3}	0	0.18	0	0.40
OXIDES OF NITROGEN	0	0.04	0	0.40	0.11	0.18	0.02	0	0.31	0	1.06
PARTICULATE MATTER < 10 µm	0	0.02	0	0.11	0.54	0.35	1.30×10^{-3}	0	13.3	0	14.3
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.19	0.87	0.56	5.67×10^{-4}	0	22.6	0	24.2
SULFUR DIOXIDE	0	2.02×10^{-3}	0	2.36×10^{-3}	8.97×10^{-3}	5.84×10^{-3}	6.37×10^{-3}	0	0.06	0	0.08
TOTAL VOCS	14.0	0.03	1.47	0.02	3.54	1.12	7.01×10^{-4}	1.12	8.28	9.37	38.9

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total Annual Emissions (%) - Wollongong											
CARBON MONOXIDE	0	1.65×10^{-3}	0	2.24×10^{-3}	0.32	0.06	6.38×10^{-5}	0	0.28	0	0.67
LEAD AND COMPOUNDS	0	3.99×10^{-3}	0	2.38×10^{-3}	0.04	7.69×10^{-3}	1.61×10^{-3}	0	0.04	0	0.09
OXIDES OF NITROGEN	0	0.02	0	0.23	0.06	0.07	0.01	0	0.16	0	0.56
PARTICULATE MATTER < 10 µm	0	0.02	0	0.08	0.34	0.16	9.17×10^{-4}	0	8.44	0	9.03
PARTICULATE MATTER < 2.5 µm	0	0.01	0	0.10	0.44	0.20	3.17×10^{-4}	0	11.3	0	12.1
SULFUR DIOXIDE	0	1.47×10^{-3}	0	1.73×10^{-3}	5.88×10^{-3}	2.76×10^{-3}	4.66×10^{-3}	0	0.04	0	0.05
TOTAL VOCS	15.3	0.03	1.32	0.03	3.48	0.79	7.68×10^{-4}	1.23	8.13	10.2	40.5
Proportion of Anthropogenic Total Annual Emissions (%) – Non-Urban											
CARBON MONOXIDE	0	0.02	0	0.03	4.70	2.04	9.01×10^{-4}	0	4.19	0	11.0
LEAD AND COMPOUNDS	0	2.03×10^{-3}	0	1.18×10^{-3}	0.02	8.50×10^{-3}	7.99×10^{-4}	0	0.02	0	0.05
OXIDES OF NITROGEN	0	5.21×10^{-3}	0	0.05	0.01	0.03	2.31×10^{-3}	0	0.04	0	0.15
PARTICULATE MATTER < 10 µm	0	3.38×10^{-3}	0	0.02	0.07	0.07	1.90×10^{-4}	0	1.84	0	2.01
PARTICULATE MATTER < 2.5 µm	0	6.68×10^{-3}	0	0.06	0.24	0.24	1.69×10^{-4}	0	6.33	0	6.88
SULFUR DIOXIDE	0	1.96×10^{-4}	0	2.25×10^{-4}	8.05×10^{-4}	8.03×10^{-4}	6.06×10^{-4}	0	5.17×10^{-3}	0	7.80×10^{-3}
TOTAL VOCS	13.5	0.03	1.33	0.02	3.22	1.56	6.75×10^{-4}	0.96	7.52	9.21	37.3

3.3.3 Daily Emission Estimates

Table 3.45 shows total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.45 Total estimated daily emissions from domestic-commercial sources in each region for typical January weekday

Substance	Domestic-Commercial January Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	104	9.251	5.381	25.096	143
LEAD AND COMPOUNDS	1.64×10^{-4}	1.43×10^{-5}	8.47×10^{-6}	3.84×10^{-5}	2.25×10^{-4}
OXIDES OF NITROGEN	2.721	0.214	0.132	0.598	3.665
PARTICULATE MATTER < 10 µm	2.216	0.192	0.117	0.491	3.015
PARTICULATE MATTER < 2.5 µm	2.105	0.182	0.111	0.465	2.863
SULFUR DIOXIDE	0.087	7.51×10^{-3}	4.43×10^{-3}	0.021	0.120
TOTAL VOCS	117	8.256	5.745	20.101	151

Table 3.46 shows the proportion of total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.46 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical January weekday

Substance	Domestic-Commercial Proportion of Anthropogenic Total January Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	10.3	4.59	0.37	9.46	4.90
LEAD AND COMPOUNDS	0.24	0.25	0.05	0.04	0.12
OXIDES OF NITROGEN	1.15	0.85	0.41	0.13	0.48
PARTICULATE MATTER < 10 µm	5.10	2.74	1.61	0.41	1.70
PARTICULATE MATTER < 2.5 µm	9.20	5.08	2.15	1.46	4.51
SULFUR DIOXIDE	0.24	0.03	0.02	2.85×10^{-3}	0.01
TOTAL VOCS	37.9	36.2	37.7	35.5	37.5

Figure 3.12 shows the proportion of total estimated daily GMR domestic-commercial emissions from all domestic-commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

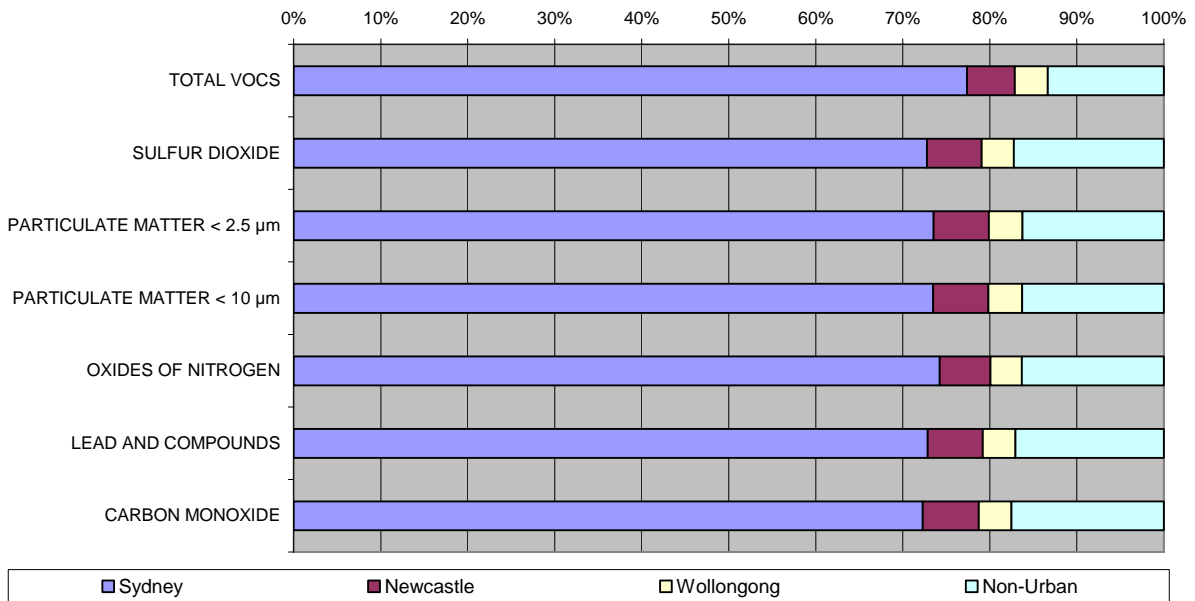


Figure 3.12 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical January weekday

Table 3.47 shows total estimated daily emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.48 shows the proportion of total estimated daily anthropogenic emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.47 Total estimated daily emissions by domestic-commercial source type in each region for typical January weekday

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
January Weekday Emissions (tonnes/day) - GMR											
CARBON MONOXIDE	0	0.542	0	0.742	77.690	54.552	0	0	9.829	0	143
LEAD AND COMPOUNDS	0	1.56×10^{-5}	0	9.38×10^{-6}	1.05×10^{-4}	7.74×10^{-5}	0	0	1.79×10^{-5}	0	2.25×10^{-4}
OXIDES OF NITROGEN	0	0.165	0	1.744	0.331	1.297	0	0	0.127	0	3.665
PARTICULATE MATTER < 10 µm	0	0.029	0	0.139	0.468	0.742	0	0	1.636	0	3.015
PARTICULATE MATTER < 2.5 µm	0	0.016	0	0.139	0.431	0.689	0	0	1.587	0	2.863
SULFUR DIOXIDE	0	9.35×10^{-3}	0	0.011	0.028	0.045	0	0	0.026	0	0.120
TOTAL VOCS	71.837	0.120	6.505	0.102	10.125	7.938	0	4.535	3.357	46.297	151
January Weekday Emissions (tonnes/day) - Sydney											
CARBON MONOXIDE	0	0.420	0	0.584	58.434	36.795	0	0	7.393	0	104
LEAD AND COMPOUNDS	0	1.21×10^{-5}	0	7.38×10^{-6}	7.89×10^{-5}	5.22×10^{-5}	0	0	1.35×10^{-5}	0	1.64×10^{-4}
OXIDES OF NITROGEN	0	0.128	0	1.373	0.249	0.875	0	0	0.096	0	2.721
PARTICULATE MATTER < 10 µm	0	0.022	0	0.110	0.352	0.501	0	0	1.231	0	2.216
PARTICULATE MATTER < 2.5 µm	0	0.013	0	0.110	0.324	0.465	0	0	1.194	0	2.105
SULFUR DIOXIDE	0	7.26×10^{-3}	0	8.77×10^{-3}	0.021	0.031	0	0	0.019	0	0.087
TOTAL VOCS	56.539	0.093	5.003	0.080	7.615	5.354	0	3.579	2.525	35.925	117
January Weekday Emissions (tonnes/day) - Newcastle											
CARBON MONOXIDE	0	0.029	0	0.038	4.941	3.617	0	0	0.625	0	9.251
LEAD AND COMPOUNDS	0	8.41×10^{-7}	0	4.86×10^{-7}	6.68×10^{-6}	5.13×10^{-6}	0	0	1.14×10^{-6}	0	1.43×10^{-5}
OXIDES OF NITROGEN	0	8.91×10^{-3}	0	0.090	0.021	0.086	0	0	8.09×10^{-3}	0	0.214
PARTICULATE MATTER < 10 µm	0	1.56×10^{-3}	0	7.22×10^{-3}	0.030	0.049	0	0	0.104	0	0.192
PARTICULATE MATTER < 2.5 µm	0	8.69×10^{-4}	0	7.22×10^{-3}	0.027	0.046	0	0	0.101	0	0.182
SULFUR DIOXIDE	0	5.04×10^{-4}	0	5.78×10^{-4}	1.79×10^{-3}	3.01×10^{-3}	0	0	1.63×10^{-3}	0	7.51×10^{-3}
TOTAL VOCS	3.725	6.48×10^{-3}	0.391	5.30×10^{-3}	0.644	0.526	0	0.248	0.213	2.497	8.256

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
January Weekday Emissions (tonnes/day) - Wollongong											
CARBON MONOXIDE	0	0.021	0	0.028	3.222	1.702	0	0	0.408	0	5.381
LEAD AND COMPOUNDS	0	6.08×10^{-7}	0	3.54×10^{-7}	4.35×10^{-6}	2.41×10^{-6}	0	0	7.43×10^{-7}	0	8.47×10^{-6}
OXIDES OF NITROGEN	0	6.45×10^{-3}	0	0.066	0.014	0.040	0	0	5.28×10^{-3}	0	0.132
PARTICULATE MATTER < 10 µm	0	1.13×10^{-3}	0	5.25×10^{-3}	0.019	0.023	0	0	0.068	0	0.117
PARTICULATE MATTER < 2.5 µm	0	6.29×10^{-4}	0	5.25×10^{-3}	0.018	0.022	0	0	0.066	0	0.111
SULFUR DIOXIDE	0	3.65×10^{-4}	0	4.20×10^{-4}	1.17×10^{-3}	1.42×10^{-3}	0	0	1.06×10^{-3}	0	4.43×10^{-3}
TOTAL VOCS	2.708	4.69×10^{-3}	0.233	3.85×10^{-3}	0.420	0.248	0	0.182	0.139	1.807	5.745
January Weekday Emissions (tonnes/day) – Non-Urban											
CARBON MONOXIDE	0	0.071	0	0.092	11.093	12.438	0	0	1.403	0	25.096
LEAD AND COMPOUNDS	0	2.04×10^{-6}	0	1.16×10^{-6}	1.50×10^{-5}	1.76×10^{-5}	0	0	2.56×10^{-6}	0	3.84×10^{-5}
OXIDES OF NITROGEN	0	0.022	0	0.215	0.047	0.296	0	0	0.018	0	0.598
PARTICULATE MATTER < 10 µm	0	3.79×10^{-3}	0	0.017	0.067	0.169	0	0	0.234	0	0.491
PARTICULATE MATTER < 2.5 µm	0	2.11×10^{-3}	0	0.017	0.062	0.157	0	0	0.227	0	0.465
SULFUR DIOXIDE	0	1.23×10^{-3}	0	1.37×10^{-3}	4.01×10^{-3}	0.010	0	0	3.66×10^{-3}	0	0.021
TOTAL VOCS	8.865	0.016	0.879	0.013	1.446	1.810	0	0.526	0.479	6.068	20.101

Table 3.48 Proportion of total estimated daily emissions by domestic-commercial source type in each region for typical January weekday

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total January Weekday Emissions (%) - GMR											
CARBON MONOXIDE	0	0.02	0	0.03	2.66	1.87	0	0	0.34	0	4.90
LEAD AND COMPOUNDS	0	8.31×10^{-3}	0	5.0×10^{-3}	0.06	0.04	0	0	9.54×10^{-3}	0	0.12
OXIDES OF NITROGEN	0	0.02	0	0.23	0.04	0.17	0	0	0.02	0	0.48
PARTICULATE MATTER < 10 µm	0	0.02	0	0.08	0.26	0.42	0	0	0.92	0	1.70
PARTICULATE MATTER < 2.5 µm	0	0.03	0	0.22	0.68	1.09	0	0	2.50	0	4.51
SULFUR DIOXIDE	0	1.15×10^{-3}	0	1.36×10^{-3}	3.44×10^{-3}	5.56×10^{-3}	0	0	3.14×10^{-3}	0	0.01
TOTAL VOCS	17.9	0.03	1.62	0.03	2.52	1.97	0	1.13	0.83	11.5	37.5
Proportion of Anthropogenic Total January Weekday Emissions (%) - Sydney											
CARBON MONOXIDE	0	0.04	0	0.06	5.78	3.64	0	0	0.73	0	10.3
LEAD AND COMPOUNDS	0	0.02	0	0.01	0.11	0.08	0	0	0.02	0	0.24
OXIDES OF NITROGEN	0	0.05	0	0.58	0.11	0.37	0	0	0.04	0	1.15
PARTICULATE MATTER < 10 µm	0	0.05	0	0.25	0.81	1.15	0	0	2.83	0	5.10
PARTICULATE MATTER < 2.5 µm	0	0.05	0	0.48	1.42	2.03	0	0	5.21	0	9.20
SULFUR DIOXIDE	0	0.02	0	0.02	0.06	0.08	0	0	0.05	0	0.24
TOTAL VOCS	18.4	0.03	1.63	0.03	2.48	1.74	0	1.16	0.82	11.7	37.9
Proportion of Anthropogenic Total January Weekday Emissions (%) - Newcastle											
CARBON MONOXIDE	0	0.01	0	0.02	2.45	1.80	0	0	0.31	0	4.59
LEAD AND COMPOUNDS	0	0.01	0	8.65×10^{-3}	0.12	0.09	0	0	0.02	0	0.25
OXIDES OF NITROGEN	0	0.04	0	0.36	0.08	0.34	0	0	0.03	0	0.85
PARTICULATE MATTER < 10 µm	0	0.02	0	0.10	0.42	0.70	0	0	1.48	0	2.74
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.20	0.76	1.27	0	0	2.81	0	5.08
SULFUR DIOXIDE	0	1.76×10^{-3}	0	2.02×10^{-3}	6.25×10^{-3}	0.01	0	0	5.69×10^{-3}	0	0.03
TOTAL VOCS	16.3	0.03	1.72	0.02	2.83	2.31	0	1.09	0.94	11.0	36.2

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total January Weekday Emissions (%) - Wollongong											
CARBON MONOXIDE	0	1.46×10^{-3}	0	1.93×10^{-3}	0.22	0.12	0	0	0.03	0	0.37
LEAD AND COMPOUNDS	0	3.70×10^{-3}	0	2.15×10^{-3}	0.03	0.01	0	0	4.52×10^{-3}	0	0.05
OXIDES OF NITROGEN	0	0.02	0	0.20	0.04	0.13	0	0	0.02	0	0.41
PARTICULATE MATTER < 10 µm	0	0.02	0	0.07	0.27	0.32	0	0	0.93	0	1.61
PARTICULATE MATTER < 2.5 µm	0	0.01	0	0.10	0.35	0.42	0	0	1.27	0	2.15
SULFUR DIOXIDE	0	1.28×10^{-3}	0	1.48×10^{-3}	4.10×10^{-3}	4.98×10^{-3}	0	0	3.73×10^{-3}	0	0.02
TOTAL VOCS	17.8	0.03	1.53	0.03	2.76	1.63	0	1.19	0.91	11.9	37.7
Proportion of Anthropogenic Total January Weekday Emissions (%) – Non-Urban											
CARBON MONOXIDE	0	0.03	0	0.03	4.18	4.69	0	0	0.53	0	9.46
LEAD AND COMPOUNDS	0	2.12×10^{-3}	0	1.20×10^{-3}	0.02	0.02	0	0	2.66×10^{-3}	0	0.04
OXIDES OF NITROGEN	0	4.56×10^{-3}	0	0.05	9.96×10^{-3}	0.06	0	0	3.83×10^{-3}	0	0.13
PARTICULATE MATTER < 10 µm	0	3.17×10^{-3}	0	0.01	0.06	0.14	0	0	0.20	0	0.41
PARTICULATE MATTER < 2.5 µm	0	6.63×10^{-3}	0	0.05	0.19	0.49	0	0	0.71	0	1.46
SULFUR DIOXIDE	0	1.69×10^{-4}	0	1.90×10^{-4}	5.55×10^{-4}	1.43×10^{-3}	0	0	5.06×10^{-4}	0	2.85×10^{-3}
TOTAL VOCS	15.7	0.03	1.55	0.02	2.55	3.20	0	0.93	0.85	10.7	35.5

Table 3.49 shows total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.49 Total estimated daily emissions from domestic-commercial sources in each region for typical January weekend day

Substance	Domestic-Commercial January Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	280	23.651	15.430	53.110	372
LEAD AND COMPOUNDS	4.12×10^{-4}	3.44×10^{-5}	2.26×10^{-5}	7.76×10^{-5}	5.47×10^{-4}
OXIDES OF NITROGEN	2.908	0.217	0.149	0.502	3.776
PARTICULATE MATTER < 10 µm	3.791	0.318	0.208	0.715	5.032
PARTICULATE MATTER < 2.5 µm	3.583	0.301	0.197	0.676	4.756
SULFUR DIOXIDE	0.151	0.012	8.18×10^{-3}	0.028	0.199
TOTAL VOCS	140	10.166	7.087	23.762	181

Table 3.50 shows the proportion of total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.50 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical January weekend day

Substance	Domestic-Commercial Proportion of Anthropogenic Total January Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	24.6	11.5	1.06	17.7	12.0
LEAD AND COMPOUNDS	0.69	0.75	0.15	0.10	0.35
OXIDES OF NITROGEN	1.34	0.92	0.48	0.11	0.51
PARTICULATE MATTER < 10 µm	9.10	5.42	2.92	0.65	3.04
PARTICULATE MATTER < 2.5 µm	15.4	9.02	3.79	2.28	7.73
SULFUR DIOXIDE	0.42	0.04	0.03	3.88×10^{-3}	0.02
TOTAL VOCS	44.4	44.7	43.7	37.9	43.4

Figure 3.13 shows the proportion of total estimated daily GMR domestic-commercial emissions from all domestic-commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

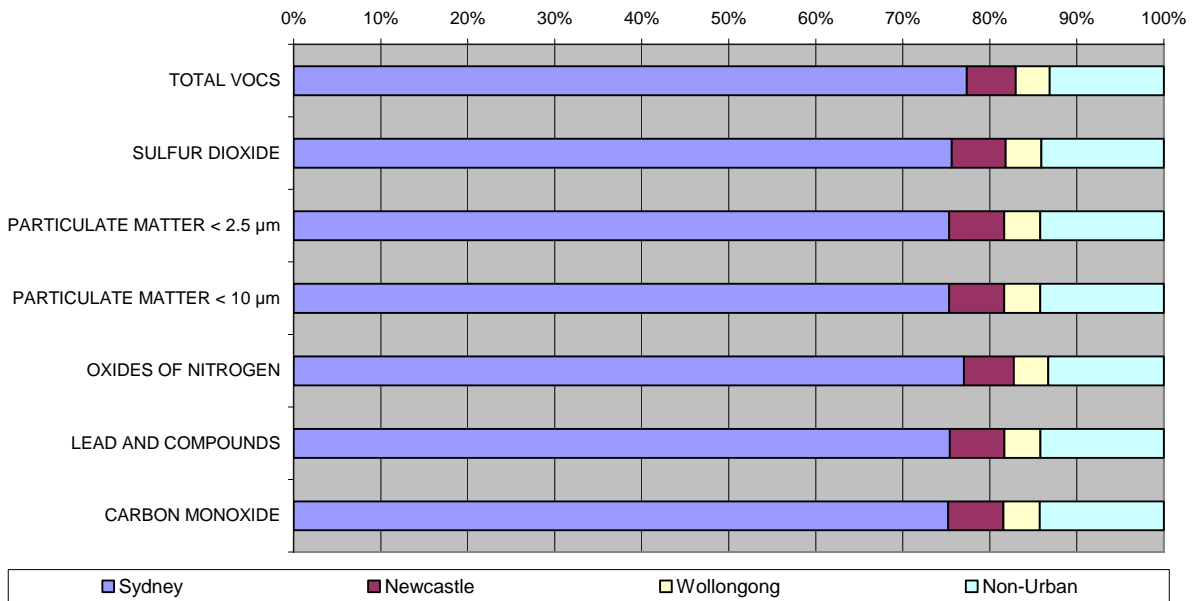


Figure 3.13 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical January weekend day

Table 3.51 shows total estimated daily emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.52 shows the proportion of total estimated daily anthropogenic emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.51 Total estimated daily emissions by domestic-commercial source type in each region for typical January weekend day

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
January Weekend Day Emissions (tonnes/day) - GMR											
CARBON MONOXIDE	0	1.028	0	0.742	354	0	0	0	16.236	0	372
LEAD AND COMPOUNDS	0	2.96×10^{-5}	0	9.38×10^{-6}	4.78×10^{-4}	0	0	0	2.96×10^{-5}	0	5.47×10^{-4}
OXIDES OF NITROGEN	0	0.313	0	1.744	1.508	0	0	0	0.210	0	3.776
PARTICULATE MATTER < 10 µm	0	0.055	0	0.139	2.136	0	0	0	2.703	0	5.032
PARTICULATE MATTER < 2.5 µm	0	0.031	0	0.139	1.965	0	0	0	2.621	0	4.756
SULFUR DIOXIDE	0	0.018	0	0.011	0.128	0	0	0	0.042	0	0.199
TOTAL VOCS	71.837	0.228	6.505	0.102	46.154	0	0	4.535	5.545	46.297	181
January Weekend Day Emissions (tonnes/day) - Sydney											
CARBON MONOXIDE	0	0.797	0	0.584	266	0	0	0	12.212	0	280
LEAD AND COMPOUNDS	0	2.30×10^{-5}	0	7.38×10^{-6}	3.60×10^{-4}	0	0	0	2.22×10^{-5}	0	4.12×10^{-4}
OXIDES OF NITROGEN	0	0.243	0	1.373	1.134	0	0	0	0.158	0	2.908
PARTICULATE MATTER < 10 µm	0	0.043	0	0.110	1.606	0	0	0	2.033	0	3.791
PARTICULATE MATTER < 2.5 µm	0	0.024	0	0.110	1.478	0	0	0	1.972	0	3.583
SULFUR DIOXIDE	0	0.014	0	8.77×10^{-3}	0.096	0	0	0	0.032	0	0.151
TOTAL VOCS	56.539	0.177	5.003	0.080	34.714	0	0	3.579	4.170	35.925	140
January Weekend Day Emissions (tonnes/day) - Newcastle											
CARBON MONOXIDE	0	0.055	0	0.038	22.524	0	0	0	1.033	0	23.651
LEAD AND COMPOUNDS	0	1.60×10^{-6}	0	4.86×10^{-7}	3.04×10^{-5}	0	0	0	1.88×10^{-6}	0	3.44×10^{-5}
OXIDES OF NITROGEN	0	0.017	0	0.090	0.096	0	0	0	0.013	0	0.217
PARTICULATE MATTER < 10 µm	0	2.96×10^{-3}	0	7.22×10^{-3}	0.136	0	0	0	0.172	0	0.318
PARTICULATE MATTER < 2.5 µm	0	1.65×10^{-3}	0	7.22×10^{-3}	0.125	0	0	0	0.167	0	0.301
SULFUR DIOXIDE	0	9.57×10^{-4}	0	5.78×10^{-4}	8.15×10^{-3}	0	0	0	2.69×10^{-3}	0	0.012
TOTAL VOCS	3.725	0.012	0.391	5.30×10^{-3}	2.935	0	0	0.248	0.353	2.497	10.166

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
January Weekend Day Emissions (tonnes/day) - Wollongong											
CARBON MONOXIDE	0	0.040	0	0.028	14.689	0	0	0	0.673	0	15.430
LEAD AND COMPOUNDS	0	1.15×10^{-6}	0	3.54×10^{-7}	1.98×10^{-5}	0	0	0	1.23×10^{-6}	0	2.26×10^{-5}
OXIDES OF NITROGEN	0	0.012	0	0.066	0.063	0	0	0	8.72×10^{-3}	0	0.149
PARTICULATE MATTER < 10 µm	0	2.14×10^{-3}	0	5.25×10^{-3}	0.089	0	0	0	0.112	0	0.208
PARTICULATE MATTER < 2.5 µm	0	1.19×10^{-3}	0	5.25×10^{-3}	0.081	0	0	0	0.109	0	0.197
SULFUR DIOXIDE	0	6.93×10^{-4}	0	4.20×10^{-4}	5.32×10^{-3}	0	0	0	1.75×10^{-3}	0	8.18×10^{-3}
TOTAL VOCS	2.708	8.90×10^{-3}	0.233	3.85×10^{-3}	1.914	0	0	0.182	0.230	1.807	7.087
January Weekend Day Emissions (tonnes/day) - Non-Urban											
CARBON MONOXIDE	0	0.135	0	0.092	50.565	0	0	0	2.318	0	53.110
LEAD AND COMPOUNDS	0	3.88×10^{-6}	0	1.16×10^{-6}	6.83×10^{-5}	0	0	0	4.22×10^{-6}	0	7.76×10^{-5}
OXIDES OF NITROGEN	0	0.041	0	0.215	0.215	0	0	0	0.030	0	0.502
PARTICULATE MATTER < 10 µm	0	7.19×10^{-3}	0	0.017	0.305	0	0	0	0.386	0	0.715
PARTICULATE MATTER < 2.5 µm	0	4.01×10^{-3}	0	0.017	0.281	0	0	0	0.374	0	0.676
SULFUR DIOXIDE	0	2.33×10^{-3}	0	1.37×10^{-3}	0.018	0	0	0	6.04×10^{-3}	0	0.028
TOTAL VOCS	8.865	0.030	0.879	0.013	6.590	0	0	0.526	0.792	6.068	23.762

Table 3.52 Proportion of total estimated daily emissions by domestic-commercial source type in each region for typical January weekend day

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - GMR											
CARBON MONOXIDE	0	0.03	0	0.02	11.4	0	0	0	0.52	0	12.0
LEAD AND COMPOUNDS	0	0.02	0	5.98×10^{-3}	0.30	0	0	0	0.02	0	0.35
OXIDES OF NITROGEN	0	0.04	0	0.24	0.20	0	0	0	0.03	0	0.51
PARTICULATE MATTER < 10 µm	0	0.03	0	0.08	1.29	0	0	0	1.64	0	3.04
PARTICULATE MATTER < 2.5 µm	0	0.05	0	0.23	3.20	0	0	0	4.26	0	7.73
SULFUR DIOXIDE	0	2.17×10^{-3}	0	1.36×10^{-3}	0.02	0	0	0	5.18×10^{-3}	0	0.02
TOTAL VOCS	17.2	0.05	1.56	0.02	11.1	0	0	1.09	1.33	11.1	43.4
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Sydney											
CARBON MONOXIDE	0	0.07	0	0.05	23.4	0	0	0	1.07	0	24.6
LEAD AND COMPOUNDS	0	0.04	0	0.01	0.60	0	0	0	0.04	0	0.69
OXIDES OF NITROGEN	0	0.11	0	0.63	0.52	0	0	0	0.07	0	1.34
PARTICULATE MATTER < 10 µm	0	0.10	0	0.26	3.86	0	0	0	4.88	0	9.10
PARTICULATE MATTER < 2.5 µm	0	0.10	0	0.47	6.33	0	0	0	8.45	0	15.4
SULFUR DIOXIDE	0	0.04	0	0.02	0.27	0	0	0	0.09	0	0.42
TOTAL VOCS	17.9	0.06	1.58	0.03	11.0	0	0	1.13	1.32	11.4	44.4
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Newcastle											
CARBON MONOXIDE	0	0.03	0	0.02	11.0	0	0	0	0.50	0	11.5
LEAD AND COMPOUNDS	0	0.03	0	0.01	0.66	0	0	0	0.04	0	0.75
OXIDES OF NITROGEN	0	0.07	0	0.38	0.41	0	0	0	0.06	0	0.92
PARTICULATE MATTER < 10 µm	0	0.05	0	0.12	2.32	0	0	0	2.93	0	5.42
PARTICULATE MATTER < 2.5 µm	0	0.05	0	0.22	3.75	0	0	0	5.01	0	9.02
SULFUR DIOXIDE	0	3.36×10^{-3}	0	2.03×10^{-3}	0.03	0	0	0	9.44×10^{-3}	0	0.04
TOTAL VOCS	16.4	0.05	1.72	0.02	12.9	0	0	1.09	1.55	11.0	44.7

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Wollongong											
CARBON MONOXIDE	0	2.75×10^{-3}	0	1.92×10^{-3}	1.01	0	0	0	0.05	0	1.06
LEAD AND COMPOUNDS	0	7.51×10^{-3}	0	2.30×10^{-3}	0.13	0	0	0	7.98×10^{-3}	0	0.15
OXIDES OF NITROGEN	0	0.04	0	0.21	0.20	0	0	0	0.03	0	0.48
PARTICULATE MATTER < 10 µm	0	0.03	0	0.07	1.24	0	0	0	1.57	0	2.92
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.10	1.57	0	0	0	2.10	0	3.79
SULFUR DIOXIDE	0	2.43×10^{-3}	0	1.47×10^{-3}	0.02	0	0	0	6.16×10^{-3}	0	0.03
TOTAL VOCS	16.7	0.05	1.43	0.02	11.8	0	0	1.12	1.42	11.1	43.7
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Non-Urban											
CARBON MONOXIDE	0	0.04	0	0.03	16.9	0	0	0	0.77	0	17.7
LEAD AND COMPOUNDS	0	5.01×10^{-3}	0	1.50×10^{-3}	0.09	0	0	0	5.46×10^{-3}	0	0.10
OXIDES OF NITROGEN	0	8.78×10^{-3}	0	0.05	0.05	0	0	0	6.41×10^{-3}	0	0.11
PARTICULATE MATTER < 10 µm	0	6.50×10^{-3}	0	0.02	0.28	0	0	0	0.35	0	0.65
PARTICULATE MATTER < 2.5 µm	0	0.01	0	0.06	0.95	0	0	0	1.26	0	2.28
SULFUR DIOXIDE	0	3.22×10^{-4}	0	1.90×10^{-4}	2.53×10^{-3}	0	0	0	8.35×10^{-4}	0	3.88×10^{-3}
TOTAL VOCS	14.1	0.05	1.40	0.02	10.5	0	0	0.84	1.26	9.69	37.9

Table 3.53 shows total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.53 Total estimated daily emissions from domestic-commercial sources in each region for typical July weekday

Substance	Domestic-Commercial July Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	256	21.897	13.958	51.329	343
LEAD AND COMPOUNDS	4.83×10^{-4}	4.05×10^{-5}	2.61×10^{-5}	9.43×10^{-5}	6.43×10^{-4}
OXIDES OF NITROGEN	5.655	0.440	0.291	1.060	7.445
PARTICULATE MATTER < 10 µm	35.127	2.970	1.934	6.699	46.730
PARTICULATE MATTER < 2.5 µm	34.043	2.879	1.874	6.491	45.287
SULFUR DIOXIDE	0.669	0.055	0.036	0.126	0.886
TOTAL VOCS	180	13.577	9.274	31.716	235

Table 3.54 shows the proportion of total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.54 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical July weekday

Substance	Domestic-Commercial Proportion of Anthropogenic Total July Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	13.9	8.14	0.94	12.4	8.55
LEAD AND COMPOUNDS	0.57	0.57	0.14	0.08	0.27
OXIDES OF NITROGEN	2.12	1.59	0.86	0.22	0.91
PARTICULATE MATTER < 10 µm	43.4	29.1	20.4	4.87	19.6
PARTICULATE MATTER < 2.5 µm	59.3	44.6	26.3	15.6	40.2
SULFUR DIOXIDE	1.78	0.19	0.13	0.02	0.11
TOTAL VOCS	42.8	42.5	44.7	41.7	42.7

Figure 3.14 shows the proportion of total estimated daily GMR domestic-commercial emissions from all domestic-commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

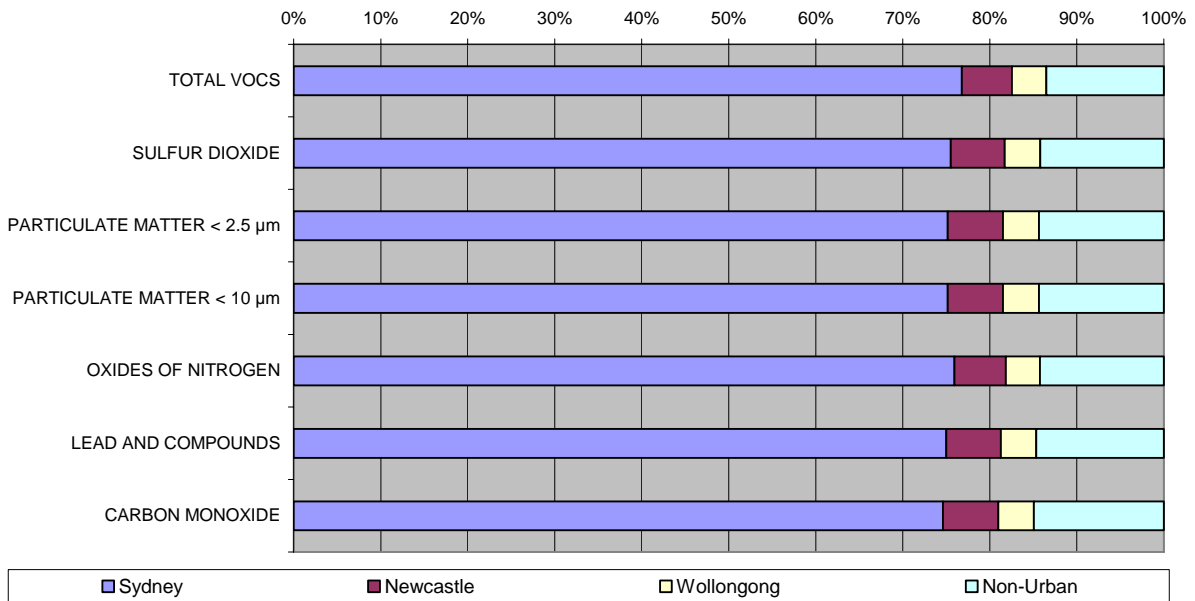


Figure 3.14 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical July weekday

Table 3.55 shows total estimated daily emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.56 shows the proportion of total estimated daily anthropogenic emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.55 Total estimated daily emissions by domestic-commercial source type in each region for typical July weekday

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
July Weekday Emissions (tonnes/day) - GMR											
CARBON MONOXIDE	0	0.467	0	1.129	38.845	27.276	0.074	0	276	0	343
LEAD AND COMPOUNDS	0	1.34×10^{-5}	0	1.43×10^{-5}	5.25×10^{-5}	3.87×10^{-5}	2.24×10^{-5}	0	5.02×10^{-4}	0	6.43×10^{-4}
OXIDES OF NITROGEN	0	0.142	0	2.654	0.165	0.649	0.268	0	3.568	0	7.445
PARTICULATE MATTER < 10 µm	0	0.025	0	0.212	0.234	0.371	5.95×10^{-3}	0	45.882	0	46.730
PARTICULATE MATTER < 2.5 µm	0	0.014	0	0.212	0.215	0.345	1.49×10^{-3}	0	44.499	0	45.287
SULFUR DIOXIDE	0	8.06×10^{-3}	0	0.017	0.014	0.023	0.106	0	0.718	0	0.886
TOTAL VOCS	71.837	0.104	6.505	0.155	5.062	3.969	0.011	6.925	94.128	46.297	235
July Weekday Emissions (tonnes/day) - Sydney											
CARBON MONOXIDE	0	0.362	0	0.889	29.217	18.398	0.059	0	207	0	256
LEAD AND COMPOUNDS	0	1.04×10^{-5}	0	1.12×10^{-5}	3.95×10^{-5}	2.61×10^{-5}	1.77×10^{-5}	0	3.78×10^{-4}	0	4.83×10^{-4}
OXIDES OF NITROGEN	0	0.110	0	2.088	0.124	0.438	0.211	0	2.683	0	5.655
PARTICULATE MATTER < 10 µm	0	0.019	0	0.167	0.176	0.250	4.69×10^{-3}	0	34.510	0	35.127
PARTICULATE MATTER < 2.5 µm	0	0.011	0	0.167	0.162	0.233	1.17×10^{-3}	0	33.470	0	34.043
SULFUR DIOXIDE	0	6.25×10^{-3}	0	0.013	0.011	0.015	0.083	0	0.540	0	0.669
TOTAL VOCS	56.539	0.080	5.003	0.122	3.808	2.677	8.35×10^{-3}	5.465	70.798	35.925	180
July Weekday Emissions (tonnes/day) - Newcastle											
CARBON MONOXIDE	0	0.025	0	0.059	2.471	1.808	3.86×10^{-3}	0	17.530	0	21.897
LEAD AND COMPOUNDS	0	7.24×10^{-7}	0	7.40×10^{-7}	3.34×10^{-6}	2.57×10^{-6}	1.16×10^{-6}	0	3.19×10^{-5}	0	4.05×10^{-5}
OXIDES OF NITROGEN	0	7.67×10^{-3}	0	0.138	0.011	0.043	0.014	0	0.227	0	0.440
PARTICULATE MATTER < 10 µm	0	1.34×10^{-3}	0	0.011	0.015	0.025	3.09×10^{-4}	0	2.918	0	2.970
PARTICULATE MATTER < 2.5 µm	0	7.49×10^{-4}	0	0.011	0.014	0.023	7.72×10^{-5}	0	2.830	0	2.879
SULFUR DIOXIDE	0	4.35×10^{-4}	0	8.79×10^{-4}	8.94×10^{-4}	1.50×10^{-3}	5.48×10^{-3}	0	0.046	0	0.055
TOTAL VOCS	3.725	5.59×10^{-3}	0.391	8.06×10^{-3}	0.322	0.263	5.50×10^{-4}	0.379	5.987	2.497	13.577

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
July Weekday Emissions (tonnes/day) - Wollongong											
CARBON MONOXIDE	0	0.018	0	0.043	1.611	0.851	2.81×10^{-3}	0	11.432	0	13.958
LEAD AND COMPOUNDS	0	5.24×10^{-7}	0	5.38×10^{-7}	2.18×10^{-6}	1.21×10^{-6}	8.46×10^{-7}	0	2.08×10^{-5}	0	2.61×10^{-5}
OXIDES OF NITROGEN	0	5.55×10^{-3}	0	0.100	6.86×10^{-3}	0.020	0.010	0	0.148	0	0.291
PARTICULATE MATTER < 10 µm	0	9.73×10^{-4}	0	7.98×10^{-3}	9.72×10^{-3}	0.012	2.24×10^{-4}	0	1.903	0	1.934
PARTICULATE MATTER < 2.5 µm	0	5.42×10^{-4}	0	7.98×10^{-3}	8.94×10^{-3}	0.011	5.61×10^{-5}	0	1.846	0	1.874
SULFUR DIOXIDE	0	3.15×10^{-4}	0	6.39×10^{-4}	5.83×10^{-4}	7.08×10^{-4}	3.98×10^{-3}	0	0.030	0	0.036
TOTAL VOCS	2.708	4.04×10^{-3}	0.233	5.86×10^{-3}	0.210	0.124	4.0×10^{-4}	0.277	3.904	1.807	9.274
July Weekday Emissions (tonnes/day) - Non-Urban											
CARBON MONOXIDE	0	0.061	0	0.139	5.546	6.219	9.18×10^{-3}	0	39.354	0	51.329
LEAD AND COMPOUNDS	0	1.76×10^{-6}	0	1.76×10^{-6}	7.49×10^{-6}	8.82×10^{-6}	2.77×10^{-6}	0	7.17×10^{-5}	0	9.43×10^{-5}
OXIDES OF NITROGEN	0	0.019	0	0.327	0.024	0.148	0.033	0	0.509	0	1.060
PARTICULATE MATTER < 10 µm	0	3.27×10^{-3}	0	0.026	0.033	0.085	7.35×10^{-4}	0	6.551	0	6.699
PARTICULATE MATTER < 2.5 µm	0	1.82×10^{-3}	0	0.026	0.031	0.079	1.84×10^{-4}	0	6.354	0	6.491
SULFUR DIOXIDE	0	1.06×10^{-3}	0	2.09×10^{-3}	2.01×10^{-3}	5.17×10^{-3}	0.013	0	0.103	0	0.126
TOTAL VOCS	8.865	0.014	0.879	0.019	0.723	0.905	1.31×10^{-3}	0.804	13.440	6.068	31.716

Table 3.56 Proportion of total estimated daily emissions by domestic-commercial source type in each region for typical July weekday

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total July Weekday Emissions (%) - GMR											
CARBON MONOXIDE	0	0.01	0	0.03	0.97	0.68	1.85×10^{-3}	0	6.86	0	8.55
LEAD AND COMPOUNDS	0	5.72×10^{-3}	0	6.08×10^{-3}	0.02	0.02	9.56×10^{-3}	0	0.21	0	0.27
OXIDES OF NITROGEN	0	0.02	0	0.32	0.02	0.08	0.03	0	0.43	0	0.91
PARTICULATE MATTER < 10 µm	0	0.01	0	0.09	0.10	0.16	2.50×10^{-3}	0	19.2	0	19.6
PARTICULATE MATTER < 2.5 µm	0	0.01	0	0.19	0.19	0.31	1.32×10^{-3}	0	39.5	0	40.2
SULFUR DIOXIDE	0	9.61×10^{-4}	0	2.02×10^{-3}	1.68×10^{-3}	2.71×10^{-3}	0.01	0	0.09	0	0.11
TOTAL VOCS	13.1	0.02	1.18	0.03	0.92	0.72	1.93×10^{-3}	1.26	17.1	8.42	42.7
Proportion of Anthropogenic Total July Weekday Emissions (%) - Sydney											
CARBON MONOXIDE	0	0.02	0	0.05	1.58	1.00	3.17×10^{-3}	0	11.2	0	13.9
LEAD AND COMPOUNDS	0	0.01	0	0.01	0.05	0.03	0.02	0	0.45	0	0.57
OXIDES OF NITROGEN	0	0.04	0	0.78	0.05	0.16	0.08	0	1.01	0	2.12
PARTICULATE MATTER < 10 µm	0	0.02	0	0.21	0.22	0.31	5.79×10^{-3}	0	42.6	0	43.4
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.29	0.28	0.41	2.04×10^{-3}	0	58.3	0	59.3
SULFUR DIOXIDE	0	0.02	0	0.04	0.03	0.04	0.22	0	1.44	0	1.78
TOTAL VOCS	13.4	0.02	1.19	0.03	0.90	0.64	1.98×10^{-3}	1.30	16.8	8.53	42.8
Proportion of Anthropogenic Total July Weekday Emissions (%) - Newcastle											
CARBON MONOXIDE	0	9.35×10^{-3}	0	0.02	0.92	0.67	1.43×10^{-3}	0	6.52	0	8.14
LEAD AND COMPOUNDS	0	0.01	0	0.01	0.05	0.04	0.02	0	0.45	0	0.57
OXIDES OF NITROGEN	0	0.03	0	0.50	0.04	0.16	0.05	0	0.82	0	1.59
PARTICULATE MATTER < 10 µm	0	0.01	0	0.11	0.15	0.24	3.02×10^{-3}	0	28.6	0	29.1
PARTICULATE MATTER < 2.5 µm	0	0.01	0	0.17	0.21	0.35	1.19×10^{-3}	0	43.8	0	44.6
SULFUR DIOXIDE	0	1.52×10^{-3}	0	3.07×10^{-3}	3.12×10^{-3}	5.26×10^{-3}	0.02	0	0.16	0	0.19
TOTAL VOCS	11.7	0.02	1.23	0.03	1.01	0.82	1.72×10^{-3}	1.19	18.8	7.82	42.5

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total July Weekday Emissions (%) - Wollongong											
CARBON MONOXIDE	0	1.23×10^{-3}	0	2.86×10^{-3}	0.11	0.06	1.89×10^{-4}	0	0.77	0	0.94
LEAD AND COMPOUNDS	0	2.90×10^{-3}	0	2.98×10^{-3}	0.01	6.68×10^{-3}	4.68×10^{-3}	0	0.12	0	0.14
OXIDES OF NITROGEN	0	0.02	0	0.30	0.02	0.06	0.03	0	0.44	0	0.86
PARTICULATE MATTER < 10 µm	0	0.01	0	0.08	0.10	0.12	2.36×10^{-3}	0	20.0	0	20.4
PARTICULATE MATTER < 2.5 µm	0	7.61×10^{-3}	0	0.11	0.13	0.15	7.88×10^{-4}	0	25.9	0	26.3
SULFUR DIOXIDE	0	1.10×10^{-3}	0	2.24×10^{-3}	2.05×10^{-3}	2.48×10^{-3}	0.01	0	0.10	0	0.13
TOTAL VOCS	13.1	0.02	1.12	0.03	1.01	0.60	1.93×10^{-3}	1.34	18.8	8.71	44.7
Proportion of Anthropogenic Total July Weekday Emissions (%) - Non-Urban											
CARBON MONOXIDE	0	0.01	0	0.03	1.34	1.50	2.22×10^{-3}	0	9.50	0	12.4
LEAD AND COMPOUNDS	0	1.40×10^{-3}	0	1.40×10^{-3}	5.97×10^{-3}	7.03×10^{-3}	2.21×10^{-3}	0	0.06	0	0.08
OXIDES OF NITROGEN	0	3.79×10^{-3}	0	0.07	4.80×10^{-3}	0.03	6.71×10^{-3}	0	0.10	0	0.22
PARTICULATE MATTER < 10 µm	0	2.37×10^{-3}	0	0.02	0.02	0.06	5.34×10^{-4}	0	4.76	0	4.87
PARTICULATE MATTER < 2.5 µm	0	4.37×10^{-3}	0	0.06	0.07	0.19	4.40×10^{-4}	0	15.2	0	15.6
SULFUR DIOXIDE	0	1.42×10^{-4}	0	2.81×10^{-4}	2.70×10^{-4}	6.95×10^{-4}	1.75×10^{-3}	0	0.01	0	0.02
TOTAL VOCS	11.7	0.02	1.16	0.03	0.95	1.19	1.72×10^{-3}	1.06	17.7	7.98	41.7

Table 3.57 shows total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.57 Total estimated daily emissions from domestic-commercial sources in each region for typical July weekend day

Substance	Domestic-Commercial July Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	477	40.329	26.308	90.552	634
LEAD AND COMPOUNDS	8.52×10^{-4}	7.12×10^{-5}	4.67×10^{-5}	1.60×10^{-4}	1.13×10^{-3}
OXIDES OF NITROGEN	7.508	0.589	0.396	1.345	9.838
PARTICULATE MATTER < 10 µm	58.014	4.902	3.198	11.007	77.120
PARTICULATE MATTER < 2.5 µm	56.212	4.750	3.098	10.665	74.725
SULFUR DIOXIDE	1.049	0.087	0.057	0.196	1.388
TOTAL VOCS	238	18.367	12.445	42.156	310

Table 3.58 shows the proportion of total estimated daily emissions from all domestic-commercial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.58 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical July weekend day

Substance	Domestic-Commercial Proportion of Anthropogenic Total July Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	25.2	15.3	1.76	21.2	15.6
LEAD AND COMPOUNDS	1.19	1.26	0.28	0.16	0.58
OXIDES OF NITROGEN	3.08	2.30	1.21	0.28	1.25
PARTICULATE MATTER < 10 µm	59.0	46.1	30.8	8.55	31.1
PARTICULATE MATTER < 2.5 µm	72.9	60.9	37.8	25.4	55.3
SULFUR DIOXIDE	2.78	0.30	0.20	0.03	0.17
TOTAL VOCS	53.8	55.4	55.5	51.9	53.7

Figure 3.15 shows the proportion of total estimated daily GMR domestic-commercial emissions from all domestic-commercial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

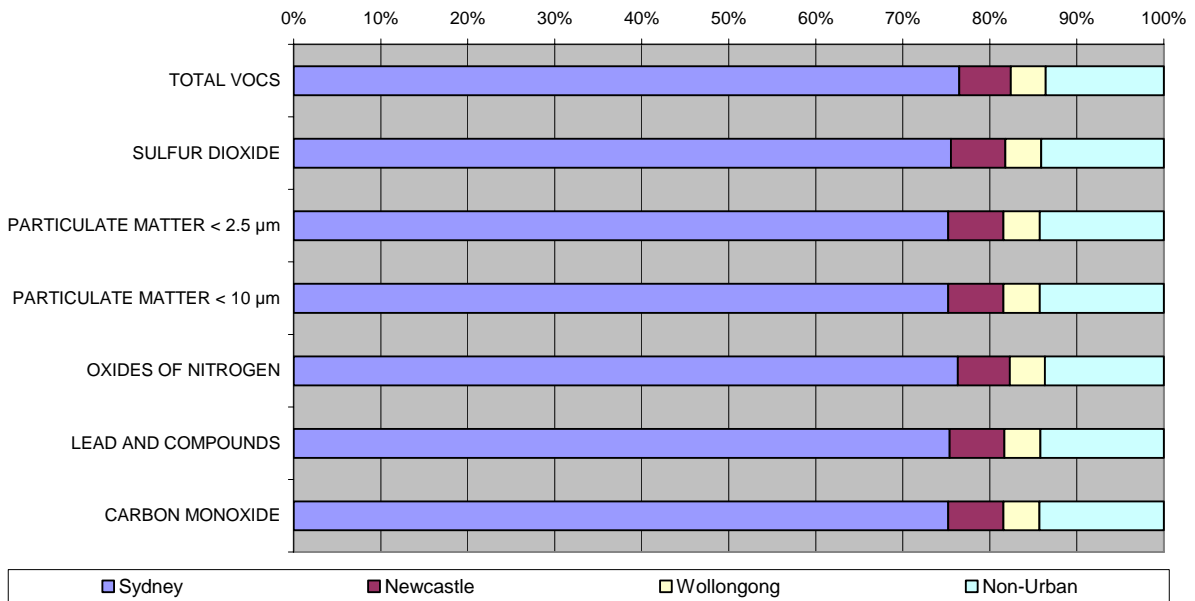


Figure 3.15 Proportion of total estimated daily emissions from domestic-commercial sources in each region for typical July weekend day

Table 3.59 shows total estimated daily emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.60 shows the proportion of total estimated daily anthropogenic emissions from each domestic-commercial source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.59 Total estimated daily emissions by domestic-commercial source type in each region for typical July weekend day

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
July Weekend Day Emissions (tonnes/day) - GMR											
CARBON MONOXIDE	0	0.885	0	1.129	177	0	0.074	0	455	0	634
LEAD AND COMPOUNDS	0	2.55×10^{-5}	0	1.43×10^{-5}	2.39×10^{-4}	0	2.24×10^{-5}	0	8.29×10^{-4}	0	1.13×10^{-3}
OXIDES OF NITROGEN	0	0.270	0	2.654	0.754	0	0.268	0	5.893	0	9.838
PARTICULATE MATTER < 10 µm	0	0.047	0	0.212	1.068	0	5.95×10^{-3}	0	75.788	0	77.120
PARTICULATE MATTER < 2.5 µm	0	0.026	0	0.212	0.982	0	1.49×10^{-3}	0	73.503	0	74.725
SULFUR DIOXIDE	0	0.015	0	0.017	0.064	0	0.106	0	1.186	0	1.388
TOTAL VOCS	71.837	0.197	6.505	0.155	23.077	0	0.011	6.925	155	46.297	310
July Weekend Day Emissions (tonnes/day) - Sydney											
CARBON MONOXIDE	0	0.687	0	0.889	133	0	0.059	0	342	0	477
LEAD AND COMPOUNDS	0	1.98×10^{-5}	0	1.12×10^{-5}	1.80×10^{-4}	0	1.77×10^{-5}	0	6.24×10^{-4}	0	8.52×10^{-4}
OXIDES OF NITROGEN	0	0.210	0	2.088	0.567	0	0.211	0	4.432	0	7.508
PARTICULATE MATTER < 10 µm	0	0.037	0	0.167	0.803	0	4.69×10^{-3}	0	57.003	0	58.014
PARTICULATE MATTER < 2.5 µm	0	0.020	0	0.167	0.739	0	1.17×10^{-3}	0	55.285	0	56.212
SULFUR DIOXIDE	0	0.012	0	0.013	0.048	0	0.083	0	0.892	0	1.049
TOTAL VOCS	56.539	0.153	5.003	0.122	17.357	0	8.35×10^{-3}	5.465	117	35.925	238
July Weekend Day Emissions (tonnes/day) - Newcastle											
CARBON MONOXIDE	0	0.048	0	0.059	11.262	0	3.86×10^{-3}	0	28.956	0	40.329
LEAD AND COMPOUNDS	0	1.37×10^{-6}	0	7.40×10^{-7}	1.52×10^{-5}	0	1.16×10^{-6}	0	5.28×10^{-5}	0	7.12×10^{-5}
OXIDES OF NITROGEN	0	0.015	0	0.138	0.048	0	0.014	0	0.375	0	0.589
PARTICULATE MATTER < 10 µm	0	2.55×10^{-3}	0	0.011	0.068	0	3.09×10^{-4}	0	4.820	0	4.902
PARTICULATE MATTER < 2.5 µm	0	1.42×10^{-3}	0	0.011	0.062	0	7.72×10^{-5}	0	4.675	0	4.750
SULFUR DIOXIDE	0	8.25×10^{-4}	0	8.79×10^{-4}	4.08×10^{-3}	0	5.48×10^{-3}	0	0.075	0	0.087
TOTAL VOCS	3.725	0.011	0.391	8.06×10^{-3}	1.468	0	5.50×10^{-4}	0.379	9.889	2.497	18.367

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Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
July Weekend Day Emissions (tonnes/day) - Wollongong											
CARBON MONOXIDE	0	0.035	0	0.043	7.344	0	2.81×10^{-3}	0	18.883	0	26.308
LEAD AND COMPOUNDS	0	9.95×10^{-7}	0	5.38×10^{-7}	9.92×10^{-6}	0	8.46×10^{-7}	0	3.44×10^{-5}	0	4.67×10^{-5}
OXIDES OF NITROGEN	0	0.011	0	0.100	0.031	0	0.010	0	0.244	0	0.396
PARTICULATE MATTER < 10 µm	0	1.85×10^{-3}	0	7.98×10^{-3}	0.044	0	2.24×10^{-4}	0	3.143	0	3.198
PARTICULATE MATTER < 2.5 µm	0	1.03×10^{-3}	0	7.98×10^{-3}	0.041	0	5.61×10^{-5}	0	3.049	0	3.098
SULFUR DIOXIDE	0	5.97×10^{-4}	0	6.39×10^{-4}	2.66×10^{-3}	0	3.98×10^{-3}	0	0.049	0	0.057
TOTAL VOCS	2.708	7.67×10^{-3}	0.233	5.86×10^{-3}	0.957	0	4.0×10^{-4}	0.277	6.449	1.807	12.445
July Weekend Day Emissions (tonnes/day) - Non-Urban											
CARBON MONOXIDE	0	0.116	0	0.139	25.283	0	9.18×10^{-3}	0	65.005	0	90.552
LEAD AND COMPOUNDS	0	3.34×10^{-6}	0	1.76×10^{-6}	3.42×10^{-5}	0	2.77×10^{-6}	0	1.18×10^{-4}	0	1.60×10^{-4}
OXIDES OF NITROGEN	0	0.035	0	0.327	0.108	0	0.033	0	0.841	0	1.345
PARTICULATE MATTER < 10 µm	0	6.20×10^{-3}	0	0.026	0.152	0	7.35×10^{-4}	0	10.821	0	11.007
PARTICULATE MATTER < 2.5 µm	0	3.45×10^{-3}	0	0.026	0.140	0	1.84×10^{-4}	0	10.495	0	10.665
SULFUR DIOXIDE	0	2.0×10^{-3}	0	2.09×10^{-3}	9.15×10^{-3}	0	0.013	0	0.169	0	0.196
TOTAL VOCS	8.865	0.026	0.879	0.019	3.295	0	1.31×10^{-3}	0.804	22.200	6.068	42.156

Table 3.60 Proportion of total estimated daily emissions by domestic-commercial source type in each region for typical July weekend day

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - GMR											
CARBON MONOXIDE	0	0.02	0	0.03	4.34	0	1.83×10^{-3}	0	11.2	0	15.6
LEAD AND COMPOUNDS	0	0.01	0	7.36×10^{-3}	0.12	0	0.01	0	0.43	0	0.58
OXIDES OF NITROGEN	0	0.03	0	0.34	0.10	0	0.03	0	0.75	0	1.25
PARTICULATE MATTER < 10 µm	0	0.02	0	0.09	0.43	0	2.40×10^{-3}	0	30.6	0	31.1
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.16	0.73	0	1.10×10^{-3}	0	54.4	0	55.3
SULFUR DIOXIDE	0	1.82×10^{-3}	0	2.02×10^{-3}	7.64×10^{-3}	0	0.01	0	0.14	0	0.17
TOTAL VOCS	12.4	0.03	1.13	0.03	3.99	0	1.84×10^{-3}	1.20	26.9	8.01	53.7
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Sydney											
CARBON MONOXIDE	0	0.04	0	0.05	7.02	0	3.09×10^{-3}	0	18.1	0	25.2
LEAD AND COMPOUNDS	0	0.03	0	0.02	0.25	0	0.02	0	0.87	0	1.19
OXIDES OF NITROGEN	0	0.09	0	0.86	0.23	0	0.09	0	1.82	0	3.08
PARTICULATE MATTER < 10 µm	0	0.04	0	0.17	0.82	0	4.77×10^{-3}	0	58.0	0	59.0
PARTICULATE MATTER < 2.5 µm	0	0.03	0	0.22	0.96	0	1.52×10^{-3}	0	71.7	0	72.9
SULFUR DIOXIDE	0	0.03	0	0.04	0.13	0	0.22	0	2.37	0	2.78
TOTAL VOCS	12.8	0.03	1.13	0.03	3.93	0	1.89×10^{-3}	1.24	26.5	8.14	53.8
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Newcastle											
CARBON MONOXIDE	0	0.02	0	0.02	4.27	0	1.46×10^{-3}	0	11.0	0	15.3
LEAD AND COMPOUNDS	0	0.02	0	0.01	0.27	0	0.02	0	0.93	0	1.26
OXIDES OF NITROGEN	0	0.06	0	0.54	0.19	0	0.05	0	1.46	0	2.30
PARTICULATE MATTER < 10 µm	0	0.02	0	0.10	0.64	0	2.91×10^{-3}	0	45.4	0	46.1
PARTICULATE MATTER < 2.5 µm	0	0.02	0	0.14	0.80	0	9.89×10^{-4}	0	59.9	0	60.9
SULFUR DIOXIDE	0	2.89×10^{-3}	0	3.07×10^{-3}	0.01	0	0.02	0	0.26	0	0.30
TOTAL VOCS	11.2	0.03	1.18	0.02	4.43	0	1.66×10^{-3}	1.14	29.8	7.53	55.4

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Domestic-Commercial

Substance	Domestic-Commercial Source Type										
	Aerosols and Solvents	Barbecues	Cutback Bitumen	Gaseous Fuel Combustion	Lawn Mowing & Garden Equipment (Domestic)	Lawn Mowing & Garden Equipment (POS)	Liquid Fuel Combustion	Natural Gas Leakage	Solid Fuel Combustion	Surface Coating	Domestic-Commercial Total
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Wollongong											
CARBON MONOXIDE	0	2.32×10^{-3}	0	2.85×10^{-3}	0.49	0	1.88×10^{-4}	0	1.27	0	1.76
LEAD AND COMPOUNDS	0	5.97×10^{-3}	0	3.23×10^{-3}	0.06	0	5.07×10^{-3}	0	0.21	0	0.28
OXIDES OF NITROGEN	0	0.03	0	0.30	0.10	0	0.03	0	0.74	0	1.21
PARTICULATE MATTER < 10 µm	0	0.02	0	0.08	0.43	0	2.16×10^{-3}	0	30.3	0	30.8
PARTICULATE MATTER < 2.5 µm	0	0.01	0	0.10	0.50	0	6.85×10^{-4}	0	37.2	0	37.8
SULFUR DIOXIDE	0	2.09×10^{-3}	0	2.24×10^{-3}	9.31×10^{-3}	0	0.01	0	0.17	0	0.20
TOTAL VOCS	12.1	0.03	1.04	0.03	4.27	0	1.78×10^{-3}	1.24	28.8	8.06	55.5
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Non-Urban											
CARBON MONOXIDE	0	0.03	0	0.03	5.93	0	2.15×10^{-3}	0	15.2	0	21.2
LEAD AND COMPOUNDS	0	3.35×10^{-3}	0	1.77×10^{-3}	0.03	0	2.78×10^{-3}	0	0.12	0	0.16
OXIDES OF NITROGEN	0	7.30×10^{-3}	0	0.07	0.02	0	6.82×10^{-3}	0	0.17	0	0.28
PARTICULATE MATTER < 10 µm	0	4.81×10^{-3}	0	0.02	0.12	0	5.70×10^{-4}	0	8.40	0	8.55
PARTICULATE MATTER < 2.5 µm	0	8.21×10^{-3}	0	0.06	0.33	0	4.37×10^{-4}	0	25.0	0	25.4
SULFUR DIOXIDE	0	2.69×10^{-4}	0	2.81×10^{-4}	1.23×10^{-3}	0	1.75×10^{-3}	0	0.02	0	0.03
TOTAL VOCS	10.9	0.03	1.08	0.02	4.06	0	1.61×10^{-3}	0.99	27.3	7.47	51.9

3.4 Industrial

3.4.1 Emission Source Description

The industrial air emissions inventory includes emissions from industrial premises that are scheduled under the *Protection of the Environment (Operations) Act 1997* and hold an EPA licence. The industrial air emissions inventory includes 1,037 facilities covering 82 NSW Activity Types. The industrial premises included in the industrial air emissions inventory are listed as follows:

- Agricultural Fertilizer and/or Ammonium Nitrate Production - Production of ammonium nitrate
- Agricultural Fertilizer and/or Ammonium Nitrate Production - Production of phosphate fertilizer
- Aircraft (helicopter) Facilities
- Animal Slaughtering
- Battery Production
- Beer or Distilled Alcohol Production
- Biomedical Waste Incineration
- Bitumen Pre-Mix or Hot-Mix Production
- Bulk Cargo Handling
- Cement or Lime Handling
- Cement or Lime Production
- Ceramics Production (excluding Glass)
- Chemical Storage - Other Chemical Storage
- Chemical Storage - Storage of Petroleum and/or Petroleum Products
- Coal Loading
- Coal Mining
- Coal Washery Reject or Slag Landfilling
- Coke Production
- Concrete Batching
- Contaminated Soil Treatment
- Composting and Related Reprocessing or Treatment
- Crushing, Grinding or Separating Works
- Drum or Container Reconditioning
- Electricity Generation - Generation of electrical power from coal
- Electricity Generation - Generation of electrical power from gas
- Electricity Generation - Generation of electrical power other than from coal or gas
- Explosive or Pyrotechnics Production
- Freeway or Tollway Construction
- Glass Production - Production of container glass
- Glass Production - Production of float glass
- Hard-Rock Gravel Quarrying
- Hazardous, Industrial or Group A or Group B Waste Processing

- Landfills
- Metal Plating or Coating Works
- Milk Processing
- Mining (Other than Coal)
- Mooring and Boat Storage
- Other Activities – Bread Manufacturing
- Other Activities – Cake and Pastry Manufacturing
- Other Activities – Confectionary Manufacturing
- Other Activities – Dry Cleaning
- Other Activities – Oil and Fat Manufacturing
- Other Activities – Printing
- Other Activities – Services to Air Transport
- Other Activities – Soft Drink Manufacturing
- Other Agricultural Crop Processing
- Other Chemical Processing
- Other Land-Based Extraction
- Other Livestock Processing
- Other Metals Processing
- Other Paper Production
- Other Vessel Construction or Maintenance
- Paint Production
- Paper Production using Recycled Materials
- Pesticides Production
- Petroleum Refining
- Pharmaceutical or Veterinary Products Production
- Plastics Production
- Poultry Production
- Primary Aluminium Production
- Primary Iron and Steel Production
- Primary Non-Ferrous Production (excluding Aluminium)
- Railway Activities
- Rendering or Fat Extraction
- Scrap Metal Recovery
- Secondary Aluminium Production
- Secondary Iron and Steel Production
- Secondary Non-Ferrous Production (excluding Aluminium)
- Sewage, Water and Wastewater Treatment
- Soap or Detergent Production
- Unaccounted industrial gaseous, liquid and solid fuel burning
- Used Tyre Processing or Disposal
- Vessel Construction or Maintenance Using Dry or Floating Docks

- Waste Oil Recovery
- Waste Storage, Transfer, Separating or Processing
- Wood or Timber Milling
- Wood Preservation

Refer to DECC (2007d) for further information regarding the source types included in the industrial air emissions inventory and the emission estimation methodology.

3.4.2 Annual Emission Estimates

Table 3.61 shows total estimated annual emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.61 Total estimated annual emissions from industrial sources in each region

Substance	Industrial Annual Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	8,004	47,763	521,795	25,571	603,133
LEAD AND COMPOUNDS	4.703	0.246	4.128	2.887	11.964
OXIDES OF NITROGEN	14,032	1,728	7,929	151,847	175,537
PARTICULATE MATTER < 10 µm	7,911	1,706	2,069	34,844	46,530
PARTICULATE MATTER < 2.5 µm	3,390	808	1,556	7,373	13,127
SULFUR DIOXIDE	10,980	9,300	10,290	265,248	295,819
TOTAL VOCS	13,989	1,274	788	1,734	17,786

Table 3.62 shows the proportion of total estimated annual anthropogenic emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.62 Proportion of total estimated annual emissions from industrial sources in each region

Substance	Industrial Proportion of Anthropogenic Total Annual Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1.52	55.1	95.7	20.2	46.9
LEAD AND COMPOUNDS	16.2	10.2	63.5	6.72	14.8
OXIDES OF NITROGEN	15.1	17.5	64.5	85.7	60.1
PARTICULATE MATTER < 10 µm	37.1	57.9	68.2	72.8	61.9
PARTICULATE MATTER < 2.5 µm	25.8	47.9	71.0	54.6	43.0
SULFUR DIOXIDE	79.8	87.1	97.0	99.4	98.0
TOTAL VOCS	10.7	13.1	12.2	7.21	10.4

Figure 3.16 shows the proportion of total estimated annual GMR industrial emissions from all industrial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

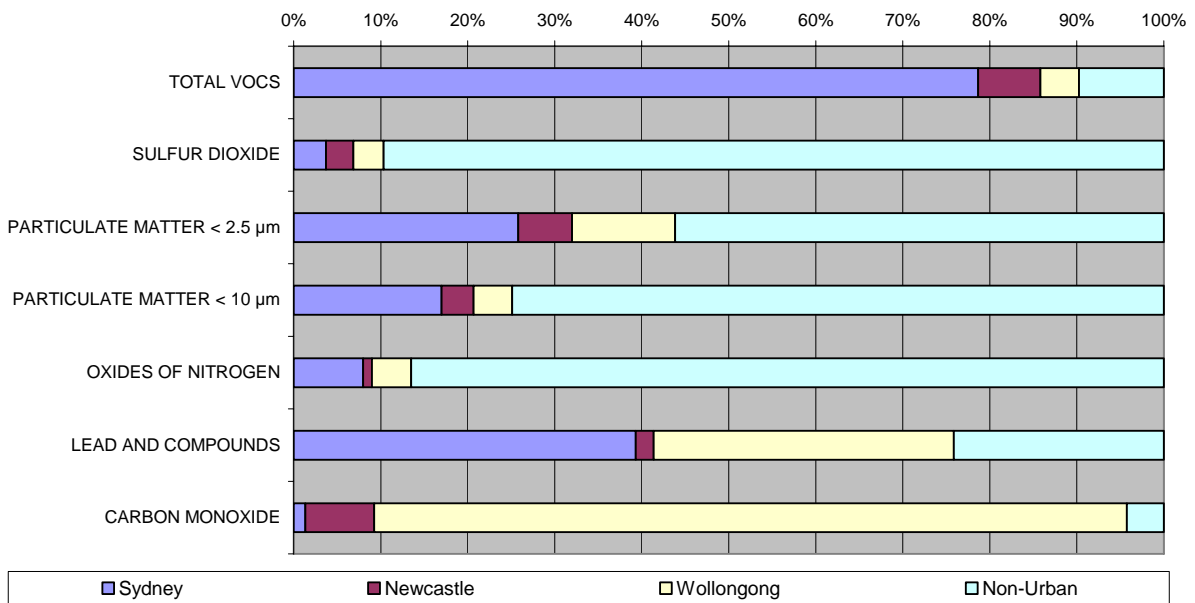


Figure 3.16 Proportion of total estimated annual emissions from industrial sources in each region

Table 3.63 shows total estimated annual emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.64 shows the proportion of total estimated annual anthropogenic emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.63 Total estimated annual emissions from industrial sources by NSW Activity Type in each region

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Annual Emissions (tonnes/year) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.673
Animal slaughtering	6.575	1.70 × 10 ⁻³	62.578	2.232	1.109	75.918	35.506
Battery production	0	0.952	0	4.125	4.125	0	0
Beer or distilled alcohol production	15.035	8.95 × 10 ⁻⁵	29.736	1.725	1.725	0.094	26.474
Biomedical waste incineration	5.488	0.029	3.829	0.720	0.720	1.145	0.556
Bitumen pre-mix or hotmix production	148	0.019	29.632	198	145	5.175	33.629
Bread manufacturing	1.684	1.0 × 10 ⁻⁵	2.005	0.259	0.259	0.010	0.196
Bulk cargo handling	0	2.76 × 10 ⁻⁶	0	89.727	13.514	0	1.186
Cake and pastry manufacturing	1.263	7.52 × 10 ⁻⁶	1.504	0.114	0.114	7.86 × 10 ⁻³	0.083
Cement or lime handling	2.210	1.61 × 10 ⁻⁴	2.630	199	60.836	9.60 × 10 ⁻³	122
Cement or lime production	3,279	0.499	6,115	282	175	206	85.045
Ceramics production (excluding glass)	808	1.97 × 10 ⁻⁴	237	1,099	798	690	120
Chemical storage	0	0	0	0	0	0	18.034
Coal loading	0.865	0.020	4.057	310	33.815	0.242	4.306
Coal mining	2,316	1.416	1,400	25,256	4,154	78.746	129
Coal washery reject or slag landfilling	7.28 × 10 ⁻³	0	0.027	56.748	11.429	8.89 × 10 ⁻⁴	6.86 × 10 ⁻⁴
Coke production	7.532	0.484	30.428	69.391	69.391	553	0.606
Composting and related reprocessing or treatment	396	3.70 × 10 ⁻⁶	4.320	63.905	12.925	3.15 × 10 ⁻³	209
Concrete batching	5.189	3.28 × 10 ⁻³	7.510	606	134	0.032	155
Confectionary manufacturing	0.168	3.50 × 10 ⁻⁶	1.191	0.053	0.053	3.66 × 10 ⁻³	0.786
Contaminated soil treatment	0	0	0	2.50 × 10 ⁻⁴	2.49 × 10 ⁻⁵	0	0
Crushing, grinding or separating works	657	0.028	248	2,513	918	258	67.376
Drum or container reconditioning	0.678	0.023	3.200	0.123	0.123	0.021	66.652

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Dry cleaning	1.245	7.85×10^{-6}	1.560	0.119	0.119	8.20×10^{-3}	0.568
Environmentally sensitive area landfilling	3.972	4.91×10^{-5}	0.060	76.803	15.579	3.10×10^{-3}	18.863
Explosives or pyrotechnics production	1.20×10^{-3}	3.01×10^{-7}	0.177	2.60×10^{-4}	2.58×10^{-4}	1.70×10^{-3}	0.659
Freeway or tollway construction	0	1.84×10^{-3}	0	87.387	14.500	0	2.88×10^{-3}
Generation of electrical power from coal	6,856	1.033	145,440	4,816	1,708	261,317	698
Generation of electrical power from gas	2,520	2.23×10^{-3}	2,681	46.617	46.377	12.637	502
Generation of electrical power other than from coal or gas	101	0	1,026	0.492	0.492	0.165	56.005
Hard-rock gravel quarrying	0.392	5.23×10^{-3}	0	1,687	435	0	170
Hazardous, industrial or group A waste generation or storage	9.651	5.15×10^{-5}	14.350	1.981	1.818	0.361	580
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	4.32×10^{-4}
Hazardous, industrial, group A or group B waste processing	4.241	3.34×10^{-5}	5.133	5.319	5.184	0.069	9.505
Inert waste landfilling	0.434	1.13×10^{-5}	0	164	34.297	0	30.600
Landfilling in designated areas	3.585	0	0	22.278	4.487	0	40.674
Metal plating or coating works	1,197	0.058	72.511	42.565	41.214	30.213	2,484
Milk processing	10.067	6.0×10^{-5}	12.873	0.937	0.937	0.063	6.646
Mining (other than coal)	0	4.07×10^{-4}	0	371	77.973	0	3.20×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	3.531
Oil and fat manufacturing	5.315	3.17×10^{-5}	11.370	0.482	0.482	0.033	0.349
Other agricultural crop processing	29.008	1.75×10^{-4}	34.366	71.056	23.599	0.259	10.624
Other chemical processing	74.313	5.24×10^{-4}	135	39.838	39.107	53.264	673
Other Chemical Storage	4.283	2.55×10^{-5}	6.320	0.602	0.506	0.027	469
Other land-based extraction	239	6.29×10^{-3}	78.961	3,472	799	204	67.869
Other livestock processing	6.380	3.74×10^{-5}	8.090	0.590	0.590	0.039	5.024
Other metal processing	146	5.88×10^{-3}	148	48.127	48.076	3.978	1,228
Other vessel construction or maintenance	0	2.83×10^{-4}	0.578	40.669	37.372	0	117

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paint production	2.521	7.46×10^{-5}	3.075	10.345	10.241	0.029	94.204
Paper production using recycled materials	46.967	0.022	121	1.498	1.498	11.858	27.571
Pesticides production	0.143	8.51×10^{-7}	0.170	0.013	0.013	8.89×10^{-4}	6.457
Petrochemical production	302	0.181	1,199	45.276	45.275	357	457
Petroleum refining	546	0.058	2,789	265	237	6,953	3,165
Pharmaceutical or veterinary products production	5.781	3.39×10^{-5}	8.013	0.579	0.573	0.062	50.930
Plastics production	3.552	3.67×10^{-3}	13.273	194	192	0.021	552
Poultry production	4.739	2.73×10^{-5}	6.532	444	120	0.029	16.625
Primary aluminium production	57,393	0.103	343	433	312	12,589	12.273
Primary iron and steel production	520,451	3.852	7,827	1,620	1,444	9,972	580
Primary non-ferrous production (excluding aluminium)	20.211	1.40×10^{-4}	46.911	15.165	12.208	8.465	1.480
Printing	11.362	6.40×10^{-5}	22.249	1.179	1.179	0.083	2,474
Production of ammonium nitrate	303	1.15×10^{-3}	1,056	210	207	1.200	265
Production of container glass	18.678	2.280	1,609	86.310	86.310	646	38.001
Production of phosphate fertilizer	6.741	3.73×10^{-5}	13.752	81.642	79.949	20.765	1.097
Production of float glass	10.388	2.91×10^{-4}	839	113	111	179	12.585
Railway activities	0	0	0	4.677	4.677	0	16.006
Rendering or fat extraction	17.962	3.01×10^{-4}	21.565	4.394	2.483	9.007	5.180
Scrap metal recovery	0	0	6.672	52.369	39.215	0	8.90×10^{-3}
Secondary aluminium production	76.895	2.79×10^{-3}	68.149	29.533	19.780	28.529	127
Secondary iron and steel production	2,597	0.100	26.131	35.174	32.348	3.335	290
Secondary non-ferrous production (excluding aluminium)	158	0.723	33.218	5.754	5.283	89.011	2.537
Services to air transport	2.244	1.34×10^{-5}	2.672	0.203	0.203	0.014	101
Sewage Treatment - processing by large plants	95.904	3.54×10^{-5}	604	1.687	1.685	0.265	46.465
Sewage Treatment - processing by small plants	226	5.91×10^{-3}	43.637	71.771	17.743	1.235	76.521

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Soap or detergent production	4.591	2.73 × 10 ⁻⁵	4.781	0.417	0.417	2.498	83.412
Soft drink manufacturing	0.972	5.78 × 10 ⁻⁶	1.157	0.088	0.088	6.04 × 10 ⁻³	2.080
Solid waste landfilling	272	1.01 × 10 ⁻³	6.236	928	189	0	462
Storage of Petroleum and/or Petroleum Products	1,604	8.84 × 10 ⁻³	864	67.881	67.672	1,397	446
Used tyre processing or disposal	0	0	0	0	0	0	7.74 × 10 ⁻⁴
Vessel construction or maintenance using dry or floating docks	0	0	0	3.891	3.575	0	29.424
Waste oil recovery	2.751	5.98 × 10 ⁻⁴	10.800	0.281	0.279	15.801	0.451
Waste storage, transfer, separating or processing	53.981	2.57 × 10 ⁻⁵	41.525	34.298	7.224	6.01 × 10 ⁻³	2.026
Wood or timber milling	31.075	0.032	44.657	18.685	7.523	41.952	89.945
Wood preservation	0	0	0	0	0	0	0.042
Industrial Total	603,133	11.964	175,537	46,530	13,127	295,819	17,786
Annual Emissions (tonnes/year) - Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.544
Animal slaughtering	3.744	2.83 × 10 ⁻⁵	4.976	0.352	0.352	0.060	4.981
Battery production	0	0.952	0	4.125	4.125	0	0
Beer or distilled alcohol production	15.035	8.95 × 10 ⁻⁵	29.736	1.725	1.725	0.094	26.474
Biomedical waste incineration	5.488	0.029	3.829	0.720	0.720	1.145	0.556
Bitumen pre-mix or hotmix production	91.001	6.11 × 10 ⁻³	21.500	60.754	25.875	2.795	27.409
Bread manufacturing	1.684	1.0 × 10 ⁻⁵	2.005	0.259	0.259	0.010	0.196
Bulk cargo handling	0	0	0	9.130	1.746	0	0.540
Cake and pastry manufacturing	1.263	7.52 × 10 ⁻⁶	1.504	0.114	0.114	7.86 × 10 ⁻³	0.083
Cement or lime handling	1.840	1.56 × 10 ⁻⁵	2.191	51.960	24.576	7.30 × 10 ⁻³	122
Cement or lime production	81.600	0.071	1,337	71.487	47.282	13.440	3.471
Ceramics production (excluding glass)	605	1.02 × 10 ⁻⁴	161	841	606	522	107
Chemical storage	0	0	0	0	0	0	18.034

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Coal mining	7.400	7.68×10^{-3}	31.300	109	14.041	1.690	1.973
Coke production	3.924	0.252	15.784	35.984	35.984	287	0.342
Composting and related reprocessing or treatment	396	6.95×10^{-7}	0	63.781	12.854	0	176
Concrete batching	3.608	2.91×10^{-3}	4.437	487	114	0.022	153
Confectionary manufacturing	0.168	3.50×10^{-6}	1.191	0.053	0.053	3.66×10^{-3}	0.786
Contaminated soil treatment	0	0	0	2.50×10^{-4}	2.49×10^{-5}	0	0
Crushing, grinding or separating works	654	0.027	239	2,051	807	257	64.927
Drum or container reconditioning	0.676	0.023	3.191	0.123	0.123	0.018	63.542
Dry cleaning	1.245	7.85×10^{-6}	1.560	0.119	0.119	8.20×10^{-3}	0.568
Environmentally sensitive area landfilling	1.109	3.95×10^{-6}	0	50.797	10.396	0	12.583
Freeway or tollway construction	0	1.84×10^{-3}	0	43.293	5.748	0	2.88×10^{-3}
Generation of electrical power from gas	2,520	2.23×10^{-3}	2,681	46.617	46.377	12.637	502
Generation of electrical power other than from coal or gas	101	0	1,026	0.492	0.492	0.165	56.005
Hard-rock gravel quarrying	0.392	1.48×10^{-4}	0	125	34.175	0	4.458
Hazardous, industrial or group A waste generation or storage	9.642	5.05×10^{-5}	14.340	1.817	1.786	0.361	326
Hazardous, industrial, group A or group B waste processing	4.146	3.20×10^{-5}	5.020	5.142	5.142	0.068	9.458
Inert waste landfilling	0	0	0	61.823	13.634	0	5.0×10^{-4}
Landfilling in designated areas	3.559	0	0	21.218	4.273	0	40.382
Metal plating or coating works	12.812	7.64×10^{-5}	16.330	29.773	29.251	0.081	2,327
Milk processing	7.473	4.45×10^{-5}	9.775	0.676	0.676	0.046	6.300
Mining (other than coal)	0	2.63×10^{-5}	0	12.609	2.525	0	0
Mooring and boat storage	0	0	0	0	0	0	1.066
Oil and fat manufacturing	5.315	3.17×10^{-5}	11.370	0.482	0.482	0.033	0.349
Other agricultural crop processing	14.608	8.94×10^{-5}	17.265	44.159	14.958	0.093	6.200
Other chemical processing	46.340	2.03×10^{-4}	44.136	3.845	3.841	0.264	625

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other Chemical Storage	4.266	2.54 × 10 ⁻⁵	6.299	0.386	0.386	0.027	177
Other land-based extraction	230	4.08 × 10 ⁻³	37.699	1,768	418	202	9.421
Other livestock processing	2.651	1.58 × 10 ⁻⁵	3.069	0.240	0.240	0.016	4.445
Other metal processing	87.516	5.53 × 10 ⁻³	44.116	32.462	32.443	3.582	1,118
Other vessel construction or maintenance	0	1.58 × 10 ⁻⁴	0	22.738	20.901	0	109
Paint production	2.521	7.46 × 10 ⁻⁵	3.075	10.345	10.241	0.029	94.204
Paper production using recycled materials	46.967	0.022	121	1.498	1.498	11.858	27.571
Pesticides production	0.143	8.51 × 10 ⁻⁷	0.170	0.013	0.013	8.89 × 10 ⁻⁴	6.457
Petrochemical production	302	0.181	1,199	45.276	45.275	357	457
Petroleum refining	546	0.058	2,789	265	237	6,953	3,165
Pharmaceutical or veterinary products production	5.781	3.39 × 10 ⁻⁵	8.013	0.579	0.573	0.062	50.930
Plastics production	2.998	1.57 × 10 ⁻⁵	11.342	194	192	0.018	551
Poultry production	4.703	2.73 × 10 ⁻⁵	6.271	383	106	0.029	16.619
Primary iron and steel production	0.208	0.027	0.247	2.216	1.584	1.29 × 10 ⁻³	1.282
Primary non-ferrous production (excluding aluminium)	0	0	6.25 × 10 ⁻³	0.321	0.264	0.023	4.50 × 10 ⁻⁴
Printing	11.362	6.40 × 10 ⁻⁵	22.249	1.179	1.179	0.083	2,418
Production of container glass	18.678	2.280	1,609	86.310	86.310	646	38.001
Production of float glass	10.388	2.91 × 10 ⁻⁴	839	113	111	179	12.585
Railway activities	0	0	0	4.677	4.677	0	16.006
Rendering or fat extraction	8.322	2.45 × 10 ⁻⁴	10.088	3.522	1.624	8.914	3.542
Scrap metal recovery	0	0	4.813	52.369	39.215	0	6.49 × 10 ⁻³
Secondary aluminium production	47.410	2.22 × 10 ⁻³	58.388	18.541	8.788	28.248	127
Secondary iron and steel production	0	8.90 × 10 ⁻³	0.744	6.911	7.177	1.328	102
Secondary non-ferrous production (excluding aluminium)	158	0.723	33.218	5.754	5.283	89.011	2.537
Services to air transport	2.244	1.34 × 10 ⁻⁵	2.672	0.203	0.203	0.014	101

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	90.908	3.22×10^{-5}	601	1.486	1.485	0.258	42.174
Sewage Treatment - processing by small plants	21.474	5.89×10^{-3}	21.821	66.924	12.897	1.048	40.659
Soap or detergent production	4.591	2.73×10^{-5}	4.781	0.417	0.417	2.498	83.412
Soft drink manufacturing	0.972	5.78×10^{-6}	1.157	0.088	0.088	6.04×10^{-3}	2.080
Solid waste landfilling	136	3.48×10^{-5}	0	484	98.506	0	252
Storage of Petroleum and/or Petroleum Products	1,604	8.84×10^{-3}	864	67.881	67.672	1,397	265
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	3.744
Waste oil recovery	0.092	0	0.755	9.14×10^{-3}	9.14×10^{-3}	1.40×10^{-4}	0.161
Waste storage, transfer, separating or processing	53.977	2.27×10^{-5}	41.520	33.999	7.167	5.98×10^{-3}	1.377
Industrial Total	8,004	4.703	14,032	7,911	3,390	10,980	13,989
Annual Emissions (tonnes/year) - Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	0.129
Animal slaughtering	2.771	1.67×10^{-3}	57.530	1.875	0.751	75.858	30.521
Bitumen pre-mix or hotmix production	23.016	0.012	3.591	129	114	1.725	2.159
Bulk cargo handling	0	2.76×10^{-6}	0	80.043	11.713	0	0.645
Cement or lime handling	0.369	2.20×10^{-6}	0.440	4.243	2.384	2.30×10^{-3}	0.029
Coal loading	0	1.68×10^{-5}	0	0.225	0.022	0	3.904
Coal mining	9.484	0.033	23.501	494	70.989	1.000	3.125
Concrete batching	0	1.04×10^{-4}	0	31.250	4.697	0	0.077
Crushing, grinding or separating works	3.000	1.29×10^{-4}	7.376	93.085	25.322	0.478	1.442
Explosives or pyrotechnics production	1.20×10^{-3}	3.01×10^{-7}	0.177	2.60×10^{-4}	2.58×10^{-4}	1.70×10^{-3}	1.28×10^{-3}
Hard-rock gravel quarrying	0	1.47×10^{-3}	0	158	40.764	0	5.20×10^{-3}
Hazardous, industrial or group A waste generation or storage	6.13×10^{-3}	3.65×10^{-8}	7.30×10^{-3}	5.55×10^{-4}	5.55×10^{-4}	3.82×10^{-5}	15.963
Hazardous, industrial, group A or group B waste processing	0.035	2.06×10^{-7}	0.041	3.13×10^{-3}	3.13×10^{-3}	2.15×10^{-4}	2.26×10^{-3}
Inert waste landfilling	0	0	0	54.051	10.886	0	0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Metal plating or coating works	1.761	1.05 × 10 ⁻⁵	2.096	2.468	2.468	0.011	0.521
Milk processing	2.594	1.55 × 10 ⁻⁵	3.098	0.260	0.260	0.016	0.346
Mooring and boat storage	0	0	0	0	0	0	0.713
Other agricultural crop processing	8.281	4.93 × 10 ⁻⁵	9.858	9.872	3.440	0.128	3.933
Other chemical processing	25.139	3.15 × 10 ⁻⁴	82.754	34.414	34.395	52.787	46.290
Other Chemical Storage	0	0	0	0	0	0	259
Other land-based extraction	0.171	3.57 × 10 ⁻⁴	1.242	65.325	12.527	6.42 × 10 ⁻⁶	0.079
Other metal processing	58.123	3.51 × 10 ⁻⁴	104	15.425	15.425	0.392	109
Other vessel construction or maintenance	0	1.25 × 10 ⁻⁴	0.578	17.931	16.472	0	6.245
Primary aluminium production	44,697	0.103	296	153	111	9,156	8.594
Primary non-ferrous production (excluding aluminium)	20.211	1.40 × 10 ⁻⁴	46.905	14.844	11.944	8.442	1.480
Printing	0	0	0	0	0	0	56.000
Production of ammonium nitrate	303	1.15 × 10 ⁻³	1,056	210	207	1.200	265
Production of phosphate fertilizer	5.319	2.75 × 10 ⁻⁵	5.504	79.279	77.586	0.045	0.304
Scrap metal recovery	0	0	1.859	0	0	0	1.65 × 10 ⁻³
Secondary iron and steel production	2,597	0.092	25.387	28.263	25.170	2.007	188
Sewage Treatment - processing by large plants	0	0	0	0	0	0	1.062
Sewage Treatment - processing by small plants	0	0	0	0	0	0	8.79 × 10 ⁻³
Solid waste landfilling	5.456	9.78 × 10 ⁻⁴	0	23.207	4.694	0	61.912
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	181
Used tyre processing or disposal	0	0	0	0	0	0	7.74 × 10 ⁻⁴
Vessel construction or maintenance using dry or floating docks	0	0	0	3.891	3.575	0	25.680
Waste storage, transfer, separating or processing	4.15 × 10 ⁻³	3.02 × 10 ⁻⁶	4.94 × 10 ⁻³	0.299	0.056	2.58 × 10 ⁻⁵	0.650
Wood or timber milling	0	0	0	0.272	0.100	0	0
Wood preservation	0	0	0	0	0	0	0.042

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Industrial Total	47,763	0.246	1,728	1,706	808	9,300	1,274
Annual Emissions (tonnes/year) - Wollongong							
Bitumen pre-mix or hotmix production	24.512	2.72×10^{-4}	2.571	3.505	2.353	0.391	1.616
Bulk cargo handling	0	0	0	0.554	0.055	0	9.90×10^{-4}
Cement or lime handling	0	0	0	0.060	9.93×10^{-3}	0	0.023
Coal loading	0.530	0.011	2.500	180	19.440	0.140	0.165
Coal mining	2.000	1.09×10^{-3}	9.400	65.076	13.595	0.520	26.154
Coal washery reject or slag landfilling	7.28×10^{-3}	0	0.027	56.748	11.429	8.89×10^{-4}	6.86×10^{-4}
Coke production	3.608	0.232	14.644	33.407	33.407	266	0.265
Concrete batching	0	3.36×10^{-5}	0	12.327	1.856	0	0.027
Crushing, grinding or separating works	0	1.35×10^{-4}	0	4.852	2.060	0	0
Drum or container reconditioning	2.10×10^{-3}	5.27×10^{-7}	8.40×10^{-3}	4.55×10^{-4}	4.52×10^{-4}	2.98×10^{-3}	3.110
Environmentally sensitive area landfilling	0	4.52×10^{-5}	0	6.615	1.266	0	0
Hazardous, industrial, group A or group B waste processing	0.060	1.18×10^{-6}	0.072	0.173	0.038	3.76×10^{-4}	0.044
Inert waste landfilling	0	1.13×10^{-5}	0	44.668	8.984	0	1.44×10^{-3}
Metal plating or coating works	1,182	0.058	54.085	10.324	9.495	30.121	157
Other chemical processing	1.154	6.87×10^{-6}	1.374	0.982	0.281	7.18×10^{-3}	0.076
Other metal processing	0.576	3.43×10^{-6}	0.686	0.240	0.208	3.59×10^{-3}	1.322
Other vessel construction or maintenance	0	0	0	0	0	0	9.25×10^{-4}
Primary iron and steel production	520,451	3.825	7,826	1,618	1,442	9,972	579
Production of phosphate fertilizer	1.422	9.76×10^{-6}	8.248	2.363	2.363	20.720	0.793
Scrap metal recovery	0	0	0	0	0	0	7.63×10^{-4}
Sewage Treatment - processing by large plants	0.693	2.64×10^{-6}	2.336	0.096	0.096	2.77×10^{-3}	0.535
Sewage Treatment - processing by small plants	1.454	4.80×10^{-6}	1.017	0.088	0.088	5.55×10^{-3}	0.927
Solid waste landfilling	125	0	6.236	28.632	7.049	0	16.859

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	0.369
Industrial Total	521,795	4.128	7,929	2,069	1,556	10,290	788
Annual Emissions (tonnes/year) - Non-Urban							
Animal slaughtering	0.060	3.58×10^{-7}	0.072	5.45×10^{-3}	5.45×10^{-3}	3.75×10^{-4}	3.94×10^{-3}
Bitumen pre-mix or hotmix production	9.397	4.47×10^{-4}	1.970	5.114	2.537	0.264	2.444
Cement or lime handling	0	1.43×10^{-4}	0	143	33.867	0	0.213
Cement or lime production	3,197	0.428	4,778	211	128	193	81.574
Ceramics production (excluding glass)	203	9.51×10^{-5}	75.109	259	191	168	13.456
Coal loading	0.335	8.86×10^{-3}	1.557	129	14.353	0.102	0.236
Coal mining	2,297	1.374	1,336	24,587	4,056	75.536	97.352
Composting and related reprocessing or treatment	0.506	3.01×10^{-6}	4.320	0.124	0.072	3.15×10^{-3}	33.214
Concrete batching	1.581	2.33×10^{-4}	3.072	74.948	13.704	9.73×10^{-3}	1.754
Crushing, grinding or separating works	0.265	2.33×10^{-4}	1.233	363	83.385	0.081	1.007
Environmentally sensitive area landfilling	2.863	0	0.060	19.390	3.917	3.10×10^{-3}	6.279
Explosives or pyrotechnics production	0	0	0	0	0	0	0.658
Freeway or tollway construction	0	0	0	44.095	8.751	0	0
Generation of electrical power from coal	6,856	1.033	145,440	4,816	1,708	261,317	698
Hard-rock gravel quarrying	0	3.61×10^{-3}	0	1,404	360	0	166
Hazardous, industrial or group A waste generation or storage	2.55×10^{-3}	9.31×10^{-7}	3.04×10^{-3}	0.163	0.032	1.59×10^{-5}	239
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	4.32×10^{-4}
Inert waste landfilling	0.434	0	0	3.941	0.794	0	30.598
Landfilling in designated areas	0.026	0	0	1.060	0.213	0	0.292
Mining (other than coal)	0	3.81×10^{-4}	0	359	75.447	0	3.20×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	1.751
Other agricultural crop processing	6.119	3.62×10^{-5}	7.243	17.025	5.201	0.038	0.491

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other chemical processing	1.680	0	6.312	0.597	0.590	0.205	1.097
Other Chemical Storage	0.017	1.03×10^{-7}	0.021	0.216	0.120	1.08×10^{-4}	33.713
Other land-based extraction	8.611	1.85×10^{-3}	40.020	1,639	368	2.633	58.368
Other livestock processing	3.729	2.16×10^{-5}	5.021	0.350	0.350	0.023	0.579
Other vessel construction or maintenance	0	0	0	0	0	0	1.385
Plastics production	0.554	3.65×10^{-3}	1.931	0.054	0.054	3.45×10^{-3}	1.295
Poultry production	0.036	0	0.261	61.209	14.486	1.35×10^{-6}	6.30×10^{-3}
Primary aluminium production	12,696	5.98×10^{-5}	46.945	280	202	3,433	3.679
Rendering or fat extraction	9.640	5.65×10^{-5}	11.477	0.871	0.859	0.093	1.638
Secondary aluminium production	29.485	5.70×10^{-4}	9.761	10.992	10.992	0.281	0.303
Sewage Treatment - processing by large plants	4.302	5.92×10^{-7}	0.505	0.104	0.104	4.06×10^{-3}	2.694
Sewage Treatment - processing by small plants	203	1.64×10^{-5}	20.799	4.759	4.759	0.181	34.925
Solid waste landfilling	5.890	1.95×10^{-6}	0	392	78.964	0	131
Waste oil recovery	2.659	5.98×10^{-4}	10.046	0.272	0.270	15.801	0.291
Wood or timber milling	31.075	0.032	44.657	18.413	7.423	41.952	89.945
Industrial Total	25,571	2.887	151,847	34,844	7,373	265,248	1,734

Table 3.64 Proportion of total estimated annual emissions from industrial sources by NSW Activity Type in each region

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total Annual Emissions (%) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	9.78×10^{-4}
Animal slaughtering	5.11×10^{-4}	2.10×10^{-3}	0.02	2.97×10^{-3}	3.64×10^{-3}	0.03	0.02
Battery production	0	1.18	0	5.49×10^{-3}	0.01	0	0
Beer or distilled alcohol production	1.17×10^{-3}	1.11×10^{-4}	0.01	2.30×10^{-3}	5.66×10^{-3}	3.10×10^{-5}	0.02
Biomedical waste incineration	4.27×10^{-4}	0.04	1.31×10^{-3}	9.58×10^{-4}	2.36×10^{-3}	3.79×10^{-4}	3.25×10^{-4}
Bitumen pre-mix or hotmix production	0.01	0.02	0.01	0.26	0.48	1.71×10^{-3}	0.02
Bread manufacturing	1.31×10^{-4}	1.24×10^{-5}	6.87×10^{-4}	3.45×10^{-4}	8.49×10^{-4}	3.47×10^{-6}	1.14×10^{-4}
Bulk cargo handling	0	3.41×10^{-6}	0	0.12	0.04	0	6.93×10^{-4}
Cake and pastry manufacturing	9.82×10^{-5}	9.29×10^{-6}	5.15×10^{-4}	1.52×10^{-4}	3.75×10^{-4}	2.60×10^{-6}	4.86×10^{-5}
Cement or lime handling	1.72×10^{-4}	1.99×10^{-4}	9.01×10^{-4}	0.26	0.20	3.18×10^{-6}	0.07
Cement or lime production	0.25	0.62	2.09	0.38	0.57	0.07	0.05
Ceramics production (excluding glass)	0.06	2.43×10^{-4}	0.08	1.46	2.61	0.23	0.07
Chemical storage	0	0	0	0	0	0	0.01
Coal loading	6.72×10^{-5}	0.03	1.39×10^{-3}	0.41	0.11	8.03×10^{-5}	2.52×10^{-3}
Coal mining	0.18	1.75	0.48	33.6	13.6	0.03	0.08
Coal washery reject or slag landfilling	5.66×10^{-7}	0	9.37×10^{-6}	0.08	0.04	2.95×10^{-7}	4.01×10^{-7}
Coke production	5.85×10^{-4}	0.60	0.01	0.09	0.23	0.18	3.54×10^{-4}
Composting and related reprocessing or treatment	0.03	4.58×10^{-6}	1.48×10^{-3}	0.09	0.04	1.04×10^{-6}	0.12
Concrete batching	4.03×10^{-4}	4.06×10^{-3}	2.57×10^{-3}	0.81	0.44	1.06×10^{-5}	0.09
Confectionary manufacturing	1.31×10^{-5}	4.33×10^{-6}	4.08×10^{-4}	7.09×10^{-5}	1.75×10^{-4}	1.21×10^{-6}	4.59×10^{-4}
Contaminated soil treatment	0	0	0	3.33×10^{-7}	8.16×10^{-8}	0	0
Crushing, grinding or separating works	0.05	0.03	0.08	3.34	3.01	0.09	0.04
Drum or container reconditioning	5.27×10^{-5}	0.03	1.10×10^{-3}	1.64×10^{-4}	4.03×10^{-4}	7.0×10^{-6}	0.04

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Dry cleaning	9.68×10^{-5}	9.70×10^{-6}	5.34×10^{-4}	1.59×10^{-4}	3.91×10^{-4}	2.72×10^{-6}	3.32×10^{-4}
Environmentally sensitive area landfilling	3.09×10^{-4}	6.07×10^{-5}	2.06×10^{-5}	0.10	0.05	1.03×10^{-6}	0.01
Explosives or pyrotechnics production	9.33×10^{-8}	3.72×10^{-7}	6.07×10^{-5}	3.46×10^{-7}	8.46×10^{-7}	5.63×10^{-7}	3.85×10^{-4}
Freeway or tollway construction	0	2.27×10^{-3}	0	0.12	0.05	0	1.68×10^{-6}
Generation of electrical power from coal	0.53	1.28	49.8	6.41	5.60	86.6	0.41
Generation of electrical power from gas	0.20	2.75×10^{-3}	0.92	0.06	0.15	4.19×10^{-3}	0.29
Generation of electrical power other than from coal or gas	7.82×10^{-3}	0	0.35	6.55×10^{-4}	1.61×10^{-3}	5.46×10^{-5}	0.03
Hard-rock gravel quarrying	3.05×10^{-5}	6.46×10^{-3}	0	2.25	1.43	0	0.10
Hazardous, industrial or group A waste generation or storage	7.50×10^{-4}	6.36×10^{-5}	4.91×10^{-3}	2.64×10^{-3}	5.96×10^{-3}	1.20×10^{-4}	0.34
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	2.53×10^{-7}
Hazardous, industrial, group A or group B waste processing	3.30×10^{-4}	4.13×10^{-5}	1.76×10^{-3}	7.08×10^{-3}	0.02	2.28×10^{-5}	5.56×10^{-3}
Inert waste landfilling	3.37×10^{-5}	1.39×10^{-5}	0	0.22	0.11	0	0.02
Landfilling in designated areas	2.79×10^{-4}	0	0	0.03	0.01	0	0.02
Metal plating or coating works	0.09	0.07	0.02	0.06	0.14	0.01	1.45
Milk processing	7.82×10^{-4}	7.41×10^{-5}	4.41×10^{-3}	1.25×10^{-3}	3.07×10^{-3}	2.08×10^{-5}	3.88×10^{-3}
Mining (other than coal)	0	5.03×10^{-4}	0	0.49	0.26	0	1.87×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	2.06×10^{-3}
Oil and fat manufacturing	4.13×10^{-4}	3.92×10^{-5}	3.89×10^{-3}	6.42×10^{-4}	1.58×10^{-3}	1.10×10^{-5}	2.04×10^{-4}
Other agricultural crop processing	2.25×10^{-3}	2.16×10^{-4}	0.01	0.09	0.08	8.59×10^{-5}	6.21×10^{-3}
Other chemical processing	5.78×10^{-3}	6.48×10^{-4}	0.05	0.05	0.13	0.02	0.39
Other Chemical Storage	3.33×10^{-4}	3.15×10^{-5}	2.16×10^{-3}	8.01×10^{-4}	1.66×10^{-3}	8.83×10^{-6}	0.27
Other land-based extraction	0.02	7.77×10^{-3}	0.03	4.62	2.62	0.07	0.04
Other livestock processing	4.96×10^{-4}	4.62×10^{-5}	2.77×10^{-3}	7.86×10^{-4}	1.93×10^{-3}	1.29×10^{-5}	2.94×10^{-3}
Other metal processing	0.01	7.27×10^{-3}	0.05	0.06	0.16	1.32×10^{-3}	0.72
Other vessel construction or maintenance	0	3.49×10^{-4}	1.98×10^{-4}	0.05	0.12	0	0.07

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paint production	1.96×10^{-4}	9.21×10^{-5}	1.05×10^{-3}	0.01	0.03	9.72×10^{-6}	0.06
Paper production using recycled materials	3.65×10^{-3}	0.03	0.04	1.99×10^{-3}	4.91×10^{-3}	3.93×10^{-3}	0.02
Pesticides production	1.11×10^{-5}	1.05×10^{-6}	5.83×10^{-5}	1.72×10^{-5}	4.24×10^{-5}	2.95×10^{-7}	3.77×10^{-3}
Petrochemical production	0.02	0.22	0.41	0.06	0.15	0.12	0.27
Petroleum refining	0.04	0.07	0.96	0.35	0.78	2.30	1.85
Pharmaceutical or veterinary products production	4.49×10^{-4}	4.19×10^{-5}	2.74×10^{-3}	7.71×10^{-4}	1.88×10^{-3}	2.06×10^{-5}	0.03
Plastics production	2.76×10^{-4}	4.53×10^{-3}	4.54×10^{-3}	0.26	0.63	7.12×10^{-6}	0.32
Poultry production	3.68×10^{-4}	3.38×10^{-5}	2.24×10^{-3}	0.59	0.39	9.47×10^{-6}	9.72×10^{-3}
Primary aluminium production	4.46	0.13	0.12	0.58	1.02	4.17	7.17×10^{-3}
Primary iron and steel production	40.5	4.76	2.68	2.16	4.73	3.30	0.34
Primary non-ferrous production (excluding aluminium)	1.57×10^{-3}	1.73×10^{-4}	0.02	0.02	0.04	2.80×10^{-3}	8.65×10^{-4}
Printing	8.83×10^{-4}	7.90×10^{-5}	7.62×10^{-3}	1.57×10^{-3}	3.86×10^{-3}	2.74×10^{-5}	1.45
Production of ammonium nitrate	0.02	1.42×10^{-3}	0.36	0.28	0.68	3.98×10^{-4}	0.16
Production of container glass	1.45×10^{-3}	2.82	0.55	0.11	0.28	0.21	0.02
Production of float glass	8.07×10^{-4}	3.60×10^{-4}	0.29	0.15	0.36	0.06	7.36×10^{-3}
Production of phosphate fertilizer	5.24×10^{-4}	4.61×10^{-5}	4.71×10^{-3}	0.11	0.26	6.88×10^{-3}	6.41×10^{-4}
Railway activities	0	0	0	6.23×10^{-3}	0.02	0	9.36×10^{-3}
Rendering or fat extraction	1.40×10^{-3}	3.72×10^{-4}	7.38×10^{-3}	5.85×10^{-3}	8.14×10^{-3}	2.98×10^{-3}	3.03×10^{-3}
Scrap metal recovery	0	0	2.28×10^{-3}	0.07	0.13	0	5.20×10^{-6}
Secondary aluminium production	5.98×10^{-3}	3.44×10^{-3}	0.02	0.04	0.06	9.45×10^{-3}	0.07
Secondary iron and steel production	0.20	0.12	8.95×10^{-3}	0.05	0.11	1.10×10^{-3}	0.17
Secondary non-ferrous production (excluding aluminium)	0.01	0.89	0.01	7.66×10^{-3}	0.02	0.03	1.48×10^{-3}
Services to air transport	1.74×10^{-4}	1.65×10^{-5}	9.15×10^{-4}	2.70×10^{-4}	6.66×10^{-4}	4.63×10^{-6}	0.06
Sewage Treatment - processing by large plants	7.45×10^{-3}	4.38×10^{-5}	0.21	2.25×10^{-3}	5.52×10^{-3}	8.77×10^{-5}	0.03
Sewage Treatment - processing by small plants	0.02	7.30×10^{-3}	0.01	0.10	0.06	4.09×10^{-4}	0.04

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Soap or detergent production	3.57×10^{-4}	3.37×10^{-5}	1.64×10^{-3}	5.55×10^{-4}	1.37×10^{-3}	8.27×10^{-4}	0.05
Soft drink manufacturing	7.55×10^{-5}	7.15×10^{-6}	3.96×10^{-4}	1.17×10^{-4}	2.88×10^{-4}	2.0×10^{-6}	1.22×10^{-3}
Solid waste landfilling	0.02	1.25×10^{-3}	2.14×10^{-3}	1.24	0.62	0	0.27
Storage of Petroleum and/or Petroleum Products	0.12	0.01	0.30	0.09	0.22	0.46	0.26
Used tyre processing or disposal	0	0	0	0	0	0	4.52×10^{-7}
Vessel construction or maintenance using dry or floating docks	0	0	0	5.18×10^{-3}	0.01	0	0.02
Waste oil recovery	2.14×10^{-4}	7.39×10^{-4}	3.70×10^{-3}	3.75×10^{-4}	9.15×10^{-4}	5.23×10^{-3}	2.64×10^{-4}
Waste storage, transfer, separating or processing	4.20×10^{-3}	3.18×10^{-5}	0.01	0.05	0.02	1.99×10^{-6}	1.18×10^{-3}
Wood or timber milling	2.42×10^{-3}	0.04	0.02	0.02	0.02	0.01	0.05
Wood preservation	0	0	0	0	0	0	2.43×10^{-5}
Industrial Total	46.9	14.8	60.1	61.9	43.0	98.0	10.4
Proportion of Anthropogenic Total Annual Emissions (%) - Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.18×10^{-3}
Animal slaughtering	7.09×10^{-4}	9.73×10^{-5}	5.36×10^{-3}	1.65×10^{-3}	2.68×10^{-3}	4.34×10^{-4}	3.81×10^{-3}
Battery production	0	3.28	0	0.02	0.03	0	0
Beer or distilled alcohol production	2.85×10^{-3}	3.08×10^{-4}	0.03	8.10×10^{-3}	0.01	6.79×10^{-4}	0.02
Biomedical waste incineration	1.04×10^{-3}	0.10	4.13×10^{-3}	3.38×10^{-3}	5.49×10^{-3}	8.32×10^{-3}	4.25×10^{-4}
Bitumen pre-mix or hotmix production	0.02	0.02	0.02	0.29	0.20	0.02	0.02
Bread manufacturing	3.19×10^{-4}	3.45×10^{-5}	2.16×10^{-3}	1.22×10^{-3}	1.97×10^{-3}	7.61×10^{-5}	1.49×10^{-4}
Bulk cargo handling	0	0	0	0.04	0.01	0	4.12×10^{-4}
Cake and pastry manufacturing	2.39×10^{-4}	2.59×10^{-5}	1.62×10^{-3}	5.37×10^{-4}	8.71×10^{-4}	5.71×10^{-5}	6.35×10^{-5}
Cement or lime handling	3.49×10^{-4}	5.36×10^{-5}	2.36×10^{-3}	0.24	0.19	5.30×10^{-5}	0.09
Cement or lime production	0.02	0.24	1.44	0.34	0.36	0.10	2.65×10^{-3}
Ceramics production (excluding glass)	0.11	3.50×10^{-4}	0.17	3.95	4.62	3.79	0.08
Chemical storage	0	0	0	0	0	0	0.01

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Coal mining	1.40×10^{-3}	0.03	0.03	0.51	0.11	0.01	1.51×10^{-3}
Coke production	7.43×10^{-4}	0.87	0.02	0.17	0.27	2.09	2.61×10^{-4}
Composting and related reprocessing or treatment	0.07	2.39×10^{-6}	0	0.30	0.10	0	0.13
Concrete batching	6.83×10^{-4}	0.01	4.78×10^{-3}	2.29	0.87	1.62×10^{-4}	0.12
Confectionary manufacturing	3.19×10^{-5}	1.21×10^{-5}	1.28×10^{-3}	2.50×10^{-4}	4.06×10^{-4}	2.66×10^{-5}	6.0×10^{-4}
Contaminated soil treatment	0	0	0	1.17×10^{-6}	1.90×10^{-7}	0	0
Crushing, grinding or separating works	0.12	0.09	0.26	9.63	6.15	1.87	0.05
Drum or container reconditioning	1.28×10^{-4}	0.08	3.44×10^{-3}	5.75×10^{-4}	9.33×10^{-4}	1.32×10^{-4}	0.05
Dry cleaning	2.36×10^{-4}	2.70×10^{-5}	1.68×10^{-3}	5.60×10^{-4}	9.09×10^{-4}	5.96×10^{-5}	4.34×10^{-4}
Environmentally sensitive area landfilling	2.10×10^{-4}	1.36×10^{-5}	0	0.24	0.08	0	9.62×10^{-3}
Freeway or tollway construction	0	6.33×10^{-3}	0	0.20	0.04	0	2.20×10^{-6}
Generation of electrical power from gas	0.48	7.68×10^{-3}	2.89	0.22	0.35	0.09	0.38
Generation of electrical power other than from coal or gas	0.02	0	1.11	2.31×10^{-3}	3.75×10^{-3}	1.20×10^{-3}	0.04
Hard-rock gravel quarrying	7.42×10^{-5}	5.08×10^{-4}	0	0.59	0.26	0	3.41×10^{-3}
Hazardous, industrial or group A waste generation or storage	1.83×10^{-3}	1.74×10^{-4}	0.02	8.53×10^{-3}	0.01	2.62×10^{-3}	0.25
Hazardous, industrial, group A or group B waste processing	7.85×10^{-4}	1.10×10^{-4}	5.41×10^{-3}	0.02	0.04	4.95×10^{-4}	7.23×10^{-3}
Inert waste landfilling	0	0	0	0.29	0.10	0	3.82×10^{-7}
Landfilling in designated areas	6.74×10^{-4}	0	0	0.10	0.03	0	0.03
Metal plating or coating works	2.43×10^{-3}	2.63×10^{-4}	0.02	0.14	0.22	5.86×10^{-4}	1.78
Milk processing	1.42×10^{-3}	1.53×10^{-4}	0.01	3.17×10^{-3}	5.15×10^{-3}	3.38×10^{-4}	4.82×10^{-3}
Mining (other than coal)	0	9.07×10^{-5}	0	0.06	0.02	0	0
Mooring and boat storage	0	0	0	0	0	0	8.15×10^{-4}
Oil and fat manufacturing	1.01×10^{-3}	1.09×10^{-4}	0.01	2.26×10^{-3}	3.67×10^{-3}	2.41×10^{-4}	2.67×10^{-4}
Other agricultural crop processing	2.77×10^{-3}	3.08×10^{-4}	0.02	0.21	0.11	6.79×10^{-4}	4.74×10^{-3}
Other chemical processing	8.78×10^{-3}	6.98×10^{-4}	0.05	0.02	0.03	1.92×10^{-3}	0.48

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other Chemical Storage	8.08×10^{-4}	8.74×10^{-5}	6.79×10^{-3}	1.81×10^{-3}	2.94×10^{-3}	1.93×10^{-4}	0.13
Other land-based extraction	0.04	0.01	0.04	8.30	3.18	1.47	7.20×10^{-3}
Other livestock processing	5.02×10^{-4}	5.43×10^{-5}	3.31×10^{-3}	1.13×10^{-3}	1.83×10^{-3}	1.20×10^{-4}	3.40×10^{-3}
Other metal processing	0.02	0.02	0.05	0.15	0.25	0.03	0.85
Other vessel construction or maintenance	0	5.42×10^{-4}	0	0.11	0.16	0	0.08
Paint production	4.77×10^{-4}	2.57×10^{-4}	3.31×10^{-3}	0.05	0.08	2.13×10^{-4}	0.07
Paper production using recycled materials	8.90×10^{-3}	0.08	0.13	7.03×10^{-3}	0.01	0.09	0.02
Pesticides production	2.71×10^{-5}	2.93×10^{-6}	1.83×10^{-4}	6.07×10^{-5}	9.85×10^{-5}	6.46×10^{-6}	4.94×10^{-3}
Petrochemical production	0.06	0.62	1.29	0.21	0.34	2.60	0.35
Petroleum refining	0.10	0.20	3.01	1.25	1.80	50.5	2.42
Pharmaceutical or veterinary products production	1.09×10^{-3}	1.17×10^{-4}	8.64×10^{-3}	2.72×10^{-3}	4.37×10^{-3}	4.52×10^{-4}	0.04
Plastics production	5.68×10^{-4}	5.42×10^{-5}	0.01	0.91	1.46	1.31×10^{-4}	0.42
Poultry production	8.91×10^{-4}	9.41×10^{-5}	6.76×10^{-3}	1.80	0.80	2.08×10^{-4}	0.01
Primary iron and steel production	3.94×10^{-5}	0.09	2.67×10^{-4}	0.01	0.01	9.39×10^{-6}	9.80×10^{-4}
Primary non-ferrous production (excluding aluminium)	0	0	6.74×10^{-6}	1.51×10^{-3}	2.01×10^{-3}	1.66×10^{-4}	3.44×10^{-7}
Printing	2.15×10^{-3}	2.20×10^{-4}	0.02	5.53×10^{-3}	8.98×10^{-3}	6.0×10^{-4}	1.85
Production of container glass	3.54×10^{-3}	7.85	1.73	0.41	0.66	4.69	0.03
Production of float glass	1.97×10^{-3}	1.0×10^{-3}	0.90	0.53	0.85	1.30	9.62×10^{-3}
Railway activities	0	0	0	0.02	0.04	0	0.01
Rendering or fat extraction	1.58×10^{-3}	8.42×10^{-4}	0.01	0.02	0.01	0.06	2.71×10^{-3}
Scrap metal recovery	0	0	5.19×10^{-3}	0.25	0.30	0	4.96×10^{-6}
Secondary aluminium production	8.98×10^{-3}	7.63×10^{-3}	0.06	0.09	0.07	0.21	0.10
Secondary iron and steel production	0	0.03	8.02×10^{-4}	0.03	0.05	9.64×10^{-3}	0.08
Secondary non-ferrous production (excluding aluminium)	0.03	2.49	0.04	0.03	0.04	0.65	1.94×10^{-3}
Services to air transport	4.25×10^{-4}	4.60×10^{-5}	2.88×10^{-3}	9.53×10^{-4}	1.55×10^{-3}	1.01×10^{-4}	0.08

3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	0.02	1.11×10^{-4}	0.65	6.98×10^{-3}	0.01	1.87×10^{-3}	0.03
Sewage Treatment - processing by small plants	4.07×10^{-3}	0.02	0.02	0.31	0.10	7.61×10^{-3}	0.03
Soap or detergent production	8.70×10^{-4}	9.40×10^{-5}	5.15×10^{-3}	1.96×10^{-3}	3.18×10^{-3}	0.02	0.06
Soft drink manufacturing	1.84×10^{-4}	1.99×10^{-5}	1.25×10^{-3}	4.13×10^{-4}	6.70×10^{-4}	4.39×10^{-5}	1.59×10^{-3}
Solid waste landfilling	0.03	1.20×10^{-4}	0	2.27	0.75	0	0.19
Storage of Petroleum and/or Petroleum Products	0.30	0.03	0.93	0.32	0.52	10.1	0.20
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	2.86×10^{-3}
Waste oil recovery	1.74×10^{-5}	0	8.14×10^{-4}	4.29×10^{-5}	6.96×10^{-5}	1.02×10^{-6}	1.23×10^{-4}
Waste storage, transfer, separating or processing	0.01	7.82×10^{-5}	0.04	0.16	0.05	4.35×10^{-5}	1.05×10^{-3}
Industrial Total	1.52	16.2	15.1	37.1	25.8	79.8	10.7
Proportion of Anthropogenic Total Annual Emissions (%) - Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.33×10^{-3}
Animal slaughtering	3.19×10^{-3}	0.07	0.58	0.06	0.04	0.71	0.31
Bitumen pre-mix or hotmix production	0.03	0.50	0.04	4.38	6.78	0.02	0.02
Bulk cargo handling	0	1.15×10^{-4}	0	2.72	0.69	0	6.64×10^{-3}
Cement or lime handling	4.26×10^{-4}	9.14×10^{-5}	4.46×10^{-3}	0.14	0.14	2.15×10^{-5}	2.96×10^{-4}
Coal loading	0	6.97×10^{-4}	0	7.64×10^{-3}	1.33×10^{-3}	0	0.04
Coal mining	0.01	1.36	0.24	16.8	4.21	9.37×10^{-3}	0.03
Concrete batching	0	4.34×10^{-3}	0	1.06	0.28	0	7.93×10^{-4}
Crushing, grinding or separating works	3.46×10^{-3}	5.38×10^{-3}	0.07	3.16	1.50	4.48×10^{-3}	0.01
Explosives or pyrotechnics production	1.38×10^{-6}	1.25×10^{-5}	1.80×10^{-3}	8.82×10^{-6}	1.53×10^{-5}	1.59×10^{-5}	1.32×10^{-5}
Hard-rock gravel quarrying	0	0.06	0	5.37	2.42	0	5.35×10^{-5}
Hazardous, industrial or group A waste generation or storage	7.07×10^{-6}	1.52×10^{-6}	7.40×10^{-5}	1.88×10^{-5}	3.29×10^{-5}	3.58×10^{-7}	0.16
Hazardous, industrial, group A or group B waste processing	3.98×10^{-5}	8.55×10^{-6}	4.17×10^{-4}	1.06×10^{-4}	1.85×10^{-4}	2.01×10^{-6}	2.32×10^{-5}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Inert waste landfilling	0	0	0	1.83	0.65	0	0
Metal plating or coating works	2.03×10^{-3}	4.36×10^{-4}	0.02	0.08	0.15	1.03×10^{-4}	5.35×10^{-3}
Milk processing	2.99×10^{-3}	6.44×10^{-4}	0.03	8.83×10^{-3}	0.02	1.52×10^{-4}	3.56×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	7.33×10^{-3}
Other activities - printing	0	0	0	0	0	0	0.58
Other agricultural crop processing	9.55×10^{-3}	2.05×10^{-3}	0.10	0.33	0.20	1.20×10^{-3}	0.04
Other chemical processing	0.03	0.01	0.84	1.17	2.04	0.49	0.48
Other Chemical Storage	0	0	0	0	0	0	2.66
Other land-based extraction	1.97×10^{-4}	0.01	0.01	2.22	0.74	6.02×10^{-8}	8.13×10^{-4}
Other metal processing	0.07	0.01	1.05	0.52	0.91	3.67×10^{-3}	1.12
Other vessel construction or maintenance	0	5.20×10^{-3}	5.86×10^{-3}	0.61	0.98	0	0.06
Primary aluminium production	51.5	4.28	3.00	5.20	6.56	85.8	0.09
Primary non-ferrous production (excluding aluminium)	0.02	5.83×10^{-3}	0.48	0.50	0.71	0.08	0.02
Production of ammonium nitrate	0.35	0.05	10.7	7.13	12.3	0.01	2.73
Production of phosphate fertilizer	6.13×10^{-3}	1.14×10^{-3}	0.06	2.69	4.60	4.18×10^{-4}	3.13×10^{-3}
Scrap metal recovery	0	0	0.02	0	0	0	1.70×10^{-5}
Secondary iron and steel production	2.99	3.80	0.26	0.96	1.49	0.02	1.94
Sewage Treatment - processing by large plants	0	0	0	0	0	0	0.01
Sewage Treatment - processing by small plants	0	0	0	0	0	0	9.03×10^{-5}
Solid waste landfilling	6.29×10^{-3}	0.04	0	0.79	0.28	0	0.64
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	1.86
Used tyre processing or disposal	0	0	0	0	0	0	7.96×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.13	0.21	0	0.26
Waste storage, transfer, separating or processing	4.79×10^{-6}	1.25×10^{-4}	5.01×10^{-5}	0.01	3.35×10^{-3}	2.42×10^{-7}	6.68×10^{-3}
Wood or timber milling	0	0	0	9.23×10^{-3}	5.93×10^{-3}	0	0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wood preservation	0	0	0	0	0	0	4.27 × 10 ⁻⁴
Industrial Total	55.1	10.2	17.5	57.9	47.9	87.1	13.1
Proportion of Anthropogenic Total Annual Emissions (%) - Wollongong							
Bitumen pre-mix or hotmix production	4.49 × 10 ⁻³	4.18 × 10 ⁻³	0.02	0.12	0.11	3.69 × 10 ⁻³	0.03
Bulk cargo handling	0	0	0	0.02	2.51 × 10 ⁻³	0	1.53 × 10 ⁻⁵
Cement or lime handling	0	0	0	1.97 × 10 ⁻³	4.53 × 10 ⁻⁴	0	3.63 × 10 ⁻⁴
Coal loading	9.72 × 10 ⁻⁵	0.18	0.02	5.94	0.89	1.32 × 10 ⁻³	2.55 × 10 ⁻³
Coal mining	3.67 × 10 ⁻⁴	0.02	0.08	2.15	0.62	4.90 × 10 ⁻³	0.41
Coal washery reject or slag landfilling	1.33 × 10 ⁻⁶	0	2.22 × 10 ⁻⁴	1.87	0.52	8.38 × 10 ⁻⁶	1.06 × 10 ⁻⁵
Coke production	6.61 × 10 ⁻⁴	3.57	0.12	1.10	1.52	2.51	4.10 × 10 ⁻³
Concrete batching	0	5.17 × 10 ⁻⁴	0	0.41	0.08	0	4.19 × 10 ⁻⁴
Crushing, grinding or separating works	0	2.07 × 10 ⁻³	0	0.16	0.09	0	0
Drum or container reconditioning	3.85 × 10 ⁻⁷	8.11 × 10 ⁻⁶	6.83 × 10 ⁻⁵	1.50 × 10 ⁻⁵	2.06 × 10 ⁻⁵	2.80 × 10 ⁻⁵	0.05
Environmentally sensitive area landfilling	0	6.95 × 10 ⁻⁴	0	0.22	0.06	0	0
Hazardous, industrial, group A or group B waste processing	1.11 × 10 ⁻⁵	1.81 × 10 ⁻⁵	5.85 × 10 ⁻⁴	5.71 × 10 ⁻³	1.74 × 10 ⁻³	3.55 × 10 ⁻⁶	6.82 × 10 ⁻⁴
Inert waste landfilling	0	1.74 × 10 ⁻⁴	0	1.47	0.41	0	2.23 × 10 ⁻⁵
Metal plating or coating works	0.22	0.89	0.44	0.34	0.43	0.28	2.43
Other chemical processing	2.12 × 10 ⁻⁴	1.06 × 10 ⁻⁴	0.01	0.03	0.01	6.77 × 10 ⁻⁵	1.18 × 10 ⁻³
Other metal processing	1.06 × 10 ⁻⁴	5.28 × 10 ⁻⁵	5.58 × 10 ⁻³	7.90 × 10 ⁻³	9.47 × 10 ⁻³	3.38 × 10 ⁻⁵	0.02
Other vessel construction or maintenance	0	0	0	0	0	0	1.43 × 10 ⁻⁵
Primary iron and steel production	95.4	58.9	63.6	53.3	65.8	94.0	8.97
Production of phosphate fertilizer	2.61 × 10 ⁻⁴	1.50 × 10 ⁻⁴	0.07	0.08	0.11	0.20	0.01
Scrap metal recovery	0	0	0	0	0	0	1.18 × 10 ⁻⁵
Sewage Treatment - processing by large plants	1.27 × 10 ⁻⁴	4.06 × 10 ⁻⁵	0.02	3.17 × 10 ⁻³	4.36 × 10 ⁻³	2.61 × 10 ⁻⁵	8.28 × 10 ⁻³
Sewage Treatment - processing by small plants	2.67 × 10 ⁻⁴	7.39 × 10 ⁻⁵	8.27 × 10 ⁻³	2.89 × 10 ⁻³	3.99 × 10 ⁻³	5.23 × 10 ⁻⁵	0.01

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Solid waste landfilling	0.02	0	0.05	0.94	0.32	0	0.26
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	5.72 × 10 ⁻³
Industrial Total	95.7	63.5	64.5	68.2	71.0	97.0	12.2
Proportion of Anthropogenic Total Annual Emissions (%) – Non-Urban							
Animal slaughtering	4.76 × 10 ⁻⁵	8.34 × 10 ⁻⁷	4.05 × 10 ⁻⁵	1.14 × 10 ⁻⁵	4.04 × 10 ⁻⁵	1.40 × 10 ⁻⁷	1.64 × 10 ⁻⁵
Bitumen pre-mix or hotmix production	7.43 × 10 ⁻³	1.04 × 10 ⁻³	1.11 × 10 ⁻³	0.01	0.02	9.88 × 10 ⁻⁵	0.01
Cement or lime handling	0	3.32 × 10 ⁻⁴	0	0.30	0.25	0	8.86 × 10 ⁻⁴
Cement or lime production	2.53	1.00	2.70	0.44	0.95	0.07	0.34
Ceramics production (excluding glass)	0.16	2.21 × 10 ⁻⁴	0.04	0.54	1.42	0.06	0.06
Coal loading	2.65 × 10 ⁻⁴	0.02	8.79 × 10 ⁻⁴	0.27	0.11	3.84 × 10 ⁻⁵	9.82 × 10 ⁻⁴
Coal mining	1.82	3.20	0.75	51.4	30.1	0.03	0.40
Composting and related reprocessing or treatment	4.0 × 10 ⁻⁴	7.0 × 10 ⁻⁶	2.44 × 10 ⁻³	2.59 × 10 ⁻⁴	5.30 × 10 ⁻⁴	1.18 × 10 ⁻⁶	0.14
Concrete batching	1.25 × 10 ⁻³	5.43 × 10 ⁻⁴	1.73 × 10 ⁻³	0.16	0.10	3.65 × 10 ⁻⁶	7.30 × 10 ⁻³
Crushing, grinding or separating works	2.10 × 10 ⁻⁴	5.42 × 10 ⁻⁴	6.96 × 10 ⁻⁴	0.76	0.62	3.04 × 10 ⁻⁵	4.19 × 10 ⁻³
Environmentally sensitive area landfilling	2.26 × 10 ⁻³	0	3.40 × 10 ⁻⁵	0.04	0.03	1.16 × 10 ⁻⁶	0.03
Explosives or pyrotechnics production	0	0	0	0	0	0	2.73 × 10 ⁻³
Freeway or tollway construction	0	0	0	0.09	0.06	0	0
Generation of electrical power from coal	5.42	2.40	82.1	10.1	12.7	97.9	2.90
Hard-rock gravel quarrying	0	8.40 × 10 ⁻³	0	2.93	2.67	0	0.69
Hazardous, industrial or group A waste generation or storage	2.02 × 10 ⁻⁶	2.17 × 10 ⁻⁶	1.72 × 10 ⁻⁶	3.41 × 10 ⁻⁴	2.35 × 10 ⁻⁴	5.95 × 10 ⁻⁹	0.99
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.80 × 10 ⁻⁶
Inert waste landfilling	3.43 × 10 ⁻⁴	0	0	8.24 × 10 ⁻³	5.88 × 10 ⁻³	0	0.13
Landfilling in designated areas	2.06 × 10 ⁻⁵	0	0	2.22 × 10 ⁻³	1.58 × 10 ⁻³	0	1.21 × 10 ⁻³
Mining (other than coal)	0	8.86 × 10 ⁻⁴	0	0.75	0.56	0	1.33 × 10 ⁻⁵
Mooring and boat storage	0	0	0	0	0	0	7.28 × 10 ⁻³

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other agricultural crop processing	4.84×10^{-3}	8.43×10^{-5}	4.09×10^{-3}	0.04	0.04	1.42×10^{-5}	2.04×10^{-3}
Other chemical processing	1.33×10^{-3}	0	3.56×10^{-3}	1.25×10^{-3}	4.38×10^{-3}	7.69×10^{-5}	4.56×10^{-3}
Other Chemical Storage	1.37×10^{-5}	2.40×10^{-7}	1.16×10^{-5}	4.51×10^{-4}	8.88×10^{-4}	4.04×10^{-8}	0.14
Other land-based extraction	6.81×10^{-3}	4.31×10^{-3}	0.02	3.43	2.73	9.87×10^{-4}	0.24
Other livestock processing	2.95×10^{-3}	5.03×10^{-5}	2.83×10^{-3}	7.32×10^{-4}	2.59×10^{-3}	8.47×10^{-6}	2.41×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	5.76×10^{-3}
Plastics production	4.39×10^{-4}	8.50×10^{-3}	1.09×10^{-3}	1.13×10^{-4}	3.99×10^{-4}	1.29×10^{-6}	5.38×10^{-3}
Poultry production	2.85×10^{-5}	0	1.47×10^{-4}	0.13	0.11	5.06×10^{-10}	2.62×10^{-5}
Primary aluminium production	10.0	1.39×10^{-4}	0.03	0.58	1.50	1.29	0.02
Rendering or fat extraction	7.63×10^{-3}	1.31×10^{-4}	6.48×10^{-3}	1.82×10^{-3}	6.36×10^{-3}	3.48×10^{-5}	6.81×10^{-3}
Secondary aluminium production	0.02	1.33×10^{-3}	5.51×10^{-3}	0.02	0.08	1.05×10^{-4}	1.26×10^{-3}
Sewage Treatment - processing by large plants	3.40×10^{-3}	1.38×10^{-6}	2.85×10^{-4}	2.18×10^{-4}	7.72×10^{-4}	1.52×10^{-6}	0.01
Sewage Treatment - processing by small plants	0.16	3.82×10^{-5}	0.01	9.95×10^{-3}	0.04	6.80×10^{-5}	0.15
Solid waste landfilling	4.66×10^{-3}	4.53×10^{-6}	0	0.82	0.59	0	0.54
Waste oil recovery	2.10×10^{-3}	1.39×10^{-3}	5.67×10^{-3}	5.69×10^{-4}	2.0×10^{-3}	5.92×10^{-3}	1.21×10^{-3}
Wood or timber milling	0.02	0.07	0.03	0.04	0.06	0.02	0.37
Industrial Total	20.2	6.72	85.7	72.8	54.6	99.4	7.21

3.4.3 Daily Emission Estimates

Table 3.65 shows total estimated daily emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.65 Total estimated daily emissions from industrial sources in each region for typical January weekday

Substance	Industrial January Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	21.450	127	1,403	68.875	1,620
LEAD AND COMPOUNDS	0.012	6.34×10^{-4}	0.011	7.64×10^{-3}	0.032
OXIDES OF NITROGEN	37.750	4.700	21.315	411	475
PARTICULATE MATTER < 10 µm	20.807	4.847	5.566	91.315	123
PARTICULATE MATTER < 2.5 µm	8.878	2.260	4.187	19.527	34.851
SULFUR DIOXIDE	29.442	25.139	27.662	719	802
TOTAL VOCS	38.228	3.310	2.141	5.034	48.714

Table 3.66 shows the proportion of total estimated daily anthropogenic emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.66 Proportion of total estimated daily emissions from industrial sources in each region for typical January weekday

Substance	Industrial Proportion of Anthropogenic Total January Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	2.12	63.1	96.9	26.0	55.4
LEAD AND COMPOUNDS	17.6	11.3	67.6	7.94	16.8
OXIDES OF NITROGEN	15.9	18.6	66.0	86.8	61.8
PARTICULATE MATTER < 10 µm	47.9	69.1	76.6	76.5	69.2
PARTICULATE MATTER < 2.5 µm	38.8	63.0	81.1	61.3	54.9
SULFUR DIOXIDE	81.2	87.8	97.2	99.5	98.2
TOTAL VOCS	12.4	14.5	14.1	8.89	12.1

Figure 3.17 shows the proportion of total estimated daily GMR industrial emissions from all industrial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

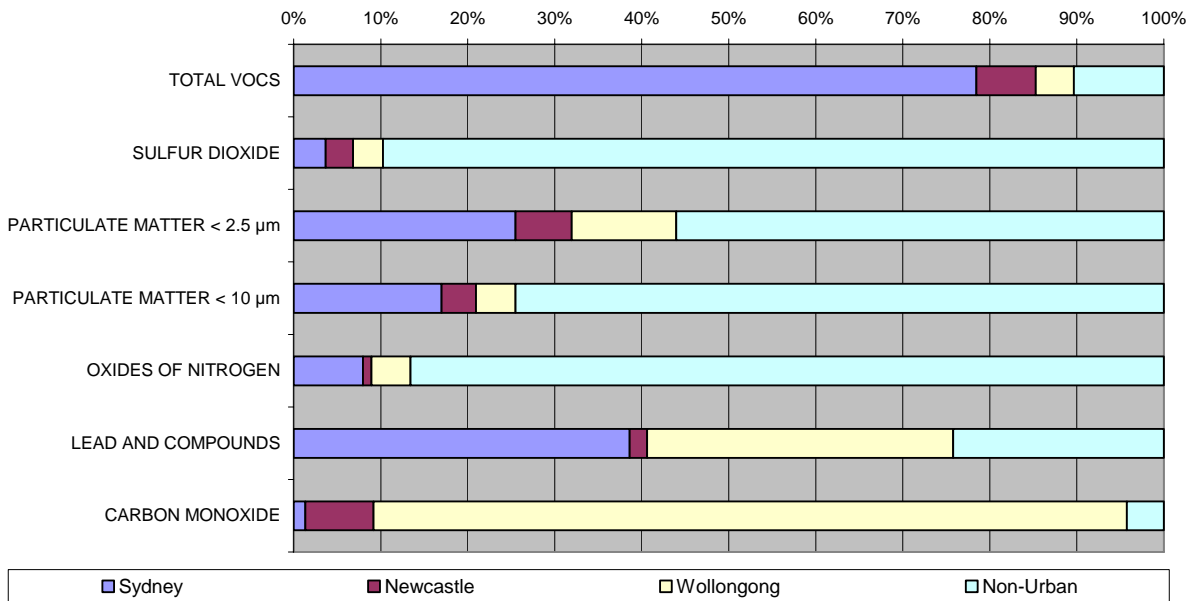


Figure 3.17 Proportion of total estimated daily emissions from industrial sources in each region for typical January weekday

Table 3.67 shows total estimated daily emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.68 shows the proportion of total estimated daily anthropogenic emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.67 Total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical January weekday

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
January Weekday Emissions (tonnes/day) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	5.35×10^{-3}
Animal slaughtering	0.023	7.64×10^{-6}	0.274	9.45×10^{-3}	4.38×10^{-3}	0.343	0.097
Battery production	0	2.12×10^{-3}	0	9.18×10^{-3}	9.18×10^{-3}	0	0
Beer or distilled alcohol production	0.057	3.37×10^{-7}	0.115	6.44×10^{-3}	6.44×10^{-3}	3.52×10^{-4}	0.099
Biomedical waste incineration	0.015	8.11×10^{-5}	0.011	2.01×10^{-3}	2.01×10^{-3}	3.20×10^{-3}	1.55×10^{-3}
Bitumen pre-mix or hotmix production	0.405	5.36×10^{-5}	0.086	0.569	0.402	0.015	0.100
Bread manufacturing	4.53×10^{-3}	2.68×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	7.36×10^{-9}	0	0.251	0.037	0	3.25×10^{-3}
Cake and pastry manufacturing	2.37×10^{-3}	1.39×10^{-8}	2.83×10^{-3}	2.15×10^{-4}	2.15×10^{-4}	1.48×10^{-5}	1.56×10^{-4}
Cement or lime handling	6.18×10^{-3}	5.85×10^{-7}	7.36×10^{-3}	0.566	0.181	2.73×10^{-5}	0.229
Cement or lime production	8.816	1.34×10^{-3}	16.473	0.759	0.470	0.563	0.229
Ceramics production (excluding glass)	2.097	5.75×10^{-7}	0.627	2.978	2.163	1.777	0.311
Chemical storage	0	0	0	0	0	0	0.021
Coal loading	2.33×10^{-3}	5.42×10^{-5}	0.011	0.828	0.090	6.52×10^{-4}	0.012
Coal mining	6.265	3.66×10^{-3}	3.952	66.119	11.054	0.224	0.359
Coal washery reject or slag landfilling	2.28×10^{-5}	0	8.58×10^{-5}	0.153	0.031	2.79×10^{-6}	2.15×10^{-6}
Coke production	0.020	1.30×10^{-3}	0.082	0.187	0.187	1.487	1.74×10^{-3}
Composting and related reprocessing or treatment	1.065	1.02×10^{-8}	0.012	0.172	0.035	8.46×10^{-6}	0.561
Concrete batching	0.015	3.02×10^{-6}	0.021	1.004	0.211	9.24×10^{-5}	0.416
Confectionary manufacturing	2.17×10^{-4}	4.52×10^{-9}	1.54×10^{-3}	6.87×10^{-5}	6.87×10^{-5}	4.72×10^{-6}	1.01×10^{-3}
Contaminated soil treatment	0	0	0	0	0	0	0
Crushing, grinding or separating works	1.613	7.39×10^{-5}	0.622	6.852	2.423	0.593	0.177
Drum or container reconditioning	2.05×10^{-3}	7.13×10^{-5}	0.010	3.82×10^{-4}	3.82×10^{-4}	7.39×10^{-5}	0.213

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Dry cleaning	3.35×10^{-3}	2.10×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	0.013	1.56×10^{-7}	2.27×10^{-4}	0.208	0.042	1.17×10^{-5}	0.051
Explosives or pyrotechnics production	4.52×10^{-6}	1.13×10^{-9}	6.67×10^{-4}	9.78×10^{-7}	9.71×10^{-7}	6.40×10^{-6}	3.79×10^{-6}
Freeway or tollway construction	0	5.50×10^{-6}	0	0.250	0.041	0	9.13×10^{-6}
Generation of electrical power from coal	18.587	2.78×10^{-3}	394	12.974	4.601	709	1.889
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	1.25×10^{-5}	0	4.102	1.020	0	0.457
Hazardous, industrial or group A waste generation or storage	0.027	1.35×10^{-7}	0.043	5.19×10^{-3}	4.77×10^{-3}	1.30×10^{-3}	1.620
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.38×10^{-6}
Hazardous, industrial, group A or group B waste processing	0.013	9.74×10^{-8}	0.015	0.015	0.015	1.93×10^{-4}	0.026
Inert waste landfilling	1.17×10^{-3}	3.52×10^{-8}	0	0.448	0.094	0	0.082
Landfilling in designated areas	9.64×10^{-3}	0	0	0.060	0.012	0	0.109
Metal plating or coating works	3.215	1.55×10^{-4}	0.193	0.107	0.103	0.081	6.723
Milk processing	0.027	1.61×10^{-7}	0.035	2.52×10^{-3}	2.52×10^{-3}	1.68×10^{-4}	0.018
Mining (other than coal)	0	1.19×10^{-6}	0	1.007	0.213	0	1.02×10^{-5}
Mooring and boat storage	0	0	0	0	0	0	0.011
Oil and fat manufacturing	0.014	8.52×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.083	4.98×10^{-7}	0.098	0.212	0.070	7.27×10^{-4}	0.029
Other chemical processing	0.207	1.64×10^{-6}	0.376	0.110	0.108	0.143	2.181
Other Chemical Storage	0.013	7.66×10^{-8}	0.019	2.24×10^{-3}	1.76×10^{-3}	8.02×10^{-5}	1.288
Other land-based extraction	0.651	1.33×10^{-5}	0.241	9.407	2.179	0.553	0.184
Other livestock processing	0.017	9.99×10^{-8}	0.022	1.61×10^{-3}	1.61×10^{-3}	1.05×10^{-4}	0.014
Other metal processing	0.356	1.57×10^{-5}	0.339	0.120	0.120	0.011	3.208

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other vessel construction or maintenance	0	7.53×10^{-7}	1.55×10^{-3}	0.109	0.100	0	0.349
Paint production	8.69×10^{-3}	2.66×10^{-7}	0.011	0.038	0.037	9.87×10^{-5}	0.302
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	6.68×10^{-4}	3.88×10^{-9}	7.95×10^{-4}	6.05×10^{-5}	6.05×10^{-5}	4.16×10^{-6}	0.024
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.470	1.57×10^{-4}	7.502	0.714	0.636	18.693	8.838
Pharmaceutical or veterinary products production	0.018	1.08×10^{-7}	0.024	1.82×10^{-3}	1.79×10^{-3}	1.54×10^{-4}	0.157
Plastics production	7.43×10^{-3}	6.70×10^{-6}	0.033	0.382	0.378	4.47×10^{-5}	1.555
Poultry production	0.018	1.03×10^{-7}	0.023	1.195	0.323	1.07×10^{-4}	0.045
Primary aluminium production	154	2.77×10^{-4}	0.922	1.164	0.840	33.842	0.033
Primary iron and steel production	1,399	0.010	21.039	4.354	3.881	26.807	1.559
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.040	0.033	0.023	3.98×10^{-3}
Printing	0.028	1.64×10^{-7}	0.050	2.95×10^{-3}	2.95×10^{-3}	2.06×10^{-4}	6.739
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Production of phosphate fertilizer	0.020	1.10×10^{-7}	0.039	0.273	0.268	0.056	3.05×10^{-3}
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0.062	1.07×10^{-6}	0.074	0.016	8.70×10^{-3}	0.033	0.015
Scrap metal recovery	0	0	0.016	0.164	0.123	0	2.83×10^{-5}
Secondary aluminium production	0.175	6.87×10^{-6}	0.173	0.067	0.041	0.076	0.343
Secondary iron and steel production	5.639	2.07×10^{-4}	0.057	0.074	0.069	5.66×10^{-3}	0.572
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.258	9.50×10^{-8}	1.624	4.53×10^{-3}	4.53×10^{-3}	7.12×10^{-4}	0.125

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by small plants	0.608	1.59×10^{-5}	0.118	0.195	0.048	3.32×10^{-3}	0.221
Soap or detergent production	0.012	6.83×10^{-8}	0.012	1.05×10^{-3}	1.05×10^{-3}	6.56×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}
Solid waste landfilling	0.732	2.74×10^{-6}	0.017	2.501	0.511	0	1.254
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	1.184
Used tyre processing or disposal	0	0	0	0	0	0	2.48×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.081
Waste oil recovery	7.95×10^{-3}	1.61×10^{-6}	0.030	8.08×10^{-4}	8.02×10^{-4}	0.042	1.29×10^{-3}
Waste storage, transfer, separating or processing	0.145	5.50×10^{-8}	0.112	0.086	0.018	1.62×10^{-5}	5.52×10^{-3}
Wood or timber milling	0.128	1.31×10^{-4}	0.183	0.076	0.031	0.172	0.369
Wood preservation	0	0	0	0	0	0	1.56×10^{-4}
Industrial Total	1,620	0.032	475	123	34.851	802	48.714
January Weekday Emissions (tonnes/day) - Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	4.94×10^{-3}
Animal slaughtering	0.011	8.20×10^{-8}	0.014	1.0×10^{-3}	1.0×10^{-3}	1.82×10^{-4}	0.013
Battery production	0	2.12×10^{-3}	0	9.18×10^{-3}	9.18×10^{-3}	0	0
Beer or distilled alcohol production	0.057	3.37×10^{-7}	0.115	6.44×10^{-3}	6.44×10^{-3}	3.52×10^{-4}	0.099
Biomedical waste incineration	0.015	8.11×10^{-5}	0.011	2.01×10^{-3}	2.01×10^{-3}	3.20×10^{-3}	1.55×10^{-3}
Bitumen pre-mix or hotmix production	0.276	1.90×10^{-5}	0.065	0.188	0.080	8.44×10^{-3}	0.083
Bread manufacturing	4.53×10^{-3}	2.68×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	0	0	0.025	4.75×10^{-3}	0	1.45×10^{-3}
Cake and pastry manufacturing	2.37×10^{-3}	1.39×10^{-8}	2.83×10^{-3}	2.15×10^{-4}	2.15×10^{-4}	1.48×10^{-5}	1.56×10^{-4}
Cement or lime handling	5.79×10^{-3}	4.50×10^{-8}	6.89×10^{-3}	0.159	0.079	2.49×10^{-5}	0.228
Cement or lime production	0.219	1.91×10^{-4}	3.594	0.192	0.127	0.036	9.33×10^{-3}
Ceramics production (excluding glass)	1.651	2.18×10^{-7}	0.441	2.305	1.671	1.418	0.288

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Chemical storage	0	0	0	0	0	0	0.021
Coal mining	0.022	2.18×10^{-5}	0.094	0.308	0.040	5.04×10^{-3}	5.92×10^{-3}
Coke production	0.011	6.77×10^{-4}	0.042	0.097	0.097	0.772	1.01×10^{-3}
Composting and related reprocessing or treatment	1.064	2.08×10^{-9}	0	0.172	0.035	0	0.472
Concrete batching	0.011	2.27×10^{-6}	0.014	0.762	0.168	6.84×10^{-5}	0.411
Confectionary manufacturing	2.17×10^{-4}	4.52×10^{-9}	1.54×10^{-3}	6.87×10^{-5}	6.87×10^{-5}	4.72×10^{-6}	1.01×10^{-3}
Crushing, grinding or separating works	1.604	7.24×10^{-5}	0.599	5.536	2.102	0.592	0.171
Drum or container reconditioning	2.04×10^{-3}	7.13×10^{-5}	0.010	3.80×10^{-4}	3.80×10^{-4}	6.27×10^{-5}	0.201
Dry cleaning	3.35×10^{-3}	2.10×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	2.98×10^{-3}	1.48×10^{-8}	0	0.138	0.028	0	0.034
Freeway or tollway construction	0	5.50×10^{-6}	0	0.132	0.017	0	9.13×10^{-6}
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	3.39×10^{-7}	0	0.317	0.085	0	0.012
Hazardous, industrial or group A waste generation or storage	0.027	1.32×10^{-7}	0.043	4.75×10^{-3}	4.68×10^{-3}	1.30×10^{-3}	0.672
Hazardous, industrial, group A or group B waste processing	0.012	9.32×10^{-8}	0.015	0.015	0.015	1.91×10^{-4}	0.026
Inert waste landfilling	0	0	0	0.172	0.038	0	1.60×10^{-6}
Landfilling in designated areas	9.57×10^{-3}	0	0	0.057	0.011	0	0.109
Metal plating or coating works	0.031	1.86×10^{-7}	0.042	0.069	0.068	1.99×10^{-4}	6.280
Milk processing	0.020	1.19×10^{-7}	0.026	1.82×10^{-3}	1.82×10^{-3}	1.25×10^{-4}	0.017
Mining (other than coal)	0	0	0	0.033	6.69×10^{-3}	0	0
Mooring and boat storage	0	0	0	0	0	0	2.87×10^{-3}
Oil and fat manufacturing	0.014	8.52×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.041	2.50×10^{-7}	0.048	0.126	0.042	2.62×10^{-4}	0.017

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other chemical processing	0.130	5.86×10^{-7}	0.126	0.011	0.011	7.92×10^{-4}	2.052
Other Chemical Storage	0.013	7.62×10^{-8}	0.019	1.16×10^{-3}	1.16×10^{-3}	7.98×10^{-5}	0.510
Other land-based extraction	0.622	7.92×10^{-6}	0.102	4.824	1.153	0.544	0.025
Other livestock processing	7.10×10^{-3}	4.20×10^{-8}	8.22×10^{-3}	6.43×10^{-4}	6.43×10^{-4}	4.42×10^{-5}	0.012
Other metal processing	0.223	1.49×10^{-5}	0.104	0.085	0.084	9.62×10^{-3}	2.959
Other vessel construction or maintenance	0	4.17×10^{-7}	0	0.060	0.055	0	0.328
Paint production	8.69×10^{-3}	2.66×10^{-7}	0.011	0.038	0.037	9.87×10^{-5}	0.302
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	6.68×10^{-4}	3.88×10^{-9}	7.95×10^{-4}	6.05×10^{-5}	6.05×10^{-5}	4.16×10^{-6}	0.024
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.470	1.57×10^{-4}	7.502	0.714	0.636	18.693	8.838
Pharmaceutical or veterinary products production	0.018	1.08×10^{-7}	0.024	1.82×10^{-3}	1.79×10^{-3}	1.54×10^{-4}	0.157
Plastics production	6.42×10^{-3}	3.25×10^{-8}	0.029	0.382	0.378	3.84×10^{-5}	1.553
Poultry production	0.018	1.03×10^{-7}	0.023	1.031	0.284	1.07×10^{-4}	0.045
Primary iron and steel production	4.51×10^{-4}	5.81×10^{-5}	5.37×10^{-4}	4.81×10^{-3}	3.44×10^{-3}	2.81×10^{-6}	2.78×10^{-3}
Primary non-ferrous production (excluding aluminium)	0	0	9.08×10^{-6}	5.15×10^{-4}	4.26×10^{-4}	3.32×10^{-5}	1.44×10^{-6}
Printing	0.028	1.64×10^{-7}	0.050	2.95×10^{-3}	2.95×10^{-3}	2.06×10^{-4}	6.589
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0.031	8.88×10^{-7}	0.037	0.013	5.94×10^{-3}	0.032	0.010
Scrap metal recovery	0	0	9.99×10^{-3}	0.164	0.123	0	2.06×10^{-5}
Secondary aluminium production	0.127	5.95×10^{-6}	0.157	0.050	0.023	0.076	0.342
Secondary iron and steel production	0	8.20×10^{-6}	2.33×10^{-3}	0.013	0.014	1.30×10^{-3}	0.163
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.244	8.63×10^{-8}	1.616	4.0×10^{-3}	3.99×10^{-3}	6.93×10^{-4}	0.113
Sewage Treatment - processing by small plants	0.058	1.58×10^{-5}	0.059	0.182	0.035	2.82×10^{-3}	0.124
Soap or detergent production	0.012	6.83×10^{-8}	0.012	1.05×10^{-3}	1.05×10^{-3}	6.56×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}
Solid waste landfilling	0.365	1.08×10^{-7}	0	1.309	0.267	0	0.690
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	0.696
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	0.012
Waste oil recovery	3.46×10^{-4}	0	2.84×10^{-3}	3.44×10^{-5}	3.44×10^{-5}	5.26×10^{-7}	4.83×10^{-4}
Waste storage, transfer, separating or processing	0.145	4.37×10^{-8}	0.112	0.085	0.018	1.61×10^{-5}	3.77×10^{-3}
Industrial Total	21.450	0.012	37.750	20.807	8.878	29.442	38.228
January Weekday Emissions (tonnes/day) - Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	4.13×10^{-4}
Animal slaughtering	0.012	7.55×10^{-6}	0.259	8.43×10^{-3}	3.36×10^{-3}	0.343	0.084
Bitumen pre-mix or hotmix production	0.055	3.23×10^{-5}	9.12×10^{-3}	0.354	0.308	4.53×10^{-3}	5.57×10^{-3}
Bulk cargo handling	0	7.36×10^{-9}	0	0.225	0.032	0	1.80×10^{-3}
Cement or lime handling	3.94×10^{-4}	2.30×10^{-9}	4.69×10^{-4}	0.010	6.11×10^{-3}	2.45×10^{-6}	3.95×10^{-5}
Coal loading	0	4.50×10^{-8}	0	6.05×10^{-4}	6.03×10^{-5}	0	0.010
Coal mining	0.026	1.04×10^{-4}	0.065	1.505	0.224	2.84×10^{-3}	8.57×10^{-3}
Concrete batching	0	1.03×10^{-7}	0	0.031	4.70×10^{-3}	0	2.13×10^{-4}
Crushing, grinding or separating works	8.06×10^{-3}	3.95×10^{-7}	0.020	0.286	0.080	1.29×10^{-3}	3.88×10^{-3}
Explosives or pyrotechnics production	4.52×10^{-6}	1.13×10^{-9}	6.67×10^{-4}	9.78×10^{-7}	9.71×10^{-7}	6.40×10^{-6}	3.79×10^{-6}
Hard-rock gravel quarrying	0	4.61×10^{-6}	0	0.460	0.121	0	1.66×10^{-5}
Hazardous, industrial or group A waste generation or storage	1.92×10^{-5}	9.03×10^{-11}	2.29×10^{-5}	1.74×10^{-6}	1.74×10^{-6}	1.20×10^{-7}	0.050

3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Hazardous, industrial, group A or group B waste processing	1.30×10^{-4}	7.68×10^{-10}	1.55×10^{-4}	1.18×10^{-5}	1.18×10^{-5}	8.09×10^{-7}	8.51×10^{-6}
Inert waste landfilling	0	0	0	0.145	0.029	0	0
Metal plating or coating works	4.73×10^{-3}	2.81×10^{-8}	5.63×10^{-3}	6.64×10^{-3}	6.64×10^{-3}	2.94×10^{-5}	1.40×10^{-3}
Milk processing	6.97×10^{-3}	4.15×10^{-8}	8.33×10^{-3}	7.0×10^{-4}	7.0×10^{-4}	4.35×10^{-5}	9.30×10^{-4}
Mooring and boat storage	0	0	0	0	0	0	1.92×10^{-3}
Other agricultural crop processing	0.022	1.32×10^{-7}	0.027	0.026	9.19×10^{-3}	3.44×10^{-4}	0.011
Other chemical processing	0.069	1.03×10^{-6}	0.226	0.095	0.094	0.142	0.125
Other Chemical Storage	0	0	0	0	0	0	0.715
Other land-based extraction	5.37×10^{-4}	1.12×10^{-6}	3.89×10^{-3}	0.189	0.036	2.01×10^{-8}	2.48×10^{-4}
Other metal processing	0.131	7.93×10^{-7}	0.234	0.035	0.035	8.85×10^{-4}	0.245
Other vessel construction or maintenance	0	3.36×10^{-7}	1.55×10^{-3}	0.048	0.044	0	0.017
Primary aluminium production	120	2.77×10^{-4}	0.796	0.412	0.298	24.614	0.023
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.040	0.032	0.023	3.98×10^{-3}
Printing	0	0	0	0	0	0	0.151
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of phosphate fertilizer	0.016	8.34×10^{-8}	0.017	0.267	0.262	1.35×10^{-4}	9.22×10^{-4}
Scrap metal recovery	0	0	5.83×10^{-3}	0	0	0	5.28×10^{-6}
Secondary iron and steel production	5.639	1.99×10^{-4}	0.055	0.061	0.055	4.36×10^{-3}	0.409
Sewage Treatment - processing by large plants	0	0	0	0	0	0	2.85×10^{-3}
Sewage Treatment - processing by small plants	0	0	0	0	0	0	2.36×10^{-5}
Solid waste landfilling	0.015	2.63×10^{-6}	0	0.062	0.013	0	0.166
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	0.487
Used tyre processing or disposal	0	0	0	0	0	0	2.48×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.069

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Waste storage, transfer, separating or processing	1.56×10^{-5}	1.12×10^{-8}	1.86×10^{-5}	8.47×10^{-4}	1.56×10^{-4}	9.72×10^{-8}	1.75×10^{-3}
Wood or timber milling	0	0	0	7.31×10^{-4}	2.69×10^{-4}	0	0
Wood preservation	0	0	0	0	0	0	1.56×10^{-4}
Industrial Total	127	6.34×10^{-4}	4.700	4.847	2.260	25.139	3.310
January Weekday Emissions (tonnes/day) - Wollongong							
Bitumen pre-mix or hotmix production	0.041	7.75×10^{-7}	5.33×10^{-3}	8.66×10^{-3}	5.06×10^{-3}	7.01×10^{-4}	3.54×10^{-3}
Bulk cargo handling	0	0	0	1.49×10^{-3}	1.48×10^{-4}	0	3.17×10^{-6}
Cement or lime handling	0	0	0	1.61×10^{-4}	2.67×10^{-5}	0	6.30×10^{-5}
Coal loading	1.42×10^{-3}	3.06×10^{-5}	6.72×10^{-3}	0.485	0.052	3.76×10^{-4}	4.44×10^{-4}
Coal mining	5.38×10^{-3}	3.38×10^{-6}	0.025	0.178	0.037	1.40×10^{-3}	0.070
Coal washery reject or slag landfilling	2.28×10^{-5}	0	8.58×10^{-5}	0.153	0.031	2.79×10^{-6}	2.15×10^{-6}
Coke production	9.70×10^{-3}	6.24×10^{-4}	0.039	0.090	0.090	0.716	7.38×10^{-4}
Concrete batching	0	8.03×10^{-8}	0	0.030	4.48×10^{-3}	0	7.52×10^{-5}
Crushing, grinding or separating works	0	4.22×10^{-7}	0	0.015	6.45×10^{-3}	0	0
Drum or container reconditioning	7.90×10^{-6}	1.94×10^{-9}	3.16×10^{-5}	1.71×10^{-6}	1.70×10^{-6}	1.12×10^{-5}	0.012
Environmentally sensitive area landfilling	0	1.42×10^{-7}	0	0.018	3.43×10^{-3}	0	0
Hazardous, industrial, group A or group B waste processing	2.09×10^{-4}	3.39×10^{-9}	2.49×10^{-4}	4.70×10^{-4}	1.07×10^{-4}	1.30×10^{-6}	1.22×10^{-4}
Inert waste landfilling	0	3.52×10^{-8}	0	0.120	0.024	0	3.87×10^{-6}
Metal plating or coating works	3.178	1.55×10^{-4}	0.146	0.031	0.028	0.081	0.441
Other chemical processing	3.10×10^{-3}	1.84×10^{-8}	3.69×10^{-3}	2.64×10^{-3}	7.56×10^{-4}	1.93×10^{-5}	2.05×10^{-4}
Other metal processing	1.55×10^{-3}	9.03×10^{-9}	1.84×10^{-3}	6.44×10^{-4}	5.58×10^{-4}	9.64×10^{-6}	3.55×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	2.96×10^{-6}
Primary iron and steel production	1,399	0.010	21.038	4.349	3.877	26.807	1.556
Production of phosphate fertilizer	3.82×10^{-3}	2.62×10^{-8}	0.022	6.35×10^{-3}	6.35×10^{-3}	0.056	2.13×10^{-3}
Scrap metal recovery	0	0	0	0	0	0	2.44×10^{-6}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	1.86×10^{-3}	7.09×10^{-9}	6.28×10^{-3}	2.59×10^{-4}	2.57×10^{-4}	7.44×10^{-6}	1.44×10^{-3}
Sewage Treatment - processing by small plants	3.91×10^{-3}	1.28×10^{-8}	2.73×10^{-3}	2.35×10^{-4}	2.35×10^{-4}	1.49×10^{-5}	2.49×10^{-3}
Soap or detergent production	0	0	0	0	0	0	0
Solid waste landfilling	0.337	0	0.017	0.077	0.019	0	0.045
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	1.18×10^{-3}
Industrial Total	1,403	0.011	21.315	5.566	4.187	27.662	2.141
January Weekday Emissions (tonnes/day) - Non-Urban							
Animal slaughtering	1.62×10^{-4}	9.48×10^{-10}	1.93×10^{-4}	1.46×10^{-5}	1.46×10^{-5}	1.01×10^{-6}	1.06×10^{-5}
Bitumen pre-mix or hotmix production	0.034	1.57×10^{-6}	6.44×10^{-3}	0.019	9.20×10^{-3}	8.82×10^{-4}	7.75×10^{-3}
Cement or lime handling	0	5.38×10^{-7}	0	0.396	0.095	0	4.16×10^{-4}
Cement or lime production	8.597	1.15×10^{-3}	12.879	0.567	0.343	0.526	0.219
Ceramics production (excluding glass)	0.446	3.57×10^{-7}	0.186	0.674	0.492	0.359	0.023
Coal loading	9.01×10^{-4}	2.36×10^{-5}	4.19×10^{-3}	0.343	0.038	2.75×10^{-4}	6.97×10^{-4}
Coal mining	6.212	3.53×10^{-3}	3.768	64.128	10.752	0.215	0.275
Composting and related reprocessing or treatment	1.36×10^{-3}	8.08×10^{-9}	0.012	3.33×10^{-4}	1.92×10^{-4}	8.46×10^{-6}	0.089
Concrete batching	3.91×10^{-3}	5.63×10^{-7}	7.59×10^{-3}	0.181	0.034	2.41×10^{-5}	4.69×10^{-3}
Crushing, grinding or separating works	7.13×10^{-4}	6.79×10^{-7}	3.31×10^{-3}	1.014	0.234	2.18×10^{-4}	2.71×10^{-3}
Environmentally sensitive area landfilling	0.010	0	2.27×10^{-4}	0.052	0.011	1.17×10^{-5}	0.017
Freeway or tollway construction	0	0	0	0.119	0.024	0	0
Generation of electrical power from coal	18.587	2.78×10^{-3}	394	12.974	4.601	709	1.889
Hard-rock gravel quarrying	0	7.55×10^{-6}	0	3.324	0.814	0	0.445
Hazardous, industrial or group A waste generation or storage	9.61×10^{-6}	2.48×10^{-9}	1.14×10^{-5}	4.38×10^{-4}	8.53×10^{-5}	5.97×10^{-8}	0.898
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.38×10^{-6}
Inert waste landfilling	1.17×10^{-3}	0	0	0.011	2.13×10^{-3}	0	0.082
Landfilling in designated areas	6.99×10^{-5}	0	0	2.85×10^{-3}	5.74×10^{-4}	0	7.85×10^{-4}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Mining (other than coal)	0	1.19×10^{-6}	0	0.974	0.206	0	1.02×10^{-5}
Mooring and boat storage	0	0	0	0	0	0	6.26×10^{-3}
Other agricultural crop processing	0.019	1.15×10^{-7}	0.023	0.060	0.018	1.20×10^{-4}	1.52×10^{-3}
Other chemical processing	5.27×10^{-3}	0	0.020	1.69×10^{-3}	1.67×10^{-3}	6.44×10^{-4}	3.50×10^{-3}
Other Chemical Storage	6.52×10^{-5}	3.61×10^{-10}	7.76×10^{-5}	1.08×10^{-3}	6.0×10^{-4}	4.06×10^{-7}	0.063
Other land-based extraction	0.029	4.28×10^{-6}	0.136	4.394	0.990	8.92×10^{-3}	0.159
Other livestock processing	0.010	5.79×10^{-8}	0.014	9.65×10^{-4}	9.64×10^{-4}	6.08×10^{-5}	1.57×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	3.36×10^{-3}
Plastics production	1.01×10^{-3}	6.67×10^{-6}	3.52×10^{-3}	9.82×10^{-5}	9.82×10^{-5}	6.29×10^{-6}	2.36×10^{-3}
Poultry production	9.68×10^{-5}	0	7.02×10^{-4}	0.165	0.039	3.61×10^{-9}	1.69×10^{-5}
Primary aluminium production	34.129	1.61×10^{-7}	0.126	0.752	0.542	9.228	9.89×10^{-3}
Rendering or fat extraction	0.031	1.81×10^{-7}	0.037	2.80×10^{-3}	2.76×10^{-3}	2.96×10^{-4}	4.73×10^{-3}
Secondary aluminium production	0.048	9.19×10^{-7}	0.016	0.018	0.018	4.53×10^{-4}	4.89×10^{-4}
Sewage Treatment - processing by large plants	0.012	1.58×10^{-9}	1.36×10^{-3}	2.80×10^{-4}	2.80×10^{-4}	1.09×10^{-5}	7.24×10^{-3}
Sewage Treatment - processing by small plants	0.546	4.41×10^{-8}	0.056	0.013	0.013	4.88×10^{-4}	0.094
Solid waste landfilling	0.016	5.15×10^{-9}	0	1.053	0.212	0	0.352
Waste oil recovery	7.60×10^{-3}	1.61×10^{-6}	0.028	7.73×10^{-4}	7.67×10^{-4}	0.042	8.11×10^{-4}
Wood or timber milling	0.128	1.31×10^{-4}	0.183	0.076	0.030	0.172	0.369
Industrial Total	68.875	7.64×10^{-3}	411	91.315	19.527	719	5.034

Table 3.68 Proportion of total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical January weekday

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total January Weekday Emissions (%) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.33×10^{-3}
Animal slaughtering	7.84×10^{-4}	4.07×10^{-3}	0.04	5.34×10^{-3}	6.89×10^{-3}	0.04	0.02
Battery production	0	1.13	0	5.18×10^{-3}	0.01	0	0
Beer or distilled alcohol production	1.94×10^{-3}	1.80×10^{-4}	0.01	3.64×10^{-3}	0.01	4.31×10^{-5}	0.02
Biomedical waste incineration	5.25×10^{-4}	0.04	1.39×10^{-3}	1.14×10^{-3}	3.17×10^{-3}	3.92×10^{-4}	3.86×10^{-4}
Bitumen pre-mix or hotmix production	0.01	0.03	0.01	0.32	0.63	1.78×10^{-3}	0.02
Bread manufacturing	1.55×10^{-4}	1.43×10^{-5}	7.01×10^{-4}	3.93×10^{-4}	1.10×10^{-3}	3.45×10^{-6}	1.31×10^{-4}
Bulk cargo handling	0	3.92×10^{-6}	0	0.14	0.06	0	8.09×10^{-4}
Cake and pastry manufacturing	8.11×10^{-5}	7.41×10^{-6}	3.68×10^{-4}	1.21×10^{-4}	3.38×10^{-4}	1.81×10^{-6}	3.89×10^{-5}
Cement or lime handling	2.11×10^{-4}	3.12×10^{-4}	9.57×10^{-4}	0.32	0.28	3.34×10^{-6}	0.06
Cement or lime production	0.30	0.71	2.14	0.43	0.74	0.07	0.06
Ceramics production (excluding glass)	0.07	3.07×10^{-4}	0.08	1.68	3.41	0.22	0.08
Chemical storage	0	0	0	0	0	0	5.15×10^{-3}
Coal loading	7.95×10^{-5}	0.03	1.42×10^{-3}	0.47	0.14	7.98×10^{-5}	2.89×10^{-3}
Coal mining	0.21	1.95	0.51	37.3	17.4	0.03	0.09
Coal washery reject or slag landfilling	7.81×10^{-7}	0	1.12×10^{-5}	0.09	0.05	3.41×10^{-7}	5.35×10^{-7}
Coke production	6.92×10^{-4}	0.69	0.01	0.11	0.29	0.18	4.34×10^{-4}
Composting and related reprocessing or treatment	0.04	5.41×10^{-6}	1.51×10^{-3}	0.10	0.05	1.04×10^{-6}	0.14
Concrete batching	5.11×10^{-4}	1.61×10^{-3}	2.75×10^{-3}	0.57	0.33	1.13×10^{-5}	0.10
Confectionary manufacturing	7.42×10^{-6}	2.41×10^{-6}	2.0×10^{-4}	3.88×10^{-5}	1.08×10^{-4}	5.79×10^{-7}	2.52×10^{-4}
Contaminated soil treatment	0	0	0	0	0	0	0
Crushing, grinding or separating works	0.06	0.04	0.08	3.87	3.82	0.07	0.04
Drum or container reconditioning	7.02×10^{-5}	0.04	1.32×10^{-3}	2.16×10^{-4}	6.01×10^{-4}	9.05×10^{-6}	0.05
Dry cleaning	1.14×10^{-4}	1.12×10^{-5}	5.46×10^{-4}	1.81×10^{-4}	5.05×10^{-4}	2.70×10^{-6}	3.79×10^{-4}
Environmentally sensitive area landfilling	4.50×10^{-4}	8.34×10^{-5}	2.95×10^{-5}	0.12	0.07	1.43×10^{-6}	0.01
Explosives or pyrotechnics production	1.54×10^{-7}	6.02×10^{-7}	8.68×10^{-5}	5.52×10^{-7}	1.53×10^{-6}	7.83×10^{-7}	9.42×10^{-7}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Freeway or tollway construction	0	2.93×10^{-3}	0	0.14	0.06	0	2.27×10^{-6}
Generation of electrical power from coal	0.64	1.48	51.3	7.32	7.25	86.8	0.47
Generation of electrical power from gas	0.23	3.19×10^{-3}	0.94	0.07	0.20	4.16×10^{-3}	0.34
Generation of electrical power other than from coal or gas	9.25×10^{-3}	0	0.36	7.46×10^{-4}	2.08×10^{-3}	5.43×10^{-5}	0.04
Hard-rock gravel quarrying	3.60×10^{-5}	6.66×10^{-3}	0	2.32	1.61	0	0.11
Hazardous, industrial or group A waste generation or storage	9.12×10^{-4}	7.18×10^{-5}	5.63×10^{-3}	2.93×10^{-3}	7.51×10^{-3}	1.59×10^{-4}	0.40
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	3.44×10^{-7}
Hazardous, industrial, group A or group B waste processing	4.35×10^{-4}	5.19×10^{-5}	2.0×10^{-3}	8.72×10^{-3}	0.02	2.36×10^{-5}	6.52×10^{-3}
Inert waste landfilling	3.99×10^{-5}	1.88×10^{-5}	0	0.25	0.15	0	0.02
Landfilling in designated areas	3.30×10^{-4}	0	0	0.03	0.02	0	0.03
Metal plating or coating works	0.11	0.08	0.03	0.06	0.16	9.94×10^{-3}	1.67
Milk processing	9.25×10^{-4}	8.58×10^{-5}	4.50×10^{-3}	1.42×10^{-3}	3.96×10^{-3}	2.06×10^{-5}	4.44×10^{-3}
Mining (other than coal)	0	6.37×10^{-4}	0	0.57	0.34	0	2.55×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	2.74×10^{-3}
Oil and fat manufacturing	4.89×10^{-4}	4.54×10^{-5}	3.98×10^{-3}	7.32×10^{-4}	2.04×10^{-3}	1.09×10^{-5}	2.33×10^{-4}
Other agricultural crop processing	2.83×10^{-3}	2.65×10^{-4}	0.01	0.12	0.11	8.90×10^{-5}	7.22×10^{-3}
Other chemical processing	7.09×10^{-3}	8.72×10^{-4}	0.05	0.06	0.17	0.02	0.54
Other Chemical Storage	4.41×10^{-4}	4.08×10^{-5}	2.46×10^{-3}	1.26×10^{-3}	2.77×10^{-3}	9.82×10^{-6}	0.32
Other land-based extraction	0.02	7.09×10^{-3}	0.03	5.31	3.43	0.07	0.05
Other livestock processing	5.89×10^{-4}	5.33×10^{-5}	2.92×10^{-3}	9.07×10^{-4}	2.53×10^{-3}	1.28×10^{-5}	3.36×10^{-3}
Other metal processing	0.01	8.37×10^{-3}	0.04	0.07	0.19	1.29×10^{-3}	0.80
Other vessel construction or maintenance	0	4.01×10^{-4}	2.02×10^{-4}	0.06	0.16	0	0.09
Paint production	2.97×10^{-4}	1.42×10^{-4}	1.39×10^{-3}	0.02	0.06	1.21×10^{-5}	0.07
Paper production using recycled materials	4.32×10^{-3}	0.03	0.04	2.27×10^{-3}	6.34×10^{-3}	3.90×10^{-3}	0.02
Pesticides production	2.28×10^{-5}	2.07×10^{-6}	1.03×10^{-4}	3.41×10^{-5}	9.52×10^{-5}	5.09×10^{-7}	6.07×10^{-3}
Petrochemical production	0.03	0.26	0.42	0.07	0.19	0.12	0.31
Petroleum refining	0.05	0.08	0.98	0.40	1.00	2.29	2.20

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Pharmaceutical or veterinary products production	6.18×10^{-4}	5.74×10^{-5}	3.14×10^{-3}	1.03×10^{-3}	2.82×10^{-3}	1.89×10^{-5}	0.04
Plastics production	2.54×10^{-4}	3.57×10^{-3}	4.25×10^{-3}	0.22	0.59	5.47×10^{-6}	0.39
Poultry production	6.03×10^{-4}	5.47×10^{-5}	3.05×10^{-3}	0.67	0.51	1.31×10^{-5}	0.01
Primary aluminium production	5.28	0.15	0.12	0.66	1.32	4.14	8.20×10^{-3}
Primary iron and steel production	47.8	5.51	2.74	2.46	6.11	3.28	0.39
Primary non-ferrous production (excluding aluminium)	1.86×10^{-3}	2.01×10^{-4}	0.02	0.02	0.05	2.78×10^{-3}	9.90×10^{-4}
Printing	9.46×10^{-4}	8.74×10^{-5}	6.45×10^{-3}	1.66×10^{-3}	4.64×10^{-3}	2.52×10^{-5}	1.68
Production of ammonium nitrate	0.03	1.64×10^{-3}	0.37	0.32	0.88	3.95×10^{-4}	0.18
Production of container glass	1.72×10^{-3}	3.27	0.56	0.13	0.37	0.21	0.03
Production of float glass	9.55×10^{-4}	4.17×10^{-4}	0.29	0.17	0.47	0.06	8.41×10^{-3}
Production of phosphate fertilizer	6.88×10^{-4}	5.84×10^{-5}	5.06×10^{-3}	0.15	0.42	6.84×10^{-3}	7.59×10^{-4}
Railway activities	0	0	0	7.10×10^{-3}	0.02	0	0.01
Rendering or fat extraction	2.11×10^{-3}	5.70×10^{-4}	9.66×10^{-3}	8.81×10^{-3}	0.01	3.98×10^{-3}	3.70×10^{-3}
Scrap metal recovery	0	0	2.06×10^{-3}	0.09	0.19	0	7.04×10^{-6}
Secondary aluminium production	5.98×10^{-3}	3.66×10^{-3}	0.02	0.04	0.06	9.35×10^{-3}	0.09
Secondary iron and steel production	0.19	0.11	7.48×10^{-3}	0.04	0.11	6.93×10^{-4}	0.14
Secondary non-ferrous production (excluding aluminium)	0.01	1.04	0.01	8.73×10^{-3}	0.02	0.03	1.70×10^{-3}
Services to air transport	2.06×10^{-4}	1.91×10^{-5}	9.35×10^{-4}	3.08×10^{-4}	8.60×10^{-4}	4.60×10^{-6}	0.07
Sewage Treatment - processing by large plants	8.82×10^{-3}	5.06×10^{-5}	0.21	2.56×10^{-3}	7.13×10^{-3}	8.71×10^{-5}	0.03
Sewage Treatment - processing by small plants	0.02	8.47×10^{-3}	0.02	0.11	0.08	4.07×10^{-4}	0.05
Soap or detergent production	3.94×10^{-4}	3.64×10^{-5}	1.60×10^{-3}	5.91×10^{-4}	1.65×10^{-3}	8.03×10^{-4}	0.06
Soft drink manufacturing	7.50×10^{-5}	6.93×10^{-6}	3.40×10^{-4}	1.12×10^{-4}	3.13×10^{-4}	1.67×10^{-6}	1.38×10^{-3}
Solid waste landfilling	0.03	1.46×10^{-3}	2.18×10^{-3}	1.41	0.80	0	0.31
Storage of Petroleum and/or Petroleum Products	0.15	0.01	0.30	0.10	0.29	0.46	0.29
Used tyre processing or disposal	0	0	0	0	0	0	6.16×10^{-7}
Vessel construction or maintenance using dry or floating docks	0	0	0	5.90×10^{-3}	0.02	0	0.02
Waste oil recovery	2.72×10^{-4}	8.58×10^{-4}	3.95×10^{-3}	4.56×10^{-4}	1.26×10^{-3}	5.20×10^{-3}	3.22×10^{-4}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Waste storage, transfer, separating or processing	4.96×10^{-3}	2.93×10^{-5}	0.01	0.05	0.03	1.98×10^{-6}	1.37×10^{-3}
Wood or timber milling	4.36×10^{-3}	0.07	0.02	0.04	0.05	0.02	0.09
Wood preservation	0	0	0	0	0	0	3.88×10^{-5}
Industrial Total	55.4	16.8	61.8	69.2	54.9	98.2	12.1
Proportion of Anthropogenic Total January Weekday Emissions (%) - Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.61×10^{-3}
Animal slaughtering	1.05×10^{-3}	1.18×10^{-4}	6.04×10^{-3}	2.31×10^{-3}	4.39×10^{-3}	5.01×10^{-4}	4.37×10^{-3}
Battery production	0	3.06	0	0.02	0.04	0	0
Beer or distilled alcohol production	5.60×10^{-3}	4.86×10^{-4}	0.05	0.01	0.03	9.71×10^{-4}	0.03
Biomedical waste incineration	1.52×10^{-3}	0.12	4.52×10^{-3}	4.63×10^{-3}	8.79×10^{-3}	8.83×10^{-3}	5.05×10^{-4}
Bitumen pre-mix or hotmix production	0.03	0.03	0.03	0.43	0.35	0.02	0.03
Bread manufacturing	4.48×10^{-4}	3.87×10^{-5}	2.28×10^{-3}	1.60×10^{-3}	3.04×10^{-3}	7.77×10^{-5}	1.71×10^{-4}
Bulk cargo handling	0	0	0	0.06	0.02	0	4.72×10^{-4}
Cake and pastry manufacturing	2.35×10^{-4}	2.01×10^{-5}	1.19×10^{-3}	4.94×10^{-4}	9.38×10^{-4}	4.07×10^{-5}	5.09×10^{-5}
Cement or lime handling	5.73×10^{-4}	6.49×10^{-5}	2.91×10^{-3}	0.37	0.35	6.85×10^{-5}	0.07
Cement or lime production	0.02	0.27	1.52	0.44	0.56	0.10	3.03×10^{-3}
Ceramics production (excluding glass)	0.16	3.15×10^{-4}	0.19	5.30	7.30	3.91	0.09
Chemical storage	0	0	0	0	0	0	6.74×10^{-3}
Coal mining	2.20×10^{-3}	0.03	0.04	0.71	0.18	0.01	1.93×10^{-3}
Coke production	1.04×10^{-3}	0.98	0.02	0.22	0.42	2.13	3.27×10^{-4}
Composting and related reprocessing or treatment	0.11	3.0×10^{-6}	0	0.39	0.15	0	0.15
Concrete batching	1.09×10^{-3}	3.28×10^{-3}	5.72×10^{-3}	1.75	0.73	1.88×10^{-4}	0.13
Confectionary manufacturing	2.15×10^{-5}	6.51×10^{-6}	6.49×10^{-4}	1.58×10^{-4}	3.0×10^{-4}	1.30×10^{-5}	3.30×10^{-4}
Crushing, grinding or separating works	0.16	0.10	0.25	12.7	9.18	1.63	0.06
Drum or container reconditioning	2.02×10^{-4}	0.10	4.26×10^{-3}	8.74×10^{-4}	1.66×10^{-3}	1.73×10^{-4}	0.07
Dry cleaning	3.31×10^{-4}	3.03×10^{-5}	1.77×10^{-3}	7.38×10^{-4}	1.40×10^{-3}	6.08×10^{-5}	4.96×10^{-4}
Environmentally sensitive area landfilling	2.95×10^{-4}	2.14×10^{-5}	0	0.32	0.12	0	0.01
Freeway or tollway construction	0	7.93×10^{-3}	0	0.30	0.08	0	2.97×10^{-6}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Generation of electrical power from gas	0.67	8.64×10^{-3}	3.04	0.29	0.54	0.09	0.44
Generation of electrical power other than from coal or gas	0.03	0	1.17	3.04×10^{-3}	5.78×10^{-3}	1.22×10^{-3}	0.05
Hard-rock gravel quarrying	1.04×10^{-4}	4.88×10^{-4}	0	0.73	0.37	0	3.90×10^{-3}
Hazardous, industrial or group A waste generation or storage	2.64×10^{-3}	1.91×10^{-4}	0.02	0.01	0.02	3.59×10^{-3}	0.22
Hazardous, industrial, group A or group B waste processing	1.22×10^{-3}	1.34×10^{-4}	6.32×10^{-3}	0.03	0.07	5.26×10^{-4}	8.48×10^{-3}
Inert waste landfilling	0	0	0	0.39	0.17	0	5.20×10^{-7}
Landfilling in designated areas	9.46×10^{-4}	0	0	0.13	0.05	0	0.04
Metal plating or coating works	3.10×10^{-3}	2.68×10^{-4}	0.02	0.16	0.30	5.49×10^{-4}	2.04
Milk processing	1.99×10^{-3}	1.72×10^{-4}	0.01	4.18×10^{-3}	7.94×10^{-3}	3.45×10^{-4}	5.51×10^{-3}
Mining (other than coal)	0	0	0	0.08	0.03	0	0
Mooring and boat storage	0	0	0	0	0	0	9.32×10^{-4}
Oil and fat manufacturing	1.41×10^{-3}	1.23×10^{-4}	0.01	2.98×10^{-3}	5.66×10^{-3}	2.46×10^{-4}	3.05×10^{-4}
Other agricultural crop processing	4.05×10^{-3}	3.61×10^{-4}	0.02	0.29	0.19	7.22×10^{-4}	5.51×10^{-3}
Other chemical processing	0.01	8.46×10^{-4}	0.05	0.03	0.05	2.18×10^{-3}	0.67
Other Chemical Storage	1.27×10^{-3}	1.10×10^{-4}	7.94×10^{-3}	2.67×10^{-3}	5.07×10^{-3}	2.20×10^{-4}	0.17
Other land-based extraction	0.06	0.01	0.04	11.1	5.04	1.50	8.21×10^{-3}
Other livestock processing	7.03×10^{-4}	6.06×10^{-5}	3.47×10^{-3}	1.48×10^{-3}	2.81×10^{-3}	1.22×10^{-4}	3.89×10^{-3}
Other metal processing	0.02	0.02	0.04	0.19	0.37	0.03	0.96
Other vessel construction or maintenance	0	6.02×10^{-4}	0	0.14	0.24	0	0.11
Paint production	8.60×10^{-4}	3.84×10^{-4}	4.51×10^{-3}	0.09	0.16	2.72×10^{-4}	0.10
Paper production using recycled materials	0.01	0.09	0.14	9.27×10^{-3}	0.02	0.09	0.02
Pesticides production	6.61×10^{-5}	5.60×10^{-6}	3.36×10^{-4}	1.39×10^{-4}	2.64×10^{-4}	1.15×10^{-5}	7.94×10^{-3}
Petrochemical production	0.08	0.70	1.36	0.28	0.53	2.65	0.40
Petroleum refining	0.15	0.23	3.17	1.64	2.78	51.5	2.87
Pharmaceutical or veterinary products production	1.79×10^{-3}	1.55×10^{-4}	0.01	4.19×10^{-3}	7.82×10^{-3}	4.26×10^{-4}	0.05
Plastics production	6.35×10^{-4}	4.69×10^{-5}	0.01	0.88	1.65	1.06×10^{-4}	0.50
Poultry production	1.74×10^{-3}	1.48×10^{-4}	9.59×10^{-3}	2.37	1.24	2.96×10^{-4}	0.01

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Primary iron and steel production	4.46×10^{-5}	0.08	2.27×10^{-4}	0.01	0.02	7.74×10^{-6}	9.05×10^{-4}
Primary non-ferrous production (excluding aluminium)	0	0	3.84×10^{-6}	1.18×10^{-3}	1.86×10^{-3}	9.16×10^{-5}	4.68×10^{-7}
Printing	2.74×10^{-3}	2.37×10^{-4}	0.02	6.78×10^{-3}	0.01	5.68×10^{-4}	2.14
Production of container glass	4.97×10^{-3}	8.84	1.83	0.53	1.01	4.79	0.03
Production of float glass	2.76×10^{-3}	1.13×10^{-3}	0.95	0.70	1.31	1.33	0.01
Railway activities	0	0	0	0.03	0.05	0	0.01
Rendering or fat extraction	3.05×10^{-3}	1.28×10^{-3}	0.02	0.03	0.03	0.09	3.30×10^{-3}
Scrap metal recovery	0	0	4.22×10^{-3}	0.38	0.54	0	6.69×10^{-6}
Secondary aluminium production	0.01	8.59×10^{-3}	0.07	0.11	0.10	0.21	0.11
Secondary iron and steel production	0	0.01	9.86×10^{-4}	0.03	0.06	3.59×10^{-3}	0.05
Secondary non-ferrous production (excluding aluminium)	0.04	2.80	0.04	0.04	0.06	0.66	2.22×10^{-3}
Services to air transport	5.97×10^{-4}	5.18×10^{-5}	3.03×10^{-3}	1.26×10^{-3}	2.38×10^{-3}	1.03×10^{-4}	0.09
Sewage Treatment - processing by large plants	0.02	1.25×10^{-4}	0.68	9.19×10^{-3}	0.02	1.91×10^{-3}	0.04
Sewage Treatment - processing by small plants	5.75×10^{-3}	0.02	0.02	0.42	0.15	7.77×10^{-3}	0.04
Soap or detergent production	1.14×10^{-3}	9.86×10^{-5}	5.19×10^{-3}	2.41×10^{-3}	4.57×10^{-3}	0.02	0.07
Soft drink manufacturing	2.17×10^{-4}	1.88×10^{-5}	1.10×10^{-3}	4.57×10^{-4}	8.67×10^{-4}	3.76×10^{-5}	1.81×10^{-3}
Solid waste landfilling	0.04	1.56×10^{-4}	0	3.01	1.17	0	0.22
Storage of Petroleum and/or Petroleum Products	0.43	0.03	0.98	0.42	0.79	10.4	0.23
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	3.78×10^{-3}
Waste oil recovery	3.42×10^{-5}	0	1.20×10^{-3}	7.91×10^{-5}	1.50×10^{-4}	1.45×10^{-6}	1.57×10^{-4}
Waste storage, transfer, separating or processing	0.01	6.31×10^{-5}	0.05	0.20	0.08	4.43×10^{-5}	1.23×10^{-3}
Industrial Total	2.12	17.6	15.9	47.9	38.8	81.2	12.4
Proportion of Anthropogenic Total January Weekday Emissions (%) - Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.81×10^{-3}
Animal slaughtering	6.02×10^{-3}	0.13	1.02	0.12	0.09	1.20	0.37
Bitumen pre-mix or hotmix production	0.03	0.57	0.04	5.04	8.59	0.02	0.02
Bulk cargo handling	0	1.31×10^{-4}	0	3.20	0.90	0	7.88×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Cement or lime handling	1.95×10^{-4}	4.10×10^{-5}	1.85×10^{-3}	0.15	0.17	8.55×10^{-6}	1.73×10^{-4}
Coal loading	0	8.01×10^{-4}	0	8.63×10^{-3}	1.68×10^{-3}	0	0.05
Coal mining	0.01	1.85	0.26	21.5	6.25	9.91×10^{-3}	0.04
Concrete batching	0	1.83×10^{-3}	0	0.44	0.13	0	9.37×10^{-4}
Crushing, grinding or separating works	4.01×10^{-3}	7.03×10^{-3}	0.08	4.08	2.22	4.49×10^{-3}	0.02
Explosives or pyrotechnics production	2.24×10^{-6}	2.01×10^{-5}	2.63×10^{-3}	1.40×10^{-5}	2.71×10^{-5}	2.24×10^{-5}	1.66×10^{-5}
Hard-rock gravel quarrying	0	0.08	0	6.56	3.36	0	7.30×10^{-5}
Hazardous, industrial or group A waste generation or storage	9.55×10^{-6}	1.61×10^{-6}	9.05×10^{-5}	2.48×10^{-5}	4.85×10^{-5}	4.18×10^{-7}	0.22
Hazardous, industrial, group A or group B waste processing	6.46×10^{-5}	1.37×10^{-5}	6.11×10^{-4}	1.68×10^{-4}	3.28×10^{-4}	2.83×10^{-6}	3.74×10^{-5}
Inert waste landfilling	0	0	0	2.07	0.82	0	0
Metal plating or coating works	2.35×10^{-3}	5.0×10^{-4}	0.02	0.09	0.18	1.03×10^{-4}	6.14×10^{-3}
Milk processing	3.46×10^{-3}	7.39×10^{-4}	0.03	9.98×10^{-3}	0.02	1.52×10^{-4}	4.08×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	8.41×10^{-3}
Other agricultural crop processing	0.01	2.36×10^{-3}	0.10	0.38	0.26	1.20×10^{-3}	0.05
Other chemical processing	0.03	0.02	0.89	1.35	2.63	0.50	0.55
Other Chemical Storage	0	0	0	0	0	0	3.14
Other land-based extraction	2.67×10^{-4}	0.02	0.02	2.70	1.01	7.04×10^{-8}	1.09×10^{-3}
Other metal processing	0.07	0.01	0.92	0.50	0.97	3.09×10^{-3}	1.08
Other vessel construction or maintenance	0	5.98×10^{-3}	6.14×10^{-3}	0.69	1.23	0	0.07
Primary aluminium production	59.7	4.92	3.15	5.88	8.30	86.0	0.10
Primary non-ferrous production (excluding aluminium)	0.03	6.70×10^{-3}	0.50	0.57	0.90	0.08	0.02
Printing	0	0	0	0	0	0	0.66
Production of ammonium nitrate	0.40	0.05	11.2	8.06	15.5	0.01	3.13
Production of phosphate fertilizer	8.09×10^{-3}	1.48×10^{-3}	0.07	3.81	7.31	4.72×10^{-4}	4.05×10^{-3}
Scrap metal recovery	0	0	0.02	0	0	0	2.32×10^{-5}
Secondary iron and steel production	2.80	3.53	0.22	0.88	1.52	0.02	1.79
Sewage Treatment - processing by large plants	0	0	0	0	0	0	0.01

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by small plants	0	0	0	0	0	0	1.04×10^{-4}
Solid waste landfilling	7.28×10^{-3}	0.05	0	0.89	0.35	0	0.73
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	2.14
Used tyre processing or disposal	0	0	0	0	0	0	1.09×10^{-5}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.15	0.27	0	0.30
Waste storage, transfer, separating or processing	7.76×10^{-6}	2.0×10^{-4}	7.35×10^{-5}	0.01	4.36×10^{-3}	3.40×10^{-7}	7.68×10^{-3}
Wood or timber milling	0	0	0	0.01	7.49×10^{-3}	0	0
Wood preservation	0	0	0	0	0	0	6.85×10^{-4}
Industrial Total	63.1	11.3	18.6	69.1	63.0	87.8	14.5
Proportion of Anthropogenic Total January Weekday Emissions (%) - Wollongong							
Bitumen pre-mix or hotmix production	2.84×10^{-3}	4.72×10^{-3}	0.02	0.12	0.10	2.46×10^{-3}	0.02
Bulk cargo handling	0	0	0	0.02	2.87×10^{-3}	0	2.08×10^{-5}
Cement or lime handling	0	0	0	2.21×10^{-3}	5.17×10^{-4}	0	4.13×10^{-4}
Coal loading	9.85×10^{-5}	0.19	0.02	6.66	1.01	1.32×10^{-3}	2.91×10^{-3}
Coal mining	3.72×10^{-4}	0.02	0.08	2.45	0.72	4.91×10^{-3}	0.46
Coal washery reject or slag landfilling	1.58×10^{-6}	0	2.66×10^{-4}	2.10	0.59	9.80×10^{-6}	1.41×10^{-5}
Coke production	6.70×10^{-4}	3.80	0.12	1.24	1.74	2.52	4.84×10^{-3}
Concrete batching	0	4.89×10^{-4}	0	0.41	0.09	0	4.93×10^{-4}
Crushing, grinding or separating works	0	2.57×10^{-3}	0	0.21	0.12	0	0
Drum or container reconditioning	5.46×10^{-7}	1.18×10^{-5}	9.79×10^{-5}	2.36×10^{-5}	3.29×10^{-5}	3.94×10^{-5}	0.08
Environmentally sensitive area landfilling	0	8.62×10^{-4}	0	0.25	0.07	0	0
Hazardous, industrial, group A or group B waste processing	1.44×10^{-5}	2.06×10^{-5}	7.71×10^{-4}	6.47×10^{-3}	2.07×10^{-3}	4.57×10^{-6}	8.0×10^{-4}
Inert waste landfilling	0	2.14×10^{-4}	0	1.65	0.47	0	2.54×10^{-5}
Metal plating or coating works	0.22	0.94	0.45	0.42	0.55	0.28	2.90
Other chemical processing	2.14×10^{-4}	1.12×10^{-4}	0.01	0.04	0.01	6.79×10^{-5}	1.35×10^{-3}
Other metal processing	1.07×10^{-4}	5.50×10^{-5}	5.71×10^{-3}	8.86×10^{-3}	0.01	3.39×10^{-5}	0.02
Other vessel construction or maintenance	0	0	0	0	0	0	1.94×10^{-5}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Primary iron and steel production	96.7	62.6	65.1	59.8	75.1	94.2	10.2
Production of phosphate fertilizer	2.64×10^{-4}	1.59×10^{-4}	0.07	0.09	0.12	0.20	0.01
Scrap metal recovery	0	0	0	0	0	0	1.60×10^{-5}
Sewage Treatment - processing by large plants	1.29×10^{-4}	4.32×10^{-5}	0.02	3.56×10^{-3}	4.98×10^{-3}	2.62×10^{-5}	9.44×10^{-3}
Sewage Treatment - processing by small plants	2.70×10^{-4}	7.81×10^{-5}	8.46×10^{-3}	3.24×10^{-3}	4.56×10^{-3}	5.24×10^{-5}	0.02
Soap or detergent production	0	0	0	0	0	0	0
Solid waste landfilling	0.02	0	0.05	1.06	0.37	0	0.30
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	7.75×10^{-3}
Industrial Total	96.9	67.6	66.0	76.6	81.1	97.2	14.1
Proportion of Anthropogenic Total January Weekday Emissions (%) – Non-Urban							
Animal slaughtering	6.10×10^{-5}	9.85×10^{-7}	4.06×10^{-5}	1.23×10^{-5}	4.60×10^{-5}	1.39×10^{-7}	1.87×10^{-5}
Bitumen pre-mix or hotmix production	0.01	1.63×10^{-3}	1.36×10^{-3}	0.02	0.03	1.22×10^{-4}	0.01
Cement or lime handling	0	5.58×10^{-4}	0	0.33	0.30	0	7.35×10^{-4}
Cement or lime production	3.24	1.20	2.72	0.47	1.08	0.07	0.39
Ceramics production (excluding glass)	0.17	3.71×10^{-4}	0.04	0.56	1.54	0.05	0.04
Coal loading	3.39×10^{-4}	0.02	8.83×10^{-4}	0.29	0.12	3.81×10^{-5}	1.23×10^{-3}
Coal mining	2.34	3.67	0.79	53.7	33.8	0.03	0.48
Composting and related reprocessing or treatment	5.12×10^{-4}	8.40×10^{-6}	2.45×10^{-3}	2.79×10^{-4}	6.04×10^{-4}	1.17×10^{-6}	0.16
Concrete batching	1.47×10^{-3}	5.85×10^{-4}	1.60×10^{-3}	0.15	0.11	3.33×10^{-6}	8.28×10^{-3}
Crushing, grinding or separating works	2.69×10^{-4}	7.06×10^{-4}	6.99×10^{-4}	0.85	0.74	3.01×10^{-5}	4.79×10^{-3}
Environmentally sensitive area landfilling	3.84×10^{-3}	0	4.78×10^{-5}	0.04	0.03	1.61×10^{-6}	0.03
Freeway or tollway construction	0	0	0	0.10	0.07	0	0
Generation of electrical power from coal	7.00	2.89	83.1	10.9	14.4	98.0	3.33
Hard-rock gravel quarrying	0	7.84×10^{-3}	0	2.78	2.55	0	0.79
Hazardous, industrial or group A waste generation or storage	3.62×10^{-6}	2.58×10^{-6}	2.41×10^{-6}	3.67×10^{-4}	2.68×10^{-4}	8.26×10^{-9}	1.59
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	2.44×10^{-6}
Inert waste landfilling	4.39×10^{-4}	0	0	8.87×10^{-3}	6.70×10^{-3}	0	0.15

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Landfilling in designated areas	2.63×10^{-5}	0	0	2.39×10^{-3}	1.80×10^{-3}	0	1.39×10^{-3}
Mining (other than coal)	0	1.24×10^{-3}	0	0.82	0.65	0	1.81×10^{-5}
Mooring and boat storage	0	0	0	0	0	0	0.01
Other agricultural crop processing	7.34×10^{-3}	1.20×10^{-4}	4.86×10^{-3}	0.05	0.06	1.67×10^{-5}	2.68×10^{-3}
Other chemical processing	1.99×10^{-3}	0	4.18×10^{-3}	1.42×10^{-3}	5.26×10^{-3}	8.90×10^{-5}	6.18×10^{-3}
Other chemical Storage	2.46×10^{-5}	3.75×10^{-7}	1.64×10^{-5}	9.05×10^{-4}	1.88×10^{-3}	5.61×10^{-8}	0.11
Other land-based extraction	0.01	4.44×10^{-3}	0.03	3.68	3.11	1.23×10^{-3}	0.28
Other livestock processing	3.82×10^{-3}	6.01×10^{-5}	3.0×10^{-3}	8.08×10^{-4}	3.03×10^{-3}	8.40×10^{-6}	2.78×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	5.94×10^{-3}
Plastics production	3.81×10^{-4}	6.92×10^{-3}	7.43×10^{-4}	8.23×10^{-5}	3.08×10^{-4}	8.70×10^{-7}	4.17×10^{-3}
Poultry production	3.65×10^{-5}	0	1.48×10^{-4}	0.14	0.12	4.99×10^{-10}	2.99×10^{-5}
Primary aluminium production	12.9	1.67×10^{-4}	0.03	0.63	1.70	1.28	0.02
Rendering or fat extraction	0.01	1.88×10^{-4}	7.78×10^{-3}	2.35×10^{-3}	8.65×10^{-3}	4.09×10^{-5}	8.36×10^{-3}
Secondary aluminium production	0.02	9.55×10^{-4}	3.32×10^{-3}	0.01	0.06	6.27×10^{-5}	8.63×10^{-4}
Sewage Treatment - processing by large plants	4.36×10^{-3}	1.64×10^{-6}	2.86×10^{-4}	2.34×10^{-4}	8.78×10^{-4}	1.51×10^{-6}	0.01
Sewage Treatment - processing by small plants	0.21	4.58×10^{-5}	0.01	0.01	0.04	6.74×10^{-5}	0.17
Solid waste landfilling	5.97×10^{-3}	5.35×10^{-6}	0	0.88	0.67	0	0.62
Waste oil recovery	2.87×10^{-3}	1.67×10^{-3}	5.81×10^{-3}	6.48×10^{-4}	2.41×10^{-3}	5.87×10^{-3}	1.43×10^{-3}
Wood or timber milling	0.05	0.14	0.04	0.06	0.10	0.02	0.65
Industrial Total	26.0	7.94	86.8	76.5	61.3	99.5	8.89

Table 3.69 shows total estimated daily emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.69 Total estimated daily emissions from industrial sources in each region for typical January weekend day

Substance	Industrial January Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	20.951	121	1,403	68.521	1,613
LEAD AND COMPOUNDS	0.011	3.66×10^{-4}	0.011	7.30×10^{-3}	0.030
OXIDES OF NITROGEN	37.310	4.125	21.311	410	473
PARTICULATE MATTER < 10 µm	18.699	3.748	5.522	86.744	115
PARTICULATE MATTER < 2.5 µm	8.076	1.944	4.171	18.626	32.818
SULFUR DIOXIDE	29.394	24.790	27.662	719	801
TOTAL VOCS	32.053	2.625	2.087	3.795	40.561

Table 3.70 shows the proportion of total estimated daily anthropogenic emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.70 Proportion of total estimated daily emissions from industrial sources in each region for typical January weekend day

Substance	Industrial Proportion of Anthropogenic Total January Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1.84	59.1	96.3	22.8	52.1
LEAD AND COMPOUNDS	19.0	7.95	72.2	9.43	19.2
OXIDES OF NITROGEN	17.2	17.5	67.9	87.7	64.0
PARTICULATE MATTER < 10 µm	44.9	63.9	77.5	78.4	69.4
PARTICULATE MATTER < 2.5 µm	34.6	58.4	80.4	62.8	53.4
SULFUR DIOXIDE	80.9	87.0	97.1	99.4	98.1
TOTAL VOCS	10.1	11.6	12.9	6.06	9.72

Figure 3.18 shows the proportion of total estimated daily GMR industrial emissions from all industrial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

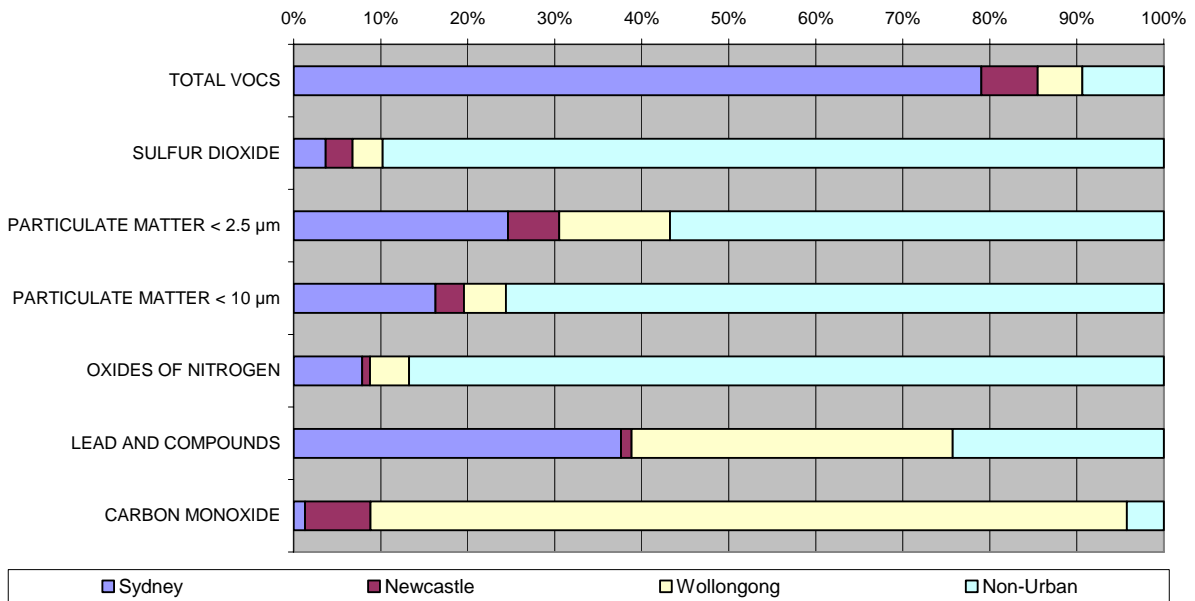


Figure 3.18 Proportion of total estimated daily emissions from industrial sources in each region for typical January weekend day

Table 3.71 shows total estimated daily emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.72 shows the proportion of total estimated daily anthropogenic emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.71 Total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical January weekend day

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
January Weekend Day Emissions (tonnes/day) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	5.35×10^{-3}
Animal slaughtering	7.94×10^{-3}	4.58×10^{-8}	0.010	7.34×10^{-4}	7.34×10^{-4}	4.87×10^{-5}	0.093
Battery production	0	1.39×10^{-3}	0	6.03×10^{-3}	6.03×10^{-3}	0	0
Biomedical waste incineration	0.015	8.11×10^{-5}	0.011	2.01×10^{-3}	2.01×10^{-3}	3.20×10^{-3}	1.55×10^{-3}
Bitumen pre-mix or hotmix production	0.256	4.31×10^{-5}	0.055	0.437	0.352	0.010	0.063
Bread manufacturing	4.53×10^{-3}	2.66×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	7.34×10^{-9}	0	0.216	0.034	0	3.10×10^{-3}
Cake and pastry manufacturing	2.37×10^{-3}	1.35×10^{-8}	2.83×10^{-3}	2.15×10^{-4}	2.15×10^{-4}	1.48×10^{-5}	1.56×10^{-4}
Cement or lime handling	2.82×10^{-3}	3.07×10^{-8}	3.36×10^{-3}	0.436	0.109	6.42×10^{-6}	0.175
Cement or lime production	8.816	1.34×10^{-3}	16.473	0.758	0.470	0.563	0.229
Ceramics production (excluding glass)	2.097	2.66×10^{-7}	0.627	2.961	2.151	1.777	0.311
Chemical storage	0	0	0	0	0	0	0.017
Coal loading	2.33×10^{-3}	5.40×10^{-5}	0.011	0.824	0.090	6.52×10^{-4}	0.012
Coal mining	6.132	3.40×10^{-3}	3.329	62.075	10.421	0.183	0.314
Coal washery reject or slag landfilling	1.14×10^{-5}	0	4.29×10^{-5}	0.153	0.031	1.39×10^{-6}	1.08×10^{-6}
Coke production	0.020	1.30×10^{-3}	0.082	0.186	0.186	1.487	1.34×10^{-3}
Composting and related reprocessing or treatment	1.065	8.81×10^{-9}	0.012	0.171	0.035	8.46×10^{-6}	0.561
Concrete batching	7.86×10^{-3}	1.56×10^{-6}	0.012	0.647	0.124	4.84×10^{-5}	0.415
Confectionary manufacturing	2.17×10^{-4}	4.52×10^{-9}	1.54×10^{-3}	6.87×10^{-5}	6.87×10^{-5}	4.72×10^{-6}	1.01×10^{-3}
Crushing, grinding or separating works	1.613	6.92×10^{-5}	0.620	5.836	2.126	0.593	0.177
Drum or container reconditioning	1.25×10^{-3}	3.56×10^{-5}	4.82×10^{-3}	2.03×10^{-4}	2.03×10^{-4}	1.40×10^{-5}	0.095
Dry cleaning	3.35×10^{-3}	2.07×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	4.45×10^{-3}	7.07×10^{-8}	0	0.203	0.041	0	0.050

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Explosives or pyrotechnics production	0	0	0	0	0	0	3.49×10^{-6}
Freeway or tollway construction	0	3.52×10^{-6}	0	0.196	0.034	0	9.13×10^{-6}
Generation of electrical power from coal	18.587	2.78×10^{-3}	394	12.974	4.601	709	1.889
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	7.84×10^{-6}	0	3.525	0.833	0	0.457
Hazardous, industrial or group A waste generation or storage	4.0×10^{-3}	1.98×10^{-8}	2.73×10^{-3}	2.21×10^{-3}	1.80×10^{-3}	1.37×10^{-5}	0.386
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.38×10^{-6}
Hazardous, industrial, group A or group B waste processing	0.011	8.48×10^{-8}	0.013	0.015	0.015	1.80×10^{-4}	0.025
Inert waste landfilling	1.17×10^{-3}	1.74×10^{-8}	0	0.428	0.088	0	0.082
Landfilling in designated areas	9.64×10^{-3}	0	0	0.060	0.012	0	0.109
Metal plating or coating works	3.196	1.55×10^{-4}	0.167	0.076	0.074	0.081	6.481
Milk processing	0.027	1.61×10^{-7}	0.035	2.52×10^{-3}	2.52×10^{-3}	1.68×10^{-4}	0.018
Mining (other than coal)	0	5.97×10^{-7}	0	0.973	0.201	0	1.02×10^{-5}
Mooring and boat storage	0	0	0	0	0	0	5.62×10^{-3}
Oil and fat manufacturing	0.014	8.51×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.071	4.27×10^{-7}	0.084	0.164	0.055	6.54×10^{-4}	0.028
Other chemical processing	0.173	7.93×10^{-7}	0.319	0.099	0.097	0.143	0.896
Other Chemical Storage	7.08×10^{-3}	4.21×10^{-8}	0.012	6.41×10^{-4}	6.41×10^{-4}	4.41×10^{-5}	1.350
Other land-based extraction	0.629	6.76×10^{-6}	0.140	8.547	1.899	0.546	0.177
Other livestock processing	0.016	9.47×10^{-8}	0.019	1.46×10^{-3}	1.46×10^{-3}	1.0×10^{-4}	0.013
Other metal processing	0.035	2.05×10^{-7}	0.043	0.036	0.036	2.17×10^{-4}	2.491
Other vessel construction or maintenance	0	6.34×10^{-7}	1.55×10^{-3}	0.091	0.084	0	0.218
Paint production	1.76×10^{-3}	1.30×10^{-8}	2.12×10^{-3}	3.18×10^{-3}	3.15×10^{-3}	2.78×10^{-5}	0.105
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Pesticides production	3.26×10^{-4}	1.81×10^{-9}	3.88×10^{-4}	2.95×10^{-5}	2.95×10^{-5}	2.03×10^{-6}	3.03×10^{-4}
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.468	1.57×10^{-4}	7.499	0.713	0.636	18.693	8.838
Pharmaceutical or veterinary products production	8.52×10^{-3}	4.98×10^{-8}	0.012	9.03×10^{-4}	8.86×10^{-4}	8.45×10^{-5}	0.088
Plastics production	5.11×10^{-3}	2.33×10^{-8}	0.027	0.378	0.374	2.70×10^{-5}	0.868
Poultry production	3.43×10^{-3}	1.81×10^{-8}	6.47×10^{-3}	1.194	0.322	1.89×10^{-5}	0.044
Primary aluminium production	154	2.77×10^{-4}	0.922	1.164	0.840	33.842	0.033
Primary iron and steel production	1,399	0.010	21.038	4.349	3.877	26.807	1.556
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.040	0.032	0.023	3.98×10^{-3}
Printing	0.023	1.27×10^{-7}	0.037	2.32×10^{-3}	2.32×10^{-3}	1.57×10^{-4}	4.443
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Production of phosphate fertilizer	0.020	1.10×10^{-7}	0.039	0.273	0.268	0.056	3.05×10^{-3}
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0.012	7.05×10^{-8}	0.014	1.08×10^{-3}	1.08×10^{-3}	1.25×10^{-4}	0.012
Scrap metal recovery	0	0	7.91×10^{-3}	0.082	0.061	0	2.83×10^{-5}
Secondary aluminium production	0.175	6.87×10^{-6}	0.173	0.066	0.040	0.076	0.343
Secondary iron and steel production	0	0	1.17×10^{-3}	7.84×10^{-3}	8.63×10^{-3}	5.52×10^{-5}	0.049
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.258	9.47×10^{-8}	1.624	4.53×10^{-3}	4.53×10^{-3}	7.12×10^{-4}	0.125
Sewage Treatment - processing by small plants	0.607	1.59×10^{-5}	0.116	0.194	0.048	3.31×10^{-3}	0.170
Soap or detergent production	0.012	6.82×10^{-8}	0.012	1.05×10^{-3}	1.05×10^{-3}	6.56×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Solid waste landfilling	0.732	2.69×10^{-6}	0.017	2.477	0.504	0	1.254
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	1.184
Used tyre processing or disposal	0	0	0	0	0	0	2.48×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.075
Waste oil recovery	6.48×10^{-3}	1.60×10^{-6}	0.026	6.71×10^{-4}	6.65×10^{-4}	0.042	1.06×10^{-3}
Waste storage, transfer, separating or processing	0.145	2.16×10^{-8}	0.112	0.077	0.016	1.61×10^{-5}	5.52×10^{-3}
Wood or timber milling	0	0	0	7.31×10^{-4}	2.69×10^{-4}	0	3.20×10^{-6}
Wood preservation	0	0	0	0	0	0	1.34×10^{-6}
Industrial Total	1,613	0.030	473	115	32.818	801	40.561
January Weekend Day Emissions (tonnes/day) - Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	4.94×10^{-3}
Animal slaughtering	7.78×10^{-3}	4.49×10^{-8}	9.96×10^{-3}	7.19×10^{-4}	7.19×10^{-4}	4.77×10^{-5}	0.013
Battery production	0	1.39×10^{-3}	0	6.03×10^{-3}	6.03×10^{-3}	0	0
Biomedical waste incineration	0.015	8.11×10^{-5}	0.011	2.01×10^{-3}	2.01×10^{-3}	3.20×10^{-3}	1.55×10^{-3}
Bitumen pre-mix or hotmix production	0.186	1.01×10^{-5}	0.042	0.104	0.045	5.47×10^{-3}	0.052
Bread manufacturing	4.53×10^{-3}	2.66×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	0	0	0.023	4.56×10^{-3}	0	1.45×10^{-3}
Cake and pastry manufacturing	2.37×10^{-3}	1.35×10^{-8}	2.83×10^{-3}	2.15×10^{-4}	2.15×10^{-4}	1.48×10^{-5}	1.56×10^{-4}
Cement or lime handling	2.43×10^{-3}	2.85×10^{-8}	2.89×10^{-3}	0.081	0.031	3.98×10^{-6}	0.174
Cement or lime production	0.219	1.91×10^{-4}	3.594	0.192	0.127	0.036	9.33×10^{-3}
Ceramics production (excluding glass)	1.651	1.80×10^{-7}	0.441	2.303	1.670	1.418	0.288
Chemical storage	0	0	0	0	0	0	0.017
Coal mining	0.022	2.18×10^{-5}	0.094	0.308	0.040	5.04×10^{-3}	5.92×10^{-3}
Coke production	0.011	6.77×10^{-4}	0.042	0.096	0.096	0.772	6.99×10^{-4}
Composting and related reprocessing or treatment	1.064	7.90×10^{-10}	0	0.171	0.034	0	0.472

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Concrete batching	4.63×10^{-3}	1.12×10^{-6}	5.88×10^{-3}	0.490	0.095	2.84×10^{-5}	0.410
Confectionary manufacturing	2.17×10^{-4}	4.52×10^{-9}	1.54×10^{-3}	6.87×10^{-5}	6.87×10^{-5}	4.72×10^{-6}	1.01×10^{-3}
Crushing, grinding or separating works	1.604	6.84×10^{-5}	0.597	4.749	1.872	0.591	0.171
Drum or container reconditioning	1.25×10^{-3}	3.56×10^{-5}	4.82×10^{-3}	2.03×10^{-4}	2.03×10^{-4}	1.40×10^{-5}	0.095
Dry cleaning	3.35×10^{-3}	2.07×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	2.98×10^{-3}	0	0	0.134	0.027	0	0.034
Freeway or tollway construction	0	3.52×10^{-6}	0	0.077	0.010	0	9.13×10^{-6}
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	1.69×10^{-7}	0	0.245	0.060	0	0.012
Hazardous, industrial or group A waste generation or storage	3.99×10^{-3}	1.74×10^{-8}	2.72×10^{-3}	1.77×10^{-3}	1.71×10^{-3}	1.37×10^{-5}	0.361
Hazardous, industrial, group A or group B waste processing	0.011	8.28×10^{-8}	0.013	0.015	0.015	1.80×10^{-4}	0.025
Inert waste landfilling	0	0	0	0.153	0.033	0	1.60×10^{-6}
Landfilling in designated areas	9.57×10^{-3}	0	0	0.057	0.011	0	0.109
Metal plating or coating works	0.015	8.68×10^{-8}	0.018	0.045	0.045	9.72×10^{-5}	6.079
Milk processing	0.020	1.19×10^{-7}	0.026	1.82×10^{-3}	1.82×10^{-3}	1.25×10^{-4}	0.017
Mining (other than coal)	0	0	0	0.033	6.69×10^{-3}	0	0
Mooring and boat storage	0	0	0	0	0	0	2.87×10^{-3}
Oil and fat manufacturing	0.014	8.51×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.040	2.43×10^{-7}	0.047	0.126	0.042	2.55×10^{-4}	0.017
Other chemical processing	0.103	3.92×10^{-7}	0.091	7.63×10^{-3}	7.62×10^{-3}	4.62×10^{-4}	0.768
Other Chemical Storage	7.08×10^{-3}	4.21×10^{-8}	0.012	6.41×10^{-4}	6.41×10^{-4}	4.41×10^{-5}	0.476
Other land-based extraction	0.621	3.99×10^{-6}	0.101	4.382	1.010	0.544	0.025
Other livestock processing	6.35×10^{-3}	3.71×10^{-8}	7.33×10^{-3}	5.74×10^{-4}	5.74×10^{-4}	3.95×10^{-5}	0.012
Other metal processing	0.033	1.96×10^{-7}	0.040	0.036	0.036	2.07×10^{-4}	2.488

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other vessel construction or maintenance	0	2.98×10^{-7}	0	0.043	0.040	0	0.198
Paint production	1.76×10^{-3}	1.30×10^{-8}	2.12×10^{-3}	3.18×10^{-3}	3.15×10^{-3}	2.78×10^{-5}	0.105
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	3.26×10^{-4}	1.81×10^{-9}	3.88×10^{-4}	2.95×10^{-5}	2.95×10^{-5}	2.03×10^{-6}	3.03×10^{-4}
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.468	1.57×10^{-4}	7.499	0.713	0.636	18.693	8.838
Pharmaceutical or veterinary products production	8.52×10^{-3}	4.98×10^{-8}	0.012	9.03×10^{-4}	8.86×10^{-4}	8.45×10^{-5}	0.088
Plastics production	5.11×10^{-3}	2.33×10^{-8}	0.027	0.378	0.374	2.70×10^{-5}	0.868
Poultry production	3.33×10^{-3}	1.81×10^{-8}	5.77×10^{-3}	1.029	0.283	1.89×10^{-5}	0.044
Primary iron and steel production	0	0	0	0	0	0	2.88×10^{-7}
Primary non-ferrous production (excluding aluminium)	0	0	9.08×10^{-6}	3.44×10^{-4}	2.78×10^{-4}	3.32×10^{-5}	1.44×10^{-6}
Printing	0.023	1.27×10^{-7}	0.037	2.32×10^{-3}	2.32×10^{-3}	1.57×10^{-4}	4.292
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0	0	0	0	0	0	8.76×10^{-3}
Scrap metal recovery	0	0	4.99×10^{-3}	0.082	0.061	0	2.06×10^{-5}
Secondary aluminium production	0.127	5.95×10^{-6}	0.157	0.049	0.023	0.076	0.342
Secondary iron and steel production	0	0	1.17×10^{-3}	7.84×10^{-3}	8.63×10^{-3}	5.52×10^{-5}	0.049
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.244	8.61×10^{-8}	1.616	4.0×10^{-3}	3.99×10^{-3}	6.93×10^{-4}	0.113
Sewage Treatment - processing by small plants	0.057	1.58×10^{-5}	0.057	0.181	0.035	2.81×10^{-3}	0.074
Soap or detergent production	0.012	6.82×10^{-8}	0.012	1.05×10^{-3}	1.05×10^{-3}	6.56×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Solid waste landfilling	0.365	5.60×10^{-8}	0	1.285	0.260	0	0.690
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	0.696
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	6.22×10^{-3}
Waste oil recovery	0	0	0	0	0	0	3.20×10^{-4}
Waste storage, transfer, separating or processing	0.145	2.16×10^{-8}	0.112	0.076	0.016	1.61×10^{-5}	3.77×10^{-3}
Industrial Total	20.951	0.011	37.310	18.699	8.076	29.394	32.053
January Weekend Day Emissions (tonnes/day) - Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	4.13×10^{-4}
Animal slaughtering	0	0	0	0	0	0	0.080
Bitumen pre-mix or hotmix production	0.031	3.23×10^{-5}	7.28×10^{-3}	0.326	0.302	4.18×10^{-3}	4.55×10^{-3}
Bulk cargo handling	0	7.34×10^{-9}	0	0.191	0.029	0	1.64×10^{-3}
Cement or lime handling	3.94×10^{-4}	2.26×10^{-9}	4.69×10^{-4}	0.010	6.11×10^{-3}	2.45×10^{-6}	3.95×10^{-5}
Coal loading	0	4.50×10^{-8}	0	6.05×10^{-4}	6.03×10^{-5}	0	0.010
Coal mining	0.024	4.65×10^{-5}	0.058	0.889	0.108	2.32×10^{-3}	7.99×10^{-3}
Concrete batching	0	5.05×10^{-8}	0	0.016	2.40×10^{-3}	0	2.13×10^{-4}
Crushing, grinding or separating works	8.06×10^{-3}	2.28×10^{-7}	0.020	0.160	0.039	1.29×10^{-3}	3.88×10^{-3}
Explosives or pyrotechnics production	0	0	0	0	0	0	3.49×10^{-6}
Hard-rock gravel quarrying	0	2.31×10^{-6}	0	0.339	0.082	0	1.66×10^{-5}
Hazardous, industrial or group A waste generation or storage	9.62×10^{-6}	0	1.15×10^{-5}	8.70×10^{-7}	8.70×10^{-7}	5.96×10^{-8}	0.025
Inert waste landfilling	0	0	0	0.145	0.029	0	0
Metal plating or coating works	4.73×10^{-3}	2.81×10^{-8}	5.63×10^{-3}	6.64×10^{-3}	6.64×10^{-3}	2.94×10^{-5}	1.40×10^{-3}
Milk processing	6.97×10^{-3}	4.15×10^{-8}	8.33×10^{-3}	7.0×10^{-4}	7.0×10^{-4}	4.35×10^{-5}	9.30×10^{-4}
Mooring and boat storage	0	0	0	0	0	0	1.92×10^{-3}
Other agricultural crop processing	0.022	1.32×10^{-7}	0.027	0.026	9.19×10^{-3}	3.44×10^{-4}	0.011
Other chemical processing	0.064	3.82×10^{-7}	0.213	0.088	0.088	0.142	0.124

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other Chemical Storage	0	0	0	0	0	0	0.715
Other land-based extraction	2.69×10^{-4}	5.59×10^{-7}	1.95×10^{-3}	0.142	0.028	1.0×10^{-8}	1.24×10^{-4}
Other metal processing	0	0	1.18×10^{-3}	0	0	0	3.33×10^{-6}
Other vessel construction or maintenance	0	3.36×10^{-7}	1.55×10^{-3}	0.048	0.044	0	0.017
Primary aluminium production	120	2.77×10^{-4}	0.796	0.412	0.298	24.614	0.023
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.040	0.032	0.023	3.98×10^{-3}
Printing	0	0	0	0	0	0	0.151
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of phosphate fertilizer	0.016	8.33×10^{-8}	0.017	0.267	0.262	1.35×10^{-4}	9.22×10^{-4}
Scrap metal recovery	0	0	2.92×10^{-3}	0	0	0	5.28×10^{-6}
Secondary iron and steel production	0	0	0	0	0	0	3.23×10^{-5}
Sewage Treatment - processing by large plants	0	0	0	0	0	0	2.85×10^{-3}
Sewage Treatment - processing by small plants	0	0	0	0	0	0	2.36×10^{-5}
Solid waste landfilling	0.015	2.63×10^{-6}	0	0.062	0.013	0	0.166
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	0.487
Used tyre processing or disposal	0	0	0	0	0	0	2.48×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.069
Waste storage, transfer, separating or processing	0	0	0	6.95×10^{-4}	1.40×10^{-4}	0	1.75×10^{-3}
Wood or timber milling	0	0	0	7.31×10^{-4}	2.69×10^{-4}	0	0
Wood preservation	0	0	0	0	0	0	1.34×10^{-6}
Industrial Total	121	3.66×10^{-4}	4.125	3.748	1.944	24.790	2.625
January Weekend Day Emissions (tonnes/day) - Wollongong							
Bitumen pre-mix or hotmix production	0.034	4.16×10^{-7}	3.67×10^{-3}	5.55×10^{-3}	3.45×10^{-3}	5.44×10^{-4}	2.37×10^{-3}
Bulk cargo handling	0	0	0	1.49×10^{-3}	1.48×10^{-4}	0	3.17×10^{-6}
Cement or lime handling	0	0	0	1.61×10^{-4}	2.67×10^{-5}	0	6.30×10^{-5}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	7.94×10^{-4}
Coal loading	1.42×10^{-3}	3.06×10^{-5}	6.72×10^{-3}	0.485	0.052	3.76×10^{-4}	4.44×10^{-4}
Coal mining	5.38×10^{-3}	1.82×10^{-6}	0.025	0.167	0.035	1.40×10^{-3}	0.070
Coal washery reject or slag landfilling	1.14×10^{-5}	0	4.29×10^{-5}	0.153	0.031	1.39×10^{-6}	1.08×10^{-6}
Coke production	9.70×10^{-3}	6.24×10^{-4}	0.039	0.089	0.089	0.716	6.45×10^{-4}
Concrete batching	0	3.95×10^{-8}	0	0.015	2.27×10^{-3}	0	7.52×10^{-5}
Crushing, grinding or separating works	0	2.11×10^{-7}	0	7.71×10^{-3}	3.25×10^{-3}	0	0
Drum or container reconditioning	0	0	0	0	0	0	4.05×10^{-8}
Environmentally sensitive area landfilling	0	7.07×10^{-8}	0	0.017	3.33×10^{-3}	0	0
Hazardous, industrial, group A or group B waste processing	0	2.03×10^{-9}	0	4.51×10^{-4}	8.79×10^{-5}	0	1.08×10^{-4}
Inert waste landfilling	0	1.74×10^{-8}	0	0.120	0.024	0	3.87×10^{-6}
Metal plating or coating works	3.177	1.55×10^{-4}	0.144	0.025	0.023	0.081	0.401
Other chemical processing	3.10×10^{-3}	1.84×10^{-8}	3.69×10^{-3}	2.64×10^{-3}	7.56×10^{-4}	1.93×10^{-5}	2.05×10^{-4}
Other metal processing	1.55×10^{-3}	8.81×10^{-9}	1.84×10^{-3}	6.44×10^{-4}	5.58×10^{-4}	9.64×10^{-6}	3.55×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	2.96×10^{-6}
Primary iron and steel production	1,399	0.010	21.038	4.349	3.877	26.807	1.556
Production of phosphate fertilizer	3.82×10^{-3}	2.62×10^{-8}	0.022	6.35×10^{-3}	6.35×10^{-3}	0.056	2.13×10^{-3}
Scrap metal recovery	0	0	0	0	0	0	2.44×10^{-6}
Sewage Treatment - processing by large plants	1.86×10^{-3}	7.0×10^{-9}	6.28×10^{-3}	2.59×10^{-4}	2.57×10^{-4}	7.44×10^{-6}	1.44×10^{-3}
Sewage Treatment - processing by small plants	3.91×10^{-3}	1.28×10^{-8}	2.73×10^{-3}	2.35×10^{-4}	2.35×10^{-4}	1.49×10^{-5}	2.49×10^{-3}
Solid waste landfilling	0.337	0	0.017	0.077	0.019	0	0.045
Industrial Total	1,403	0.011	21.311	5.522	4.171	27.662	2.087
January Weekend Day Emissions (tonnes/day) – Non-Urban							
Animal slaughtering	1.62×10^{-4}	9.03×10^{-10}	1.93×10^{-4}	1.46×10^{-5}	1.46×10^{-5}	1.01×10^{-6}	1.06×10^{-5}
Bitumen pre-mix or hotmix production	4.53×10^{-3}	2.75×10^{-7}	2.43×10^{-3}	1.52×10^{-3}	8.64×10^{-4}	2.75×10^{-4}	3.62×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Cement or lime handling	0	0	0	0.344	0.072	0	4.16×10^{-4}
Cement or lime production	8.597	1.15×10^{-3}	12.879	0.566	0.343	0.526	0.219
Ceramics production (excluding glass)	0.446	8.55×10^{-8}	0.186	0.658	0.481	0.359	0.023
Coal loading	9.01×10^{-4}	2.33×10^{-5}	4.19×10^{-3}	0.339	0.038	2.75×10^{-4}	6.97×10^{-4}
Coal mining	6.080	3.33×10^{-3}	3.153	60.711	10.238	0.174	0.230
Composting and related reprocessing or treatment	1.36×10^{-3}	8.02×10^{-9}	0.012	3.31×10^{-4}	1.92×10^{-4}	8.46×10^{-6}	0.089
Concrete batching	3.23×10^{-3}	3.48×10^{-7}	6.26×10^{-3}	0.126	0.024	2.0×10^{-5}	4.62×10^{-3}
Crushing, grinding or separating works	7.13×10^{-4}	3.09×10^{-7}	3.31×10^{-3}	0.919	0.212	2.18×10^{-4}	2.71×10^{-3}
Environmentally sensitive area landfilling	1.47×10^{-3}	0	0	0.052	0.011	0	0.017
Freeway or tollway construction	0	0	0	0.119	0.024	0	0
Generation of electrical power from coal	18.587	2.78×10^{-3}	394	12.974	4.601	709	1.889
Hard-rock gravel quarrying	0	5.36×10^{-6}	0	2.941	0.691	0	0.445
Hazardous, industrial or group A waste generation or storage	0	2.37×10^{-9}	0	4.37×10^{-4}	8.45×10^{-5}	0	1.60×10^{-6}
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.38×10^{-6}
Inert waste landfilling	1.17×10^{-3}	0	0	0.011	2.13×10^{-3}	0	0.082
Landfilling in designated areas	6.99×10^{-5}	0	0	2.85×10^{-3}	5.74×10^{-4}	0	7.85×10^{-4}
Mining (other than coal)	0	5.97×10^{-7}	0	0.940	0.194	0	1.02×10^{-5}
Mooring and boat storage	0	0	0	0	0	0	8.37×10^{-4}
Other agricultural crop processing	8.91×10^{-3}	5.24×10^{-8}	0.010	0.011	3.56×10^{-3}	5.48×10^{-5}	8.28×10^{-4}
Other chemical processing	2.63×10^{-3}	0	9.90×10^{-3}	1.38×10^{-3}	1.37×10^{-3}	3.22×10^{-4}	3.25×10^{-3}
Other Chemical Storage	0	0	0	0	0	0	0.159
Other land-based extraction	8.05×10^{-3}	2.21×10^{-6}	0.037	4.024	0.862	2.46×10^{-3}	0.151
Other livestock processing	9.77×10^{-3}	5.76×10^{-8}	0.012	8.84×10^{-4}	8.84×10^{-4}	6.08×10^{-5}	1.51×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	3.36×10^{-3}
Poultry production	9.68×10^{-5}	0	7.02×10^{-4}	0.165	0.039	3.61×10^{-9}	1.69×10^{-5}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Primary aluminium production	34.129	1.61×10^{-7}	0.126	0.752	0.542	9.228	9.89×10^{-3}
Rendering or fat extraction	0.012	7.05×10^{-8}	0.014	1.08×10^{-3}	1.08×10^{-3}	1.25×10^{-4}	3.49×10^{-3}
Scrap metal recovery	0	0	0	0	0	0	0
Secondary aluminium production	0.048	9.19×10^{-7}	0.016	0.018	0.018	4.53×10^{-4}	4.89×10^{-4}
Sewage Treatment - processing by large plants	0.012	1.58×10^{-9}	1.36×10^{-3}	2.80×10^{-4}	2.80×10^{-4}	1.09×10^{-5}	7.24×10^{-3}
Sewage Treatment - processing by small plants	0.546	4.40×10^{-8}	0.056	0.013	0.013	4.88×10^{-4}	0.094
Solid waste landfilling	0.016	5.19×10^{-9}	0	1.053	0.212	0	0.352
Waste oil recovery	6.48×10^{-3}	1.60×10^{-6}	0.026	6.71×10^{-4}	6.65×10^{-4}	0.042	7.37×10^{-4}
Wood or timber milling	0	0	0	0	0	0	3.20×10^{-6}
Industrial Total	68.521	7.30×10^{-3}	410	86.744	18.626	719	3.795

Table 3.72 Proportion of total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical January weekend day

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.28×10^{-3}
Animal slaughtering	2.56×10^{-4}	2.92×10^{-5}	1.37×10^{-3}	4.44×10^{-4}	1.19×10^{-3}	5.96×10^{-6}	0.02
Battery production	0	0.89	0	3.65×10^{-3}	9.81×10^{-3}	0	0
Biomedical waste incineration	4.95×10^{-4}	0.05	1.45×10^{-3}	1.22×10^{-3}	3.27×10^{-3}	3.92×10^{-4}	3.72×10^{-4}
Bitumen pre-mix or hotmix production	8.25×10^{-3}	0.03	7.42×10^{-3}	0.26	0.57	1.28×10^{-3}	0.01
Bread manufacturing	1.46×10^{-4}	1.70×10^{-5}	7.29×10^{-4}	4.21×10^{-4}	1.13×10^{-3}	3.45×10^{-6}	1.26×10^{-4}
Bulk cargo handling	0	4.67×10^{-6}	0	0.13	0.06	0	7.42×10^{-4}
Cake and pastry manufacturing	7.66×10^{-5}	8.63×10^{-6}	3.82×10^{-4}	1.30×10^{-4}	3.49×10^{-4}	1.81×10^{-6}	3.75×10^{-5}
Cement or lime handling	9.11×10^{-5}	1.96×10^{-5}	4.55×10^{-4}	0.26	0.18	7.87×10^{-7}	0.04
Cement or lime production	0.28	0.85	2.23	0.46	0.76	0.07	0.05
Ceramics production (excluding glass)	0.07	1.69×10^{-4}	0.08	1.79	3.50	0.22	0.07
Chemical storage	0	0	0	0	0	0	3.97×10^{-3}
Coal loading	7.50×10^{-5}	0.03	1.47×10^{-3}	0.50	0.15	7.98×10^{-5}	2.79×10^{-3}
Coal mining	0.20	2.17	0.45	37.6	16.9	0.02	0.08
Coal washery reject or slag landfilling	3.68×10^{-7}	0	5.80×10^{-6}	0.09	0.05	1.71×10^{-7}	2.58×10^{-7}
Coke production	6.53×10^{-4}	0.83	0.01	0.11	0.30	0.18	3.22×10^{-4}
Composting and related reprocessing or treatment	0.03	5.61×10^{-6}	1.57×10^{-3}	0.10	0.06	1.04×10^{-6}	0.13
Concrete batching	2.54×10^{-4}	9.94×10^{-4}	1.64×10^{-3}	0.39	0.20	5.93×10^{-6}	0.10
Confectionary manufacturing	7.0×10^{-6}	2.88×10^{-6}	2.08×10^{-4}	4.16×10^{-5}	1.12×10^{-4}	5.78×10^{-7}	2.43×10^{-4}
Crushing, grinding or separating works	0.05	0.04	0.08	3.53	3.46	0.07	0.04
Drum or container reconditioning	4.04×10^{-5}	0.02	6.51×10^{-4}	1.23×10^{-4}	3.30×10^{-4}	1.71×10^{-6}	0.02
Dry cleaning	1.08×10^{-4}	1.32×10^{-5}	5.67×10^{-4}	1.94×10^{-4}	5.22×10^{-4}	2.70×10^{-6}	3.65×10^{-4}
Environmentally sensitive area landfilling	1.43×10^{-4}	4.50×10^{-5}	0	0.12	0.07	0	0.01

3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Explosives or pyrotechnics production	0	0	0	0	0	0	8.35 × 10 ⁻⁷
Freeway or tollway construction	0	2.24 × 10 ⁻³	0	0.12	0.06	0	2.19 × 10 ⁻⁶
Generation of electrical power from coal	0.60	1.77	53.2	7.85	7.48	86.8	0.45
Generation of electrical power from gas	0.22	3.82 × 10 ⁻³	0.97	0.08	0.20	4.16 × 10 ⁻³	0.32
Generation of electrical power other than from coal or gas	8.73 × 10 ⁻³	0	0.37	8.0 × 10 ⁻⁴	2.15 × 10 ⁻³	5.43 × 10 ⁻⁵	0.04
Hard-rock gravel quarrying	3.40 × 10 ⁻⁵	4.99 × 10 ⁻³	0	2.13	1.35	0	0.11
Hazardous, industrial or group A waste generation or storage	1.29 × 10 ⁻⁴	1.26 × 10 ⁻⁵	3.69 × 10 ⁻⁴	1.34 × 10 ⁻³	2.93 × 10 ⁻³	1.68 × 10 ⁻⁶	0.09
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	3.31 × 10 ⁻⁷
Hazardous, industrial, group A or group B waste processing	3.43 × 10 ⁻⁴	5.40 × 10 ⁻⁵	1.74 × 10 ⁻³	9.23 × 10 ⁻³	0.02	2.20 × 10 ⁻⁵	5.93 × 10 ⁻³
Inert waste landfilling	3.76 × 10 ⁻⁵	1.11 × 10 ⁻⁵	0	0.26	0.14	0	0.02
Landfilling in designated areas	3.11 × 10 ⁻⁴	0	0	0.04	0.02	0	0.03
Metal plating or coating works	0.10	0.10	0.02	0.05	0.12	9.93 × 10 ⁻³	1.55
Milk processing	8.73 × 10 ⁻⁴	1.02 × 10 ⁻⁴	4.68 × 10 ⁻³	1.52 × 10 ⁻³	4.09 × 10 ⁻³	2.06 × 10 ⁻⁵	4.28 × 10 ⁻³
Mining (other than coal)	0	3.80 × 10 ⁻⁴	0	0.59	0.33	0	2.45 × 10 ⁻⁶
Mooring and boat storage	0	0	0	0	0	0	1.35 × 10 ⁻³
Oil and fat manufacturing	4.61 × 10 ⁻⁴	5.42 × 10 ⁻⁵	4.13 × 10 ⁻³	7.84 × 10 ⁻⁴	2.11 × 10 ⁻³	1.09 × 10 ⁻⁵	2.25 × 10 ⁻⁴
Other agricultural crop processing	2.29 × 10 ⁻³	2.72 × 10 ⁻⁴	0.01	0.10	0.09	8.01 × 10 ⁻⁵	6.77 × 10 ⁻³
Other chemical processing	5.59 × 10 ⁻³	5.05 × 10 ⁻⁴	0.04	0.06	0.16	0.02	0.21
Other Chemical Storage	2.29 × 10 ⁻⁴	2.68 × 10 ⁻⁵	1.62 × 10 ⁻³	3.88 × 10 ⁻⁴	1.04 × 10 ⁻³	5.40 × 10 ⁻⁶	0.32
Other land-based extraction	0.02	4.31 × 10 ⁻³	0.02	5.17	3.09	0.07	0.04
Other livestock processing	5.20 × 10 ⁻⁴	6.03 × 10 ⁻⁵	2.56 × 10 ⁻³	8.82 × 10 ⁻⁴	2.37 × 10 ⁻³	1.23 × 10 ⁻⁵	3.21 × 10 ⁻³
Other metal processing	1.13 × 10 ⁻³	1.31 × 10 ⁻⁴	5.85 × 10 ⁻³	0.02	0.06	2.66 × 10 ⁻⁵	0.60
Other vessel construction or maintenance	0	4.04 × 10 ⁻⁴	2.10 × 10 ⁻⁴	0.06	0.14	0	0.05
Paint production	5.67 × 10 ⁻⁵	8.27 × 10 ⁻⁶	2.87 × 10 ⁻⁴	1.92 × 10 ⁻³	5.12 × 10 ⁻³	3.40 × 10 ⁻⁶	0.03

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paper production using recycled materials	4.07×10^{-3}	0.04	0.04	2.44×10^{-3}	6.55×10^{-3}	3.90×10^{-3}	0.02
Pesticides production	1.05×10^{-5}	1.15×10^{-6}	5.24×10^{-5}	1.78×10^{-5}	4.79×10^{-5}	2.48×10^{-7}	7.26×10^{-5}
Petrochemical production	0.03	0.31	0.44	0.07	0.20	0.12	0.29
Petroleum refining	0.05	0.10	1.01	0.43	1.03	2.29	2.12
Pharmaceutical or veterinary products production	2.75×10^{-4}	3.17×10^{-5}	1.59×10^{-3}	5.46×10^{-4}	1.44×10^{-3}	1.04×10^{-5}	0.02
Plastics production	1.65×10^{-4}	1.48×10^{-5}	3.71×10^{-3}	0.23	0.61	3.31×10^{-6}	0.21
Poultry production	1.11×10^{-4}	1.15×10^{-5}	8.75×10^{-4}	0.72	0.52	2.31×10^{-6}	0.01
Primary aluminium production	4.98	0.18	0.12	0.70	1.37	4.14	7.90×10^{-3}
Primary iron and steel production	45.1	6.55	2.84	2.63	6.31	3.28	0.37
Primary non-ferrous production (excluding aluminium)	1.75×10^{-3}	2.40×10^{-4}	0.02	0.02	0.05	2.78×10^{-3}	9.53×10^{-4}
Printing	7.42×10^{-4}	8.10×10^{-5}	5.0×10^{-3}	1.40×10^{-3}	3.77×10^{-3}	1.93×10^{-5}	1.06
Production of ammonium nitrate	0.03	1.97×10^{-3}	0.38	0.34	0.90	3.95×10^{-4}	0.17
Production of container glass	1.62×10^{-3}	3.90	0.58	0.14	0.38	0.21	0.02
Production of float glass	9.01×10^{-4}	4.99×10^{-4}	0.30	0.18	0.49	0.06	8.10×10^{-3}
Production of phosphate fertilizer	6.49×10^{-4}	6.98×10^{-5}	5.25×10^{-3}	0.17	0.44	6.84×10^{-3}	7.31×10^{-4}
Railway activities	0	0	0	7.61×10^{-3}	0.02	0	0.01
Rendering or fat extraction	3.84×10^{-4}	4.49×10^{-5}	1.91×10^{-3}	6.51×10^{-4}	1.75×10^{-3}	1.53×10^{-5}	2.93×10^{-3}
Scrap metal recovery	0	0	1.07×10^{-3}	0.05	0.10	0	6.78×10^{-6}
Secondary aluminium production	5.65×10^{-3}	4.38×10^{-3}	0.02	0.04	0.07	9.35×10^{-3}	0.08
Secondary iron and steel production	0	0	1.58×10^{-4}	4.74×10^{-3}	0.01	6.76×10^{-6}	0.01
Secondary non-ferrous production (excluding aluminium)	0.01	1.24	0.01	9.36×10^{-3}	0.02	0.03	1.63×10^{-3}
Services to air transport	1.95×10^{-4}	2.29×10^{-5}	9.71×10^{-4}	3.30×10^{-4}	8.88×10^{-4}	4.60×10^{-6}	0.07
Sewage Treatment - processing by large plants	8.32×10^{-3}	6.03×10^{-5}	0.22	2.74×10^{-3}	7.37×10^{-3}	8.71×10^{-5}	0.03
Sewage Treatment - processing by small plants	0.02	0.01	0.02	0.12	0.08	4.06×10^{-4}	0.04

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Soap or detergent production	3.72×10^{-4}	4.34×10^{-5}	1.66×10^{-3}	6.33×10^{-4}	1.70×10^{-3}	8.03×10^{-4}	0.05
Soft drink manufacturing	7.08×10^{-5}	8.27×10^{-6}	3.53×10^{-4}	1.20×10^{-4}	3.23×10^{-4}	1.67×10^{-6}	1.33×10^{-3}
Solid waste landfilling	0.02	1.71×10^{-3}	2.27×10^{-3}	1.50	0.82	0	0.30
Storage of Petroleum and/or Petroleum Products	0.14	0.02	0.31	0.11	0.30	0.46	0.28
Used tyre processing or disposal	0	0	0	0	0	0	5.93×10^{-7}
Vessel construction or maintenance using dry or floating docks	0	0	0	6.33×10^{-3}	0.02	0	0.02
Waste oil recovery	2.09×10^{-4}	1.02×10^{-3}	3.54×10^{-3}	4.06×10^{-4}	1.08×10^{-3}	5.20×10^{-3}	2.53×10^{-4}
Waste storage, transfer, separating or processing	4.68×10^{-3}	1.37×10^{-5}	0.02	0.05	0.03	1.97×10^{-6}	1.32×10^{-3}
Wood or timber milling	0	0	0	4.42×10^{-4}	4.37×10^{-4}	0	7.66×10^{-7}
Wood preservation	0	0	0	0	0	0	3.22×10^{-7}
Industrial Total	52.1	19.2	64.0	69.4	53.4	98.1	9.72
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.56×10^{-3}
Animal slaughtering	6.84×10^{-4}	7.53×10^{-5}	4.59×10^{-3}	1.73×10^{-3}	3.08×10^{-3}	1.31×10^{-4}	4.19×10^{-3}
Battery production	0	2.33	0	0.01	0.03	0	0
Biomedical waste incineration	1.35×10^{-3}	0.14	4.93×10^{-3}	4.83×10^{-3}	8.63×10^{-3}	8.81×10^{-3}	4.92×10^{-4}
Bitumen pre-mix or hotmix production	0.02	0.02	0.02	0.25	0.19	0.02	0.02
Bread manufacturing	3.98×10^{-4}	4.47×10^{-5}	2.48×10^{-3}	1.67×10^{-3}	2.98×10^{-3}	7.76×10^{-5}	1.66×10^{-4}
Bulk cargo handling	0	0	0	0.06	0.02	0	4.60×10^{-4}
Cake and pastry manufacturing	2.08×10^{-4}	2.27×10^{-5}	1.30×10^{-3}	5.15×10^{-4}	9.20×10^{-4}	4.06×10^{-5}	4.95×10^{-5}
Cement or lime handling	2.14×10^{-4}	4.77×10^{-5}	1.33×10^{-3}	0.20	0.13	1.09×10^{-5}	0.06
Cement or lime production	0.02	0.32	1.66	0.46	0.54	0.10	2.95×10^{-3}
Ceramics production (excluding glass)	0.15	3.02×10^{-4}	0.20	5.53	7.16	3.90	0.09
Chemical storage	0	0	0	0	0	0	5.25×10^{-3}
Coal mining	1.95×10^{-3}	0.04	0.04	0.74	0.17	0.01	1.88×10^{-3}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Coke production	9.27×10^{-4}	1.14	0.02	0.23	0.41	2.12	2.21×10^{-4}
Composting and related reprocessing or treatment	0.09	1.32×10^{-6}	0	0.41	0.15	0	0.15
Concrete batching	4.07×10^{-4}	1.88×10^{-3}	2.71×10^{-3}	1.18	0.41	7.83×10^{-5}	0.13
Confectionary manufacturing	1.91×10^{-5}	7.57×10^{-6}	7.08×10^{-4}	1.65×10^{-4}	2.95×10^{-4}	1.30×10^{-5}	3.21×10^{-4}
Crushing, grinding or separating works	0.14	0.11	0.28	11.4	8.02	1.63	0.05
Drum or container reconditioning	1.10×10^{-4}	0.06	2.22×10^{-3}	4.87×10^{-4}	8.70×10^{-4}	3.84×10^{-5}	0.03
Dry cleaning	2.94×10^{-4}	3.46×10^{-5}	1.93×10^{-3}	7.70×10^{-4}	1.37×10^{-3}	6.07×10^{-5}	4.83×10^{-4}
Environmentally sensitive area landfilling	2.62×10^{-4}	0	0	0.32	0.12	0	0.01
Freeway or tollway construction	0	5.90×10^{-3}	0	0.18	0.04	0	2.89×10^{-6}
Generation of electrical power from gas	0.60	0.01	3.32	0.30	0.53	0.09	0.43
Generation of electrical power other than from coal or gas	0.02	0	1.27	3.17×10^{-3}	5.67×10^{-3}	1.22×10^{-3}	0.05
Hard-rock gravel quarrying	9.26×10^{-5}	2.83×10^{-4}	0	0.59	0.26	0	3.80×10^{-3}
Hazardous, industrial or group A waste generation or storage	3.50×10^{-4}	2.91×10^{-5}	1.25×10^{-3}	4.26×10^{-3}	7.35×10^{-3}	3.77×10^{-5}	0.11
Hazardous, industrial, group A or group B waste processing	9.35×10^{-4}	1.39×10^{-4}	5.94×10^{-3}	0.04	0.06	4.95×10^{-4}	7.81×10^{-3}
Inert waste landfilling	0	0	0	0.37	0.14	0	5.06×10^{-7}
Landfilling in designated areas	8.41×10^{-4}	0	0	0.14	0.05	0	0.03
Metal plating or coating works	1.30×10^{-3}	1.46×10^{-4}	8.26×10^{-3}	0.11	0.19	2.68×10^{-4}	1.92
Milk processing	1.76×10^{-3}	2.0×10^{-4}	0.01	4.36×10^{-3}	7.79×10^{-3}	3.44×10^{-4}	5.36×10^{-3}
Mining (other than coal)	0	0	0	0.08	0.03	0	0
Mooring and boat storage	0	0	0	0	0	0	9.07×10^{-4}
Oil and fat manufacturing	1.26×10^{-3}	1.43×10^{-4}	0.01	3.11×10^{-3}	5.56×10^{-3}	2.45×10^{-4}	2.97×10^{-4}
Other agricultural crop processing	3.50×10^{-3}	4.07×10^{-4}	0.02	0.30	0.18	7.02×10^{-4}	5.34×10^{-3}
Other chemical processing	9.08×10^{-3}	6.58×10^{-4}	0.04	0.02	0.03	1.27×10^{-3}	0.24
Other Chemical Storage	6.22×10^{-4}	7.06×10^{-5}	5.52×10^{-3}	1.54×10^{-3}	2.75×10^{-3}	1.21×10^{-4}	0.15

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other land-based extraction	0.05	6.68×10^{-3}	0.05	10.5	4.33	1.50	7.91×10^{-3}
Other livestock processing	5.58×10^{-4}	6.23×10^{-5}	3.37×10^{-3}	1.38×10^{-3}	2.46×10^{-3}	1.09×10^{-4}	3.77×10^{-3}
Other metal processing	2.93×10^{-3}	3.29×10^{-4}	0.02	0.09	0.15	5.71×10^{-4}	0.79
Other vessel construction or maintenance	0	5.0×10^{-4}	0	0.10	0.17	0	0.06
Paint production	1.54×10^{-4}	2.18×10^{-5}	9.78×10^{-4}	7.63×10^{-3}	0.01	7.65×10^{-5}	0.03
Paper production using recycled materials	0.01	0.10	0.15	9.67×10^{-3}	0.02	0.09	0.02
Pesticides production	2.86×10^{-5}	3.03×10^{-6}	1.79×10^{-4}	7.07×10^{-5}	1.26×10^{-4}	5.58×10^{-6}	9.59×10^{-5}
Petrochemical production	0.07	0.81	1.49	0.29	0.52	2.64	0.39
Petroleum refining	0.13	0.26	3.45	1.71	2.73	51.5	2.80
Pharmaceutical or veterinary products production	7.49×10^{-4}	8.35×10^{-5}	5.43×10^{-3}	2.17×10^{-3}	3.80×10^{-3}	2.33×10^{-4}	0.03
Plastics production	4.49×10^{-4}	3.90×10^{-5}	0.01	0.91	1.60	7.44×10^{-5}	0.27
Poultry production	2.93×10^{-4}	3.03×10^{-5}	2.66×10^{-3}	2.47	1.21	5.20×10^{-5}	0.01
Primary iron and steel production	0	0	0	0	0	0	9.11×10^{-8}
Primary non-ferrous production (excluding aluminium)	0	0	4.18×10^{-6}	8.25×10^{-4}	1.19×10^{-3}	9.14×10^{-5}	4.56×10^{-7}
Printing	2.02×10^{-3}	2.13×10^{-4}	0.02	5.57×10^{-3}	9.95×10^{-3}	4.33×10^{-4}	1.36
Production of container glass	4.41×10^{-3}	10.3	1.99	0.56	0.99	4.78	0.03
Production of float glass	2.45×10^{-3}	1.31×10^{-3}	1.04	0.73	1.28	1.32	0.01
Railway activities	0	0	0	0.03	0.05	0	0.01
Rendering or fat extraction	0	0	0	0	0	0	2.77×10^{-3}
Scrap metal recovery	0	0	2.30×10^{-3}	0.20	0.26	0	6.52×10^{-6}
Secondary aluminium production	0.01	9.98×10^{-3}	0.07	0.12	0.10	0.21	0.11
Secondary iron and steel production	0	0	5.38×10^{-4}	0.02	0.04	1.52×10^{-4}	0.02
Secondary non-ferrous production (excluding aluminium)	0.04	3.26	0.04	0.04	0.06	0.66	2.16×10^{-3}
Services to air transport	5.30×10^{-4}	6.02×10^{-5}	3.31×10^{-3}	1.31×10^{-3}	2.34×10^{-3}	1.03×10^{-4}	0.09

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	0.02	1.44×10^{-4}	0.74	9.59×10^{-3}	0.02	1.91×10^{-3}	0.04
Sewage Treatment - processing by small plants	4.99×10^{-3}	0.03	0.03	0.43	0.15	7.74×10^{-3}	0.02
Soap or detergent production	1.01×10^{-3}	1.14×10^{-4}	5.66×10^{-3}	2.51×10^{-3}	4.49×10^{-3}	0.02	0.07
Soft drink manufacturing	1.93×10^{-4}	2.18×10^{-5}	1.20×10^{-3}	4.77×10^{-4}	8.51×10^{-4}	3.76×10^{-5}	1.76×10^{-3}
Solid waste landfilling	0.03	9.39×10^{-5}	0	3.08	1.12	0	0.22
Storage of Petroleum and/or Petroleum Products	0.38	0.04	1.07	0.44	0.78	10.3	0.22
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	1.97×10^{-3}
Waste oil recovery	0	0	0	0	0	0	1.01×10^{-4}
Waste storage, transfer, separating or processing	0.01	3.61×10^{-5}	0.05	0.18	0.07	4.43×10^{-5}	1.19×10^{-3}
Industrial Total	1.84	19.0	17.2	44.9	34.6	80.9	10.1
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Newcastle							
Production of ammonium nitrate	0.40	0.07	12.0	9.64	16.7	0.01	3.14
Production of phosphate fertilizer	7.95×10^{-3}	1.81×10^{-3}	0.07	4.55	7.87	4.74×10^{-4}	4.06×10^{-3}
Aircraft (helicopter) facilities	0	0	0	0	0	0	1.82×10^{-3}
Animal slaughtering	0	0	0	0	0	0	0.35
Bitumen pre-mix or hotmix production	0.02	0.70	0.03	5.56	9.07	0.01	0.02
Bulk cargo handling	0	1.60×10^{-4}	0	3.27	0.87	0	7.23×10^{-3}
Cement or lime handling	1.92×10^{-4}	4.91×10^{-5}	1.98×10^{-3}	0.18	0.18	8.59×10^{-6}	1.74×10^{-4}
Coal loading	0	9.79×10^{-4}	0	0.01	1.81×10^{-3}	0	0.05
Coal mining	0.01	1.01	0.24	15.2	3.23	8.13×10^{-3}	0.04
Concrete batching	0	1.10×10^{-3}	0	0.27	0.07	0	9.39×10^{-4}
Crushing, grinding or separating works	3.93×10^{-3}	4.96×10^{-3}	0.08	2.73	1.17	4.51×10^{-3}	0.02
Explosives or pyrotechnics production	0	0	0	0	0	0	1.53×10^{-5}
Hard-rock gravel quarrying	0	0.05	0	5.79	2.47	0	7.32×10^{-5}

3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Hazardous, industrial or group A waste generation or storage	4.69×10^{-6}	0	4.85×10^{-5}	1.48×10^{-5}	2.61×10^{-5}	2.09×10^{-7}	0.11
Inert waste landfilling	0	0	0	2.48	0.88	0	0
Metal plating or coating works	2.31×10^{-3}	6.11×10^{-4}	0.02	0.11	0.20	1.03×10^{-4}	6.16×10^{-3}
Milk processing	3.40×10^{-3}	9.03×10^{-4}	0.04	0.01	0.02	1.53×10^{-4}	4.09×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	8.44×10^{-3}
Other agricultural crop processing	0.01	2.88×10^{-3}	0.11	0.45	0.28	1.21×10^{-3}	0.05
Other chemical processing	0.03	8.31×10^{-3}	0.90	1.49	2.63	0.50	0.55
Other Chemical Storage	0	0	0	0	0	0	3.15
Other land-based extraction	1.31×10^{-4}	0.01	8.25×10^{-3}	2.42	0.83	3.53×10^{-8}	5.45×10^{-4}
Other metal processing	0	0	5.0×10^{-3}	0	0	0	1.46×10^{-5}
Other vessel construction or maintenance	0	7.31×10^{-3}	6.58×10^{-3}	0.82	1.33	0	0.07
Primary aluminium production	58.6	6.02	3.37	7.03	8.94	86.4	0.10
Primary non-ferrous production (excluding aluminium)	0.03	8.19×10^{-3}	0.53	0.68	0.96	0.08	0.02
Printing	0	0	0	0	0	0	0.66
Scrap metal recovery	0	0	0.01	0	0	0	2.32×10^{-5}
Secondary iron and steel production	0	0	0	0	0	0	1.42×10^{-4}
Sewage Treatment - processing by large plants	0	0	0	0	0	0	0.01
Sewage Treatment - processing by small plants	0	0	0	0	0	0	1.04×10^{-4}
Solid waste landfilling	7.16×10^{-3}	0.06	0	1.06	0.38	0	0.73
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	2.14
Used tyre processing or disposal	0	0	0	0	0	0	1.09×10^{-5}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.18	0.29	0	0.30
Waste storage, transfer, separating or processing	0	0	0	0.01	4.20×10^{-3}	0	7.70×10^{-3}
Wood or timber milling	0	0	0	0.01	8.07×10^{-3}	0	0

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wood preservation	0	0	0	0	0	0	5.91×10^{-6}
Industrial Total	59.1	7.95	17.5	63.9	58.4	87.0	11.6
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Wollongong							
Bitumen pre-mix or hotmix production	2.32×10^{-3}	2.71×10^{-3}	0.01	0.08	0.07	1.91×10^{-3}	0.01
Bulk cargo handling	0	0	0	0.02	2.86×10^{-3}	0	1.95×10^{-5}
Cement or lime handling	0	0	0	2.26×10^{-3}	5.15×10^{-4}	0	3.88×10^{-4}
Coal loading	9.78×10^{-5}	0.20	0.02	6.80	1.01	1.32×10^{-3}	2.73×10^{-3}
Coal mining	3.69×10^{-4}	0.01	0.08	2.34	0.67	4.91×10^{-3}	0.43
Coal washery reject or slag landfilling	7.84×10^{-7}	0	1.37×10^{-4}	2.14	0.59	4.89×10^{-6}	6.63×10^{-6}
Coke production	6.66×10^{-4}	4.06	0.13	1.26	1.73	2.51	3.98×10^{-3}
Concrete batching	0	2.57×10^{-4}	0	0.21	0.04	0	4.63×10^{-4}
Crushing, grinding or separating works	0	1.37×10^{-3}	0	0.11	0.06	0	0
Drum or container reconditioning	0	0	0	0	0	0	2.50×10^{-7}
Environmentally sensitive area landfilling	0	4.60×10^{-4}	0	0.24	0.06	0	0
Hazardous, industrial, group A or group B waste processing	0	1.32×10^{-5}	0	6.33×10^{-3}	1.69×10^{-3}	0	6.67×10^{-4}
Inert waste landfilling	0	1.13×10^{-4}	0	1.68	0.47	0	2.39×10^{-5}
Metal plating or coating works	0.22	1.01	0.46	0.35	0.44	0.28	2.47
Other chemical processing	2.13×10^{-4}	1.20×10^{-4}	0.01	0.04	0.01	6.77×10^{-5}	1.26×10^{-3}
Other metal processing	1.06×10^{-4}	5.73×10^{-5}	5.88×10^{-3}	9.03×10^{-3}	0.01	3.38×10^{-5}	0.02
Other vessel construction or maintenance	0	0	0	0	0	0	1.82×10^{-5}
Primary iron and steel production	96.1	66.9	67.0	61.0	74.8	94.1	9.59
Production of phosphate fertilizer	2.63×10^{-4}	1.70×10^{-4}	0.07	0.09	0.12	0.20	0.01
Scrap metal recovery	0	0	0	0	0	0	1.50×10^{-5}
Sewage Treatment - processing by large plants	1.28×10^{-4}	4.55×10^{-5}	0.02	3.63×10^{-3}	4.96×10^{-3}	2.61×10^{-5}	8.86×10^{-3}
Sewage Treatment - processing by small plants	2.69×10^{-4}	8.30×10^{-5}	8.70×10^{-3}	3.30×10^{-3}	4.54×10^{-3}	5.23×10^{-5}	0.02

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Solid waste landfilling	0.02	0	0.05	1.08	0.37	0	0.28
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	4.90 × 10 ⁻³
Industrial Total	96.3	72.2	67.9	77.5	80.4	97.1	12.9
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Non-Urban							
Animal slaughtering	5.39 × 10 ⁻⁵	1.17 × 10 ⁻⁶	4.12 × 10 ⁻⁵	1.32 × 10 ⁻⁵	4.94 × 10 ⁻⁵	1.39 × 10 ⁻⁷	1.69 × 10 ⁻⁵
Bitumen pre-mix or hotmix production	1.51 × 10 ⁻³	3.55 × 10 ⁻⁴	5.19 × 10 ⁻⁴	1.37 × 10 ⁻³	2.91 × 10 ⁻³	3.80 × 10 ⁻⁵	5.77 × 10 ⁻³
Cement or lime handling	0	0	0	0.31	0.24	0	6.65 × 10 ⁻⁴
Cement or lime production	2.86	1.49	2.75	0.51	1.16	0.07	0.35
Ceramics production (excluding glass)	0.15	1.10 × 10 ⁻⁴	0.04	0.60	1.62	0.05	0.04
Coal loading	3.0 × 10 ⁻⁴	0.03	8.95 × 10 ⁻⁴	0.31	0.13	3.81 × 10 ⁻⁵	1.11 × 10 ⁻³
Coal mining	2.03	4.31	0.67	54.9	34.5	0.02	0.37
Composting and related reprocessing or treatment	4.53 × 10 ⁻⁴	1.04 × 10 ⁻⁵	2.48 × 10 ⁻³	2.99 × 10 ⁻⁴	6.47 × 10 ⁻⁴	1.17 × 10 ⁻⁶	0.14
Concrete batching	1.08 × 10 ⁻³	4.49 × 10 ⁻⁴	1.34 × 10 ⁻³	0.11	0.08	2.77 × 10 ⁻⁶	7.37 × 10 ⁻³
Crushing, grinding or separating works	2.38 × 10 ⁻⁴	4.0 × 10 ⁻⁴	7.08 × 10 ⁻⁴	0.83	0.71	3.01 × 10 ⁻⁵	4.33 × 10 ⁻³
Environmentally sensitive area landfilling	4.88 × 10 ⁻⁴	0	0	0.05	0.04	0	0.03
Freeway or tollway construction	0	0	0	0.11	0.08	0	0
Generation of electrical power from coal	6.19	3.59	84.2	11.7	15.5	98.0	3.01
Hard-rock gravel quarrying	0	6.93 × 10 ⁻³	0	2.66	2.33	0	0.71
Hazardous, industrial or group A waste generation or storage	0	3.06 × 10 ⁻⁶	0	3.95 × 10 ⁻⁴	2.85 × 10 ⁻⁴	0	2.55 × 10 ⁻⁶
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	2.21 × 10 ⁻⁶
Inert waste landfilling	3.89 × 10 ⁻⁴	0	0	9.58 × 10 ⁻³	7.20 × 10 ⁻³	0	0.13
Landfilling in designated areas	2.33 × 10 ⁻⁵	0	0	2.58 × 10 ⁻³	1.94 × 10 ⁻³	0	1.25 × 10 ⁻³
Mining (other than coal)	0	7.72 × 10 ⁻⁴	0	0.85	0.66	0	1.63 × 10 ⁻⁵
Mooring and boat storage	0	0	0	0	0	0	1.34 × 10 ⁻³

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other agricultural crop processing	2.97×10^{-3}	6.77×10^{-5}	2.24×10^{-3}	9.89×10^{-3}	0.01	7.58×10^{-6}	1.32×10^{-3}
Other chemical processing	8.78×10^{-4}	0	2.12×10^{-3}	1.25×10^{-3}	4.62×10^{-3}	4.45×10^{-5}	5.19×10^{-3}
Other Chemical Storage	0	0	0	0	0	0	0.25
Other land-based extraction	2.68×10^{-3}	2.86×10^{-3}	8.0×10^{-3}	3.64	2.91	3.40×10^{-4}	0.24
Other livestock processing	3.25×10^{-3}	7.44×10^{-5}	2.49×10^{-3}	7.99×10^{-4}	2.98×10^{-3}	8.40×10^{-6}	2.41×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	5.37×10^{-3}
Poultry production	3.23×10^{-5}	0	1.50×10^{-4}	0.15	0.13	4.99×10^{-10}	2.70×10^{-5}
Primary aluminium production	11.4	2.08×10^{-4}	0.03	0.68	1.83	1.28	0.02
Rendering or fat extraction	3.96×10^{-3}	9.11×10^{-5}	3.03×10^{-3}	9.73×10^{-4}	3.63×10^{-3}	1.73×10^{-5}	5.56×10^{-3}
Scrap metal recovery	0	0	0	0	0	0	0
Secondary aluminium production	0.02	1.19×10^{-3}	3.37×10^{-3}	0.02	0.06	6.27×10^{-5}	7.80×10^{-4}
Sewage Treatment - processing by large plants	3.85×10^{-3}	2.04×10^{-6}	2.90×10^{-4}	2.53×10^{-4}	9.44×10^{-4}	1.51×10^{-6}	0.01
Sewage Treatment - processing by small plants	0.18	5.69×10^{-5}	0.01	0.01	0.04	6.74×10^{-5}	0.15
Solid waste landfilling	5.28×10^{-3}	6.71×10^{-6}	0	0.95	0.72	0	0.56
Waste oil recovery	2.16×10^{-3}	2.07×10^{-3}	5.60×10^{-3}	6.07×10^{-4}	2.24×10^{-3}	5.87×10^{-3}	1.18×10^{-3}
Wood or timber milling	0	0	0	0	0	0	5.11×10^{-6}
Industrial Total	22.8	9.43	87.7	78.4	62.8	99.4	6.06

Table 3.73 shows total estimated daily emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.73 Total estimated daily emissions from industrial sources in each region for typical July weekday

Substance	Industrial July Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	21.570	132	1,403	69.477	1,625
LEAD AND COMPOUNDS	0.013	7.93×10^{-4}	0.011	7.95×10^{-3}	0.032
OXIDES OF NITROGEN	37.795	4.866	21.315	420	484
PARTICULATE MATTER < 10 µm	21.969	4.912	5.576	96.190	129
PARTICULATE MATTER < 2.5 µm	9.384	2.251	4.188	20.266	36.089
SULFUR DIOXIDE	29.452	25.074	27.662	740	822
TOTAL VOCs	39.671	3.787	2.141	5.089	50.689

Table 3.74 shows the proportion of total estimated daily anthropogenic emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.74 Proportion of total estimated daily emissions from industrial sources in each region for typical July weekday

Substance	Industrial Proportion of Anthropogenic Total July Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1.17	48.9	94.4	16.8	40.4
LEAD AND COMPOUNDS	14.9	11.2	61.4	6.33	13.8
OXIDES OF NITROGEN	14.2	17.6	62.9	85.3	59.0
PARTICULATE MATTER < 10 µm	27.1	48.1	58.7	69.9	54.0
PARTICULATE MATTER < 2.5 µm	16.3	34.9	58.8	48.6	32.0
SULFUR DIOXIDE	78.6	87.6	97.0	99.4	98.0
TOTAL VOCs	9.42	11.9	10.3	6.69	9.22

Figure 3.19 shows the proportion of total estimated daily GMR industrial emissions from all industrial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

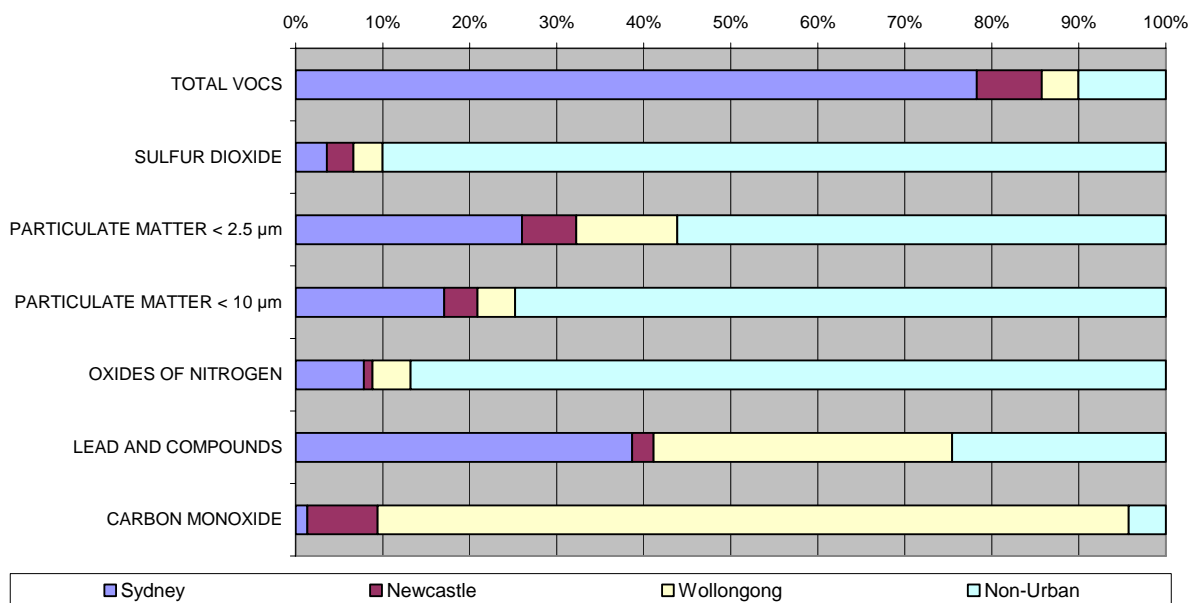


Figure 3.19 Proportion of total estimated daily emissions from industrial sources in each region for typical July weekday

Table 3.75 shows total estimated daily emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.76 shows the proportion of total estimated daily anthropogenic emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.75 Total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical July weekday

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
July Weekday Emissions (tonnes/day) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	4.01×10^{-3}
Animal slaughtering	0.021	6.15×10^{-6}	0.223	7.86×10^{-3}	3.80×10^{-3}	0.274	0.096
Battery production	0	2.37×10^{-3}	0	0.010	0.010	0	0
Beer or distilled alcohol production	0.062	3.66×10^{-7}	0.132	6.89×10^{-3}	6.89×10^{-3}	3.83×10^{-4}	0.108
Biomedical waste incineration	0.013	6.86×10^{-5}	9.06×10^{-3}	1.70×10^{-3}	1.70×10^{-3}	2.71×10^{-3}	1.32×10^{-3}
Bitumen pre-mix or hotmix production	0.409	5.36×10^{-5}	0.086	0.568	0.403	0.015	0.100
Bread manufacturing	4.53×10^{-3}	2.68×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	7.36×10^{-9}	0	0.251	0.037	0	3.21×10^{-3}
Cake and pastry manufacturing	4.42×10^{-3}	2.62×10^{-8}	5.26×10^{-3}	4.0×10^{-4}	4.0×10^{-4}	2.75×10^{-5}	2.90×10^{-4}
Cement or lime handling	7.23×10^{-3}	5.91×10^{-7}	8.61×10^{-3}	0.574	0.185	3.38×10^{-5}	0.368
Cement or lime production	8.758	1.32×10^{-3}	15.656	0.749	0.464	0.361	0.224
Ceramics production (excluding glass)	2.214	6.40×10^{-7}	0.646	3.010	2.192	1.886	0.326
Chemical storage	0	0	0	0	0	0	0.078
Coal loading	2.33×10^{-3}	5.42×10^{-5}	0.011	0.828	0.090	6.52×10^{-4}	0.012
Coal mining	6.249	3.95×10^{-3}	3.881	69.903	11.438	0.220	0.355
Coal washery reject or slag landfilling	2.28×10^{-5}	0	8.58×10^{-5}	0.153	0.031	2.79×10^{-6}	2.15×10^{-6}
Coke production	0.020	1.30×10^{-3}	0.082	0.187	0.187	1.487	1.74×10^{-3}
Composting and related reprocessing or treatment	1.065	1.02×10^{-8}	0.012	0.172	0.035	8.46×10^{-6}	0.561
Concrete batching	0.017	1.17×10^{-5}	0.024	1.993	0.450	1.04×10^{-4}	0.417
Confectionary manufacturing	3.26×10^{-4}	6.77×10^{-9}	2.31×10^{-3}	1.03×10^{-4}	1.03×10^{-4}	7.09×10^{-6}	1.52×10^{-3}
Contaminated soil treatment	0	0	0	1.03×10^{-6}	1.02×10^{-7}	0	0
Crushing, grinding or separating works	1.613	7.71×10^{-5}	0.622	6.931	2.448	0.593	0.177
Drum or container reconditioning	2.05×10^{-3}	7.13×10^{-5}	0.010	3.82×10^{-4}	3.82×10^{-4}	7.39×10^{-5}	0.213

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Dry cleaning	3.35×10^{-3}	2.10×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	0.013	1.56×10^{-7}	2.27×10^{-4}	0.208	0.042	1.17×10^{-5}	0.051
Explosives or pyrotechnics production	4.52×10^{-6}	1.13×10^{-9}	6.67×10^{-4}	9.78×10^{-7}	9.71×10^{-7}	6.40×10^{-6}	2.59×10^{-3}
Freeway or tollway construction	0	5.54×10^{-6}	0	0.251	0.041	0	7.05×10^{-6}
Generation of electrical power from coal	19.090	2.80×10^{-3}	403	13.066	4.634	729	1.929
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	1.59×10^{-5}	0	4.848	1.272	0	0.457
Hazardous, industrial or group A waste generation or storage	0.035	1.88×10^{-7}	0.053	6.73×10^{-3}	6.28×10^{-3}	1.36×10^{-3}	2.067
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.04×10^{-6}
Hazardous, industrial, group A or group B waste processing	0.013	9.77×10^{-8}	0.015	0.015	0.015	1.93×10^{-4}	0.026
Inert waste landfilling	1.17×10^{-3}	3.52×10^{-8}	0	0.448	0.094	0	0.082
Landfilling in designated areas	9.64×10^{-3}	0	0	0.060	0.012	0	0.109
Metal plating or coating works	3.226	1.55×10^{-4}	0.208	0.131	0.126	0.081	6.752
Milk processing	0.027	1.61×10^{-7}	0.035	2.52×10^{-3}	2.52×10^{-3}	1.68×10^{-4}	0.018
Mining (other than coal)	0	1.19×10^{-6}	0	1.007	0.213	0	7.68×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	0.011
Oil and fat manufacturing	0.014	8.52×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.081	4.85×10^{-7}	0.096	0.201	0.067	7.14×10^{-4}	0.029
Other chemical processing	0.211	1.66×10^{-6}	0.379	0.110	0.108	0.143	2.140
Other Chemical Storage	0.014	8.52×10^{-8}	0.020	2.08×10^{-3}	1.73×10^{-3}	8.91×10^{-5}	1.214
Other land-based extraction	0.651	1.77×10^{-5}	0.241	9.551	2.220	0.553	0.185
Other livestock processing	0.017	9.99×10^{-8}	0.022	1.61×10^{-3}	1.61×10^{-3}	1.05×10^{-4}	0.014
Other metal processing	0.569	2.38×10^{-5}	0.574	0.174	0.174	0.016	3.633

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other vessel construction or maintenance	0	8.21×10^{-7}	1.55×10^{-3}	0.118	0.109	0	0.351
Paint production	8.70×10^{-3}	2.66×10^{-7}	0.011	0.038	0.037	9.87×10^{-5}	0.320
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	2.96×10^{-4}	1.72×10^{-9}	3.52×10^{-4}	2.68×10^{-5}	2.68×10^{-5}	1.84×10^{-6}	0.024
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.471	1.57×10^{-4}	7.503	0.714	0.636	18.693	8.325
Pharmaceutical or veterinary products production	0.018	1.03×10^{-7}	0.025	1.77×10^{-3}	1.76×10^{-3}	2.17×10^{-4}	0.157
Plastics production	0.011	1.50×10^{-5}	0.040	0.553	0.545	7.14×10^{-5}	1.798
Poultry production	0.014	8.15×10^{-8}	0.019	1.195	0.323	8.52×10^{-5}	0.045
Primary aluminium production	154	2.77×10^{-4}	0.922	1.164	0.840	33.842	0.033
Primary iron and steel production	1,399	0.010	21.039	4.358	3.883	26.807	1.561
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.041	0.033	0.023	3.98×10^{-3}
Printing	0.030	1.69×10^{-7}	0.061	3.16×10^{-3}	3.16×10^{-3}	2.26×10^{-4}	7.350
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Production of phosphate fertilizer	6.64×10^{-3}	3.61×10^{-8}	0.024	0.180	0.176	0.056	2.24×10^{-3}
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0.064	1.17×10^{-6}	0.077	0.017	9.27×10^{-3}	0.037	0.014
Scrap metal recovery	0	0	0.022	0.164	0.123	0	2.15×10^{-5}
Secondary aluminium production	0.213	7.61×10^{-6}	0.185	0.082	0.056	0.077	0.342
Secondary iron and steel production	10.150	3.95×10^{-4}	0.102	0.135	0.123	0.013	1.128
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.258	9.50×10^{-8}	1.624	4.53×10^{-3}	4.53×10^{-3}	7.12×10^{-4}	0.125

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by small plants	0.608	1.59×10^{-5}	0.118	0.192	0.048	3.32×10^{-3}	0.220
Soap or detergent production	0.013	7.90×10^{-8}	0.014	1.21×10^{-3}	1.21×10^{-3}	6.90×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}
Solid waste landfilling	0.732	2.74×10^{-6}	0.017	2.501	0.510	0	1.229
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	1.231
Used tyre processing or disposal	0	0	0	0	0	0	1.86×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.081
Waste oil recovery	7.58×10^{-3}	1.61×10^{-6}	0.030	7.74×10^{-4}	7.68×10^{-4}	0.042	1.26×10^{-3}
Waste storage, transfer, separating or processing	0.145	9.58×10^{-8}	0.112	0.101	0.022	1.62×10^{-5}	5.41×10^{-3}
Wood or timber milling	0.128	1.31×10^{-4}	0.183	0.076	0.031	0.172	0.369
Wood preservation	0	0	0	0	0	0	1.56×10^{-4}
Industrial Total	1,625	0.032	484	129	36.089	822	50.689
July Weekday Emissions (tonnes/day) - Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	3.70×10^{-3}
Animal slaughtering	0.011	9.97×10^{-8}	0.015	1.06×10^{-3}	1.06×10^{-3}	2.68×10^{-4}	0.013
Battery production	0	2.37×10^{-3}	0	0.010	0.010	0	0
Beer or distilled alcohol production	0.062	3.66×10^{-7}	0.132	6.89×10^{-3}	6.89×10^{-3}	3.83×10^{-4}	0.108
Biomedical waste incineration	0.013	6.86×10^{-5}	9.06×10^{-3}	1.70×10^{-3}	1.70×10^{-3}	2.71×10^{-3}	1.32×10^{-3}
Bitumen pre-mix or hotmix production	0.270	1.90×10^{-5}	0.064	0.187	0.079	8.36×10^{-3}	0.082
Bread manufacturing	4.53×10^{-3}	2.68×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	0	0	0.025	4.75×10^{-3}	0	1.45×10^{-3}
Cake and pastry manufacturing	4.42×10^{-3}	2.62×10^{-8}	5.26×10^{-3}	4.0×10^{-4}	4.0×10^{-4}	2.75×10^{-5}	2.90×10^{-4}
Cement or lime handling	6.04×10^{-3}	4.66×10^{-8}	7.19×10^{-3}	0.163	0.080	2.64×10^{-5}	0.367
Cement or lime production	0.219	1.91×10^{-4}	3.594	0.192	0.127	0.036	9.33×10^{-3}
Ceramics production (excluding glass)	1.651	3.18×10^{-7}	0.441	2.306	1.671	1.418	0.288

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Chemical storage	0	0	0	0	0	0	0.078
Coal mining	5.29×10^{-3}	1.02×10^{-5}	0.023	0.158	0.018	1.23×10^{-3}	1.49×10^{-3}
Coke production	0.011	6.77×10^{-4}	0.042	0.097	0.097	0.772	1.01×10^{-3}
Composting and related reprocessing or treatment	1.064	2.08×10^{-9}	0	0.172	0.035	0	0.472
Concrete batching	0.012	1.05×10^{-5}	0.014	1.605	0.384	7.31×10^{-5}	0.412
Confectionary manufacturing	3.26×10^{-4}	6.77×10^{-9}	2.31×10^{-3}	1.03×10^{-4}	1.03×10^{-4}	7.09×10^{-6}	1.52×10^{-3}
Contaminated soil treatment	0	0	0	1.03×10^{-6}	1.02×10^{-7}	0	0
Crushing, grinding or separating works	1.604	7.56×10^{-5}	0.599	5.670	2.147	0.592	0.171
Drum or container reconditioning	2.04×10^{-3}	7.13×10^{-5}	0.010	3.80×10^{-4}	3.80×10^{-4}	6.27×10^{-5}	0.201
Dry cleaning	3.35×10^{-3}	2.10×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	2.98×10^{-3}	1.48×10^{-8}	0	0.138	0.028	0	0.034
Freeway or tollway construction	0	5.54×10^{-6}	0	0.133	0.018	0	7.05×10^{-6}
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	4.67×10^{-7}	0	0.366	0.102	0	0.012
Hazardous, industrial or group A waste generation or storage	0.035	1.85×10^{-7}	0.053	6.29×10^{-3}	6.19×10^{-3}	1.36×10^{-3}	1.119
Hazardous, industrial, group A or group B waste processing	0.012	9.32×10^{-8}	0.015	0.015	0.015	1.91×10^{-4}	0.026
Inert waste landfilling	0	0	0	0.172	0.038	0	1.20×10^{-6}
Landfilling in designated areas	9.57×10^{-3}	0	0	0.057	0.011	0	0.109
Metal plating or coating works	0.043	2.57×10^{-7}	0.056	0.093	0.091	2.70×10^{-4}	6.309
Milk processing	0.020	1.19×10^{-7}	0.026	1.82×10^{-3}	1.82×10^{-3}	1.25×10^{-4}	0.017
Mining (other than coal)	0	0	0	0.033	6.69×10^{-3}	0	0
Mooring and boat storage	0	0	0	0	0	0	2.87×10^{-3}
Oil and fat manufacturing	0.014	8.52×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other agricultural crop processing	0.039	2.38×10^{-7}	0.046	0.115	0.039	2.49×10^{-4}	0.017
Other chemical processing	0.134	6.08×10^{-7}	0.130	0.011	0.011	8.15×10^{-4}	2.013
Other Chemical Storage	0.014	8.48×10^{-8}	0.020	1.29×10^{-3}	1.29×10^{-3}	8.87×10^{-5}	0.477
Other land-based extraction	0.622	1.06×10^{-5}	0.102	4.853	1.159	0.544	0.026
Other livestock processing	7.10×10^{-3}	4.20×10^{-8}	8.22×10^{-3}	6.43×10^{-4}	6.43×10^{-4}	4.42×10^{-5}	0.012
Other metal processing	0.331	2.23×10^{-5}	0.152	0.111	0.111	0.014	3.188
Other vessel construction or maintenance	0	4.84×10^{-7}	0	0.070	0.064	0	0.331
Paint production	8.70×10^{-3}	2.66×10^{-7}	0.011	0.038	0.037	9.87×10^{-5}	0.320
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	2.96×10^{-4}	1.72×10^{-9}	3.52×10^{-4}	2.68×10^{-5}	2.68×10^{-5}	1.84×10^{-6}	0.024
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.471	1.57×10^{-4}	7.503	0.714	0.636	18.693	8.325
Pharmaceutical or veterinary products production	0.018	1.03×10^{-7}	0.025	1.77×10^{-3}	1.76×10^{-3}	2.17×10^{-4}	0.157
Plastics production	9.22×10^{-3}	4.94×10^{-8}	0.032	0.553	0.545	5.73×10^{-5}	1.793
Poultry production	0.014	8.15×10^{-8}	0.018	1.030	0.284	8.52×10^{-5}	0.045
Primary iron and steel production	8.12×10^{-4}	1.05×10^{-4}	9.67×10^{-4}	8.66×10^{-3}	6.19×10^{-3}	5.05×10^{-6}	5.01×10^{-3}
Primary non-ferrous production (excluding aluminium)	0	0	1.82×10^{-5}	1.03×10^{-3}	8.52×10^{-4}	6.64×10^{-5}	1.08×10^{-6}
Printing	0.030	1.69×10^{-7}	0.061	3.16×10^{-3}	3.16×10^{-3}	2.26×10^{-4}	7.199
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0.032	9.85×10^{-7}	0.039	0.014	6.46×10^{-3}	0.036	9.66×10^{-3}
Scrap metal recovery	0	0	0.016	0.164	0.123	0	1.57×10^{-5}
Secondary aluminium production	0.127	5.95×10^{-6}	0.157	0.051	0.024	0.076	0.341
Secondary iron and steel production	0	3.69×10^{-5}	2.33×10^{-3}	0.024	0.025	5.47×10^{-3}	0.392

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.244	8.63×10^{-8}	1.616	4.0×10^{-3}	3.99×10^{-3}	6.93×10^{-4}	0.113
Sewage Treatment - processing by small plants	0.058	1.58×10^{-5}	0.059	0.179	0.034	2.82×10^{-3}	0.123
Soap or detergent production	0.013	7.90×10^{-8}	0.014	1.21×10^{-3}	1.21×10^{-3}	6.90×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}
Solid waste landfilling	0.365	1.08×10^{-7}	0	1.308	0.267	0	0.665
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	0.746
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	0.012
Waste oil recovery	3.46×10^{-4}	0	2.84×10^{-3}	3.44×10^{-5}	3.44×10^{-5}	5.26×10^{-7}	4.76×10^{-4}
Waste storage, transfer, separating or processing	0.145	8.46×10^{-8}	0.112	0.100	0.021	1.61×10^{-5}	3.67×10^{-3}
Industrial Total	21.570	0.013	37.795	21.969	9.384	29.452	39.671
July Weekday Emissions (tonnes/day) - Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	3.10×10^{-4}
Animal slaughtering	0.010	6.05×10^{-6}	0.208	6.78×10^{-3}	2.72×10^{-3}	0.274	0.083
Bitumen pre-mix or hotmix production	0.066	3.23×10^{-5}	9.95×10^{-3}	0.355	0.309	4.70×10^{-3}	5.93×10^{-3}
Bulk cargo handling	0	7.36×10^{-9}	0	0.225	0.032	0	1.76×10^{-3}
Cement or lime handling	1.19×10^{-3}	7.09×10^{-9}	1.42×10^{-3}	0.012	6.51×10^{-3}	7.42×10^{-6}	8.96×10^{-5}
Coal loading	0	4.50×10^{-8}	0	6.05×10^{-4}	6.03×10^{-5}	0	0.010
Coal mining	0.026	1.04×10^{-4}	0.065	1.505	0.224	2.84×10^{-3}	8.57×10^{-3}
Concrete batching	0	3.73×10^{-7}	0	0.112	0.017	0	2.01×10^{-4}
Crushing, grinding or separating works	8.06×10^{-3}	3.95×10^{-7}	0.020	0.286	0.080	1.29×10^{-3}	3.88×10^{-3}
Explosives or pyrotechnics production	4.52×10^{-6}	1.13×10^{-9}	6.67×10^{-4}	9.78×10^{-7}	9.71×10^{-7}	6.40×10^{-6}	3.39×10^{-6}
Hard-rock gravel quarrying	0	4.61×10^{-6}	0	0.460	0.121	0	1.25×10^{-5}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Hazardous, industrial or group A waste generation or storage	1.92×10^{-5}	9.03×10^{-11}	2.29×10^{-5}	1.74×10^{-6}	1.74×10^{-6}	1.20×10^{-7}	0.050
Hazardous, industrial, group A or group B waste processing	1.30×10^{-4}	7.68×10^{-10}	1.55×10^{-4}	1.18×10^{-5}	1.18×10^{-5}	8.09×10^{-7}	8.51×10^{-6}
Inert waste landfilling	0	0	0	0.145	0.029	0	0
Metal plating or coating works	4.73×10^{-3}	2.81×10^{-8}	5.63×10^{-3}	6.64×10^{-3}	6.64×10^{-3}	2.94×10^{-5}	1.40×10^{-3}
Milk processing	6.97×10^{-3}	4.15×10^{-8}	8.33×10^{-3}	7.0×10^{-4}	7.0×10^{-4}	4.35×10^{-5}	9.30×10^{-4}
Mooring and boat storage	0	0	0	0	0	0	1.92×10^{-3}
Other agricultural crop processing	0.022	1.32×10^{-7}	0.027	0.027	9.27×10^{-3}	3.44×10^{-4}	0.011
Other chemical processing	0.069	1.03×10^{-6}	0.226	0.094	0.094	0.142	0.125
Other Chemical Storage	0	0	0	0	0	0	0.674
Other land-based extraction	5.37×10^{-4}	1.12×10^{-6}	3.89×10^{-3}	0.189	0.036	2.01×10^{-8}	2.48×10^{-4}
Other metal processing	0.236	1.43×10^{-6}	0.420	0.063	0.063	1.59×10^{-3}	0.441
Other vessel construction or maintenance	0	3.36×10^{-7}	1.55×10^{-3}	0.048	0.044	0	0.017
Primary aluminium production	120	2.77×10^{-4}	0.796	0.412	0.298	24.614	0.023
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.040	0.032	0.023	3.98×10^{-3}
Printing	0	0	0	0	0	0	0.151
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of phosphate fertilizer	2.82×10^{-3}	9.94×10^{-9}	2.0×10^{-3}	0.174	0.170	1.62×10^{-5}	1.14×10^{-4}
Scrap metal recovery	0	0	5.83×10^{-3}	0	0	0	3.96×10^{-6}
Secondary iron and steel production	10.150	3.58×10^{-4}	0.099	0.110	0.098	7.84×10^{-3}	0.736
Sewage Treatment - processing by large plants	0	0	0	0	0	0	2.85×10^{-3}
Sewage Treatment - processing by small plants	0	0	0	0	0	0	2.36×10^{-5}
Solid waste landfilling	0.015	2.63×10^{-6}	0	0.062	0.013	0	0.166
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	0.484
Used tyre processing or disposal	0	0	0	0	0	0	1.86×10^{-6}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.069
Waste storage, transfer, separating or processing	1.56×10^{-5}	1.12×10^{-8}	1.86×10^{-5}	8.47×10^{-4}	1.56×10^{-4}	9.72×10^{-8}	1.75×10^{-3}
Wood or timber milling	0	0	0	7.31×10^{-4}	2.69×10^{-4}	0	0
Wood preservation	0	0	0	0	0	0	1.56×10^{-4}
Industrial Total	132	7.93×10^{-4}	4.866	4.912	2.251	25.074	3.787
July Weekday Emissions (tonnes/day) - Wollongong							
Bitumen pre-mix or hotmix production	0.040	7.72×10^{-7}	5.22×10^{-3}	8.13×10^{-3}	4.90×10^{-3}	6.79×10^{-4}	3.48×10^{-3}
Bulk cargo handling	0	0	0	1.49×10^{-3}	1.48×10^{-4}	0	2.38×10^{-6}
Cement or lime handling	0	0	0	1.61×10^{-4}	2.67×10^{-5}	0	6.30×10^{-5}
Coal loading	1.42×10^{-3}	3.06×10^{-5}	6.72×10^{-3}	0.485	0.052	3.76×10^{-4}	4.43×10^{-4}
Coal mining	5.38×10^{-3}	3.38×10^{-6}	0.025	0.178	0.037	1.40×10^{-3}	0.070
Coal washery reject or slag landfilling	2.28×10^{-5}	0	8.58×10^{-5}	0.153	0.031	2.79×10^{-6}	2.15×10^{-6}
Coke production	9.70×10^{-3}	6.24×10^{-4}	0.039	0.090	0.090	0.716	7.37×10^{-4}
Concrete batching	0	1.10×10^{-7}	0	0.041	6.11×10^{-3}	0	7.01×10^{-5}
Crushing, grinding or separating works	0	4.22×10^{-7}	0	0.015	6.45×10^{-3}	0	0
Drum or container reconditioning	7.90×10^{-6}	1.94×10^{-9}	3.16×10^{-5}	1.71×10^{-6}	1.70×10^{-6}	1.12×10^{-5}	0.012
Environmentally sensitive area landfilling	0	1.42×10^{-7}	0	0.018	3.43×10^{-3}	0	0
Hazardous, industrial, group A or group B waste processing	2.61×10^{-4}	3.70×10^{-9}	3.10×10^{-4}	4.75×10^{-4}	1.11×10^{-4}	1.62×10^{-6}	1.24×10^{-4}
Inert waste landfilling	0	3.52×10^{-8}	0	0.120	0.024	0	3.87×10^{-6}
Metal plating or coating works	3.178	1.55×10^{-4}	0.146	0.031	0.028	0.081	0.441
Other chemical processing	3.10×10^{-3}	1.84×10^{-8}	3.69×10^{-3}	2.64×10^{-3}	7.56×10^{-4}	1.93×10^{-5}	2.05×10^{-4}
Other metal processing	1.55×10^{-3}	9.03×10^{-9}	1.84×10^{-3}	6.44×10^{-4}	5.58×10^{-4}	9.64×10^{-6}	3.55×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	2.22×10^{-6}
Primary iron and steel production	1,399	0.010	21.038	4.349	3.877	26.807	1.556

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Production of phosphate fertilizer	3.82×10^{-3}	2.62×10^{-8}	0.022	6.35×10^{-3}	6.35×10^{-3}	0.056	2.13×10^{-3}
Scrap metal recovery	0	0	0	0	0	0	1.83×10^{-6}
Sewage Treatment - processing by large plants	1.86×10^{-3}	7.09×10^{-9}	6.28×10^{-3}	2.59×10^{-4}	2.57×10^{-4}	7.44×10^{-6}	1.44×10^{-3}
Sewage Treatment - processing by small plants	3.91×10^{-3}	1.28×10^{-8}	2.73×10^{-3}	2.35×10^{-4}	2.35×10^{-4}	1.49×10^{-5}	2.49×10^{-3}
Solid waste landfilling	0.337	0	0.017	0.077	0.019	0	0.045
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	1.06×10^{-3}
Industrial Total	1,403	0.011	21.315	5.576	4.188	27.662	2.141
July Weekday Emissions (tonnes/day) - Non-Urban							
Animal slaughtering	1.62×10^{-4}	9.48×10^{-10}	1.93×10^{-4}	1.46×10^{-5}	1.46×10^{-5}	1.01×10^{-6}	1.06×10^{-5}
Bitumen pre-mix or hotmix production	0.034	1.57×10^{-6}	6.44×10^{-3}	0.019	9.20×10^{-3}	8.82×10^{-4}	7.75×10^{-3}
Cement or lime handling	0	5.38×10^{-7}	0	0.399	0.098	0	6.85×10^{-4}
Cement or lime production	8.538	1.12×10^{-3}	12.062	0.557	0.337	0.325	0.215
Ceramics production (excluding glass)	0.563	3.21×10^{-7}	0.205	0.704	0.521	0.468	0.038
Coal loading	9.01×10^{-4}	2.36×10^{-5}	4.19×10^{-3}	0.343	0.038	2.75×10^{-4}	5.99×10^{-4}
Coal mining	6.212	3.83×10^{-3}	3.768	68.062	11.158	0.215	0.274
Composting and related reprocessing or treatment	1.36×10^{-3}	8.08×10^{-9}	0.012	3.35×10^{-4}	1.93×10^{-4}	8.46×10^{-6}	0.089
Concrete batching	5.0×10^{-3}	7.57×10^{-7}	9.73×10^{-3}	0.236	0.043	3.07×10^{-5}	4.79×10^{-3}
Crushing, grinding or separating works	7.13×10^{-4}	6.79×10^{-7}	3.31×10^{-3}	0.959	0.215	2.18×10^{-4}	2.70×10^{-3}
Environmentally sensitive area landfilling	0.010	0	2.27×10^{-4}	0.052	0.011	1.17×10^{-5}	0.017
Explosives or pyrotechnics production	0	0	0	0	0	0	2.58×10^{-3}
Freeway or tollway construction	0	0	0	0.119	0.024	0	0
Generation of electrical power from coal	19.090	2.80×10^{-3}	403	13.066	4.634	729	1.929
Hard-rock gravel quarrying	0	1.09×10^{-5}	0	4.021	1.049	0	0.445
Hazardous, industrial or group A waste generation or storage	9.61×10^{-6}	2.48×10^{-9}	1.14×10^{-5}	4.38×10^{-4}	8.53×10^{-5}	5.97×10^{-8}	0.898
Hazardous, industrial, group A or group B waste	0	0	0	0	0	0	1.04×10^{-6}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
disposal							
Inert waste landfilling	1.17×10^{-3}	0	0	0.011	2.13×10^{-3}	0	0.082
Landfilling in designated areas	6.99×10^{-5}	0	0	2.85×10^{-3}	5.74×10^{-4}	0	7.85×10^{-4}
Mining (other than coal)	0	1.19×10^{-6}	0	0.974	0.206	0	7.68×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	6.26×10^{-3}
Other agricultural crop processing	0.019	1.15×10^{-7}	0.023	0.060	0.018	1.20×10^{-4}	1.52×10^{-3}
Other chemical processing	5.27×10^{-3}	0	0.020	1.69×10^{-3}	1.67×10^{-3}	6.44×10^{-4}	2.75×10^{-3}
Other Chemical Storage	6.52×10^{-5}	3.61×10^{-10}	7.76×10^{-5}	7.87×10^{-4}	4.38×10^{-4}	4.06×10^{-7}	0.063
Other land-based extraction	0.029	5.95×10^{-6}	0.136	4.508	1.025	8.92×10^{-3}	0.159
Other livestock processing	0.010	5.79×10^{-8}	0.014	9.65×10^{-4}	9.64×10^{-4}	6.08×10^{-5}	1.57×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	2.71×10^{-3}
Plastics production	2.28×10^{-3}	1.50×10^{-5}	7.93×10^{-3}	2.21×10^{-4}	2.21×10^{-4}	1.42×10^{-5}	5.32×10^{-3}
Poultry production	9.68×10^{-5}	0	7.02×10^{-4}	0.165	0.039	3.61×10^{-9}	1.69×10^{-5}
Primary aluminium production	34.129	1.61×10^{-7}	0.126	0.752	0.542	9.228	9.89×10^{-3}
Rendering or fat extraction	0.032	1.85×10^{-7}	0.038	2.86×10^{-3}	2.81×10^{-3}	3.0×10^{-4}	4.78×10^{-3}
Secondary aluminium production	0.086	1.65×10^{-6}	0.028	0.032	0.032	8.16×10^{-4}	8.80×10^{-4}
Sewage Treatment - processing by large plants	0.012	1.58×10^{-9}	1.36×10^{-3}	2.80×10^{-4}	2.80×10^{-4}	1.09×10^{-5}	7.24×10^{-3}
Sewage Treatment - processing by small plants	0.546	4.41×10^{-8}	0.056	0.013	0.013	4.88×10^{-4}	0.094
Solid waste landfilling	0.016	5.15×10^{-9}	0	1.053	0.212	0	0.352
Waste oil recovery	7.23×10^{-3}	1.61×10^{-6}	0.027	7.40×10^{-4}	7.34×10^{-4}	0.042	7.86×10^{-4}
Wood or timber milling	0.128	1.31×10^{-4}	0.183	0.076	0.030	0.172	0.369
Industrial Total	69.477	7.95×10^{-3}	420	96.190	20.266	740	5.089

Table 3.76 Proportion of total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical July weekday

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total July Weekday Emissions (%) – GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	7.30×10^{-4}
Animal slaughtering	5.33×10^{-4}	2.62×10^{-3}	0.03	3.30×10^{-3}	3.37×10^{-3}	0.03	0.02
Battery production	0	1.01	0	4.31×10^{-3}	9.12×10^{-3}	0	0
Beer or distilled alcohol production	1.53×10^{-3}	1.56×10^{-4}	0.02	2.89×10^{-3}	6.11×10^{-3}	4.57×10^{-5}	0.02
Biomedical waste incineration	3.23×10^{-4}	0.03	1.10×10^{-3}	7.15×10^{-4}	1.51×10^{-3}	3.23×10^{-4}	2.39×10^{-4}
Bitumen pre-mix or hotmix production	0.01	0.02	0.01	0.24	0.36	1.74×10^{-3}	0.02
Bread manufacturing	1.13×10^{-4}	1.14×10^{-5}	6.57×10^{-4}	2.92×10^{-4}	6.18×10^{-4}	3.36×10^{-6}	9.56×10^{-5}
Bulk cargo handling	0	3.14×10^{-6}	0	0.11	0.03	0	5.83×10^{-4}
Cake and pastry manufacturing	1.10×10^{-4}	1.12×10^{-5}	6.41×10^{-4}	1.68×10^{-4}	3.55×10^{-4}	3.28×10^{-6}	5.28×10^{-5}
Cement or lime handling	1.80×10^{-4}	2.52×10^{-4}	1.05×10^{-3}	0.24	0.16	4.03×10^{-6}	0.07
Cement or lime production	0.22	0.56	1.91	0.31	0.41	0.04	0.04
Ceramics production (excluding glass)	0.06	2.73×10^{-4}	0.08	1.26	1.95	0.22	0.06
Chemical storage	0	0	0	0	0	0	0.01
Coal loading	5.79×10^{-5}	0.02	1.33×10^{-3}	0.35	0.08	7.77×10^{-5}	2.10×10^{-3}
Coal mining	0.16	1.68	0.47	29.3	10.2	0.03	0.06
Coal washery reject or slag landfilling	5.68×10^{-7}	0	1.05×10^{-5}	0.06	0.03	3.32×10^{-7}	3.91×10^{-7}
Coke production	5.04×10^{-4}	0.55	9.97×10^{-3}	0.08	0.17	0.18	3.17×10^{-4}
Composting and related reprocessing or treatment	0.03	4.33×10^{-6}	1.42×10^{-3}	0.07	0.03	1.01×10^{-6}	0.10
Concrete batching	4.19×10^{-4}	5.01×10^{-3}	2.95×10^{-3}	0.84	0.40	1.24×10^{-5}	0.08
Confectionary manufacturing	8.10×10^{-6}	2.89×10^{-6}	2.81×10^{-4}	4.32×10^{-5}	9.15×10^{-5}	8.45×10^{-7}	2.76×10^{-4}
Contaminated soil treatment	0	0	0	4.30×10^{-7}	9.06×10^{-8}	0	0
Crushing, grinding or separating works	0.04	0.03	0.08	2.91	2.17	0.07	0.03
Drum or container reconditioning	5.11×10^{-5}	0.03	1.23×10^{-3}	1.60×10^{-4}	3.39×10^{-4}	8.81×10^{-6}	0.04

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Dry cleaning	8.33×10^{-5}	8.95×10^{-6}	5.11×10^{-4}	1.35×10^{-4}	2.85×10^{-4}	2.63×10^{-6}	2.77×10^{-4}
Environmentally sensitive area landfilling	3.28×10^{-4}	6.67×10^{-5}	2.76×10^{-5}	0.09	0.04	1.39×10^{-6}	9.24×10^{-3}
Explosives or pyrotechnics production	1.12×10^{-7}	4.81×10^{-7}	8.13×10^{-5}	4.11×10^{-7}	8.62×10^{-7}	7.63×10^{-7}	4.70×10^{-4}
Freeway or tollway construction	0	2.36×10^{-3}	0	0.11	0.04	0	1.28×10^{-6}
Generation of electrical power from coal	0.48	1.19	49.2	5.48	4.11	87.0	0.35
Generation of electrical power from gas	0.17	2.55×10^{-3}	0.88	0.05	0.11	4.05×10^{-3}	0.25
Generation of electrical power other than from coal or gas	6.73×10^{-3}	0	0.34	5.55×10^{-4}	1.17×10^{-3}	5.28×10^{-5}	0.03
Hard-rock gravel quarrying	2.62×10^{-5}	6.79×10^{-3}	0	2.03	1.13	0	0.08
Hazardous, industrial or group A waste generation or storage	8.74×10^{-4}	8.0×10^{-5}	6.51×10^{-3}	2.83×10^{-3}	5.57×10^{-3}	1.62×10^{-4}	0.38
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.89×10^{-7}
Hazardous, industrial, group A or group B waste processing	3.18×10^{-4}	4.16×10^{-5}	1.88×10^{-3}	6.48×10^{-3}	0.01	2.30×10^{-5}	4.77×10^{-3}
Inert waste landfilling	2.90×10^{-5}	1.50×10^{-5}	0	0.19	0.08	0	0.01
Landfilling in designated areas	2.40×10^{-4}	0	0	0.03	0.01	0	0.02
Metal plating or coating works	0.08	0.07	0.03	0.05	0.11	9.69×10^{-3}	1.23
Milk processing	6.73×10^{-4}	6.86×10^{-5}	4.22×10^{-3}	1.06×10^{-3}	2.23×10^{-3}	2.01×10^{-5}	3.25×10^{-3}
Mining (other than coal)	0	5.09×10^{-4}	0	0.42	0.19	0	1.40×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	2.01×10^{-3}
Oil and fat manufacturing	3.56×10^{-4}	3.63×10^{-5}	3.73×10^{-3}	5.44×10^{-4}	1.15×10^{-3}	1.06×10^{-5}	1.71×10^{-4}
Other agricultural crop processing	2.01×10^{-3}	2.07×10^{-4}	0.01	0.08	0.06	8.51×10^{-5}	5.21×10^{-3}
Other chemical processing	5.25×10^{-3}	7.06×10^{-4}	0.05	0.05	0.10	0.02	0.39
Other Chemical Storage	3.57×10^{-4}	3.63×10^{-5}	2.46×10^{-3}	8.72×10^{-4}	1.53×10^{-3}	1.06×10^{-5}	0.22
Other land-based extraction	0.02	7.55×10^{-3}	0.03	4.01	1.97	0.07	0.03
Other livestock processing	4.29×10^{-4}	4.26×10^{-5}	2.74×10^{-3}	6.74×10^{-4}	1.43×10^{-3}	1.25×10^{-5}	2.46×10^{-3}
Other metal processing	0.01	0.01	0.07	0.07	0.15	1.91×10^{-3}	0.66
Other vessel construction or maintenance	0	3.50×10^{-4}	1.89×10^{-4}	0.05	0.10	0	0.06

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paint production	2.16×10^{-4}	1.13×10^{-4}	1.30×10^{-3}	0.02	0.03	1.18×10^{-5}	0.06
Paper production using recycled materials	3.14×10^{-3}	0.03	0.04	1.69×10^{-3}	3.57×10^{-3}	3.80×10^{-3}	0.01
Pesticides production	7.37×10^{-6}	7.31×10^{-7}	4.30×10^{-5}	1.12×10^{-5}	2.38×10^{-5}	2.20×10^{-7}	4.38×10^{-3}
Petrochemical production	0.02	0.21	0.39	0.05	0.11	0.11	0.22
Petroleum refining	0.04	0.07	0.91	0.30	0.56	2.23	1.51
Pharmaceutical or veterinary products production	4.46×10^{-4}	4.40×10^{-5}	3.09×10^{-3}	7.44×10^{-4}	1.56×10^{-3}	2.58×10^{-5}	0.03
Plastics production	2.86×10^{-4}	6.41×10^{-3}	4.85×10^{-3}	0.23	0.48	8.52×10^{-6}	0.33
Poultry production	3.51×10^{-4}	3.47×10^{-5}	2.34×10^{-3}	0.50	0.29	1.02×10^{-5}	8.14×10^{-3}
Primary aluminium production	3.84	0.12	0.11	0.49	0.75	4.03	6.0×10^{-3}
Primary iron and steel production	34.8	4.43	2.56	1.83	3.45	3.20	0.28
Primary non-ferrous production (excluding aluminium)	1.35×10^{-3}	1.61×10^{-4}	0.02	0.02	0.03	2.71×10^{-3}	7.23×10^{-4}
Printing	7.41×10^{-4}	7.21×10^{-5}	7.40×10^{-3}	1.33×10^{-3}	2.80×10^{-3}	2.69×10^{-5}	1.34
Production of ammonium nitrate	0.02	1.32×10^{-3}	0.35	0.24	0.49	3.85×10^{-4}	0.13
Production of container glass	1.25×10^{-3}	2.61	0.53	0.10	0.21	0.21	0.02
Production of float glass	6.95×10^{-4}	3.34×10^{-4}	0.28	0.13	0.27	0.06	6.15×10^{-3}
Production of phosphate fertilizer	1.65×10^{-4}	1.54×10^{-5}	2.95×10^{-3}	0.08	0.16	6.64×10^{-3}	4.08×10^{-4}
Railway activities	0	0	0	5.27×10^{-3}	0.01	0	7.82×10^{-3}
Rendering or fat extraction	1.59×10^{-3}	4.98×10^{-4}	9.37×10^{-3}	7.15×10^{-3}	8.23×10^{-3}	4.35×10^{-3}	2.63×10^{-3}
Scrap metal recovery	0	0	2.68×10^{-3}	0.07	0.11	0	3.90×10^{-6}
Secondary aluminium production	5.30×10^{-3}	3.24×10^{-3}	0.02	0.03	0.05	9.15×10^{-3}	0.06
Secondary iron and steel production	0.25	0.17	0.01	0.06	0.11	1.59×10^{-3}	0.21
Secondary non-ferrous production (excluding aluminium)	0.01	0.83	0.01	6.49×10^{-3}	0.01	0.03	1.24×10^{-3}
Services to air transport	1.50×10^{-4}	1.53×10^{-5}	8.76×10^{-4}	2.29×10^{-4}	4.84×10^{-4}	4.47×10^{-6}	0.05
Sewage Treatment - processing by large plants	6.42×10^{-3}	4.05×10^{-5}	0.20	1.90×10^{-3}	4.02×10^{-3}	8.48×10^{-5}	0.02
Sewage Treatment - processing by small plants	0.02	6.77×10^{-3}	0.01	0.08	0.04	3.96×10^{-4}	0.04

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Soap or detergent production	3.31×10^{-4}	3.37×10^{-5}	1.65×10^{-3}	5.07×10^{-4}	1.07×10^{-3}	8.23×10^{-4}	0.04
Soft drink manufacturing	5.46×10^{-5}	5.54×10^{-6}	3.18×10^{-4}	8.33×10^{-5}	1.76×10^{-4}	1.63×10^{-6}	1.01×10^{-3}
Solid waste landfilling	0.02	1.17×10^{-3}	2.04×10^{-3}	1.05	0.45	0	0.22
Storage of Petroleum and/or Petroleum Products	0.11	0.01	0.28	0.08	0.16	0.45	0.22
Used tyre processing or disposal	0	0	0	0	0	0	3.38×10^{-7}
Vessel construction or maintenance using dry or floating docks	0	0	0	4.39×10^{-3}	8.53×10^{-3}	0	0.01
Waste oil recovery	1.89×10^{-4}	6.85×10^{-4}	3.65×10^{-3}	3.25×10^{-4}	6.81×10^{-4}	5.06×10^{-3}	2.30×10^{-4}
Waste storage, transfer, separating or processing	3.61×10^{-3}	4.08×10^{-5}	0.01	0.04	0.02	1.93×10^{-6}	9.84×10^{-4}
Wood or timber milling	3.17×10^{-3}	0.06	0.02	0.03	0.03	0.02	0.07
Wood preservation	0	0	0	0	0	0	2.83×10^{-5}
Industrial Total	40.4	13.8	59.0	54.0	32.0	98.0	9.22
Proportion of Anthropogenic Total July Weekday Emissions (%) – Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	8.79×10^{-4}
Animal slaughtering	6.05×10^{-4}	1.19×10^{-4}	5.67×10^{-3}	1.31×10^{-3}	1.85×10^{-3}	7.16×10^{-4}	3.19×10^{-3}
Battery production	0	2.82	0	0.01	0.02	0	0
Beer or distilled alcohol production	3.33×10^{-3}	4.36×10^{-4}	0.05	8.51×10^{-3}	0.01	1.02×10^{-3}	0.03
Biomedical waste incineration	7.02×10^{-4}	0.08	3.40×10^{-3}	2.10×10^{-3}	2.97×10^{-3}	7.22×10^{-3}	3.12×10^{-4}
Bitumen pre-mix or hotmix production	0.01	0.02	0.02	0.23	0.14	0.02	0.02
Bread manufacturing	2.45×10^{-4}	3.19×10^{-5}	2.02×10^{-3}	8.60×10^{-4}	1.21×10^{-3}	7.51×10^{-5}	1.25×10^{-4}
Bulk cargo handling	0	0	0	0.03	8.27×10^{-3}	0	3.44×10^{-4}
Cake and pastry manufacturing	2.39×10^{-4}	3.12×10^{-5}	1.98×10^{-3}	4.94×10^{-4}	6.96×10^{-4}	7.33×10^{-5}	6.89×10^{-5}
Cement or lime handling	3.26×10^{-4}	5.54×10^{-5}	2.70×10^{-3}	0.20	0.14	7.04×10^{-5}	0.09
Cement or lime production	0.01	0.23	1.35	0.24	0.22	0.10	2.21×10^{-3}
Ceramics production (excluding glass)	0.09	3.79×10^{-4}	0.17	2.85	2.91	3.78	0.07
Chemical storage	0	0	0	0	0	0	0.02

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Coal mining	2.86×10^{-4}	0.01	8.63×10^{-3}	0.20	0.03	3.29×10^{-3}	3.53×10^{-4}
Coke production	5.71×10^{-4}	0.81	0.02	0.12	0.17	2.06	2.39×10^{-4}
Composting and related reprocessing or treatment	0.06	2.47×10^{-6}	0	0.21	0.06	0	0.11
Concrete batching	6.39×10^{-4}	0.01	5.43×10^{-3}	1.98	0.67	1.95×10^{-4}	0.10
Confectionary manufacturing	1.76×10^{-5}	8.06×10^{-6}	8.66×10^{-4}	1.27×10^{-4}	1.80×10^{-4}	1.89×10^{-5}	3.61×10^{-4}
Contaminated soil treatment	0	0	0	1.27×10^{-6}	1.78×10^{-7}	0	0
Crushing, grinding or separating works	0.09	0.09	0.22	7.00	3.74	1.58	0.04
Drum or container reconditioning	1.11×10^{-4}	0.08	3.79×10^{-3}	4.69×10^{-4}	6.62×10^{-4}	1.67×10^{-4}	0.05
Dry cleaning	1.81×10^{-4}	2.50×10^{-5}	1.57×10^{-3}	3.96×10^{-4}	5.59×10^{-4}	5.88×10^{-5}	3.62×10^{-4}
Environmentally sensitive area landfilling	1.61×10^{-4}	1.76×10^{-5}	0	0.17	0.05	0	8.03×10^{-3}
Freeway or tollway construction	0	6.60×10^{-3}	0	0.16	0.03	0	1.67×10^{-6}
Generation of electrical power from gas	0.37	7.13×10^{-3}	2.71	0.15	0.22	0.09	0.32
Generation of electrical power other than from coal or gas	0.01	0	1.04	1.63×10^{-3}	2.30×10^{-3}	1.18×10^{-3}	0.04
Hard-rock gravel quarrying	5.70×10^{-5}	5.56×10^{-4}	0	0.45	0.18	0	2.84×10^{-3}
Hazardous, industrial or group A waste generation or storage	1.90×10^{-3}	2.20×10^{-4}	0.02	7.77×10^{-3}	0.01	3.62×10^{-3}	0.27
Hazardous, industrial, group A or group B waste processing	6.69×10^{-4}	1.11×10^{-4}	5.62×10^{-3}	0.02	0.03	5.09×10^{-4}	6.19×10^{-3}
Inert waste landfilling	0	0	0	0.21	0.07	0	2.85×10^{-7}
Landfilling in designated areas	5.17×10^{-4}	0	0	0.07	0.02	0	0.03
Metal plating or coating works	2.34×10^{-3}	3.06×10^{-4}	0.02	0.12	0.16	7.21×10^{-4}	1.50
Milk processing	1.09×10^{-3}	1.42×10^{-4}	9.87×10^{-3}	2.24×10^{-3}	3.17×10^{-3}	3.33×10^{-4}	4.02×10^{-3}
Mining (other than coal)	0	0	0	0.04	0.01	0	0
Mooring and boat storage	0	0	0	0	0	0	6.80×10^{-4}
Oil and fat manufacturing	7.73×10^{-4}	1.01×10^{-4}	0.01	1.60×10^{-3}	2.26×10^{-3}	2.38×10^{-4}	2.23×10^{-4}
Other agricultural crop processing	2.11×10^{-3}	2.83×10^{-4}	0.02	0.14	0.07	6.64×10^{-4}	3.93×10^{-3}
Other chemical processing	7.23×10^{-3}	7.24×10^{-4}	0.05	0.01	0.02	2.17×10^{-3}	0.48

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other Chemical Storage	7.72×10^{-4}	1.01×10^{-4}	7.56×10^{-3}	1.59×10^{-3}	2.25×10^{-3}	2.37×10^{-4}	0.11
Other land-based extraction	0.03	0.01	0.04	5.99	2.02	1.45	6.06×10^{-3}
Other livestock processing	3.84×10^{-4}	5.0×10^{-5}	3.09×10^{-3}	7.93×10^{-4}	1.12×10^{-3}	1.18×10^{-4}	2.84×10^{-3}
Other metal processing	0.02	0.03	0.06	0.14	0.19	0.04	0.76
Other vessel construction or maintenance	0	5.77×10^{-4}	0	0.09	0.11	0	0.08
Paint production	4.70×10^{-4}	3.17×10^{-4}	4.01×10^{-3}	0.05	0.06	2.63×10^{-4}	0.08
Paper production using recycled materials	6.83×10^{-3}	0.07	0.12	4.97×10^{-3}	7.02×10^{-3}	0.09	0.02
Pesticides production	1.60×10^{-5}	2.04×10^{-6}	1.32×10^{-4}	3.31×10^{-5}	4.67×10^{-5}	4.91×10^{-6}	5.71×10^{-3}
Petrochemical production	0.04	0.58	1.21	0.15	0.21	2.56	0.29
Petroleum refining	0.08	0.19	2.82	0.88	1.11	49.9	1.98
Pharmaceutical or veterinary products production	9.69×10^{-4}	1.23×10^{-4}	9.52×10^{-3}	2.19×10^{-3}	3.07×10^{-3}	5.78×10^{-4}	0.04
Plastics production	4.99×10^{-4}	5.88×10^{-5}	0.01	0.68	0.95	1.53×10^{-4}	0.43
Poultry production	7.57×10^{-4}	9.70×10^{-5}	6.94×10^{-3}	1.27	0.49	2.27×10^{-4}	0.01
Primary iron and steel production	4.39×10^{-5}	0.12	3.63×10^{-4}	0.01	0.01	1.35×10^{-5}	1.19×10^{-3}
Primary non-ferrous production (excluding aluminium)	0	0	6.82×10^{-6}	1.27×10^{-3}	1.48×10^{-3}	1.77×10^{-4}	2.56×10^{-7}
Printing	1.61×10^{-3}	2.01×10^{-4}	0.02	3.90×10^{-3}	5.50×10^{-3}	6.02×10^{-4}	1.71
Production of container glass	2.72×10^{-3}	7.30	1.62	0.29	0.40	4.63	0.02
Production of float glass	1.51×10^{-3}	9.32×10^{-4}	0.85	0.37	0.52	1.28	8.03×10^{-3}
Railway activities	0	0	0	0.02	0.02	0	0.01
Rendering or fat extraction	1.74×10^{-3}	1.17×10^{-3}	0.01	0.02	0.01	0.10	2.29×10^{-3}
Scrap metal recovery	0	0	6.05×10^{-3}	0.20	0.21	0	3.72×10^{-6}
Secondary aluminium production	6.89×10^{-3}	7.09×10^{-3}	0.06	0.06	0.04	0.20	0.08
Secondary iron and steel production	0	0.04	8.77×10^{-4}	0.03	0.04	0.01	0.09
Secondary non-ferrous production (excluding aluminium)	0.02	2.31	0.03	0.02	0.02	0.64	1.62×10^{-3}
Services to air transport	3.26×10^{-4}	4.27×10^{-5}	2.70×10^{-3}	6.74×10^{-4}	9.51×10^{-4}	1.0×10^{-4}	0.06

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	0.01	1.03×10^{-4}	0.61	4.93×10^{-3}	6.95×10^{-3}	1.85×10^{-3}	0.03
Sewage Treatment - processing by small plants	3.14×10^{-3}	0.02	0.02	0.22	0.06	7.52×10^{-3}	0.03
Storage of Petroleum and/or Petroleum Products	0.23	0.03	0.87	0.23	0.32	10.0	0.18
Soap or detergent production	7.20×10^{-4}	9.40×10^{-5}	5.08×10^{-3}	1.49×10^{-3}	2.10×10^{-3}	0.02	0.05
Soft drink manufacturing	1.19×10^{-4}	1.55×10^{-5}	9.81×10^{-4}	2.45×10^{-4}	3.46×10^{-4}	3.64×10^{-5}	1.32×10^{-3}
Solid waste landfilling	0.02	1.29×10^{-4}	0	1.62	0.46	0	0.16
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	2.75×10^{-3}
Waste oil recovery	1.87×10^{-5}	0	1.07×10^{-3}	4.25×10^{-5}	5.99×10^{-5}	1.40×10^{-6}	1.13×10^{-4}
Waste storage, transfer, separating or processing	7.85×10^{-3}	1.01×10^{-4}	0.04	0.12	0.04	4.29×10^{-5}	8.70×10^{-4}
Industrial Total	1.17	14.9	14.2	27.1	16.3	78.6	9.42
Proportion of Anthropogenic Total July Weekday Emissions (%) – Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	9.70×10^{-4}
Animal slaughtering	3.75×10^{-3}	0.09	0.75	0.07	0.04	0.96	0.26
Bitumen pre-mix or hotmix production	0.02	0.45	0.04	3.47	4.78	0.02	0.02
Bulk cargo handling	0	1.04×10^{-4}	0	2.20	0.50	0	5.51×10^{-3}
Cement or lime handling	4.43×10^{-4}	9.98×10^{-5}	5.13×10^{-3}	0.11	0.10	2.59×10^{-5}	2.81×10^{-4}
Coal loading	0	6.34×10^{-4}	0	5.93×10^{-3}	9.33×10^{-4}	0	0.03
Coal mining	9.66×10^{-3}	1.47	0.24	14.7	3.47	9.91×10^{-3}	0.03
Concrete batching	0	5.25×10^{-3}	0	1.10	0.26	0	6.28×10^{-4}
Crushing, grinding or separating works	3.0×10^{-3}	5.56×10^{-3}	0.07	2.80	1.23	4.49×10^{-3}	0.01
Explosives or pyrotechnics production	1.68×10^{-6}	1.59×10^{-5}	2.41×10^{-3}	9.58×10^{-6}	1.50×10^{-5}	2.24×10^{-5}	1.06×10^{-5}
Hard-rock gravel quarrying	0	0.06	0	4.51	1.87	0	3.91×10^{-5}
Hazardous, industrial or group A waste generation or storage	7.15×10^{-6}	1.27×10^{-6}	8.27×10^{-5}	1.70×10^{-5}	2.69×10^{-5}	4.18×10^{-7}	0.16
Hazardous, industrial, group A or group B waste processing	4.83×10^{-5}	1.08×10^{-5}	5.59×10^{-4}	1.15×10^{-4}	1.82×10^{-4}	2.83×10^{-6}	2.67×10^{-5}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
 3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Inert waste landfilling	0	0	0	1.42	0.45	0	0
Metal plating or coating works	1.76×10^{-3}	3.96×10^{-4}	0.02	0.06	0.10	1.03×10^{-4}	4.38×10^{-3}
Milk processing	2.59×10^{-3}	5.85×10^{-4}	0.03	6.86×10^{-3}	0.01	1.52×10^{-4}	2.91×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	6.01×10^{-3}
Other agricultural crop processing	8.27×10^{-3}	1.86×10^{-3}	0.10	0.26	0.14	1.20×10^{-3}	0.03
Other chemical processing	0.03	0.01	0.82	0.93	1.46	0.50	0.39
Other Chemical Storage	0	0	0	0	0	0	2.11
Other land-based extraction	2.0×10^{-4}	0.02	0.01	1.85	0.56	7.04×10^{-8}	7.77×10^{-4}
Other metal processing	0.09	0.02	1.52	0.61	0.97	5.57×10^{-3}	1.38
Other vessel construction or maintenance	0	4.73×10^{-3}	5.61×10^{-3}	0.47	0.69	0	0.05
Primary aluminium production	44.7	3.90	2.88	4.04	4.61	86.0	0.07
Primary non-ferrous production (excluding aluminium)	0.02	5.30×10^{-3}	0.46	0.39	0.50	0.08	0.01
Printing	0	0	0	0	0	0	0.47
Production of ammonium nitrate	0.30	0.04	10.3	5.54	8.61	0.01	2.24
Production of phosphate fertilizer	1.05×10^{-3}	1.40×10^{-4}	7.23×10^{-3}	1.70	2.62	5.67×10^{-5}	3.56×10^{-4}
Scrap metal recovery	0	0	0.02	0	0	0	1.24×10^{-5}
Secondary iron and steel production	3.77	5.03	0.36	1.08	1.52	0.03	2.30
Sewage Treatment - processing by large plants	0	0	0	0	0	0	8.94×10^{-3}
Sewage Treatment - processing by small plants	0	0	0	0	0	0	7.40×10^{-5}
Solid waste landfilling	5.45×10^{-3}	0.04	0	0.61	0.20	0	0.52
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	1.52
Used tyre processing or disposal	0	0	0	0	0	0	5.82×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.10	0.15	0	0.22
Waste storage, transfer, separating or processing	5.81×10^{-6}	1.58×10^{-4}	6.72×10^{-5}	8.30×10^{-3}	2.42×10^{-3}	3.40×10^{-7}	5.47×10^{-3}
Wood or timber milling	0	0	0	7.16×10^{-3}	4.16×10^{-3}	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wood preservation	0	0	0	0	0	0	4.88 × 10 ⁻⁴
Industrial Total	48.9	11.2	17.6	48.1	34.9	87.6	11.9
Proportion of Anthropogenic Total July Weekday Emissions (%) – Wollongong							
Bitumen pre-mix or hotmix production	2.67 × 10 ⁻³	4.27 × 10 ⁻³	0.02	0.09	0.07	2.38 × 10 ⁻³	0.02
Bulk cargo handling	0	0	0	0.02	2.08 × 10 ⁻³	0	1.14 × 10 ⁻⁵
Cement or lime handling	0	0	0	1.69 × 10 ⁻³	3.75 × 10 ⁻⁴	0	3.04 × 10 ⁻⁴
Coal loading	9.59 × 10 ⁻⁵	0.17	0.02	5.10	0.73	1.32 × 10 ⁻³	2.14 × 10 ⁻³
Coal mining	3.62 × 10 ⁻⁴	0.02	0.07	1.88	0.52	4.90 × 10 ⁻³	0.34
Coal washery reject or slag landfilling	1.54 × 10 ⁻⁶	0	2.53 × 10 ⁻⁴	1.61	0.43	9.78 × 10 ⁻⁶	1.04 × 10 ⁻⁵
Coke production	6.53 × 10 ⁻⁴	3.45	0.12	0.95	1.26	2.51	3.55 × 10 ⁻³
Concrete batching	0	6.10 × 10 ⁻⁴	0	0.43	0.09	0	3.38 × 10 ⁻⁴
Crushing, grinding or separating works	0	2.34 × 10 ⁻³	0	0.16	0.09	0	0
Drum or container reconditioning	5.32 × 10 ⁻⁷	1.07 × 10 ⁻⁵	9.33 × 10 ⁻⁵	1.80 × 10 ⁻⁵	2.39 × 10 ⁻⁵	3.93 × 10 ⁻⁵	0.06
Environmentally sensitive area landfilling	0	7.84 × 10 ⁻⁴	0	0.19	0.05	0	0
Hazardous, industrial, group A or group B waste processing	1.75 × 10 ⁻⁵	2.05 × 10 ⁻⁵	9.16 × 10 ⁻⁴	5.0 × 10 ⁻³	1.56 × 10 ⁻³	5.69 × 10 ⁻⁶	6.0 × 10 ⁻⁴
Inert waste landfilling	0	1.95 × 10 ⁻⁴	0	1.26	0.34	0	1.87 × 10 ⁻⁵
Metal plating or coating works	0.21	0.86	0.43	0.32	0.40	0.28	2.13
Other chemical processing	2.09 × 10 ⁻⁴	1.02 × 10 ⁻⁴	0.01	0.03	0.01	6.77 × 10 ⁻⁵	9.86 × 10 ⁻⁴
Other metal processing	1.04 × 10 ⁻⁴	5.0 × 10 ⁻⁵	5.45 × 10 ⁻³	6.78 × 10 ⁻³	7.84 × 10 ⁻³	3.38 × 10 ⁻⁵	0.02
Other vessel construction or maintenance	0	0	0	0	0	0	1.07 × 10 ⁻⁵
Primary iron and steel production	94.1	56.9	62.1	45.8	54.4	94.0	7.50
Production of phosphate fertilizer	2.57 × 10 ⁻⁴	1.45 × 10 ⁻⁴	0.07	0.07	0.09	0.20	0.01
Scrap metal recovery	0	0	0	0	0	0	8.82 × 10 ⁻⁶
Sewage Treatment - processing by large plants	1.25 × 10 ⁻⁴	3.92 × 10 ⁻⁵	0.02	2.72 × 10 ⁻³	3.61 × 10 ⁻³	2.61 × 10 ⁻⁵	6.93 × 10 ⁻³
Sewage Treatment - processing by small plants	2.63 × 10 ⁻⁴	7.10 × 10 ⁻⁵	8.07 × 10 ⁻³	2.48 × 10 ⁻³	3.30 × 10 ⁻³	5.23 × 10 ⁻⁵	0.01

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Solid waste landfilling	0.02	0	0.05	0.81	0.27	0	0.22
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	5.11 × 10 ⁻³
Industrial Total	94.4	61.4	62.9	58.7	58.8	97.0	10.3
Proportion of Anthropogenic Total July Weekday Emissions (%) – Non-Urban							
Animal slaughtering	3.91 × 10 ⁻⁵	7.56 × 10 ⁻⁷	3.91 × 10 ⁻⁵	1.06 × 10 ⁻⁵	3.51 × 10 ⁻⁵	1.35 × 10 ⁻⁷	1.39 × 10 ⁻⁵
Bitumen pre-mix or hotmix production	8.10 × 10 ⁻³	1.25 × 10 ⁻³	1.31 × 10 ⁻³	0.01	0.02	1.19 × 10 ⁻⁴	0.01
Cement or lime handling	0	4.28 × 10 ⁻⁴	0	0.29	0.24	0	9.01 × 10 ⁻⁴
Cement or lime production	2.06	0.90	2.45	0.40	0.81	0.04	0.28
Ceramics production (excluding glass)	0.14	2.56 × 10 ⁻⁴	0.04	0.51	1.25	0.06	0.05
Coal loading	2.17 × 10 ⁻⁴	0.02	8.50 × 10 ⁻⁴	0.25	0.09	3.70 × 10 ⁻⁵	7.88 × 10 ⁻⁴
Coal mining	1.50	3.05	0.77	49.4	26.8	0.03	0.36
Composting and related reprocessing or treatment	3.28 × 10 ⁻⁴	6.44 × 10 ⁻⁶	2.36 × 10 ⁻³	2.43 × 10 ⁻⁴	4.62 × 10 ⁻⁴	1.14 × 10 ⁻⁶	0.12
Concrete batching	1.21 × 10 ⁻³	6.03 × 10 ⁻⁴	1.98 × 10 ⁻³	0.17	0.10	4.12 × 10 ⁻⁶	6.29 × 10 ⁻³
Crushing, grinding or separating works	1.72 × 10 ⁻⁴	5.41 × 10 ⁻⁴	6.73 × 10 ⁻⁴	0.70	0.52	2.93 × 10 ⁻⁵	3.56 × 10 ⁻³
Environmentally sensitive area landfilling	2.46 × 10 ⁻³	0	4.60 × 10 ⁻⁵	0.04	0.03	1.57 × 10 ⁻⁶	0.02
Explosives or pyrotechnics production	0	0	0	0	0	0	3.40 × 10 ⁻³
Freeway or tollway construction	0	0	0	0.09	0.06	0	0
Generation of electrical power from coal	4.61	2.23	81.9	9.49	11.1	98.0	2.54
Hard-rock gravel quarrying	0	8.65 × 10 ⁻³	0	2.92	2.52	0	0.59
Hazardous, industrial or group A waste generation or storage	2.32 × 10 ⁻⁶	1.98 × 10 ⁻⁶	2.32 × 10 ⁻⁶	3.18 × 10 ⁻⁴	2.05 × 10 ⁻⁴	8.03 × 10 ⁻⁹	1.18
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.36 × 10 ⁻⁶
Inert waste landfilling	2.81 × 10 ⁻⁴	0	0	7.70 × 10 ⁻³	5.12 × 10 ⁻³	0	0.11
Landfilling in designated areas	1.69 × 10 ⁻⁵	0	0	2.07 × 10 ⁻³	1.38 × 10 ⁻³	0	1.03 × 10 ⁻³
Mining (other than coal)	0	9.52 × 10 ⁻⁴	0	0.71	0.49	0	1.01 × 10 ⁻⁵
Mooring and boat storage	0	0	0	0	0	0	8.23 × 10 ⁻³

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other agricultural crop processing	4.70×10^{-3}	9.19×10^{-5}	4.68×10^{-3}	0.04	0.04	1.62×10^{-5}	2.0×10^{-3}
Other chemical processing	1.27×10^{-3}	0	4.02×10^{-3}	1.23×10^{-3}	4.02×10^{-3}	8.65×10^{-5}	3.61×10^{-3}
Other Chemical Storage	1.57×10^{-5}	2.88×10^{-7}	1.58×10^{-5}	5.72×10^{-4}	1.05×10^{-3}	5.45×10^{-8}	0.08
Other land-based extraction	7.04×10^{-3}	4.74×10^{-3}	0.03	3.27	2.46	1.20×10^{-3}	0.21
Other livestock processing	2.44×10^{-3}	4.61×10^{-5}	2.89×10^{-3}	7.01×10^{-4}	2.31×10^{-3}	8.17×10^{-6}	2.07×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	3.56×10^{-3}
Plastics production	5.49×10^{-4}	0.01	1.61×10^{-3}	1.61×10^{-4}	5.30×10^{-4}	1.90×10^{-6}	6.99×10^{-3}
Poultry production	2.34×10^{-5}	0	1.42×10^{-4}	0.12	0.09	4.86×10^{-10}	2.23×10^{-5}
Primary aluminium production	8.24	1.28×10^{-4}	0.03	0.55	1.30	1.24	0.01
Rendering or fat extraction	7.65×10^{-3}	1.47×10^{-4}	7.66×10^{-3}	2.08×10^{-3}	6.75×10^{-3}	4.04×10^{-5}	6.28×10^{-3}
Secondary aluminium production	0.02	1.32×10^{-3}	5.75×10^{-3}	0.02	0.08	1.10×10^{-4}	1.16×10^{-3}
Sewage Treatment - processing by large plants	2.79×10^{-3}	1.26×10^{-6}	2.76×10^{-4}	2.03×10^{-4}	6.71×10^{-4}	1.47×10^{-6}	9.52×10^{-3}
Sewage Treatment - processing by small plants	0.13	3.52×10^{-5}	0.01	9.29×10^{-3}	0.03	6.56×10^{-5}	0.12
Solid waste landfilling	3.82×10^{-3}	4.10×10^{-6}	0	0.77	0.51	0	0.46
Waste oil recovery	1.75×10^{-3}	1.28×10^{-3}	5.50×10^{-3}	5.37×10^{-4}	1.76×10^{-3}	5.71×10^{-3}	1.03×10^{-3}
Wood or timber milling	0.03	0.10	0.04	0.05	0.07	0.02	0.49
Industrial Total	16.8	6.33	85.3	69.9	48.6	99.4	6.69

Table 3.77 shows total estimated daily emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.77 Total estimated daily emissions from industrial sources in each region for typical July weekend day

Substance	Industrial July Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	20.954	121	1,403	69.121	1,614
LEAD AND COMPOUNDS	0.012	3.66×10^{-4}	0.011	7.45×10^{-3}	0.031
OXIDES OF NITROGEN	37.278	4.113	21.311	419	482
PARTICULATE MATTER < 10 µm	19.261	3.697	5.527	89.561	118
PARTICULATE MATTER < 2.5 µm	8.379	1.859	4.172	19.092	33.503
SULFUR DIOXIDE	29.390	24.790	27.662	740	822
TOTAL VOCS	32.474	2.580	2.087	3.845	40.986

Table 3.78 shows the proportion of total estimated daily anthropogenic emissions from all industrial sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.78 Proportion of total estimated daily emissions from industrial sources in each region for typical July weekend day

Substance	Industrial Proportion of Anthropogenic Total July Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1.11	45.9	94.1	16.2	39.6
LEAD AND COMPOUNDS	16.3	6.45	66.6	7.47	15.8
OXIDES OF NITROGEN	15.3	16.0	64.9	86.5	61.2
PARTICULATE MATTER < 10 µm	19.6	34.8	53.3	69.5	47.6
PARTICULATE MATTER < 2.5 µm	10.9	23.8	51.0	45.4	24.8
SULFUR DIOXIDE	78.0	86.7	96.8	99.4	97.9
TOTAL VOCS	7.36	7.78	9.31	4.73	7.09

Figure 3.20 shows the proportion of total estimated daily GMR industrial emissions from all industrial sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

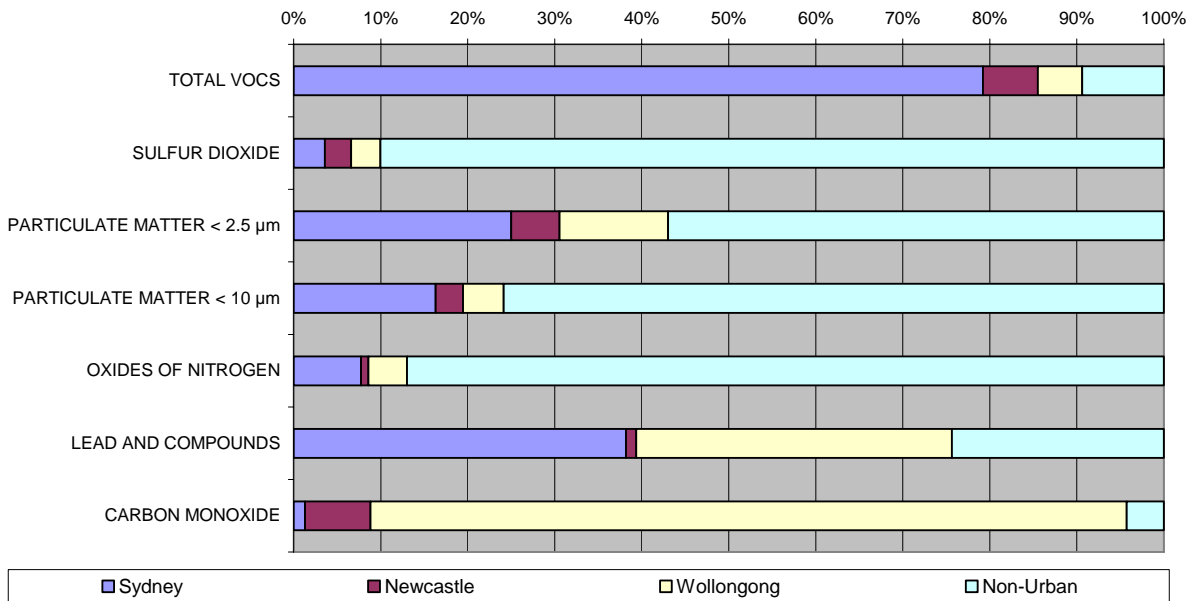


Figure 3.20 Proportion of total estimated daily emissions from industrial sources in each region for typical July weekend day

Table 3.79 shows total estimated daily emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.80 shows the proportion of total estimated daily anthropogenic emissions from each industrial source type (NSW Activity Type) in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.79 Total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical July weekend day

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
July Weekend Day Emissions (tonnes/day) - GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	4.01×10^{-3}
Animal slaughtering	7.94×10^{-3}	4.58×10^{-8}	0.010	7.34×10^{-4}	7.34×10^{-4}	4.87×10^{-5}	0.093
Battery production	0	1.77×10^{-3}	0	7.65×10^{-3}	7.65×10^{-3}	0	0
Biomedical waste incineration	0.013	6.86×10^{-5}	9.06×10^{-3}	1.70×10^{-3}	1.70×10^{-3}	2.71×10^{-3}	1.32×10^{-3}
Bitumen pre-mix or hotmix production	0.263	4.31×10^{-5}	0.055	0.437	0.352	0.011	0.063
Bread manufacturing	4.53×10^{-3}	2.66×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	7.34×10^{-9}	0	0.216	0.034	0	3.09×10^{-3}
Cake and pastry manufacturing	4.42×10^{-3}	2.57×10^{-8}	5.26×10^{-3}	4.0×10^{-4}	4.0×10^{-4}	2.75×10^{-5}	2.90×10^{-4}
Cement or lime handling	3.75×10^{-3}	3.69×10^{-8}	4.46×10^{-3}	0.443	0.113	1.22×10^{-5}	0.314
Cement or lime production	8.758	1.32×10^{-3}	15.656	0.748	0.464	0.361	0.224
Ceramics production (excluding glass)	2.214	2.30×10^{-7}	0.646	2.992	2.181	1.886	0.326
Chemical storage	0	0	0	0	0	0	0.045
Coal loading	2.33×10^{-3}	5.40×10^{-5}	0.011	0.824	0.090	6.52×10^{-4}	0.012
Coal mining	6.115	3.55×10^{-3}	3.259	64.054	10.611	0.179	0.309
Coal washery reject or slag landfilling	1.14×10^{-5}	0	4.29×10^{-5}	0.153	0.031	1.39×10^{-6}	1.08×10^{-6}
Coke production	0.020	1.30×10^{-3}	0.082	0.186	0.186	1.487	1.34×10^{-3}
Composting and related reprocessing or treatment	1.065	8.81×10^{-9}	0.012	0.171	0.035	8.46×10^{-6}	0.561
Concrete batching	8.41×10^{-3}	5.91×10^{-6}	0.013	1.136	0.243	5.17×10^{-5}	0.415
Confectionary manufacturing	3.26×10^{-4}	6.77×10^{-9}	2.31×10^{-3}	1.03×10^{-4}	1.03×10^{-4}	7.09×10^{-6}	1.52×10^{-3}
Crushing, grinding or separating works	1.613	7.08×10^{-5}	0.620	5.849	2.130	0.593	0.177
Drum or container reconditioning	1.25×10^{-3}	3.56×10^{-5}	4.82×10^{-3}	2.03×10^{-4}	2.03×10^{-4}	1.40×10^{-5}	0.095
Dry cleaning	3.35×10^{-3}	2.07×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	4.45×10^{-3}	7.07×10^{-8}	0	0.203	0.041	0	0.050

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Explosives or pyrotechnics production	0	0	0	0	0	0	3.09×10^{-6}
Freeway or tollway construction	0	3.54×10^{-6}	0	0.196	0.034	0	7.05×10^{-6}
Generation of electrical power from coal	19.090	2.80×10^{-3}	403	13.066	4.634	729	1.929
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	1.08×10^{-5}	0	4.081	1.021	0	0.457
Hazardous, industrial or group A waste generation or storage	3.78×10^{-3}	2.10×10^{-8}	2.48×10^{-3}	2.97×10^{-3}	2.52×10^{-3}	1.24×10^{-5}	0.391
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.04×10^{-6}
Hazardous, industrial, group A or group B waste processing	0.011	8.48×10^{-8}	0.013	0.015	0.015	1.80×10^{-4}	0.025
Inert waste landfilling	1.17×10^{-3}	1.74×10^{-8}	0	0.428	0.088	0	0.082
Landfilling in designated areas	9.64×10^{-3}	0	0	0.060	0.012	0	0.109
Metal plating or coating works	3.203	1.55×10^{-4}	0.175	0.088	0.086	0.081	6.495
Milk processing	0.027	1.61×10^{-7}	0.035	2.52×10^{-3}	2.52×10^{-3}	1.68×10^{-4}	0.018
Mining (other than coal)	0	5.97×10^{-7}	0	0.973	0.201	0	7.68×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	5.62×10^{-3}
Oil and fat manufacturing	0.014	8.51×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.069	4.15×10^{-7}	0.082	0.153	0.052	6.41×10^{-4}	0.028
Other chemical processing	0.173	7.93×10^{-7}	0.318	0.099	0.097	0.143	0.890
Other Chemical Storage	6.30×10^{-3}	3.74×10^{-8}	0.011	5.70×10^{-4}	5.70×10^{-4}	3.92×10^{-5}	1.276
Other land-based extraction	0.629	8.97×10^{-6}	0.140	8.619	1.919	0.546	0.177
Other livestock processing	0.016	9.47×10^{-8}	0.019	1.46×10^{-3}	1.46×10^{-3}	1.0×10^{-4}	0.013
Other metal processing	0.049	2.88×10^{-7}	0.061	0.040	0.040	3.04×10^{-4}	2.558
Other vessel construction or maintenance	0	6.23×10^{-7}	1.55×10^{-3}	0.090	0.082	0	0.217
Paint production	1.76×10^{-3}	1.30×10^{-8}	2.12×10^{-3}	3.18×10^{-3}	3.15×10^{-3}	2.78×10^{-5}	0.105

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	1.40×10^{-4}	6.77×10^{-10}	1.66×10^{-4}	1.26×10^{-5}	1.26×10^{-5}	8.68×10^{-7}	1.30×10^{-4}
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.468	1.57×10^{-4}	7.499	0.713	0.636	18.693	8.324
Pharmaceutical or veterinary products production	0.010	5.78×10^{-8}	0.015	1.07×10^{-3}	1.06×10^{-3}	1.60×10^{-4}	0.087
Plastics production	7.52×10^{-3}	3.78×10^{-8}	0.030	0.549	0.542	4.27×10^{-5}	0.998
Poultry production	3.43×10^{-3}	1.81×10^{-8}	6.47×10^{-3}	1.194	0.322	1.89×10^{-5}	0.044
Primary aluminium production	154	2.77×10^{-4}	0.922	1.164	0.840	33.842	0.033
Primary iron and steel production	1,399	0.010	21.038	4.349	3.877	26.807	1.556
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.041	0.033	0.023	3.98×10^{-3}
Printing	0.025	1.32×10^{-7}	0.045	2.48×10^{-3}	2.48×10^{-3}	1.70×10^{-4}	5.016
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Production of phosphate fertilizer	6.64×10^{-3}	3.61×10^{-8}	0.024	0.180	0.176	0.056	2.24×10^{-3}
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0.012	7.05×10^{-8}	0.014	1.08×10^{-3}	1.08×10^{-3}	1.25×10^{-4}	0.012
Scrap metal recovery	0	0	0.011	0.082	0.061	0	2.15×10^{-5}
Secondary aluminium production	0.213	7.61×10^{-6}	0.185	0.080	0.055	0.077	0.342
Secondary iron and steel production	0	0	1.17×10^{-3}	7.84×10^{-3}	8.63×10^{-3}	5.52×10^{-5}	0.049
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272
Sewage Treatment - processing by large plants	0.258	9.47×10^{-8}	1.624	4.53×10^{-3}	4.53×10^{-3}	7.12×10^{-4}	0.125
Sewage Treatment - processing by small plants	0.607	1.59×10^{-5}	0.116	0.192	0.047	3.31×10^{-3}	0.169

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Soap or detergent production	0.013	7.88×10^{-8}	0.014	1.21×10^{-3}	1.21×10^{-3}	6.90×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}
Solid waste landfilling	0.732	2.69×10^{-6}	0.017	2.477	0.504	0	1.229
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	1.231
Used tyre processing or disposal	0	0	0	0	0	0	1.86×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.075
Waste oil recovery	6.48×10^{-3}	1.60×10^{-6}	0.026	6.71×10^{-4}	6.65×10^{-4}	0.042	1.05×10^{-3}
Waste storage, transfer, separating or processing	0.145	4.19×10^{-8}	0.112	0.085	0.018	1.61×10^{-5}	5.41×10^{-3}
Wood or timber milling	0	0	0	7.31×10^{-4}	2.69×10^{-4}	0	2.40×10^{-6}
Wood preservation	0	0	0	0	0	0	1.01×10^{-6}
Industrial Total	1,614	0.031	482	118	33.503	822	40.986
July Weekend Day Emissions (tonnes/day) – Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	3.70×10^{-3}
Animal slaughtering	7.78×10^{-3}	4.49×10^{-8}	9.96×10^{-3}	7.19×10^{-4}	7.19×10^{-4}	4.77×10^{-5}	0.013
Battery production	0	1.77×10^{-3}	0	7.65×10^{-3}	7.65×10^{-3}	0	0
Biomedical waste incineration	0.013	6.86×10^{-5}	9.06×10^{-3}	1.70×10^{-3}	1.70×10^{-3}	2.71×10^{-3}	1.32×10^{-3}
Bitumen pre-mix or hotmix production	0.181	1.01×10^{-5}	0.041	0.104	0.045	5.39×10^{-3}	0.052
Bread manufacturing	4.53×10^{-3}	2.66×10^{-8}	5.39×10^{-3}	6.96×10^{-4}	6.96×10^{-4}	2.82×10^{-5}	5.26×10^{-4}
Bulk cargo handling	0	0	0	0.023	4.56×10^{-3}	0	1.45×10^{-3}
Cake and pastry manufacturing	4.42×10^{-3}	2.57×10^{-8}	5.26×10^{-3}	4.0×10^{-4}	4.0×10^{-4}	2.75×10^{-5}	2.90×10^{-4}
Cement or lime handling	2.56×10^{-3}	2.99×10^{-8}	3.04×10^{-3}	0.085	0.032	4.75×10^{-6}	0.313
Cement or lime production	0.219	1.91×10^{-4}	3.594	0.192	0.127	0.036	9.33×10^{-3}
Ceramics production (excluding glass)	1.651	1.80×10^{-7}	0.441	2.303	1.670	1.418	0.288
Chemical storage	0	0	0	0	0	0	0.045
Coal mining	5.29×10^{-3}	1.02×10^{-5}	0.023	0.158	0.018	1.23×10^{-3}	1.49×10^{-3}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Coke production	0.011	6.77×10^{-4}	0.042	0.096	0.096	0.772	6.99×10^{-4}
Composting and related reprocessing or treatment	1.064	7.90×10^{-10}	0	0.171	0.034	0	0.472
Concrete batching	4.63×10^{-3}	5.23×10^{-6}	5.89×10^{-3}	0.909	0.203	2.84×10^{-5}	0.410
Confectionary manufacturing	3.26×10^{-4}	6.77×10^{-9}	2.31×10^{-3}	1.03×10^{-4}	1.03×10^{-4}	7.09×10^{-6}	1.52×10^{-3}
Crushing, grinding or separating works	1.604	7.0×10^{-5}	0.597	4.817	1.895	0.591	0.171
Drum or container reconditioning	1.25×10^{-3}	3.56×10^{-5}	4.82×10^{-3}	2.03×10^{-4}	2.03×10^{-4}	1.40×10^{-5}	0.095
Dry cleaning	3.35×10^{-3}	2.07×10^{-8}	4.19×10^{-3}	3.21×10^{-4}	3.21×10^{-4}	2.20×10^{-5}	1.53×10^{-3}
Environmentally sensitive area landfilling	2.98×10^{-3}	0	0	0.134	0.027	0	0.034
Freeway or tollway construction	0	3.54×10^{-6}	0	0.078	0.010	0	7.05×10^{-6}
Generation of electrical power from gas	6.775	5.99×10^{-6}	7.207	0.125	0.125	0.034	1.349
Generation of electrical power other than from coal or gas	0.271	0	2.759	1.32×10^{-3}	1.32×10^{-3}	4.43×10^{-4}	0.151
Hard-rock gravel quarrying	1.05×10^{-3}	2.33×10^{-7}	0	0.270	0.069	0	0.012
Hazardous, industrial or group A waste generation or storage	3.77×10^{-3}	1.86×10^{-8}	2.47×10^{-3}	2.53×10^{-3}	2.44×10^{-3}	1.23×10^{-5}	0.366
Hazardous, industrial, group A or group B waste processing	0.011	8.28×10^{-8}	0.013	0.015	0.015	1.80×10^{-4}	0.025
Inert waste landfilling	0	0	0	0.153	0.033	0	1.20×10^{-6}
Landfilling in designated areas	9.57×10^{-3}	0	0	0.057	0.011	0	0.109
Metal plating or coating works	0.021	1.24×10^{-7}	0.025	0.056	0.056	1.35×10^{-4}	6.093
Milk processing	0.020	1.19×10^{-7}	0.026	1.82×10^{-3}	1.82×10^{-3}	1.25×10^{-4}	0.017
Mining (other than coal)	0	0	0	0.033	6.69×10^{-3}	0	0
Mooring and boat storage	0	0	0	0	0	0	2.87×10^{-3}
Oil and fat manufacturing	0.014	8.51×10^{-8}	0.031	1.30×10^{-3}	1.30×10^{-3}	8.91×10^{-5}	9.38×10^{-4}
Other agricultural crop processing	0.038	2.30×10^{-7}	0.045	0.115	0.039	2.42×10^{-4}	0.016
Other chemical processing	0.103	3.93×10^{-7}	0.091	7.52×10^{-3}	7.51×10^{-3}	4.62×10^{-4}	0.763
Other Chemical Storage	6.30×10^{-3}	3.74×10^{-8}	0.011	5.70×10^{-4}	5.70×10^{-4}	3.92×10^{-5}	0.444

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other land-based extraction	0.621	5.36×10^{-6}	0.101	4.397	1.013	0.544	0.025
Other livestock processing	6.35×10^{-3}	3.71×10^{-8}	7.33×10^{-3}	5.74×10^{-4}	5.74×10^{-4}	3.95×10^{-5}	0.012
Other metal processing	0.047	2.79×10^{-7}	0.057	0.039	0.039	2.94×10^{-4}	2.555
Other vessel construction or maintenance	0	2.87×10^{-7}	0	0.041	0.038	0	0.197
Paint production	1.76×10^{-3}	1.30×10^{-8}	2.12×10^{-3}	3.18×10^{-3}	3.15×10^{-3}	2.78×10^{-5}	0.105
Paper production using recycled materials	0.126	5.92×10^{-5}	0.325	4.03×10^{-3}	4.03×10^{-3}	0.032	0.074
Pesticides production	1.40×10^{-4}	6.77×10^{-10}	1.66×10^{-4}	1.26×10^{-5}	1.26×10^{-5}	8.68×10^{-7}	1.30×10^{-4}
Petrochemical production	0.811	4.86×10^{-4}	3.224	0.122	0.122	0.960	1.229
Petroleum refining	1.468	1.57×10^{-4}	7.499	0.713	0.636	18.693	8.324
Pharmaceutical or veterinary products production	0.010	5.78×10^{-8}	0.015	1.07×10^{-3}	1.06×10^{-3}	1.60×10^{-4}	0.087
Plastics production	7.52×10^{-3}	3.78×10^{-8}	0.030	0.549	0.542	4.27×10^{-5}	0.998
Poultry production	3.33×10^{-3}	1.81×10^{-8}	5.77×10^{-3}	1.029	0.283	1.89×10^{-5}	0.044
Primary iron and steel production	0	0	0	0	0	0	2.16×10^{-7}
Primary non-ferrous production (excluding aluminium)	0	0	1.82×10^{-5}	6.87×10^{-4}	5.55×10^{-4}	6.64×10^{-5}	1.08×10^{-6}
Printing	0.025	1.32×10^{-7}	0.045	2.48×10^{-3}	2.48×10^{-3}	1.70×10^{-4}	4.865
Production of container glass	0.050	6.13×10^{-3}	4.326	0.232	0.232	1.737	0.102
Production of float glass	0.028	7.83×10^{-7}	2.256	0.303	0.299	0.481	0.034
Railway activities	0	0	0	0.013	0.013	0	0.043
Rendering or fat extraction	0	0	0	0	0	0	8.26×10^{-3}
Scrap metal recovery	0	0	8.06×10^{-3}	0.082	0.061	0	1.57×10^{-5}
Secondary aluminium production	0.127	5.95×10^{-6}	0.157	0.049	0.023	0.076	0.341
Secondary iron and steel production	0	0	1.17×10^{-3}	7.84×10^{-3}	8.63×10^{-3}	5.52×10^{-5}	0.049
Secondary non-ferrous production (excluding aluminium)	0.424	1.94×10^{-3}	0.089	0.015	0.014	0.239	6.82×10^{-3}
Services to air transport	6.03×10^{-3}	3.59×10^{-8}	7.18×10^{-3}	5.46×10^{-4}	5.46×10^{-4}	3.75×10^{-5}	0.272

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	0.244	8.61×10^{-8}	1.616	4.0×10^{-3}	3.99×10^{-3}	6.93×10^{-4}	0.113
Sewage Treatment - processing by small plants	0.057	1.58×10^{-5}	0.057	0.179	0.034	2.81×10^{-3}	0.073
Soap or detergent production	0.013	7.88×10^{-8}	0.014	1.21×10^{-3}	1.21×10^{-3}	6.90×10^{-3}	0.224
Soft drink manufacturing	2.19×10^{-3}	1.30×10^{-8}	2.61×10^{-3}	1.99×10^{-4}	1.99×10^{-4}	1.36×10^{-5}	5.56×10^{-3}
Solid waste landfilling	0.365	5.60×10^{-8}	0	1.284	0.260	0	0.665
Storage of Petroleum and/or Petroleum Products	4.312	2.38×10^{-5}	2.323	0.182	0.182	3.755	0.746
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	6.20×10^{-3}
Waste oil recovery	0	0	0	0	0	0	3.14×10^{-4}
Waste storage, transfer, separating or processing	0.145	4.19×10^{-8}	0.112	0.084	0.018	1.61×10^{-5}	3.67×10^{-3}
Industrial Total	20.954	0.012	37.278	19.261	8.379	29.390	32.474
July Weekend Day Emissions (tonnes/day) – Newcastle							
Production of ammonium nitrate	0.814	3.09×10^{-6}	2.839	0.565	0.556	3.23×10^{-3}	0.714
Aircraft (helicopter) facilities	0	0	0	0	0	0	3.10×10^{-4}
Animal slaughtering	0	0	0	0	0	0	0.080
Bitumen pre-mix or hotmix production	0.042	3.23×10^{-5}	8.12×10^{-3}	0.327	0.303	4.34×10^{-3}	4.92×10^{-3}
Bulk cargo handling	0	7.34×10^{-9}	0	0.191	0.029	0	1.64×10^{-3}
Cement or lime handling	1.19×10^{-3}	7.0×10^{-9}	1.42×10^{-3}	0.012	6.51×10^{-3}	7.42×10^{-6}	8.96×10^{-5}
Coal loading	0	4.50×10^{-8}	0	6.05×10^{-4}	6.03×10^{-5}	0	0.010
Coal mining	0.024	4.65×10^{-5}	0.058	0.889	0.108	2.32×10^{-3}	7.99×10^{-3}
Concrete batching	0	1.86×10^{-7}	0	0.056	8.46×10^{-3}	0	2.01×10^{-4}
Crushing, grinding or separating works	8.06×10^{-3}	2.28×10^{-7}	0.020	0.160	0.039	1.29×10^{-3}	3.88×10^{-3}
Explosives or pyrotechnics production	0	0	0	0	0	0	3.09×10^{-6}
Hard-rock gravel quarrying	0	2.31×10^{-6}	0	0.339	0.082	0	1.25×10^{-5}
Hazardous, industrial or group A waste generation or storage	9.62×10^{-6}	0	1.15×10^{-5}	8.70×10^{-7}	8.70×10^{-7}	5.96×10^{-8}	0.025

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Inert waste landfilling	0	0	0	0.145	0.029	0	0
Metal plating or coating works	4.73×10^{-3}	2.81×10^{-8}	5.63×10^{-3}	6.64×10^{-3}	6.64×10^{-3}	2.94×10^{-5}	1.40×10^{-3}
Milk processing	6.97×10^{-3}	4.15×10^{-8}	8.33×10^{-3}	7.0×10^{-4}	7.0×10^{-4}	4.35×10^{-5}	9.30×10^{-4}
Mooring and boat storage	0	0	0	0	0	0	1.92×10^{-3}
Other activities - printing	0	0	0	0	0	0	0.151
Other agricultural crop processing	0.022	1.32×10^{-7}	0.027	0.027	9.27×10^{-3}	3.44×10^{-4}	0.011
Other chemical processing	0.064	3.82×10^{-7}	0.213	0.088	0.088	0.142	0.124
Other Chemical Storage	0	0	0	0	0	0	0.674
Other land-based extraction	2.69×10^{-4}	5.59×10^{-7}	1.95×10^{-3}	0.142	0.028	1.0×10^{-8}	1.24×10^{-4}
Other metal processing	0	0	2.12×10^{-3}	0	0	0	2.50×10^{-6}
Other vessel construction or maintenance	0	3.36×10^{-7}	1.55×10^{-3}	0.048	0.044	0	0.017
Primary aluminium production	120	2.77×10^{-4}	0.796	0.412	0.298	24.614	0.023
Primary non-ferrous production (excluding aluminium)	0.054	3.77×10^{-7}	0.126	0.040	0.032	0.023	3.98×10^{-3}
Production of phosphate fertilizer	2.82×10^{-3}	9.94×10^{-9}	2.0×10^{-3}	0.174	0.170	1.62×10^{-5}	1.14×10^{-4}
Scrap metal recovery	0	0	2.92×10^{-3}	0	0	0	3.96×10^{-6}
Secondary iron and steel production	0	0	0	0	0	0	3.05×10^{-5}
Sewage Treatment - processing by large plants	0	0	0	0	0	0	2.85×10^{-3}
Sewage Treatment - processing by small plants	0	0	0	0	0	0	2.36×10^{-5}
Solid waste landfilling	0.015	2.63×10^{-6}	0	0.062	0.013	0	0.166
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	0.484
Used tyre processing or disposal	0	0	0	0	0	0	1.86×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.010	9.61×10^{-3}	0	0.069
Waste storage, transfer, separating or processing	0	0	0	6.95×10^{-4}	1.40×10^{-4}	0	1.74×10^{-3}
Wood or timber milling	0	0	0	7.31×10^{-4}	2.69×10^{-4}	0	0

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wood preservation	0	0	0	0	0	0	1.01 × 10 ⁻⁶
Industrial Total	121	3.66 × 10 ⁻⁴	4.113	3.697	1.859	24.790	2.580
July Weekend Day Emissions (tonnes/day) – Wollongong							
Bitumen pre-mix or hotmix production	0.036	4.21 × 10 ⁻⁷	3.87 × 10 ⁻³	5.50 × 10 ⁻³	3.59 × 10 ⁻³	5.82 × 10 ⁻⁴	2.48 × 10 ⁻³
Bulk cargo handling	0	0	0	1.49 × 10 ⁻³	1.48 × 10 ⁻⁴	0	2.38 × 10 ⁻⁶
Cement or lime handling	0	0	0	1.61 × 10 ⁻⁴	2.67 × 10 ⁻⁵	0	6.30 × 10 ⁻⁵
Coal loading	1.42 × 10 ⁻³	3.06 × 10 ⁻⁵	6.72 × 10 ⁻³	0.485	0.052	3.76 × 10 ⁻⁴	4.43 × 10 ⁻⁴
Coal mining	5.38 × 10 ⁻³	1.82 × 10 ⁻⁶	0.025	0.167	0.035	1.40 × 10 ⁻³	0.070
Coal washery reject or slag landfilling	1.14 × 10 ⁻⁵	0	4.29 × 10 ⁻⁵	0.153	0.031	1.39 × 10 ⁻⁶	1.08 × 10 ⁻⁶
Coke production	9.70 × 10 ⁻³	6.24 × 10 ⁻⁴	0.039	0.089	0.089	0.716	6.45 × 10 ⁻⁴
Concrete batching	0	5.45 × 10 ⁻⁸	0	0.020	3.09 × 10 ⁻³	0	7.01 × 10 ⁻⁵
Crushing, grinding or separating works	0	2.11 × 10 ⁻⁷	0	7.71 × 10 ⁻³	3.25 × 10 ⁻³	0	0
Drum or container reconditioning	0	0	0	0	0	0	3.04 × 10 ⁻⁸
Environmentally sensitive area landfilling	0	7.07 × 10 ⁻⁸	0	0.017	3.33 × 10 ⁻³	0	0
Hazardous, industrial, group A or group B waste processing	0	2.03 × 10 ⁻⁹	0	4.51 × 10 ⁻⁴	8.79 × 10 ⁻⁵	0	1.07 × 10 ⁻⁴
Inert waste landfilling	0	1.74 × 10 ⁻⁸	0	0.120	0.024	0	3.87 × 10 ⁻⁶
Landfilling in designated areas	0	0	0	0	0	0	0
Metal plating or coating works	3.177	1.55 × 10 ⁻⁴	0.144	0.025	0.023	0.081	0.401
Other chemical processing	3.10 × 10 ⁻³	1.84 × 10 ⁻⁸	3.69 × 10 ⁻³	2.64 × 10 ⁻³	7.56 × 10 ⁻⁴	1.93 × 10 ⁻⁵	2.05 × 10 ⁻⁴
Other metal processing	1.55 × 10 ⁻³	8.81 × 10 ⁻⁹	1.84 × 10 ⁻³	6.44 × 10 ⁻⁴	5.58 × 10 ⁻⁴	9.64 × 10 ⁻⁶	3.55 × 10 ⁻³
Other vessel construction or maintenance	0	0	0	0	0	0	2.22 × 10 ⁻⁶
Primary iron and steel production	1,399	0.010	21.038	4.349	3.877	26.807	1.556
Production of phosphate fertilizer	3.82 × 10 ⁻³	2.62 × 10 ⁻⁸	0.022	6.35 × 10 ⁻³	6.35 × 10 ⁻³	0.056	2.13 × 10 ⁻³
Scrap metal recovery	0	0	0	0	0	0	1.83 × 10 ⁻⁶
Sewage Treatment - processing by large plants	1.86 × 10 ⁻³	7.0 × 10 ⁻⁹	6.28 × 10 ⁻³	2.59 × 10 ⁻⁴	2.57 × 10 ⁻⁴	7.44 × 10 ⁻⁶	1.44 × 10 ⁻³

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by small plants	3.91×10^{-3}	1.28×10^{-8}	2.73×10^{-3}	2.35×10^{-4}	2.35×10^{-4}	1.49×10^{-5}	2.49×10^{-3}
Solid waste landfilling	0.337	0	0.017	0.077	0.019	0	0.045
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	6.72×10^{-4}
Industrial Total	1,403	0.011	21.311	5.527	4.172	27.662	2.087
July Weekend Day Emissions (tonnes/day) - Non-Urban							
Animal slaughtering	1.62×10^{-4}	9.03×10^{-10}	1.93×10^{-4}	1.46×10^{-5}	1.46×10^{-5}	1.01×10^{-6}	1.06×10^{-5}
Bitumen pre-mix or hotmix production	4.53×10^{-3}	2.75×10^{-7}	2.43×10^{-3}	1.52×10^{-3}	8.64×10^{-4}	2.75×10^{-4}	3.61×10^{-3}
Cement or lime handling	0	0	0	0.346	0.075	0	6.85×10^{-4}
Cement or lime production	8.538	1.12×10^{-3}	12.062	0.556	0.336	0.325	0.215
Ceramics production (excluding glass)	0.563	4.96×10^{-8}	0.205	0.689	0.510	0.468	0.038
Coal loading	9.01×10^{-4}	2.33×10^{-5}	4.19×10^{-3}	0.339	0.038	2.75×10^{-4}	5.99×10^{-4}
Coal mining	6.080	3.49×10^{-3}	3.153	62.840	10.450	0.174	0.230
Composting and related reprocessing or treatment	1.36×10^{-3}	8.02×10^{-9}	0.012	3.31×10^{-4}	1.92×10^{-4}	8.46×10^{-6}	0.089
Concrete batching	3.78×10^{-3}	4.33×10^{-7}	7.33×10^{-3}	0.150	0.028	2.33×10^{-5}	4.66×10^{-3}
Crushing, grinding or separating works	7.13×10^{-4}	3.09×10^{-7}	3.31×10^{-3}	0.865	0.193	2.18×10^{-4}	2.70×10^{-3}
Environmentally sensitive area landfilling	1.47×10^{-3}	0	0	0.052	0.011	0	0.017
Freeway or tollway construction	0	0	0	0.119	0.024	0	0
Generation of electrical power from coal	19.090	2.80×10^{-3}	403	13.066	4.634	729	1.929
Hard-rock gravel quarrying	0	8.27×10^{-6}	0	3.472	0.870	0	0.445
Hazardous, industrial or group A waste generation or storage	0	2.37×10^{-9}	0	4.37×10^{-4}	8.45×10^{-5}	0	1.20×10^{-6}
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.04×10^{-6}
Inert waste landfilling	1.17×10^{-3}	0	0	0.011	2.13×10^{-3}	0	0.082
Landfilling in designated areas	6.99×10^{-5}	0	0	2.85×10^{-3}	5.74×10^{-4}	0	7.85×10^{-4}
Mining (other than coal)	0	5.97×10^{-7}	0	0.940	0.194	0	7.68×10^{-6}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Mooring and boat storage	0	0	0	0	0	0	8.37×10^{-4}
Other agricultural crop processing	8.91×10^{-3}	5.24×10^{-8}	0.010	0.011	3.56×10^{-3}	5.48×10^{-5}	8.27×10^{-4}
Other chemical processing	2.63×10^{-3}	0	9.90×10^{-3}	1.38×10^{-3}	1.37×10^{-3}	3.22×10^{-4}	2.50×10^{-3}
Other Chemical Storage	0	0	0	0	0	0	0.159
Other land-based extraction	8.05×10^{-3}	3.05×10^{-6}	0.037	4.081	0.879	2.46×10^{-3}	0.152
Other livestock processing	9.77×10^{-3}	5.76×10^{-8}	0.012	8.84×10^{-4}	8.84×10^{-4}	6.08×10^{-5}	1.51×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	2.71×10^{-3}
Poultry production	9.68×10^{-5}	0	7.02×10^{-4}	0.165	0.039	3.61×10^{-9}	1.69×10^{-5}
Primary aluminium production	34.129	1.61×10^{-7}	0.126	0.752	0.542	9.228	9.89×10^{-3}
Primary iron and steel production	0	0	0	0	0	0	0
Primary non-ferrous production (excluding aluminium)	0	0	0	0	0	0	0
Railway activities	0	0	0	0	0	0	0
Rendering or fat extraction	0.012	7.05×10^{-8}	0.014	1.08×10^{-3}	1.08×10^{-3}	1.25×10^{-4}	3.49×10^{-3}
Secondary aluminium production	0.086	1.65×10^{-6}	0.028	0.032	0.032	8.16×10^{-4}	8.80×10^{-4}
Sewage Treatment - processing by large plants	0.012	1.58×10^{-9}	1.36×10^{-3}	2.80×10^{-4}	2.80×10^{-4}	1.09×10^{-5}	7.24×10^{-3}
Sewage Treatment - processing by small plants	0.546	4.40×10^{-8}	0.056	0.013	0.013	4.88×10^{-4}	0.094
Solid waste landfilling	0.016	5.19×10^{-9}	0	1.053	0.212	0	0.352
Waste oil recovery	6.48×10^{-3}	1.60×10^{-6}	0.026	6.71×10^{-4}	6.65×10^{-4}	0.042	7.37×10^{-4}
Wood or timber milling	0	0	0	0	0	0	2.40×10^{-6}
Industrial Total	69.121	7.45×10^{-3}	419	89.561	19.092	740	3.845

Table 3.80 Proportion of total estimated daily emissions from industrial sources by NSW Activity Type in each region for typical July weekend day

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – GMR							
Aircraft (helicopter) facilities	0	0	0	0	0	0	6.94×10^{-4}
Animal slaughtering	1.95×10^{-4}	2.36×10^{-5}	1.29×10^{-3}	2.96×10^{-4}	5.43×10^{-4}	5.80×10^{-6}	0.02
Battery production	0	0.91	0	3.09×10^{-3}	5.66×10^{-3}	0	0
Biomedical waste incineration	3.18×10^{-4}	0.04	1.15×10^{-3}	6.87×10^{-4}	1.26×10^{-3}	3.23×10^{-4}	2.27×10^{-4}
Bitumen pre-mix or hotmix production	6.46×10^{-3}	0.02	7.05×10^{-3}	0.18	0.26	1.26×10^{-3}	0.01
Bread manufacturing	1.11×10^{-4}	1.37×10^{-5}	6.85×10^{-4}	2.81×10^{-4}	5.15×10^{-4}	3.36×10^{-6}	9.09×10^{-5}
Bulk cargo handling	0	3.78×10^{-6}	0	0.09	0.03	0	5.35×10^{-4}
Cake and pastry manufacturing	1.08×10^{-4}	1.33×10^{-5}	6.68×10^{-4}	1.61×10^{-4}	2.96×10^{-4}	3.28×10^{-6}	5.02×10^{-5}
Cement or lime handling	9.19×10^{-5}	1.90×10^{-5}	5.67×10^{-4}	0.18	0.08	1.45×10^{-6}	0.05
Cement or lime production	0.21	0.68	1.99	0.30	0.34	0.04	0.04
Ceramics production (excluding glass)	0.05	1.18×10^{-4}	0.08	1.21	1.61	0.22	0.06
Chemical storage	0	0	0	0	0	0	7.80×10^{-3}
Coal loading	5.70×10^{-5}	0.03	1.39×10^{-3}	0.33	0.07	7.77×10^{-5}	2.0×10^{-3}
Coal mining	0.15	1.83	0.41	25.8	7.85	0.02	0.05
Coal washery reject or slag landfilling	2.80×10^{-7}	0	5.45×10^{-6}	0.06	0.02	1.66×10^{-7}	1.86×10^{-7}
Coke production	4.97×10^{-4}	0.67	0.01	0.07	0.14	0.18	2.33×10^{-4}
Composting and related reprocessing or treatment	0.03	4.54×10^{-6}	1.48×10^{-3}	0.07	0.03	1.01×10^{-6}	0.10
Concrete batching	2.06×10^{-4}	3.05×10^{-3}	1.68×10^{-3}	0.46	0.18	6.17×10^{-6}	0.07
Confectionary manufacturing	7.98×10^{-6}	3.49×10^{-6}	2.93×10^{-4}	4.16×10^{-5}	7.63×10^{-5}	8.45×10^{-7}	2.63×10^{-4}
Crushing, grinding or separating works	0.04	0.04	0.08	2.36	1.58	0.07	0.03
Drum or container reconditioning	3.07×10^{-5}	0.02	6.12×10^{-4}	8.18×10^{-5}	1.50×10^{-4}	1.66×10^{-6}	0.02
Dry cleaning	8.21×10^{-5}	1.07×10^{-5}	5.33×10^{-4}	1.29×10^{-4}	2.37×10^{-4}	2.63×10^{-6}	2.64×10^{-4}
Environmentally sensitive area landfilling	1.09×10^{-4}	3.64×10^{-5}	0	0.08	0.03	0	8.72×10^{-3}

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Explosives or pyrotechnics production	0	0	0	0	0	0	5.34×10^{-7}
Freeway or tollway construction	0	1.83×10^{-3}	0	0.08	0.03	0	1.22×10^{-6}
Generation of electrical power from coal	0.47	1.44	51.3	5.27	3.43	86.9	0.33
Generation of electrical power from gas	0.17	3.09×10^{-3}	0.92	0.05	0.09	4.05×10^{-3}	0.23
Generation of electrical power other than from coal or gas	6.64×10^{-3}	0	0.35	5.33×10^{-4}	9.78×10^{-4}	5.28×10^{-5}	0.03
Hard-rock gravel quarrying	2.58×10^{-5}	5.57×10^{-3}	0	1.65	0.76	0	0.08
Hazardous, industrial or group A waste generation or storage	9.27×10^{-5}	1.08×10^{-5}	3.15×10^{-4}	1.20×10^{-3}	1.87×10^{-3}	1.48×10^{-6}	0.07
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.79×10^{-7}
Hazardous, industrial, group A or group B waste processing	2.61×10^{-4}	4.37×10^{-5}	1.64×10^{-3}	6.15×10^{-3}	0.01	2.14×10^{-5}	4.28×10^{-3}
Inert waste landfilling	2.86×10^{-5}	8.97×10^{-6}	0	0.17	0.07	0	0.01
Landfilling in designated areas	2.36×10^{-4}	0	0	0.02	8.92×10^{-3}	0	0.02
Metal plating or coating works	0.08	0.08	0.02	0.04	0.06	9.67×10^{-3}	1.12
Milk processing	6.64×10^{-4}	8.30×10^{-5}	4.40×10^{-3}	1.01×10^{-3}	1.86×10^{-3}	2.01×10^{-5}	3.09×10^{-3}
Mining (other than coal)	0	3.08×10^{-4}	0	0.39	0.15	0	1.33×10^{-6}
Mooring and boat storage	0	0	0	0	0	0	9.72×10^{-4}
Oil and fat manufacturing	3.50×10^{-4}	4.39×10^{-5}	3.88×10^{-3}	5.22×10^{-4}	9.59×10^{-4}	1.06×10^{-5}	1.62×10^{-4}
Other agricultural crop processing	1.69×10^{-3}	2.14×10^{-4}	0.01	0.06	0.04	7.65×10^{-5}	4.82×10^{-3}
Other chemical processing	4.25×10^{-3}	4.09×10^{-4}	0.04	0.04	0.07	0.02	0.15
Other Chemical Storage	1.54×10^{-4}	1.93×10^{-5}	1.35×10^{-3}	2.30×10^{-4}	4.22×10^{-4}	4.67×10^{-6}	0.22
Other land-based extraction	0.02	4.62×10^{-3}	0.02	3.47	1.42	0.07	0.03
Other livestock processing	3.95×10^{-4}	4.88×10^{-5}	2.41×10^{-3}	5.88×10^{-4}	1.08×10^{-3}	1.19×10^{-5}	2.32×10^{-3}
Other metal processing	1.20×10^{-3}	1.49×10^{-4}	7.73×10^{-3}	0.02	0.03	3.62×10^{-5}	0.44
Other vessel construction or maintenance	0	3.21×10^{-4}	1.97×10^{-4}	0.04	0.06	0	0.04
Paint production	4.31×10^{-5}	6.70×10^{-6}	2.70×10^{-4}	1.28×10^{-3}	2.33×10^{-3}	3.31×10^{-6}	0.02

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Paper production using recycled materials	3.10×10^{-3}	0.03	0.04	1.62×10^{-3}	2.98×10^{-3}	3.80×10^{-3}	0.01
Pesticides production	3.42×10^{-6}	3.49×10^{-7}	2.11×10^{-5}	5.09×10^{-6}	9.34×10^{-6}	1.03×10^{-7}	2.25×10^{-5}
Petrochemical production	0.02	0.25	0.41	0.05	0.09	0.11	0.21
Petroleum refining	0.04	0.08	0.95	0.29	0.47	2.23	1.44
Pharmaceutical or veterinary products production	2.57×10^{-4}	2.98×10^{-5}	1.97×10^{-3}	4.31×10^{-4}	7.86×10^{-4}	1.90×10^{-5}	0.02
Plastics production	1.84×10^{-4}	1.95×10^{-5}	3.77×10^{-3}	0.22	0.40	5.09×10^{-6}	0.17
Poultry production	8.41×10^{-5}	9.32×10^{-6}	8.22×10^{-4}	0.48	0.24	2.25×10^{-6}	7.62×10^{-3}
Primary aluminium production	3.78	0.14	0.12	0.47	0.62	4.03	5.71×10^{-3}
Primary iron and steel production	34.3	5.30	2.67	1.75	2.87	3.20	0.27
Primary non-ferrous production (excluding aluminium)	1.33×10^{-3}	1.94×10^{-4}	0.02	0.02	0.02	2.71×10^{-3}	6.88×10^{-4}
Printing	6.05×10^{-4}	6.82×10^{-5}	5.67×10^{-3}	1.0×10^{-3}	1.84×10^{-3}	2.03×10^{-5}	0.87
Production of ammonium nitrate	0.02	1.59×10^{-3}	0.36	0.23	0.41	3.85×10^{-4}	0.12
Production of container glass	1.23×10^{-3}	3.16	0.55	0.09	0.17	0.21	0.02
Production of float glass	6.85×10^{-4}	4.04×10^{-4}	0.29	0.12	0.22	0.06	5.85×10^{-3}
Production of phosphate fertilizer	1.63×10^{-4}	1.86×10^{-5}	3.07×10^{-3}	0.07	0.13	6.64×10^{-3}	3.88×10^{-4}
Railway activities	0	0	0	5.07×10^{-3}	9.30×10^{-3}	0	7.44×10^{-3}
Rendering or fat extraction	2.92×10^{-4}	3.63×10^{-5}	1.80×10^{-3}	4.34×10^{-4}	7.96×10^{-4}	1.49×10^{-5}	2.03×10^{-3}
Scrap metal recovery	0	0	1.39×10^{-3}	0.03	0.05	0	3.71×10^{-6}
Secondary aluminium production	5.23×10^{-3}	3.92×10^{-3}	0.02	0.03	0.04	9.15×10^{-3}	0.06
Secondary iron and steel production	0	0	1.48×10^{-4}	3.16×10^{-3}	6.39×10^{-3}	6.58×10^{-6}	8.43×10^{-3}
Secondary non-ferrous production (excluding aluminium)	0.01	1.00	0.01	6.24×10^{-3}	0.01	0.03	1.18×10^{-3}
Services to air transport	1.48×10^{-4}	1.85×10^{-5}	9.12×10^{-4}	2.20×10^{-4}	4.04×10^{-4}	4.47×10^{-6}	0.05
Sewage Treatment - processing by large plants	6.32×10^{-3}	4.88×10^{-5}	0.21	1.83×10^{-3}	3.35×10^{-3}	8.48×10^{-5}	0.02
Sewage Treatment - processing by small plants	0.01	8.19×10^{-3}	0.01	0.08	0.04	3.95×10^{-4}	0.03

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Soap or detergent production	3.26×10^{-4}	4.06×10^{-5}	1.72×10^{-3}	4.87×10^{-4}	8.93×10^{-4}	8.22×10^{-4}	0.04
Solid waste landfilling	0.02	1.39×10^{-3}	2.13×10^{-3}	1.00	0.37	0	0.21
Soft drink manufacturing	5.38×10^{-5}	6.70×10^{-6}	3.32×10^{-4}	8.0×10^{-5}	1.47×10^{-4}	1.63×10^{-6}	9.62×10^{-4}
Storage of Petroleum and/or Petroleum Products	0.11	0.01	0.30	0.07	0.13	0.45	0.21
Used tyre processing or disposal	0	0	0	0	0	0	3.21×10^{-7}
Vessel construction or maintenance using dry or floating docks	0	0	0	4.22×10^{-3}	7.11×10^{-3}	0	0.01
Waste oil recovery	1.59×10^{-4}	8.27×10^{-4}	3.33×10^{-3}	2.71×10^{-4}	4.92×10^{-4}	5.06×10^{-3}	1.82×10^{-4}
Waste storage, transfer, separating or processing	3.56×10^{-3}	2.16×10^{-5}	0.01	0.03	0.01	1.92×10^{-6}	9.36×10^{-4}
Wood or timber milling	0	0	0	2.95×10^{-4}	1.99×10^{-4}	0	4.15×10^{-7}
Wood preservation	0	0	0	0	0	0	1.74×10^{-7}
Industrial Total	39.6	15.8	61.2	47.6	24.8	97.9	7.09
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Sydney							
Aircraft (helicopter) facilities	0	0	0	0	0	0	8.39×10^{-4}
Animal slaughtering	4.10×10^{-4}	6.26×10^{-5}	4.08×10^{-3}	7.32×10^{-4}	9.33×10^{-4}	1.27×10^{-4}	2.99×10^{-3}
Battery production	0	2.46	0	7.79×10^{-3}	9.93×10^{-3}	0	0
Biomedical waste incineration	6.85×10^{-4}	0.10	3.71×10^{-3}	1.73×10^{-3}	2.21×10^{-3}	7.19×10^{-3}	2.98×10^{-4}
Bitumen pre-mix or hotmix production	9.53×10^{-3}	0.01	0.02	0.11	0.06	0.01	0.01
Bread manufacturing	2.39×10^{-4}	3.71×10^{-5}	2.21×10^{-3}	7.08×10^{-4}	9.03×10^{-4}	7.48×10^{-5}	1.19×10^{-4}
Bulk cargo handling	0	0	0	0.02	5.91×10^{-3}	0	3.28×10^{-4}
Cake and pastry manufacturing	2.33×10^{-4}	3.58×10^{-5}	2.16×10^{-3}	4.07×10^{-4}	5.19×10^{-4}	7.30×10^{-5}	6.58×10^{-5}
Cement or lime handling	1.35×10^{-4}	4.17×10^{-5}	1.25×10^{-3}	0.09	0.04	1.26×10^{-5}	0.07
Cement or lime production	0.01	0.27	1.47	0.20	0.16	0.10	2.11×10^{-3}
Ceramics production (excluding glass)	0.09	2.51×10^{-4}	0.18	2.34	2.17	3.76	0.07
Chemical storage	0	0	0	0	0	0	0.01
Coal mining	2.79×10^{-4}	0.01	9.42×10^{-3}	0.16	0.02	3.28×10^{-3}	3.37×10^{-4}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Coke production	5.56×10^{-4}	0.94	0.02	0.10	0.13	2.05	1.58×10^{-4}
Composting and related reprocessing or treatment	0.06	1.10×10^{-6}	0	0.17	0.04	0	0.11
Concrete batching	2.44×10^{-4}	7.29×10^{-3}	2.41×10^{-3}	0.93	0.26	7.55×10^{-5}	0.09
Confectionary manufacturing	1.72×10^{-5}	9.43×10^{-6}	9.45×10^{-4}	1.05×10^{-4}	1.34×10^{-4}	1.88×10^{-5}	3.44×10^{-4}
Crushing, grinding or separating works	0.08	0.10	0.24	4.90	2.46	1.57	0.04
Drum or container reconditioning	6.60×10^{-5}	0.05	1.97×10^{-3}	2.07×10^{-4}	2.63×10^{-4}	3.70×10^{-5}	0.02
Dry cleaning	1.77×10^{-4}	2.88×10^{-5}	1.72×10^{-3}	3.26×10^{-4}	4.16×10^{-4}	5.85×10^{-5}	3.46×10^{-4}
Environmentally sensitive area landfilling	1.57×10^{-4}	0	0	0.14	0.04	0	7.66×10^{-3}
Freeway or tollway construction	0	4.94×10^{-3}	0	0.08	0.01	0	1.60×10^{-6}
Generation of electrical power from gas	0.36	8.34×10^{-3}	2.95	0.13	0.16	0.09	0.31
Generation of electrical power other than from coal or gas	0.01	0	1.13	1.35×10^{-3}	1.71×10^{-3}	1.18×10^{-3}	0.03
Hard-rock gravel quarrying	5.56×10^{-5}	3.24×10^{-4}	0	0.27	0.09	0	2.71×10^{-3}
Hazardous, industrial or group A waste generation or storage	1.99×10^{-4}	2.59×10^{-5}	1.01×10^{-3}	2.57×10^{-3}	3.16×10^{-3}	3.27×10^{-5}	0.08
Hazardous, industrial, group A or group B waste processing	5.61×10^{-4}	1.15×10^{-4}	5.28×10^{-3}	0.02	0.02	4.78×10^{-4}	5.58×10^{-3}
Inert waste landfilling	0	0	0	0.16	0.04	0	2.72×10^{-7}
Landfilling in designated areas	5.05×10^{-4}	0	0	0.06	0.01	0	0.02
Metal plating or coating works	1.11×10^{-3}	1.73×10^{-4}	0.01	0.06	0.07	3.58×10^{-4}	1.38
Milk processing	1.06×10^{-3}	1.66×10^{-4}	0.01	1.85×10^{-3}	2.36×10^{-3}	3.32×10^{-4}	3.84×10^{-3}
Mining (other than coal)	0	0	0	0.03	8.68×10^{-3}	0	0
Mooring and boat storage	0	0	0	0	0	0	6.49×10^{-4}
Oil and fat manufacturing	7.54×10^{-4}	1.19×10^{-4}	0.01	1.32×10^{-3}	1.68×10^{-3}	2.37×10^{-4}	2.12×10^{-4}
Other agricultural crop processing	1.99×10^{-3}	3.21×10^{-4}	0.02	0.12	0.05	6.43×10^{-4}	3.74×10^{-3}
Other chemical processing	5.46×10^{-3}	5.47×10^{-4}	0.04	7.66×10^{-3}	9.74×10^{-3}	1.23×10^{-3}	0.17
Other Chemical Storage	3.32×10^{-4}	5.20×10^{-5}	4.36×10^{-3}	5.80×10^{-4}	7.39×10^{-4}	1.04×10^{-4}	0.10

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Other land-based extraction	0.03	7.46×10^{-3}	0.04	4.47	1.31	1.44	5.69×10^{-3}
Other livestock processing	3.35×10^{-4}	5.17×10^{-5}	3.0×10^{-3}	5.85×10^{-4}	7.45×10^{-4}	1.05×10^{-4}	2.70×10^{-3}
Other metal processing	2.49×10^{-3}	3.89×10^{-4}	0.02	0.04	0.05	7.80×10^{-4}	0.58
Other vessel construction or maintenance	0	3.99×10^{-4}	0	0.04	0.05	0	0.04
Paint production	9.27×10^{-5}	1.81×10^{-5}	8.70×10^{-4}	3.23×10^{-3}	4.09×10^{-3}	7.38×10^{-5}	0.02
Paper production using recycled materials	6.66×10^{-3}	0.08	0.13	4.10×10^{-3}	5.22×10^{-3}	0.08	0.02
Pesticides production	7.36×10^{-6}	9.43×10^{-7}	6.81×10^{-5}	1.28×10^{-5}	1.64×10^{-5}	2.30×10^{-6}	2.95×10^{-5}
Petrochemical production	0.04	0.68	1.32	0.12	0.16	2.55	0.28
Petroleum refining	0.08	0.22	3.07	0.73	0.82	49.6	1.89
Pharmaceutical or veterinary products production	5.52×10^{-4}	8.05×10^{-5}	6.35×10^{-3}	1.09×10^{-3}	1.38×10^{-3}	4.24×10^{-4}	0.02
Plastics production	3.97×10^{-4}	5.27×10^{-5}	0.01	0.56	0.70	1.13×10^{-4}	0.23
Poultry production	1.76×10^{-4}	2.52×10^{-5}	2.37×10^{-3}	1.05	0.37	5.01×10^{-5}	9.98×10^{-3}
Primary iron and steel production	0	0	0	0	0	0	4.89×10^{-8}
Primary non-ferrous production (excluding aluminium)	0	0	7.44×10^{-6}	7.0×10^{-4}	7.20×10^{-4}	1.76×10^{-4}	2.45×10^{-7}
Printing	1.30×10^{-3}	1.84×10^{-4}	0.02	2.53×10^{-3}	3.22×10^{-3}	4.52×10^{-4}	1.10
Production of container glass	2.65×10^{-3}	8.53	1.77	0.24	0.30	4.61	0.02
Production of float glass	1.47×10^{-3}	1.09×10^{-3}	0.92	0.31	0.39	1.28	7.66×10^{-3}
Railway activities	0	0	0	0.01	0.02	0	9.75×10^{-3}
Rendering or fat extraction	0	0	0	0	0	0	1.87×10^{-3}
Scrap metal recovery	0	0	3.30×10^{-3}	0.08	0.08	0	3.55×10^{-6}
Secondary aluminium production	6.72×10^{-3}	8.29×10^{-3}	0.06	0.05	0.03	0.20	0.08
Secondary iron and steel production	0	0	4.78×10^{-4}	7.98×10^{-3}	0.01	1.47×10^{-4}	0.01
Secondary non-ferrous production (excluding aluminium)	0.02	2.71	0.04	0.02	0.02	0.64	1.54×10^{-3}
Services to air transport	3.18×10^{-4}	5.0×10^{-5}	2.94×10^{-3}	5.56×10^{-4}	7.08×10^{-4}	9.96×10^{-5}	0.06

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by large plants	0.01	1.20×10^{-4}	0.66	4.07×10^{-3}	5.18×10^{-3}	1.84×10^{-3}	0.03
Sewage Treatment - processing by small plants	2.99×10^{-3}	0.02	0.02	0.18	0.04	7.46×10^{-3}	0.02
Soap or detergent production	7.02×10^{-4}	1.10×10^{-4}	5.54×10^{-3}	1.23×10^{-3}	1.57×10^{-3}	0.02	0.05
Soft drink manufacturing	1.16×10^{-4}	1.81×10^{-5}	1.07×10^{-3}	2.02×10^{-4}	2.57×10^{-4}	3.62×10^{-5}	1.26×10^{-3}
Solid waste landfilling	0.02	7.80×10^{-5}	0	1.31	0.34	0	0.15
Storage of Petroleum and/or Petroleum Products	0.23	0.03	0.95	0.19	0.24	9.97	0.17
Vessel construction or maintenance using dry or floating docks	0	0	0	0	0	0	1.41×10^{-3}
Waste oil recovery	0	0	0	0	0	0	7.11×10^{-5}
Waste storage, transfer, separating or processing	7.65×10^{-3}	5.83×10^{-5}	0.05	0.09	0.02	4.27×10^{-5}	8.31×10^{-4}
Industrial Total	1.11	16.3	15.3	19.6	10.9	78.0	7.36
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Newcastle							
Aircraft (helicopter) facilities	0	0	0	0	0	0	9.34×10^{-4}
Animal slaughtering	0	0	0	0	0	0	0.24
Bitumen pre-mix or hotmix production	0.02	0.57	0.03	3.07	3.88	0.02	0.01
Bulk cargo handling	0	1.29×10^{-4}	0	1.80	0.37	0	4.96×10^{-3}
Cement or lime handling	4.52×10^{-4}	1.23×10^{-4}	5.54×10^{-3}	0.11	0.08	2.60×10^{-5}	2.70×10^{-4}
Coal loading	0	7.94×10^{-4}	0	5.70×10^{-3}	7.72×10^{-4}	0	0.03
Coal mining	9.20×10^{-3}	0.82	0.22	8.37	1.38	8.10×10^{-3}	0.02
Concrete batching	0	3.27×10^{-3}	0	0.53	0.11	0	6.05×10^{-4}
Crushing, grinding or separating works	3.06×10^{-3}	4.03×10^{-3}	0.08	1.51	0.50	4.50×10^{-3}	0.01
Explosives or pyrotechnics production	0	0	0	0	0	0	9.31×10^{-6}
Hard-rock gravel quarrying	0	0.04	0	3.19	1.05	0	3.76×10^{-5}
Hazardous, industrial or group A waste generation or storage	3.64×10^{-6}	0	4.47×10^{-5}	8.19×10^{-6}	1.12×10^{-5}	2.09×10^{-7}	0.08
Inert waste landfilling	0	0	0	1.37	0.38	0	0

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Metal plating or coating works	1.79×10^{-3}	4.96×10^{-4}	0.02	0.06	0.09	1.03×10^{-4}	4.22×10^{-3}
Milk processing	2.64×10^{-3}	7.32×10^{-4}	0.03	6.59×10^{-3}	8.97×10^{-3}	1.52×10^{-4}	2.81×10^{-3}
Mooring and boat storage	0	0	0	0	0	0	5.78×10^{-3}
Other agricultural crop processing	8.43×10^{-3}	2.33×10^{-3}	0.10	0.25	0.12	1.21×10^{-3}	0.03
Other chemical processing	0.02	6.74×10^{-3}	0.83	0.82	1.12	0.50	0.37
Other Chemical Storage	0	0	0	0	0	0	2.03
Other land-based extraction	1.02×10^{-4}	9.86×10^{-3}	7.60×10^{-3}	1.33	0.35	3.52×10^{-8}	3.74×10^{-4}
Other metal processing	0	0	8.29×10^{-3}	0	0	0	7.53×10^{-6}
Other vessel construction or maintenance	0	5.93×10^{-3}	6.06×10^{-3}	0.45	0.57	0	0.05
Primary aluminium production	45.5	4.88	3.11	3.88	3.82	86.1	0.07
Primary non-ferrous production (excluding aluminium)	0.02	6.64×10^{-3}	0.49	0.38	0.41	0.08	0.01
Printing	0	0	0	0	0	0	0.45
Production of ammonium nitrate	0.31	0.05	11.1	5.32	7.12	0.01	2.15
Production of phosphate fertilizer	1.07×10^{-3}	1.75×10^{-4}	7.81×10^{-3}	1.64	2.17	5.68×10^{-5}	3.42×10^{-4}
Scrap metal recovery	0	0	0.01	0	0	0	1.19×10^{-5}
Secondary iron and steel production	0	0	0	0	0	0	9.21×10^{-5}
Sewage Treatment - processing by large plants	0	0	0	0	0	0	8.61×10^{-3}
Sewage Treatment - processing by small plants	0	0	0	0	0	0	7.12×10^{-5}
Solid waste landfilling	5.56×10^{-3}	0.05	0	0.59	0.16	0	0.50
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	1.46
Used tyre processing or disposal	0	0	0	0	0	0	5.60×10^{-6}
Vessel construction or maintenance using dry or floating docks	0	0	0	0.10	0.12	0	0.21
Waste storage, transfer, separating or processing	0	0	0	6.54×10^{-3}	1.79×10^{-3}	0	5.26×10^{-3}
Wood or timber milling	0	0	0	6.88×10^{-3}	3.45×10^{-3}	0	0

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Wood preservation	0	0	0	0	0	0	3.04×10^{-6}
Industrial Total	45.9	6.45	16.0	34.8	23.8	86.7	7.78
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Wollongong							
Bitumen pre-mix or hotmix production	2.43×10^{-3}	2.53×10^{-3}	0.01	0.05	0.04	2.04×10^{-3}	0.01
Bulk cargo handling	0	0	0	0.01	1.81×10^{-3}	0	1.06×10^{-5}
Cement or lime handling	0	0	0	1.55×10^{-3}	3.26×10^{-4}	0	2.81×10^{-4}
Coal loading	9.56×10^{-5}	0.18	0.02	4.67	0.64	1.32×10^{-3}	1.98×10^{-3}
Coal mining	3.61×10^{-4}	0.01	0.08	1.61	0.43	4.89×10^{-3}	0.31
Coal washery reject or slag landfilling	7.66×10^{-7}	0	1.31×10^{-4}	1.47	0.38	4.88×10^{-6}	4.80×10^{-6}
Coke production	6.50×10^{-4}	3.74	0.12	0.86	1.09	2.51	2.88×10^{-3}
Concrete batching	0	3.27×10^{-4}	0	0.20	0.04	0	3.13×10^{-4}
Crushing, grinding or separating works	0	1.27×10^{-3}	0	0.07	0.04	0	0
Drum or container reconditioning	0	0	0	0	0	0	1.35×10^{-7}
Environmentally sensitive area landfilling	0	4.24×10^{-4}	0	0.16	0.04	0	0
Hazardous, industrial, group A or group B waste processing	0	1.22×10^{-5}	0	4.35×10^{-3}	1.07×10^{-3}	0	4.79×10^{-4}
Inert waste landfilling	0	1.04×10^{-4}	0	1.15	0.29	0	1.73×10^{-5}
Landfilling in designated areas	0	0	0	0	0	0	0
Metal plating or coating works	0.21	0.93	0.44	0.24	0.28	0.28	1.79
Other chemical processing	2.08×10^{-4}	1.10×10^{-4}	0.01	0.03	9.23×10^{-3}	6.76×10^{-5}	9.12×10^{-4}
Other metal processing	1.04×10^{-4}	5.28×10^{-5}	5.62×10^{-3}	6.21×10^{-3}	6.82×10^{-3}	3.37×10^{-5}	0.02
Other vessel construction or maintenance	0	0	0	0	0	0	9.90×10^{-6}
Primary iron and steel production	93.8	61.7	64.1	41.9	47.4	93.8	6.94
Production of phosphate fertilizer	2.56×10^{-4}	1.57×10^{-4}	0.07	0.06	0.08	0.19	9.50×10^{-3}
Scrap metal recovery	0	0	0	0	0	0	8.16×10^{-6}
Sewage Treatment - processing by large plants	1.25×10^{-4}	4.20×10^{-5}	0.02	2.49×10^{-3}	3.14×10^{-3}	2.61×10^{-5}	6.41×10^{-3}

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Sewage Treatment - processing by small plants	2.62×10^{-4}	7.65×10^{-5}	8.33×10^{-3}	2.27×10^{-3}	2.87×10^{-3}	5.22×10^{-5}	0.01
Solid waste landfilling	0.02	0	0.05	0.74	0.23	0	0.20
Storage of Petroleum and/or Petroleum Products	0	0	0	0	0	0	3.0×10^{-3}
Industrial Total	94.1	66.6	64.9	53.3	51.0	96.8	9.31
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Non-Urban							
Animal slaughtering	3.80×10^{-5}	9.05×10^{-7}	3.98×10^{-5}	1.14×10^{-5}	3.48×10^{-5}	1.35×10^{-7}	1.31×10^{-5}
Bitumen pre-mix or hotmix production	1.06×10^{-3}	2.76×10^{-4}	5.01×10^{-4}	1.18×10^{-3}	2.05×10^{-3}	3.70×10^{-5}	4.45×10^{-3}
Cement or lime handling	0	0	0	0.27	0.18	0	8.43×10^{-4}
Cement or lime production	2.00	1.13	2.49	0.43	0.80	0.04	0.26
Ceramics production (excluding glass)	0.13	4.97×10^{-5}	0.04	0.53	1.21	0.06	0.05
Coal loading	2.11×10^{-4}	0.02	8.64×10^{-4}	0.26	0.09	3.70×10^{-5}	7.38×10^{-4}
Coal mining	1.43	3.50	0.65	48.8	24.8	0.02	0.28
Composting and related reprocessing or treatment	3.19×10^{-4}	8.03×10^{-6}	2.40×10^{-3}	2.57×10^{-4}	4.56×10^{-4}	1.14×10^{-6}	0.11
Concrete batching	8.86×10^{-4}	4.34×10^{-4}	1.51×10^{-3}	0.12	0.07	3.13×10^{-6}	5.73×10^{-3}
Crushing, grinding or separating works	1.67×10^{-4}	3.10×10^{-4}	6.84×10^{-4}	0.67	0.46	2.93×10^{-5}	3.33×10^{-3}
Environmentally sensitive area landfilling	3.44×10^{-4}	0	0	0.04	0.03	0	0.02
Freeway or tollway construction	0	0	0	0.09	0.06	0	0
Generation of electrical power from coal	4.48	2.80	83.2	10.1	11.0	98.0	2.38
Hard-rock gravel quarrying	0	8.29×10^{-3}	0	2.70	2.07	0	0.55
Hazardous, industrial or group A waste generation or storage	0	2.38×10^{-6}	0	3.40×10^{-4}	2.01×10^{-4}	0	1.48×10^{-6}
Hazardous, industrial, group A or group B waste disposal	0	0	0	0	0	0	1.28×10^{-6}
Inert waste landfilling	2.73×10^{-4}	0	0	8.23×10^{-3}	5.07×10^{-3}	0	0.10
Landfilling in designated areas	1.64×10^{-5}	0	0	2.21×10^{-3}	1.36×10^{-3}	0	9.67×10^{-4}
Mining (other than coal)	0	5.98×10^{-4}	0	0.73	0.46	0	9.46×10^{-6}

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – Industrial

NSW Activity Type	Substance						
	CARBON MONOXIDE	LEAD AND COMPOUNDS	OXIDES OF NITROGEN	PARTICULATE MATTER < 10 µm	PARTICULATE MATTER < 2.5 µm	SULFUR DIOXIDE	TOTAL VOCS
Mooring and boat storage	0	0	0	0	0	0	1.03×10^{-3}
Other agricultural crop processing	2.09×10^{-3}	5.25×10^{-5}	2.17×10^{-3}	8.49×10^{-3}	8.46×10^{-3}	7.37×10^{-6}	1.02×10^{-3}
Other chemical processing	6.18×10^{-4}	0	2.04×10^{-3}	1.07×10^{-3}	3.26×10^{-3}	4.32×10^{-5}	3.08×10^{-3}
Other Chemical Storage	0	0	0	0	0	0	0.20
Other land-based extraction	1.89×10^{-3}	3.06×10^{-3}	7.72×10^{-3}	3.17	2.09	3.31×10^{-4}	0.19
Other livestock processing	2.29×10^{-3}	5.77×10^{-5}	2.40×10^{-3}	6.86×10^{-4}	2.10×10^{-3}	8.16×10^{-6}	1.86×10^{-3}
Other vessel construction or maintenance	0	0	0	0	0	0	3.33×10^{-3}
Poultry production	2.27×10^{-5}	0	1.45×10^{-4}	0.13	0.09	4.86×10^{-10}	2.09×10^{-5}
Primary aluminium production	8.00	1.61×10^{-4}	0.03	0.58	1.29	1.24	0.01
Primary iron and steel production	0	0	0	0	0	0	0
Primary non-ferrous production (excluding aluminium)	0	0	0	0	0	0	0
Railway activities	0	0	0	0	0	0	0
Rendering or fat extraction	2.79×10^{-3}	7.06×10^{-5}	2.92×10^{-3}	8.36×10^{-4}	2.56×10^{-3}	1.68×10^{-5}	4.29×10^{-3}
Secondary aluminium production	0.02	1.66×10^{-3}	5.85×10^{-3}	0.02	0.08	1.10×10^{-4}	1.08×10^{-3}
Sewage Treatment - processing by large plants	2.71×10^{-3}	1.58×10^{-6}	2.80×10^{-4}	2.17×10^{-4}	6.65×10^{-4}	1.47×10^{-6}	8.92×10^{-3}
Sewage Treatment - processing by small plants	0.13	4.41×10^{-5}	0.01	9.93×10^{-3}	0.03	6.56×10^{-5}	0.12
Solid waste landfilling	3.71×10^{-3}	5.21×10^{-6}	0	0.82	0.50	0	0.43
Waste oil recovery	1.52×10^{-3}	1.61×10^{-3}	5.41×10^{-3}	5.21×10^{-4}	1.58×10^{-3}	5.71×10^{-3}	9.08×10^{-4}
Wood or timber milling	0	0	0	0	0	0	2.95×10^{-6}
Industrial Total	16.2	7.47	86.5	69.5	45.4	99.4	4.73

3.5 Off-Road Mobile

3.5.1 Emission Source Description

The off-road mobile air emissions inventory includes emissions from the following sources:

- Aircraft
 - ◆ aircraft, 4-stroke petrol and diesel ground support equipment and auxiliary power units, engine testing and fuel storage and transfer
- Commercial boats
 - ◆ 2-stroke and 4-stroke petrol and diesel
- Commercial off-road vehicles and equipment
 - ◆ 4-stroke petrol, diesel and LPG engines and wheel generated dust
- Commercial ships
 - ◆ ships and diesel auxiliary power units
- Construction off-road vehicles and equipment
 - ◆ 2-stroke and 4-stroke petrol, CNG, diesel and LPG
- Industrial off-road vehicles and equipment
 - ◆ 4-stroke petrol, CNG, diesel, LNG and LPG engines and wheel generated dust
- Loading and unloading petroleum products
 - ◆ crude oil, diesel, jet fuel, kerosene and petrol
- Railways
- Recreational boats
 - ◆ 2-stroke and 4-stroke petrol and diesel

Refer to DECC (2007e) for further information regarding the source types included in the off-road air emissions inventory and the emission estimation methodology.

3.5.2 Annual Emission Estimates

Table 3.81 shows total estimated annual emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.81 Total estimated annual emissions from off-road mobile sources in each region

Substance	Off-Road Mobile Annual Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	20,251	1,452	793	9,649	32,144
LEAD AND COMPOUNDS	13.325	1.441	1.890	38.260	54.917
OXIDES OF NITROGEN	9,514	2,950	914	10,092	23,470
PARTICULATE MATTER < 10 µm	3,707	469	508	9,883	14,566
PARTICULATE MATTER < 2.5 µm	1,761	253	228	4,244	6,486
SULFUR DIOXIDE	1,374	1,264	250	1,281	4,170
TOTAL VOCS	4,772	312	232	2,323	7,640

Table 3.82 shows the proportion of total estimated annual anthropogenic emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.82 Proportion of total estimated annual emissions from off-road mobile sources in each region

Substance	Off-Road Mobile Proportion of Anthropogenic Total Annual Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.84	1.67	0.15	7.63	2.50
LEAD AND COMPOUNDS	45.9	59.9	29.1	89.0	67.9
OXIDES OF NITROGEN	10.3	29.9	7.43	5.70	8.04
PARTICULATE MATTER < 10 µm	17.4	15.9	16.7	20.7	19.4
PARTICULATE MATTER < 2.5 µm	13.4	15.0	10.4	31.5	21.3
SULFUR DIOXIDE	9.98	11.8	2.36	0.48	1.38
TOTAL VOCS	3.65	3.21	3.59	9.66	4.47

Figure 3.21 shows the proportion of total estimated annual GMR off-road mobile emissions from all off-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

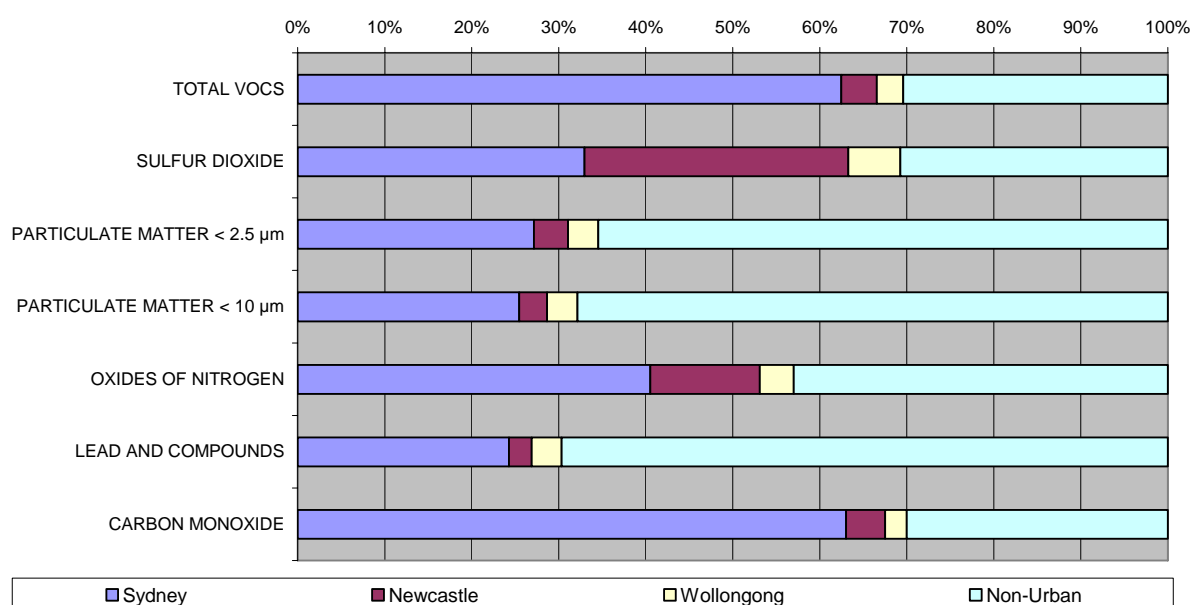


Figure 3.21 Proportion of total estimated annual emissions from off-road mobile sources in each region

Table 3.83 shows total estimated annual emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.84 shows the proportion of total estimated annual anthropogenic emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.83 Total estimated annual emissions by off-road mobile source type in each region

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Annual Emissions (tonnes/year) - GMR										
CARBON MONOXIDE	10,489	5,589	1,206	1,047	755	2,999	0	425	9,633	32,144
LEAD AND COMPOUNDS	0.324	3.26×10^{-3}	4.216	3.97×10^{-3}	2.37×10^{-3}	50.364	0	2.36×10^{-3}	1.70×10^{-4}	54.917
OXIDES OF NITROGEN	3,267	2,478	1,008	6,176	218	6,800	0	3,350	172	23,470
PARTICULATE MATTER < 10 µm	92.498	167	1,159	213	17.093	12,584	0	99.774	233	14,566
PARTICULATE MATTER < 2.5 µm	85.786	155	528	204	16.453	5,191	0	90.136	214	6,486
SULFUR DIOXIDE	240	59.753	31.615	3,148	6.680	195	0	468	21.414	4,170
TOTAL VOCS	666	1,044	151	230	70.763	579	1,129	144	3,626	7,640
Annual Emissions (tonnes/year) - Sydney										
CARBON MONOXIDE	9,979	1,924	526	272	591	666	0	204	6,088	20,251
LEAD AND COMPOUNDS	0.301	1.12×10^{-3}	1.838	1.03×10^{-3}	1.86×10^{-3}	11.181	0	1.13×10^{-3}	1.07×10^{-4}	13.325
OXIDES OF NITROGEN	3,218	853	440	1,606	171	1,510	0	1,608	109	9,514
PARTICULATE MATTER < 10 µm	86.238	57.586	505	55.485	13.384	2,794	0	47.891	147	3,707
PARTICULATE MATTER < 2.5 µm	80.002	53.447	230	53.085	12.883	1,152	0	43.265	135	1,761
SULFUR DIOXIDE	235	20.568	13.784	818	5.230	43.233	0	225	13.535	1,374
TOTAL VOCS	621	359	65.878	59.774	55.407	128	1,121	69.116	2,292	4,772
Annual Emissions (tonnes/year) - Newcastle										
CARBON MONOXIDE	318	235	62.730	408	43.812	71.977	0	21.259	290	1,452
LEAD AND COMPOUNDS	0.011	1.37×10^{-4}	0.219	1.55×10^{-3}	1.38×10^{-4}	1.209	0	1.18×10^{-4}	5.12×10^{-6}	1.441
OXIDES OF NITROGEN	36.198	104	52.418	2,409	12.665	163	0	168	5.167	2,950
PARTICULATE MATTER < 10 µm	2.980	7.038	60.248	83.227	0.991	302	0	4.989	7.003	469
PARTICULATE MATTER < 2.5 µm	2.760	6.532	27.479	79.627	0.954	125	0	4.507	6.447	253
SULFUR DIOXIDE	3.639	2.514	1.644	1,228	0.387	4.674	0	23.413	0.645	1,264
TOTAL VOCS	36.536	43.927	7.857	89.660	4.104	13.884	0	7.200	109	312

Criteria Pollutant Emissions for all Sectors
 3. Data Sources and Results – Off-Road Mobile

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Annual Emissions (tonnes/year) - Wollongong										
CARBON MONOXIDE	7.773	156	21.714	73.295	15.863	108	0	17.432	393	793
LEAD AND COMPOUNDS	3.63×10^{-4}	9.07×10^{-5}	0.076	2.78×10^{-4}	4.98×10^{-5}	1.813	0	9.69×10^{-5}	6.94×10^{-6}	1.890
OXIDES OF NITROGEN	0.562	69.024	18.145	432	4.585	245	0	137	7.001	914
PARTICULATE MATTER < 10 µm	0.151	4.660	20.855	14.938	0.359	453	0	4.091	9.488	508
PARTICULATE MATTER < 2.5 µm	0.139	4.325	9.512	14.292	0.346	187	0	3.696	8.735	228
SULFUR DIOXIDE	0.044	1.664	0.569	220	0.140	7.011	0	19.198	0.873	250
TOTAL VOCS	0.408	29.086	2.720	16.093	1.486	20.827	7.713	5.904	148	232
Annual Emissions (tonnes/year) - Non-Urban										
CARBON MONOXIDE	184	3,274	596	293	104	2,153	0	182	2,862	9,649
LEAD AND COMPOUNDS	0.012	1.91×10^{-3}	2.083	1.11×10^{-3}	3.27×10^{-4}	36.161	0	1.01×10^{-3}	5.05×10^{-5}	38.260
OXIDES OF NITROGEN	12.263	1,452	498	1,729	30.133	4,882	0	1,437	51.007	10,092
PARTICULATE MATTER < 10 µm	3.129	98.009	572	59.753	2.359	9,036	0	42.803	69.130	9,883
PARTICULATE MATTER < 2.5 µm	2.885	90.966	261	57.168	2.271	3,727	0	38.668	63.638	4,244
SULFUR DIOXIDE	1.217	35.007	15.618	881	0.922	140	0	201	6.362	1,281
TOTAL VOCS	8.519	612	74.642	64.372	9.765	415	0	61.772	1,077	2,323

Table 3.84 Proportion of total estimated annual emissions by off-road mobile source type in each region

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total Annual Emissions (%) - GMR										
CARBON MONOXIDE	0.82	0.43	0.09	0.08	0.06	0.23	0	0.03	0.75	2.50
LEAD AND COMPOUNDS	0.40	4.02×10^{-3}	5.21	4.90×10^{-3}	2.93×10^{-3}	62.2	0	2.92×10^{-3}	2.10×10^{-4}	67.9
OXIDES OF NITROGEN	1.12	0.85	0.35	2.11	0.07	2.33	0	1.15	0.06	8.04
PARTICULATE MATTER < 10 µm	0.12	0.22	1.54	0.28	0.02	16.8	0	0.13	0.31	19.4
PARTICULATE MATTER < 2.5 µm	0.28	0.51	1.73	0.67	0.05	17.0	0	0.30	0.70	21.3
SULFUR DIOXIDE	0.08	0.02	0.01	1.04	2.21×10^{-3}	0.06	0	0.16	7.09×10^{-3}	1.38
TOTAL VOCS	0.39	0.61	0.09	0.13	0.04	0.34	0.66	0.08	2.12	4.47
Proportion of Anthropogenic Total Annual Emissions (%) - Sydney										
CARBON MONOXIDE	1.89	0.36	0.10	0.05	0.11	0.13	0	0.04	1.15	3.84
LEAD AND COMPOUNDS	1.04	3.86×10^{-3}	6.33	3.55×10^{-3}	6.39×10^{-3}	38.5	0	3.91×10^{-3}	3.70×10^{-4}	45.9
OXIDES OF NITROGEN	3.47	0.92	0.47	1.73	0.18	1.63	0	1.73	0.12	10.3
PARTICULATE MATTER < 10 µm	0.40	0.27	2.37	0.26	0.06	13.1	0	0.22	0.69	17.4
PARTICULATE MATTER < 2.5 µm	0.61	0.41	1.76	0.40	0.10	8.78	0	0.33	1.03	13.4
SULFUR DIOXIDE	1.71	0.15	0.10	5.95	0.04	0.31	0	1.63	0.10	9.98
TOTAL VOCS	0.47	0.27	0.05	0.05	0.04	0.10	0.86	0.05	1.75	3.65
Proportion of Anthropogenic Total Annual Emissions (%) - Newcastle										
CARBON MONOXIDE	0.37	0.27	0.07	0.47	0.05	0.08	0	0.02	0.33	1.67
LEAD AND COMPOUNDS	0.47	5.70×10^{-3}	9.12	0.06	5.72×10^{-3}	50.3	0	4.91×10^{-3}	2.13×10^{-4}	59.9
OXIDES OF NITROGEN	0.37	1.06	0.53	24.4	0.13	1.65	0	1.70	0.05	29.9
PARTICULATE MATTER < 10 µm	0.10	0.24	2.04	2.82	0.03	10.2	0	0.17	0.24	15.9
PARTICULATE MATTER < 2.5 µm	0.16	0.39	1.63	4.72	0.06	7.39	0	0.27	0.38	15.0
SULFUR DIOXIDE	0.03	0.02	0.02	11.5	3.63×10^{-3}	0.04	0	0.22	6.04×10^{-3}	11.8
TOTAL VOCS	0.38	0.45	0.08	0.92	0.04	0.14	0	0.07	1.12	3.21

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total Annual Emissions (%) - Wollongong										
CARBON MONOXIDE	1.42×10^{-3}	0.03	3.98×10^{-3}	0.01	2.91×10^{-3}	0.02	0	3.20×10^{-3}	0.07	0.15
LEAD AND COMPOUNDS	5.59×10^{-3}	1.40×10^{-3}	1.17	4.28×10^{-3}	7.66×10^{-4}	27.9	0	1.49×10^{-3}	1.07×10^{-4}	29.1
OXIDES OF NITROGEN	4.57×10^{-3}	0.56	0.15	3.52	0.04	1.99	0	1.12	0.06	7.43
PARTICULATE MATTER < 10 μm	4.96×10^{-3}	0.15	0.69	0.49	0.01	14.9	0	0.13	0.31	16.7
PARTICULATE MATTER < 2.5 μm	6.32×10^{-3}	0.20	0.43	0.65	0.02	8.52	0	0.17	0.40	10.4
SULFUR DIOXIDE	4.12×10^{-4}	0.02	5.37×10^{-3}	2.08	1.32×10^{-3}	0.07	0	0.18	8.23×10^{-3}	2.36
TOTAL VOCS	6.31×10^{-3}	0.45	0.04	0.25	0.02	0.32	0.12	0.09	2.29	3.59
Proportion of Anthropogenic Total Annual Emissions (%) – Non-Urban										
CARBON MONOXIDE	0.15	2.59	0.47	0.23	0.08	1.70	0	0.14	2.26	7.63
LEAD AND COMPOUNDS	0.03	4.44×10^{-3}	4.85	2.59×10^{-3}	7.61×10^{-4}	84.1	0	2.36×10^{-3}	1.18×10^{-4}	89.0
OXIDES OF NITROGEN	6.92×10^{-3}	0.82	0.28	0.98	0.02	2.76	0	0.81	0.03	5.70
PARTICULATE MATTER < 10 μm	6.54×10^{-3}	0.20	1.20	0.12	4.93×10^{-3}	18.9	0	0.09	0.14	20.7
PARTICULATE MATTER < 2.5 μm	0.02	0.67	1.93	0.42	0.02	27.6	0	0.29	0.47	31.5
SULFUR DIOXIDE	4.56×10^{-4}	0.01	5.85×10^{-3}	0.33	3.45×10^{-4}	0.05	0	0.08	2.38×10^{-3}	0.48
TOTAL VOCS	0.04	2.54	0.31	0.27	0.04	1.73	0	0.26	4.48	9.66

3.5.3 Daily Emission Estimates

Table 3.85 shows total estimated daily emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.85 Total estimated daily emissions from off-road mobile sources in each region for typical January weekday

Substance	Off-Road Mobile January Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	45.946	3.441	1.555	21.206	72.147
LEAD AND COMPOUNDS	0.030	3.22×10^{-3}	4.15×10^{-3}	0.084	0.121
OXIDES OF NITROGEN	24.209	7.493	2.250	24.214	58.166
PARTICULATE MATTER < 10 µm	8.253	1.075	1.116	21.781	32.225
PARTICULATE MATTER < 2.5 µm	3.921	0.593	0.503	9.381	14.397
SULFUR DIOXIDE	3.506	3.225	0.634	3.217	10.582
TOTAL VOCS	9.406	0.677	0.413	4.625	15.120

Table 3.86 shows the proportion of total estimated daily anthropogenic emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.86 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical January weekday

Substance	Off-Road Mobile Proportion of Anthropogenic Total January Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	4.55	1.71	0.11	7.99	2.47
LEAD AND COMPOUNDS	43.0	57.3	25.2	87.4	64.6
OXIDES OF NITROGEN	10.2	29.6	6.97	5.11	7.57
PARTICULATE MATTER < 10 µm	19.0	15.3	15.3	18.2	18.2
PARTICULATE MATTER < 2.5 µm	17.1	16.5	9.73	29.4	22.7
SULFUR DIOXIDE	9.67	11.3	2.23	0.44	1.30
TOTAL VOCS	3.06	2.97	2.71	8.17	3.76

Figure 3.22 shows the proportion of total estimated daily GMR off-road mobile emissions from all off-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

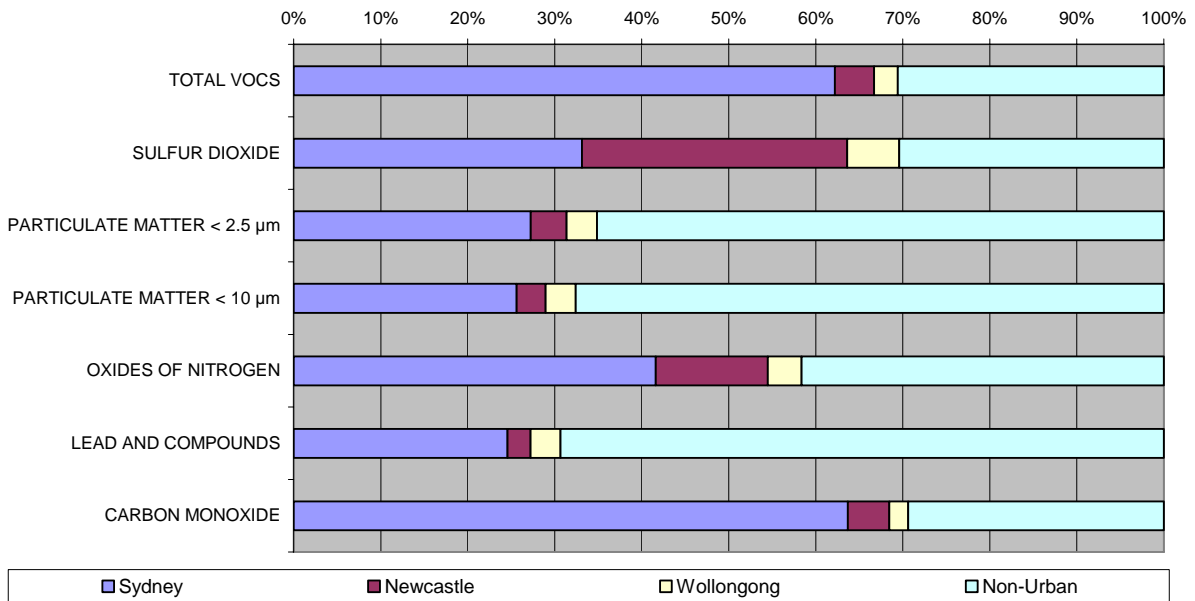


Figure 3.22 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical January weekday

Table 3.87 shows total estimated daily emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.88 shows the proportion of total estimated daily anthropogenic emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.87 Total estimated daily emissions by off-road mobile source type in each region for typical January weekday

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
January Weekday Emissions (tonnes/day) - GMR										
CARBON MONOXIDE	27.906	15.595	3.029	2.672	2.357	6.539	0	1.082	12.967	72.147
LEAD AND COMPOUNDS	8.63×10^{-4}	9.09×10^{-6}	0.011	1.01×10^{-5}	7.40×10^{-6}	0.110	0	6.02×10^{-6}	2.29×10^{-7}	0.121
OXIDES OF NITROGEN	8.693	6.914	2.531	15.759	0.681	14.826	0	8.530	0.231	58.166
PARTICULATE MATTER < 10 µm	0.246	0.467	2.909	0.545	0.053	27.438	0	0.254	0.313	32.225
PARTICULATE MATTER < 2.5 µm	0.228	0.433	1.327	0.521	0.051	11.319	0	0.229	0.288	14.397
SULFUR DIOXIDE	0.637	0.167	0.079	8.032	0.021	0.425	0	1.192	0.029	10.582
TOTAL VOCS	1.772	2.914	0.379	0.587	0.221	1.261	2.738	0.367	4.881	15.120
January Weekday Emissions (tonnes/day) - Sydney										
CARBON MONOXIDE	26.550	5.368	1.321	0.695	1.845	1.452	0	0.520	8.195	45.946
LEAD AND COMPOUNDS	8.01×10^{-4}	3.13×10^{-6}	4.62×10^{-3}	2.63×10^{-6}	5.79×10^{-6}	0.024	0	2.89×10^{-6}	1.45×10^{-7}	0.030
OXIDES OF NITROGEN	8.562	2.380	1.104	4.097	0.533	3.291	0	4.094	0.146	24.209
PARTICULATE MATTER < 10 µm	0.229	0.161	1.268	0.142	0.042	6.091	0	0.122	0.198	8.253
PARTICULATE MATTER < 2.5 µm	0.213	0.149	0.579	0.135	0.040	2.513	0	0.110	0.182	3.921
SULFUR DIOXIDE	0.624	0.057	0.035	2.088	0.016	0.094	0	0.572	0.018	3.506
TOTAL VOCS	1.652	1.003	0.165	0.153	0.173	0.280	2.720	0.176	3.085	9.406
January Weekday Emissions (tonnes/day) - Newcastle										
CARBON MONOXIDE	0.847	0.656	0.158	1.042	0.137	0.157	0	0.054	0.390	3.441
LEAD AND COMPOUNDS	2.99×10^{-5}	3.82×10^{-7}	5.51×10^{-4}	3.95×10^{-6}	4.29×10^{-7}	2.64×10^{-3}	0	3.01×10^{-7}	6.89×10^{-9}	3.22×10^{-3}
OXIDES OF NITROGEN	0.096	0.291	0.132	6.146	0.040	0.356	0	0.426	6.96×10^{-3}	7.493
PARTICULATE MATTER < 10 µm	7.93×10^{-3}	0.020	0.151	0.212	3.09×10^{-3}	0.659	0	0.013	9.43×10^{-3}	1.075
PARTICULATE MATTER < 2.5 µm	7.34×10^{-3}	0.018	0.069	0.203	2.98×10^{-3}	0.272	0	0.011	8.68×10^{-3}	0.593
SULFUR DIOXIDE	9.68×10^{-3}	7.01×10^{-3}	4.13×10^{-3}	3.132	1.21×10^{-3}	0.010	0	0.060	8.68×10^{-4}	3.225
TOTAL VOCS	0.097	0.123	0.020	0.229	0.013	0.030	0	0.018	0.147	0.677

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
January Weekday Emissions (tonnes/day) - Wollongong										
CARBON MONOXIDE	0.021	0.434	0.055	0.187	0.049	0.235	0	0.044	0.529	1.555
LEAD AND COMPOUNDS	9.66×10^{-7}	2.53×10^{-7}	1.91×10^{-4}	7.09×10^{-7}	1.55×10^{-7}	3.95×10^{-3}	0	2.47×10^{-7}	9.34×10^{-9}	4.15×10^{-3}
OXIDES OF NITROGEN	1.50×10^{-3}	0.193	0.046	1.103	0.014	0.534	0	0.350	9.42×10^{-3}	2.250
PARTICULATE MATTER < 10 µm	4.01×10^{-4}	0.013	0.052	0.038	1.12×10^{-3}	0.988	0	0.010	0.013	1.116
PARTICULATE MATTER < 2.5 µm	3.69×10^{-4}	0.012	0.024	0.036	1.08×10^{-3}	0.407	0	9.41×10^{-3}	0.012	0.503
SULFUR DIOXIDE	1.16×10^{-4}	4.64×10^{-3}	1.43×10^{-3}	0.562	4.38×10^{-4}	0.015	0	0.049	1.18×10^{-3}	0.634
TOTAL VOCS	1.08×10^{-3}	0.081	6.83×10^{-3}	0.041	4.64×10^{-3}	0.045	0.019	0.015	0.199	0.413
January Weekday Emissions (tonnes/day) – Non-Urban										
CARBON MONOXIDE	0.488	9.136	1.496	0.748	0.325	4.695	0	0.464	3.852	21.206
LEAD AND COMPOUNDS	3.19×10^{-5}	5.32×10^{-6}	5.23×10^{-3}	2.84×10^{-6}	1.02×10^{-6}	0.079	0	2.58×10^{-6}	6.80×10^{-8}	0.084
OXIDES OF NITROGEN	0.033	4.051	1.250	4.412	0.094	10.645	0	3.659	0.069	24.214
PARTICULATE MATTER < 10 µm	8.33×10^{-3}	0.273	1.437	0.152	7.36×10^{-3}	19.701	0	0.109	0.093	21.781
PARTICULATE MATTER < 2.5 µm	7.68×10^{-3}	0.254	0.655	0.146	7.08×10^{-3}	8.127	0	0.098	0.086	9.381
SULFUR DIOXIDE	3.24×10^{-3}	0.098	0.039	2.249	2.88×10^{-3}	0.305	0	0.511	8.56×10^{-3}	3.217
TOTAL VOCS	0.023	1.707	0.187	0.164	0.030	0.906	0	0.157	1.450	4.625

Table 3.88 Proportion of total estimated daily emissions by off-road mobile source type in each region for typical January weekday

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total January Weekday Emissions (%) - GMR										
CARBON MONOXIDE	0.95	0.53	0.10	0.09	0.08	0.22	0	0.04	0.44	2.47
LEAD AND COMPOUNDS	0.46	4.84×10^{-3}	5.64	5.40×10^{-3}	3.94×10^{-3}	58.5	0	3.21×10^{-3}	1.22×10^{-4}	64.6
OXIDES OF NITROGEN	1.13	0.90	0.33	2.05	0.09	1.93	0	1.11	0.03	7.57
PARTICULATE MATTER < 10 µm	0.14	0.26	1.64	0.31	0.03	15.5	0	0.14	0.18	18.2
PARTICULATE MATTER < 2.5 µm	0.36	0.68	2.09	0.82	0.08	17.8	0	0.36	0.45	22.7
SULFUR DIOXIDE	0.08	0.02	9.72×10^{-3}	0.98	2.55×10^{-3}	0.05	0	0.15	3.53×10^{-3}	1.30
TOTAL VOCS	0.44	0.72	0.09	0.15	0.05	0.31	0.68	0.09	1.21	3.76
Proportion of Anthropogenic Total January Weekday Emissions (%) - Sydney										
CARBON MONOXIDE	2.63	0.53	0.13	0.07	0.18	0.14	0	0.05	0.81	4.55
LEAD AND COMPOUNDS	1.15	4.51×10^{-3}	6.66	3.80×10^{-3}	8.35×10^{-3}	35.2	0	4.17×10^{-3}	2.09×10^{-4}	43.0
OXIDES OF NITROGEN	3.62	1.01	0.47	1.73	0.23	1.39	0	1.73	0.06	10.2
PARTICULATE MATTER < 10 µm	0.53	0.37	2.92	0.33	0.10	14.0	0	0.28	0.46	19.0
PARTICULATE MATTER < 2.5 µm	0.93	0.65	2.53	0.59	0.18	11.0	0	0.48	0.80	17.1
SULFUR DIOXIDE	1.72	0.16	0.10	5.76	0.04	0.26	0	1.58	0.05	9.67
TOTAL VOCS	0.54	0.33	0.05	0.05	0.06	0.09	0.88	0.06	1.00	3.06
Proportion of Anthropogenic Total January Weekday Emissions (%) - Newcastle										
CARBON MONOXIDE	0.42	0.33	0.08	0.52	0.07	0.08	0	0.03	0.19	1.71
LEAD AND COMPOUNDS	0.53	6.80×10^{-3}	9.79	0.07	7.63×10^{-3}	46.9	0	5.35×10^{-3}	1.23×10^{-4}	57.3
OXIDES OF NITROGEN	0.38	1.15	0.52	24.3	0.16	1.41	0	1.68	0.03	29.6
PARTICULATE MATTER < 10 µm	0.11	0.28	2.16	3.03	0.04	9.39	0	0.18	0.13	15.3
PARTICULATE MATTER < 2.5 µm	0.20	0.51	1.92	5.66	0.08	7.57	0	0.32	0.24	16.5
SULFUR DIOXIDE	0.03	0.02	0.01	10.9	4.22×10^{-3}	0.04	0	0.21	3.03×10^{-3}	11.3
TOTAL VOCS	0.43	0.54	0.09	1.00	0.06	0.13	0	0.08	0.64	2.97

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total January Weekday Emissions (%) - Wollongong										
CARBON MONOXIDE	1.43×10^{-3}	0.03	3.77×10^{-3}	0.01	3.42×10^{-3}	0.02	0	3.07×10^{-3}	0.04	0.11
LEAD AND COMPOUNDS	5.88×10^{-3}	1.54×10^{-3}	1.16	4.32×10^{-3}	9.46×10^{-4}	24.1	0	1.50×10^{-3}	5.68×10^{-5}	25.2
OXIDES OF NITROGEN	4.63×10^{-3}	0.60	0.14	3.42	0.04	1.65	0	1.08	0.03	6.97
PARTICULATE MATTER < 10 μm	5.51×10^{-3}	0.18	0.72	0.52	0.02	13.6	0	0.14	0.18	15.3
PARTICULATE MATTER < 2.5 μm	7.14×10^{-3}	0.23	0.46	0.71	0.02	7.89	0	0.18	0.23	9.73
SULFUR DIOXIDE	4.09×10^{-4}	0.02	5.02×10^{-3}	1.98	1.54×10^{-3}	0.05	0	0.17	4.13×10^{-3}	2.23
TOTAL VOCS	7.12×10^{-3}	0.53	0.04	0.27	0.03	0.30	0.12	0.10	1.31	2.71
Proportion of Anthropogenic Total January Weekday Emissions (%) – Non-Urban										
CARBON MONOXIDE	0.18	3.44	0.56	0.28	0.12	1.77	0	0.17	1.45	7.99
LEAD AND COMPOUNDS	0.03	5.53×10^{-3}	5.43	2.95×10^{-3}	1.06×10^{-3}	81.9	0	2.68×10^{-3}	7.06×10^{-5}	87.4
OXIDES OF NITROGEN	6.88×10^{-3}	0.85	0.26	0.93	0.02	2.25	0	0.77	0.01	5.11
PARTICULATE MATTER < 10 μm	6.97×10^{-3}	0.23	1.20	0.13	6.16×10^{-3}	16.5	0	0.09	0.08	18.2
PARTICULATE MATTER < 2.5 μm	0.02	0.80	2.06	0.46	0.02	25.5	0	0.31	0.27	29.4
SULFUR DIOXIDE	4.48×10^{-4}	0.01	5.42×10^{-3}	0.31	3.98×10^{-4}	0.04	0	0.07	1.18×10^{-3}	0.44
TOTAL VOCS	0.04	3.01	0.33	0.29	0.05	1.60	0	0.28	2.56	8.17

Table 3.89 shows total estimated daily emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.89 Total estimated daily emissions from off-road mobile sources in each region for typical January weekend day

Substance	Off-Road Mobile January Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	102	6.151	5.212	46.916	160
LEAD AND COMPOUNDS	0.025	2.67×10^{-3}	3.23×10^{-3}	0.066	0.097
OXIDES OF NITROGEN	25.664	8.029	2.371	23.538	59.602
PARTICULATE MATTER < 10 µm	8.383	1.022	0.983	17.972	28.359
PARTICULATE MATTER < 2.5 µm	4.698	0.614	0.496	8.163	13.972
SULFUR DIOXIDE	3.931	3.479	0.696	3.533	11.639
TOTAL VOCS	29.550	1.715	1.797	14.598	47.660

Table 3.90 shows the proportion of total estimated daily anthropogenic emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.90 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical January weekend day

Substance	Off-Road Mobile Proportion of Anthropogenic Total January Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	8.97	3.00	0.36	15.6	5.17
LEAD AND COMPOUNDS	41.2	57.9	21.0	85.4	61.5
OXIDES OF NITROGEN	11.8	34.0	7.55	5.03	8.06
PARTICULATE MATTER < 10 µm	20.1	17.4	13.8	16.2	17.2
PARTICULATE MATTER < 2.5 µm	20.1	18.4	9.57	27.5	22.7
SULFUR DIOXIDE	10.8	12.2	2.44	0.49	1.43
TOTAL VOCS	9.35	7.55	11.1	23.3	11.4

Figure 3.23 shows the proportion of total estimated daily GMR off-road mobile emissions from all off-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

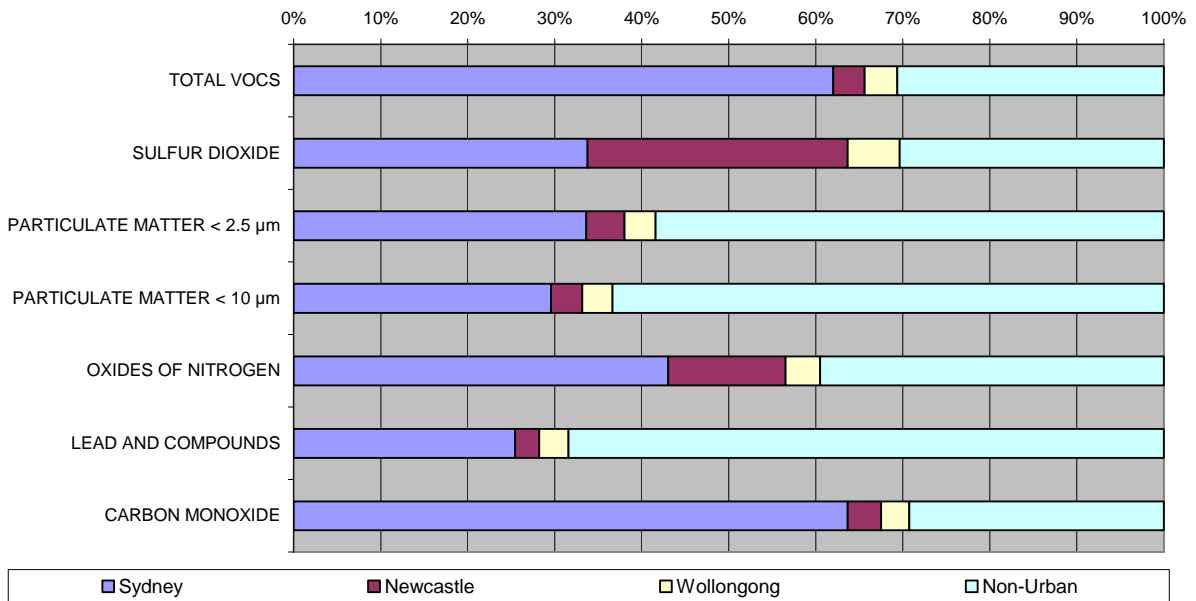


Figure 3.23 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical January weekend day

Table 3.91 shows total estimated daily emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.92 shows the proportion of total estimated daily anthropogenic emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.91 Total estimated daily emissions by off-road mobile source type in each region for typical January weekend day

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
January Weekend Day Emissions (tonnes/day) - GMR										
CARBON MONOXIDE	27.327	14.603	3.418	2.869	1.349	4.987	0	1.431	104	160
LEAD AND COMPOUNDS	8.45×10^{-4}	8.51×10^{-6}	0.012	1.09×10^{-5}	4.23×10^{-6}	0.084	0	7.96×10^{-6}	1.84×10^{-6}	0.097
OXIDES OF NITROGEN	8.512	6.474	2.856	16.923	0.390	11.307	0	11.279	1.860	59.602
PARTICULATE MATTER < 10 µm	0.241	0.437	3.283	0.585	0.031	20.926	0	0.336	2.521	28.359
PARTICULATE MATTER < 2.5 µm	0.223	0.406	1.497	0.559	0.029	8.632	0	0.303	2.321	13.972
SULFUR DIOXIDE	0.624	0.156	0.090	8.625	0.012	0.324	0	1.576	0.232	11.639
TOTAL VOCS	1.736	2.728	0.428	0.630	0.126	0.962	1.273	0.485	39.292	47.660
January Weekend Day Emissions (tonnes/day) - Sydney										
CARBON MONOXIDE	25.999	5.027	1.490	0.746	1.056	1.107	0	0.687	65.973	102
LEAD AND COMPOUNDS	7.84×10^{-4}	2.93×10^{-6}	5.21×10^{-3}	2.83×10^{-6}	3.31×10^{-6}	0.019	0	3.82×10^{-6}	1.16×10^{-6}	0.025
OXIDES OF NITROGEN	8.385	2.229	1.245	4.400	0.305	2.510	0	5.414	1.176	25.664
PARTICULATE MATTER < 10 µm	0.225	0.150	1.431	0.152	0.024	4.646	0	0.161	1.594	8.383
PARTICULATE MATTER < 2.5 µm	0.208	0.140	0.653	0.145	0.023	1.916	0	0.146	1.467	4.698
SULFUR DIOXIDE	0.611	0.054	0.039	2.242	9.34×10^{-3}	0.072	0	0.757	0.147	3.931
TOTAL VOCS	1.617	0.939	0.187	0.164	0.099	0.214	1.264	0.233	24.834	29.550
January Weekend Day Emissions (tonnes/day) - Newcastle										
CARBON MONOXIDE	0.829	0.614	0.178	1.119	0.078	0.120	0	0.072	3.142	6.151
LEAD AND COMPOUNDS	2.92×10^{-5}	3.58×10^{-7}	6.21×10^{-4}	4.24×10^{-6}	2.46×10^{-7}	2.01×10^{-3}	0	3.98×10^{-7}	5.55×10^{-8}	2.67×10^{-3}
OXIDES OF NITROGEN	0.094	0.272	0.149	6.600	0.023	0.271	0	0.564	0.056	8.029
PARTICULATE MATTER < 10 µm	7.76×10^{-3}	0.018	0.171	0.228	1.77×10^{-3}	0.502	0	0.017	0.076	1.022
PARTICULATE MATTER < 2.5 µm	7.19×10^{-3}	0.017	0.078	0.218	1.70×10^{-3}	0.207	0	0.015	0.070	0.614
SULFUR DIOXIDE	9.48×10^{-3}	6.57×10^{-3}	4.66×10^{-3}	3.364	6.92×10^{-4}	7.77×10^{-3}	0	0.079	6.98×10^{-3}	3.479
TOTAL VOCS	0.095	0.115	0.022	0.246	7.33×10^{-3}	0.023	0	0.024	1.183	1.715

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
January Weekend Day Emissions (tonnes/day) – Wollongong										
CARBON MONOXIDE	0.020	0.407	0.062	0.201	0.028	0.180	0	0.059	4.256	5.212
LEAD AND COMPOUNDS	9.46×10^{-7}	2.37×10^{-7}	2.15×10^{-4}	7.61×10^{-7}	8.89×10^{-8}	3.01×10^{-3}	0	3.26×10^{-7}	7.51×10^{-8}	3.23×10^{-3}
OXIDES OF NITROGEN	1.47×10^{-3}	0.180	0.051	1.185	8.19×10^{-3}	0.407	0	0.462	0.076	2.371
PARTICULATE MATTER < 10 µm	3.92×10^{-4}	0.012	0.059	0.041	6.41×10^{-4}	0.753	0	0.014	0.103	0.983
PARTICULATE MATTER < 2.5 µm	3.61×10^{-4}	0.011	0.027	0.039	6.17×10^{-4}	0.311	0	0.012	0.095	0.496
SULFUR DIOXIDE	1.14×10^{-4}	4.35×10^{-3}	1.61×10^{-3}	0.604	2.50×10^{-4}	0.012	0	0.065	9.46×10^{-3}	0.696
TOTAL VOCS	1.06×10^{-3}	0.076	7.71×10^{-3}	0.044	2.65×10^{-3}	0.035	8.70×10^{-3}	0.020	1.602	1.797
January Weekend Day Emissions (tonnes/day) – Non-Urban										
CARBON MONOXIDE	0.478	8.555	1.689	0.803	0.186	3.581	0	0.614	31.010	46.916
LEAD AND COMPOUNDS	3.13×10^{-5}	4.99×10^{-6}	5.90×10^{-3}	3.05×10^{-6}	5.84×10^{-7}	0.060	0	3.41×10^{-6}	5.48×10^{-7}	0.066
OXIDES OF NITROGEN	0.032	3.793	1.411	4.738	0.054	8.119	0	4.839	0.553	23.538
PARTICULATE MATTER < 10 µm	8.15×10^{-3}	0.256	1.622	0.164	4.21×10^{-3}	15.025	0	0.144	0.749	17.972
PARTICULATE MATTER < 2.5 µm	7.52×10^{-3}	0.238	0.740	0.157	4.05×10^{-3}	6.198	0	0.130	0.690	8.163
SULFUR DIOXIDE	3.17×10^{-3}	0.091	0.044	2.415	1.65×10^{-3}	0.233	0	0.676	0.069	3.533
TOTAL VOCS	0.022	1.598	0.212	0.176	0.017	0.691	0	0.208	11.673	14.598

Table 3.92 Proportion of total estimated daily emissions by off-road mobile source type in each region for typical January weekend day

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - GMR										
CARBON MONOXIDE	0.88	0.47	0.11	0.09	0.04	0.16	0	0.05	3.37	5.17
LEAD AND COMPOUNDS	0.54	5.42×10^{-3}	7.61	6.93×10^{-3}	2.70×10^{-3}	53.3	0	5.07×10^{-3}	1.17×10^{-3}	61.5
OXIDES OF NITROGEN	1.15	0.88	0.39	2.29	0.05	1.53	0	1.52	0.25	8.06
PARTICULATE MATTER < 10 µm	0.15	0.26	1.99	0.35	0.02	12.7	0	0.20	1.53	17.2
PARTICULATE MATTER < 2.5 µm	0.36	0.66	2.44	0.91	0.05	14.0	0	0.49	3.78	22.7
SULFUR DIOXIDE	0.08	0.02	0.01	1.06	1.46×10^{-3}	0.04	0	0.19	0.03	1.43
TOTAL VOCS	0.42	0.65	0.10	0.15	0.03	0.23	0.30	0.12	9.41	11.4
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Sydney										
CARBON MONOXIDE	2.28	0.44	0.13	0.07	0.09	0.10	0	0.06	5.80	8.97
LEAD AND COMPOUNDS	1.31	4.91×10^{-3}	8.73	4.74×10^{-3}	5.56×10^{-3}	31.2	0	6.40×10^{-3}	1.95×10^{-3}	41.2
OXIDES OF NITROGEN	3.86	1.03	0.57	2.03	0.14	1.16	0	2.49	0.54	11.8
PARTICULATE MATTER < 10 µm	0.54	0.36	3.44	0.36	0.06	11.2	0	0.39	3.83	20.1
PARTICULATE MATTER < 2.5 µm	0.89	0.60	2.80	0.62	0.10	8.22	0	0.62	6.29	20.1
SULFUR DIOXIDE	1.68	0.15	0.11	6.17	0.03	0.20	0	2.08	0.40	10.8
TOTAL VOCS	0.51	0.30	0.06	0.05	0.03	0.07	0.40	0.07	7.86	9.35
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Newcastle										
CARBON MONOXIDE	0.40	0.30	0.09	0.55	0.04	0.06	0	0.03	1.53	3.00
LEAD AND COMPOUNDS	0.64	7.78×10^{-3}	13.5	0.09	5.34×10^{-3}	43.7	0	8.65×10^{-3}	1.21×10^{-3}	57.9
OXIDES OF NITROGEN	0.40	1.15	0.63	28.0	0.10	1.15	0	2.39	0.24	34.0
PARTICULATE MATTER < 10 µm	0.13	0.31	2.91	3.89	0.03	8.57	0	0.29	1.29	17.4
PARTICULATE MATTER < 2.5 µm	0.22	0.51	2.34	6.55	0.05	6.22	0	0.46	2.10	18.4
SULFUR DIOXIDE	0.03	0.02	0.02	11.8	2.43×10^{-3}	0.03	0	0.28	0.02	12.2
TOTAL VOCS	0.42	0.51	0.10	1.08	0.03	0.10	0	0.11	5.20	7.55

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Wollongong										
CARBON MONOXIDE	1.39×10^{-3}	0.03	4.23×10^{-3}	0.01	1.94×10^{-3}	0.01	0	4.03×10^{-3}	0.29	0.36
LEAD AND COMPOUNDS	6.15×10^{-3}	1.54×10^{-3}	1.40	4.95×10^{-3}	5.78×10^{-4}	19.6	0	2.12×10^{-3}	4.89×10^{-4}	21.0
OXIDES OF NITROGEN	4.67×10^{-3}	0.57	0.16	3.77	0.03	1.30	0	1.47	0.24	7.55
PARTICULATE MATTER < 10 μm	5.50×10^{-3}	0.17	0.83	0.57	8.99×10^{-3}	10.6	0	0.19	1.44	13.8
PARTICULATE MATTER < 2.5 μm	6.96×10^{-3}	0.22	0.52	0.76	0.01	5.99	0	0.24	1.83	9.57
SULFUR DIOXIDE	4.0×10^{-4}	0.02	5.66×10^{-3}	2.12	8.79×10^{-4}	0.04	0	0.23	0.03	2.44
TOTAL VOCS	6.55×10^{-3}	0.47	0.05	0.27	0.02	0.21	0.05	0.12	9.88	11.1
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Non-Urban										
CARBON MONOXIDE	0.16	2.85	0.56	0.27	0.06	1.19	0	0.20	10.3	15.6
LEAD AND COMPOUNDS	0.04	6.44×10^{-3}	7.63	3.94×10^{-3}	7.55×10^{-4}	77.7	0	4.41×10^{-3}	7.08×10^{-4}	85.4
OXIDES OF NITROGEN	6.83×10^{-3}	0.81	0.30	1.01	0.01	1.74	0	1.03	0.12	5.03
PARTICULATE MATTER < 10 μm	7.37×10^{-3}	0.23	1.47	0.15	3.81×10^{-3}	13.6	0	0.13	0.68	16.2
PARTICULATE MATTER < 2.5 μm	0.03	0.80	2.50	0.53	0.01	20.9	0	0.44	2.33	27.5
SULFUR DIOXIDE	4.38×10^{-4}	0.01	6.12×10^{-3}	0.33	2.28×10^{-4}	0.03	0	0.09	9.53×10^{-3}	0.49
TOTAL VOCS	0.04	2.55	0.34	0.28	0.03	1.10	0	0.33	18.6	23.3

Table 3.93 shows total estimated daily emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.93 Total estimated daily emissions from off-road mobile sources in each region for typical July weekday

Substance	Off-Road Mobile July Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	41.563	3.248	1.285	20.345	66.441
LEAD AND COMPOUNDS	0.039	4.17×10^{-3}	5.54×10^{-3}	0.112	0.160
OXIDES OF NITROGEN	25.413	7.560	2.420	27.893	63.286
PARTICULATE MATTER < 10 µm	10.314	1.304	1.457	28.703	41.778
PARTICULATE MATTER < 2.5 µm	4.708	0.683	0.639	12.206	18.236
SULFUR DIOXIDE	3.517	3.198	0.633	3.295	10.643
TOTAL VOCs	8.164	0.590	0.301	3.981	13.036

Table 3.94 shows the proportion of total estimated daily anthropogenic emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.94 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical July weekday

Substance	Off-Road Mobile Proportion of Anthropogenic Total July Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	2.25	1.21	0.09	4.91	1.65
LEAD AND COMPOUNDS	45.9	58.7	30.7	89.3	68.3
OXIDES OF NITROGEN	9.54	27.3	7.15	5.66	7.72
PARTICULATE MATTER < 10 µm	12.7	12.8	15.3	20.9	17.5
PARTICULATE MATTER < 2.5 µm	8.20	10.6	8.96	29.3	16.2
SULFUR DIOXIDE	9.38	11.2	2.22	0.44	1.27
TOTAL VOCs	1.94	1.85	1.45	5.24	2.37

Figure 3.24 shows the proportion of total estimated daily GMR off-road mobile emissions from all off-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

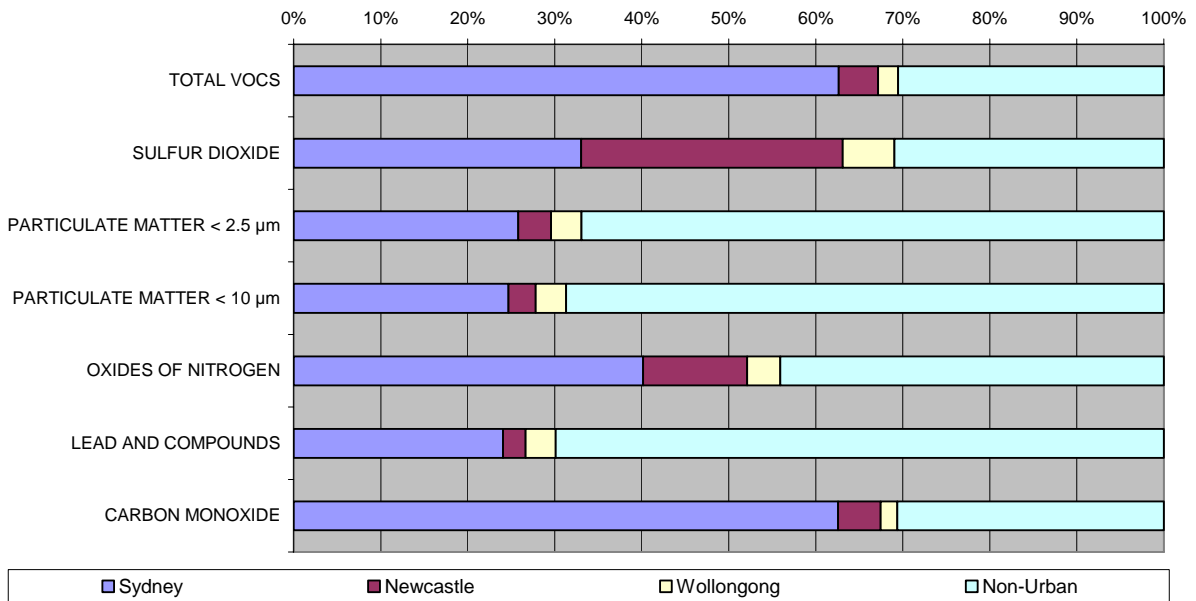


Figure 3.24 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical July weekday

Table 3.95 shows total estimated daily emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.96 shows the proportion of total estimated daily anthropogenic emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.95 Total estimated daily emissions by off-road mobile source type in each region for typical July weekday

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
July Weekday Emissions (tonnes/day) - GMR										
CARBON MONOXIDE	28.465	15.595	3.142	2.647	2.357	8.840	0	1.075	4.322	66.441
LEAD AND COMPOUNDS	8.81×10^{-4}	9.09×10^{-6}	0.011	1.0×10^{-5}	7.40×10^{-6}	0.148	0	5.97×10^{-6}	7.63×10^{-8}	0.160
OXIDES OF NITROGEN	8.867	6.914	2.625	15.610	0.681	20.044	0	8.468	0.077	63.286
PARTICULATE MATTER < 10 µm	0.251	0.467	3.017	0.539	0.053	37.094	0	0.252	0.104	41.778
PARTICULATE MATTER < 2.5 µm	0.233	0.433	1.376	0.516	0.051	15.302	0	0.228	0.096	18.236
SULFUR DIOXIDE	0.650	0.167	0.082	7.956	0.021	0.574	0	1.183	9.61×10^{-3}	10.643
TOTAL VOCS	1.808	2.914	0.393	0.581	0.221	1.705	3.423	0.364	1.627	13.036
July Weekday Emissions (tonnes/day) - Sydney										
CARBON MONOXIDE	27.081	5.368	1.370	0.688	1.845	1.962	0	0.516	2.732	41.563
LEAD AND COMPOUNDS	8.17×10^{-4}	3.13×10^{-6}	4.79×10^{-3}	2.61×10^{-6}	5.79×10^{-6}	0.033	0	2.87×10^{-6}	4.82×10^{-8}	0.039
OXIDES OF NITROGEN	8.734	2.380	1.145	4.059	0.533	4.450	0	4.065	0.049	25.413
PARTICULATE MATTER < 10 µm	0.234	0.161	1.316	0.140	0.042	8.235	0	0.121	0.066	10.314
PARTICULATE MATTER < 2.5 µm	0.217	0.149	0.600	0.134	0.040	3.397	0	0.109	0.061	4.708
SULFUR DIOXIDE	0.637	0.057	0.036	2.069	0.016	0.127	0	0.568	6.07×10^{-3}	3.517
TOTAL VOCS	1.685	1.003	0.172	0.151	0.173	0.379	3.400	0.175	1.028	8.164
July Weekday Emissions (tonnes/day) - Newcastle										
CARBON MONOXIDE	0.864	0.656	0.163	1.032	0.137	0.212	0	0.054	0.130	3.248
LEAD AND COMPOUNDS	3.05×10^{-5}	3.82×10^{-7}	5.71×10^{-4}	3.91×10^{-6}	4.29×10^{-7}	3.56×10^{-3}	0	2.99×10^{-7}	2.30×10^{-9}	4.17×10^{-3}
OXIDES OF NITROGEN	0.098	0.291	0.137	6.088	0.040	0.481	0	0.423	2.32×10^{-3}	7.560
PARTICULATE MATTER < 10 µm	8.09×10^{-3}	0.020	0.157	0.210	3.09×10^{-3}	0.890	0	0.013	3.14×10^{-3}	1.304
PARTICULATE MATTER < 2.5 µm	7.49×10^{-3}	0.018	0.072	0.201	2.98×10^{-3}	0.367	0	0.011	2.89×10^{-3}	0.683
SULFUR DIOXIDE	9.88×10^{-3}	7.01×10^{-3}	4.28×10^{-3}	3.103	1.21×10^{-3}	0.014	0	0.059	2.89×10^{-4}	3.198
TOTAL VOCS	0.099	0.123	0.020	0.227	0.013	0.041	0	0.018	0.049	0.590

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
July Weekday Emissions (tonnes/day) - Wollongong										
CARBON MONOXIDE	0.021	0.434	0.057	0.185	0.049	0.318	0	0.044	0.176	1.285
LEAD AND COMPOUNDS	9.86×10^{-7}	2.53×10^{-7}	1.98×10^{-4}	7.02×10^{-7}	1.55×10^{-7}	5.34×10^{-3}	0	2.45×10^{-7}	3.11×10^{-9}	5.54×10^{-3}
OXIDES OF NITROGEN	1.53×10^{-3}	0.193	0.047	1.093	0.014	0.722	0	0.347	3.14×10^{-3}	2.420
PARTICULATE MATTER < 10 µm	4.09×10^{-4}	0.013	0.054	0.038	1.12×10^{-3}	1.335	0	0.010	4.26×10^{-3}	1.457
PARTICULATE MATTER < 2.5 µm	3.76×10^{-4}	0.012	0.025	0.036	1.08×10^{-3}	0.551	0	9.34×10^{-3}	3.92×10^{-3}	0.639
SULFUR DIOXIDE	1.19×10^{-4}	4.64×10^{-3}	1.48×10^{-3}	0.557	4.38×10^{-4}	0.021	0	0.049	3.92×10^{-4}	0.633
TOTAL VOCS	1.11×10^{-3}	0.081	7.08×10^{-3}	0.041	4.64×10^{-3}	0.061	0.023	0.015	0.066	0.301
July Weekday Emissions (tonnes/day) – Non-Urban										
CARBON MONOXIDE	0.498	9.136	1.552	0.741	0.325	6.347	0	0.461	1.284	20.345
LEAD AND COMPOUNDS	3.26×10^{-5}	5.32×10^{-6}	5.42×10^{-3}	2.81×10^{-6}	1.02×10^{-6}	0.107	0	2.56×10^{-6}	2.27×10^{-8}	0.112
OXIDES OF NITROGEN	0.033	4.051	1.297	4.371	0.094	14.391	0	3.633	0.023	27.893
PARTICULATE MATTER < 10 µm	8.49×10^{-3}	0.273	1.491	0.151	7.36×10^{-3}	26.633	0	0.108	0.031	28.703
PARTICULATE MATTER < 2.5 µm	7.83×10^{-3}	0.254	0.680	0.144	7.08×10^{-3}	10.987	0	0.098	0.029	12.206
SULFUR DIOXIDE	3.30×10^{-3}	0.098	0.041	2.228	2.88×10^{-3}	0.412	0	0.508	2.85×10^{-3}	3.295
TOTAL VOCS	0.023	1.707	0.194	0.163	0.030	1.224	0	0.156	0.483	3.981

Table 3.96 Proportion of total estimated daily emissions by off-road mobile source type in each region for typical July weekday

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total July Weekday Emissions (%) - GMR										
CARBON MONOXIDE	0.71	0.39	0.08	0.07	0.06	0.22	0	0.03	0.11	1.65
LEAD AND COMPOUNDS	0.38	3.87×10^{-3}	4.68	4.28×10^{-3}	3.15×10^{-3}	63.3	0	2.55×10^{-3}	3.25×10^{-5}	68.3
OXIDES OF NITROGEN	1.08	0.84	0.32	1.90	0.08	2.44	0	1.03	9.39×10^{-3}	7.72
PARTICULATE MATTER < 10 µm	0.11	0.20	1.27	0.23	0.02	15.6	0	0.11	0.04	17.5
PARTICULATE MATTER < 2.5 µm	0.21	0.38	1.22	0.46	0.05	13.6	0	0.20	0.09	16.2
SULFUR DIOXIDE	0.08	0.02	9.82×10^{-3}	0.95	2.48×10^{-3}	0.07	0	0.14	1.15×10^{-3}	1.27
TOTAL VOCS	0.33	0.53	0.07	0.11	0.04	0.31	0.62	0.07	0.30	2.37
Proportion of Anthropogenic Total July Weekday Emissions (%) - Sydney										
CARBON MONOXIDE	1.46	0.29	0.07	0.04	0.10	0.11	0	0.03	0.15	2.25
LEAD AND COMPOUNDS	0.97	3.72×10^{-3}	5.70	3.10×10^{-3}	6.89×10^{-3}	39.2	0	3.41×10^{-3}	5.74×10^{-5}	45.9
OXIDES OF NITROGEN	3.28	0.89	0.43	1.52	0.20	1.67	0	1.53	0.02	9.54
PARTICULATE MATTER < 10 µm	0.29	0.20	1.62	0.17	0.05	10.2	0	0.15	0.08	12.7
PARTICULATE MATTER < 2.5 µm	0.38	0.26	1.05	0.23	0.07	5.92	0	0.19	0.11	8.20
SULFUR DIOXIDE	1.70	0.15	0.10	5.52	0.04	0.34	0	1.52	0.02	9.38
TOTAL VOCS	0.40	0.24	0.04	0.04	0.04	0.09	0.81	0.04	0.24	1.94
Proportion of Anthropogenic Total July Weekday Emissions (%) - Newcastle										
CARBON MONOXIDE	0.32	0.24	0.06	0.38	0.05	0.08	0	0.02	0.05	1.21
LEAD AND COMPOUNDS	0.43	5.38×10^{-3}	8.04	0.06	6.04×10^{-3}	50.1	0	4.20×10^{-3}	3.23×10^{-5}	58.7
OXIDES OF NITROGEN	0.35	1.05	0.49	22.0	0.14	1.74	0	1.53	8.37×10^{-3}	27.3
PARTICULATE MATTER < 10 µm	0.08	0.19	1.54	2.06	0.03	8.72	0	0.12	0.03	12.8
PARTICULATE MATTER < 2.5 µm	0.12	0.28	1.11	3.12	0.05	5.69	0	0.18	0.04	10.6
SULFUR DIOXIDE	0.03	0.02	0.01	10.8	4.22×10^{-3}	0.05	0	0.21	1.01×10^{-3}	11.2
TOTAL VOCS	0.31	0.38	0.06	0.71	0.04	0.13	0	0.06	0.15	1.85

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total July Weekday Emissions (%) - Wollongong										
CARBON MONOXIDE	1.42×10^{-3}	0.03	3.81×10^{-3}	0.01	3.33×10^{-3}	0.02	0	2.96×10^{-3}	0.01	0.09
LEAD AND COMPOUNDS	5.45×10^{-3}	1.40×10^{-3}	1.09	3.89×10^{-3}	8.60×10^{-4}	29.6	0	1.36×10^{-3}	1.72×10^{-5}	30.7
OXIDES OF NITROGEN	4.51×10^{-3}	0.57	0.14	3.23	0.04	2.13	0	1.03	9.28×10^{-3}	7.15
PARTICULATE MATTER < 10 μm	4.30×10^{-3}	0.14	0.57	0.40	0.01	14.1	0	0.11	0.04	15.3
PARTICULATE MATTER < 2.5 μm	5.28×10^{-3}	0.17	0.35	0.51	0.02	7.73	0	0.13	0.06	8.96
SULFUR DIOXIDE	4.16×10^{-4}	0.02	5.20×10^{-3}	1.95	1.54×10^{-3}	0.07	0	0.17	1.37×10^{-3}	2.22
TOTAL VOCS	5.33×10^{-3}	0.39	0.03	0.20	0.02	0.30	0.11	0.07	0.32	1.45
Proportion of Anthropogenic Total July Weekday Emissions (%) - Non-Urban										
CARBON MONOXIDE	0.12	2.20	0.37	0.18	0.08	1.53	0	0.11	0.31	4.91
LEAD AND COMPOUNDS	0.03	4.24×10^{-3}	4.32	2.24×10^{-3}	8.14×10^{-4}	84.9	0	2.04×10^{-3}	1.81×10^{-5}	89.3
OXIDES OF NITROGEN	6.76×10^{-3}	0.82	0.26	0.89	0.02	2.92	0	0.74	4.65×10^{-3}	5.66
PARTICULATE MATTER < 10 μm	6.17×10^{-3}	0.20	1.08	0.11	5.35×10^{-3}	19.3	0	0.08	0.02	20.9
PARTICULATE MATTER < 2.5 μm	0.02	0.61	1.63	0.35	0.02	26.3	0	0.23	0.07	29.3
SULFUR DIOXIDE	4.44×10^{-4}	0.01	5.47×10^{-3}	0.30	3.87×10^{-4}	0.06	0	0.07	3.84×10^{-4}	0.44
TOTAL VOCS	0.03	2.24	0.26	0.21	0.04	1.61	0	0.21	0.64	5.24

Table 3.97 shows total estimated daily emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.97 Total estimated daily emissions from off-road mobile sources in each region for typical July weekend day

Substance	Off-Road Mobile July Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	59.056	4.111	2.438	27.563	93.168
LEAD AND COMPOUNDS	0.031	3.40×10^{-3}	4.30×10^{-3}	0.087	0.127
OXIDES OF NITROGEN	25.896	8.028	2.451	26.000	62.376
PARTICULATE MATTER < 10 µm	9.010	1.152	1.181	22.817	34.161
PARTICULATE MATTER < 2.5 µm	4.421	0.641	0.543	9.910	15.515
SULFUR DIOXIDE	3.846	3.445	0.688	3.543	11.521
TOTAL VOCS	13.421	0.935	0.743	7.064	22.163

Table 3.98 shows the proportion of total estimated daily anthropogenic emissions from all off-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.98 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical July weekend day

Substance	Off-Road Mobile Proportion of Anthropogenic Total July Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	3.11	1.56	0.16	6.46	2.28
LEAD AND COMPOUNDS	43.7	59.9	25.8	87.7	65.2
OXIDES OF NITROGEN	10.6	31.3	7.47	5.36	7.92
PARTICULATE MATTER < 10 µm	9.17	10.8	11.4	17.7	13.8
PARTICULATE MATTER < 2.5 µm	5.73	8.22	6.63	23.6	11.5
SULFUR DIOXIDE	10.2	12.1	2.41	0.48	1.37
TOTAL VOCS	3.04	2.82	3.31	8.70	3.83

Figure 3.25 shows the proportion of total estimated daily GMR off-road mobile emissions from all off-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

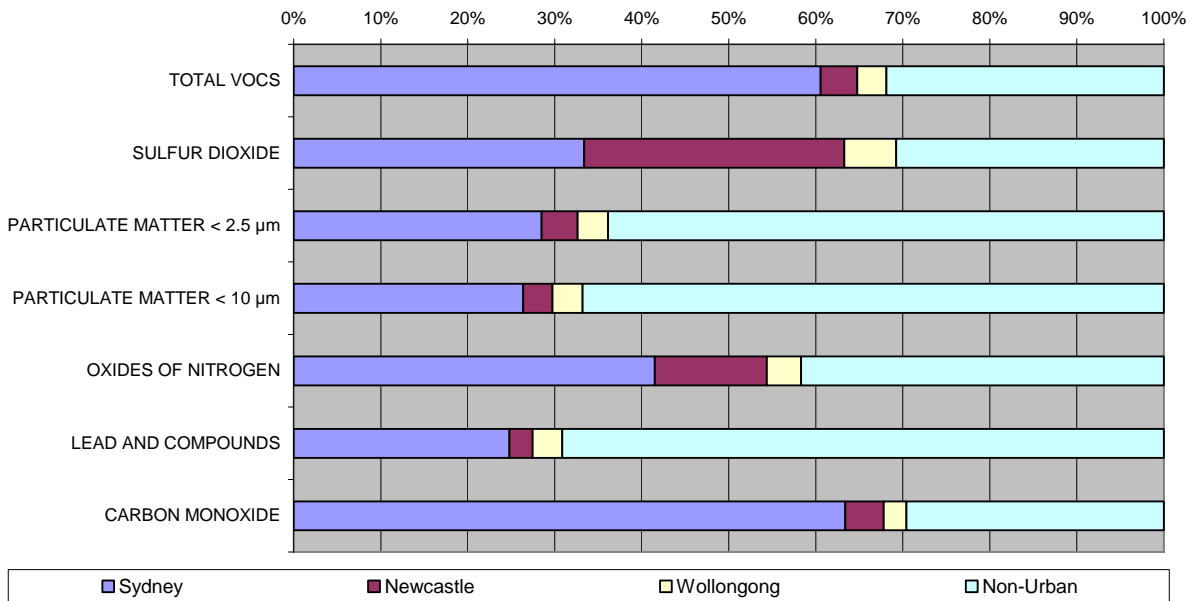


Figure 3.25 Proportion of total estimated daily emissions from off-road mobile sources in each region for typical July weekend day

Table 3.99 shows total estimated daily emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.100 shows the proportion of total estimated daily anthropogenic emissions from each off-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.99 Total estimated daily emissions by off-road mobile source type in each region for typical July weekend day

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
July Weekend Day Emissions (tonnes/day) - GMR										
CARBON MONOXIDE	27.873	14.603	3.545	2.842	1.349	6.742	0	1.421	34.794	93.168
LEAD AND COMPOUNDS	8.62×10^{-4}	8.51×10^{-6}	0.012	1.08×10^{-5}	4.23×10^{-6}	0.113	0	7.90×10^{-6}	6.14×10^{-7}	0.127
OXIDES OF NITROGEN	8.683	6.474	2.962	16.763	0.390	15.286	0	11.197	0.620	62.376
PARTICULATE MATTER < 10 µm	0.246	0.437	3.405	0.579	0.031	28.289	0	0.333	0.840	34.161
PARTICULATE MATTER < 2.5 µm	0.228	0.406	1.553	0.554	0.029	11.670	0	0.301	0.774	15.515
SULFUR DIOXIDE	0.637	0.156	0.093	8.544	0.012	0.438	0	1.565	0.077	11.521
TOTAL VOCS	1.770	2.728	0.444	0.624	0.126	1.300	1.591	0.481	13.097	22.163
July Weekend Day Emissions (tonnes/day) - Sydney										
CARBON MONOXIDE	26.519	5.027	1.546	0.739	1.056	1.497	0	0.682	21.991	59.056
LEAD AND COMPOUNDS	8.0×10^{-4}	2.93×10^{-6}	5.40×10^{-3}	2.80×10^{-6}	3.31×10^{-6}	0.025	0	3.79×10^{-6}	3.88×10^{-7}	0.031
OXIDES OF NITROGEN	8.552	2.229	1.292	4.358	0.305	3.394	0	5.375	0.392	25.896
PARTICULATE MATTER < 10 µm	0.229	0.150	1.485	0.151	0.024	6.280	0	0.160	0.531	9.010
PARTICULATE MATTER < 2.5 µm	0.213	0.140	0.677	0.144	0.023	2.591	0	0.145	0.489	4.421
SULFUR DIOXIDE	0.624	0.054	0.041	2.221	9.34×10^{-3}	0.097	0	0.751	0.049	3.846
TOTAL VOCS	1.650	0.939	0.194	0.162	0.099	0.289	1.580	0.231	8.278	13.421
July Weekend Day Emissions (tonnes/day) - Newcastle										
CARBON MONOXIDE	0.846	0.614	0.184	1.108	0.078	0.162	0	0.071	1.047	4.111
LEAD AND COMPOUNDS	2.98×10^{-5}	3.58×10^{-7}	6.44×10^{-4}	4.20×10^{-6}	2.46×10^{-7}	2.72×10^{-3}	0	3.95×10^{-7}	1.85×10^{-8}	3.40×10^{-3}
OXIDES OF NITROGEN	0.096	0.272	0.154	6.538	0.023	0.367	0	0.560	0.019	8.028
PARTICULATE MATTER < 10 µm	7.92×10^{-3}	0.018	0.177	0.226	1.77×10^{-3}	0.679	0	0.017	0.025	1.152
PARTICULATE MATTER < 2.5 µm	7.33×10^{-3}	0.017	0.081	0.216	1.70×10^{-3}	0.280	0	0.015	0.023	0.641
SULFUR DIOXIDE	9.67×10^{-3}	6.57×10^{-3}	4.83×10^{-3}	3.332	6.92×10^{-4}	0.011	0	0.078	2.33×10^{-3}	3.445
TOTAL VOCS	0.097	0.115	0.023	0.243	7.33×10^{-3}	0.031	0	0.024	0.394	0.935

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
July Weekend Day Emissions (tonnes/day) - Wollongong										
CARBON MONOXIDE	0.021	0.407	0.064	0.199	0.028	0.243	0	0.058	1.419	2.438
LEAD AND COMPOUNDS	9.65×10^{-7}	2.37×10^{-7}	2.23×10^{-4}	7.54×10^{-7}	8.89×10^{-8}	4.08×10^{-3}	0	3.24×10^{-7}	2.50×10^{-8}	4.30×10^{-3}
OXIDES OF NITROGEN	1.49×10^{-3}	0.180	0.053	1.173	8.19×10^{-3}	0.550	0	0.459	0.025	2.451
PARTICULATE MATTER < 10 µm	4.0×10^{-4}	0.012	0.061	0.041	6.41×10^{-4}	1.018	0	0.014	0.034	1.181
PARTICULATE MATTER < 2.5 µm	3.68×10^{-4}	0.011	0.028	0.039	6.17×10^{-4}	0.420	0	0.012	0.032	0.543
SULFUR DIOXIDE	1.16×10^{-4}	4.35×10^{-3}	1.67×10^{-3}	0.598	2.50×10^{-4}	0.016	0	0.064	3.15×10^{-3}	0.688
TOTAL VOCS	1.08×10^{-3}	0.076	7.99×10^{-3}	0.044	2.65×10^{-3}	0.047	0.011	0.020	0.534	0.743
July Weekend Day Emissions (tonnes/day) – Non-Urban										
CARBON MONOXIDE	0.488	8.555	1.751	0.796	0.186	4.841	0	0.610	10.337	27.563
LEAD AND COMPOUNDS	3.19×10^{-5}	4.99×10^{-6}	6.12×10^{-3}	3.02×10^{-6}	5.84×10^{-7}	0.081	0	3.39×10^{-6}	1.83×10^{-7}	0.087
OXIDES OF NITROGEN	0.033	3.793	1.463	4.694	0.054	10.976	0	4.803	0.184	26.000
PARTICULATE MATTER < 10 µm	8.32×10^{-3}	0.256	1.682	0.162	4.21×10^{-3}	20.312	0	0.143	0.250	22.817
PARTICULATE MATTER < 2.5 µm	7.67×10^{-3}	0.238	0.767	0.155	4.05×10^{-3}	8.379	0	0.129	0.230	9.910
SULFUR DIOXIDE	3.23×10^{-3}	0.091	0.046	2.392	1.65×10^{-3}	0.314	0	0.671	0.023	3.543
TOTAL VOCS	0.023	1.598	0.219	0.175	0.017	0.934	0	0.206	3.891	7.064

Table 3.100 Proportion of total estimated daily emissions by off-road mobile source type in each region for typical July weekend day

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - GMR										
CARBON MONOXIDE	0.68	0.36	0.09	0.07	0.03	0.17	0	0.03	0.85	2.28
LEAD AND COMPOUNDS	0.44	4.39×10^{-3}	6.39	5.56×10^{-3}	2.18×10^{-3}	58.4	0	4.07×10^{-3}	3.17×10^{-4}	65.2
OXIDES OF NITROGEN	1.10	0.82	0.38	2.13	0.05	1.94	0	1.42	0.08	7.92
PARTICULATE MATTER < 10 µm	0.10	0.18	1.37	0.23	0.01	11.4	0	0.13	0.34	13.8
PARTICULATE MATTER < 2.5 µm	0.17	0.30	1.15	0.41	0.02	8.63	0	0.22	0.57	11.5
SULFUR DIOXIDE	0.08	0.02	0.01	1.02	1.42×10^{-3}	0.05	0	0.19	9.22×10^{-3}	1.37
TOTAL VOCS	0.31	0.47	0.08	0.11	0.02	0.22	0.28	0.08	2.27	3.83
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Sydney										
CARBON MONOXIDE	1.40	0.27	0.08	0.04	0.06	0.08	0	0.04	1.16	3.11
LEAD AND COMPOUNDS	1.11	4.08×10^{-3}	7.52	3.90×10^{-3}	4.61×10^{-3}	35.0	0	5.28×10^{-3}	5.41×10^{-4}	43.7
OXIDES OF NITROGEN	3.50	0.91	0.53	1.79	0.13	1.39	0	2.20	0.16	10.6
PARTICULATE MATTER < 10 µm	0.23	0.15	1.51	0.15	0.02	6.39	0	0.16	0.54	9.17
PARTICULATE MATTER < 2.5 µm	0.28	0.18	0.88	0.19	0.03	3.36	0	0.19	0.63	5.73
SULFUR DIOXIDE	1.66	0.14	0.11	5.90	0.02	0.26	0	1.99	0.13	10.2
TOTAL VOCS	0.37	0.21	0.04	0.04	0.02	0.07	0.36	0.05	1.88	3.04
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Newcastle										
CARBON MONOXIDE	0.32	0.23	0.07	0.42	0.03	0.06	0	0.03	0.40	1.56
LEAD AND COMPOUNDS	0.53	6.31×10^{-3}	11.4	0.07	4.33×10^{-3}	47.9	0	6.96×10^{-3}	3.26×10^{-4}	59.9
OXIDES OF NITROGEN	0.38	1.06	0.60	25.5	0.09	1.43	0	2.18	0.07	31.3
PARTICULATE MATTER < 10 µm	0.07	0.17	1.67	2.13	0.02	6.39	0	0.16	0.24	10.8
PARTICULATE MATTER < 2.5 µm	0.09	0.22	1.03	2.77	0.02	3.59	0	0.19	0.30	8.22
SULFUR DIOXIDE	0.03	0.02	0.02	11.7	2.42×10^{-3}	0.04	0	0.27	8.15×10^{-3}	12.1
TOTAL VOCS	0.29	0.35	0.07	0.73	0.02	0.09	0	0.07	1.19	2.82

Substance	Off-Road Mobile Source Type									
	Aircraft	Commercial Boats	Commercial Off-Road Vehicles and Equipment	Commercial Ships	Construction Off-Road Vehicles and Equipment	Industrial Off-Road Vehicles and Equipment	Loading and Unloading Fuels	Railways	Recreational Boats	Off-Road Mobile Total
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Wollongong										
CARBON MONOXIDE	1.39×10^{-3}	0.03	4.28×10^{-3}	0.01	1.90×10^{-3}	0.02	0	3.91×10^{-3}	0.10	0.16
LEAD AND COMPOUNDS	5.79×10^{-3}	1.42×10^{-3}	1.34	4.52×10^{-3}	5.33×10^{-4}	24.4	0	1.94×10^{-3}	1.50×10^{-4}	25.8
OXIDES OF NITROGEN	4.55×10^{-3}	0.55	0.16	3.58	0.02	1.68	0	1.40	0.08	7.47
PARTICULATE MATTER < 10 µm	3.86×10^{-3}	0.12	0.59	0.39	6.18×10^{-3}	9.81	0	0.13	0.33	11.4
PARTICULATE MATTER < 2.5 µm	4.50×10^{-3}	0.14	0.34	0.47	7.53×10^{-3}	5.13	0	0.15	0.39	6.63
SULFUR DIOXIDE	4.07×10^{-4}	0.02	5.85×10^{-3}	2.09	8.77×10^{-4}	0.06	0	0.22	0.01	2.41
TOTAL VOCS	4.83×10^{-3}	0.34	0.04	0.19	0.01	0.21	0.05	0.09	2.38	3.31
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Non-Urban										
CARBON MONOXIDE	0.11	2.01	0.41	0.19	0.04	1.14	0	0.14	2.42	6.46
LEAD AND COMPOUNDS	0.03	5.0×10^{-3}	6.14	3.02×10^{-3}	5.85×10^{-4}	81.5	0	3.40×10^{-3}	1.83×10^{-4}	87.7
OXIDES OF NITROGEN	6.72×10^{-3}	0.78	0.30	0.97	0.01	2.26	0	0.99	0.04	5.36
PARTICULATE MATTER < 10 µm	6.46×10^{-3}	0.20	1.31	0.13	3.27×10^{-3}	15.8	0	0.11	0.19	17.7
PARTICULATE MATTER < 2.5 µm	0.02	0.57	1.82	0.37	9.64×10^{-3}	19.9	0	0.31	0.55	23.6
SULFUR DIOXIDE	4.35×10^{-4}	0.01	6.17×10^{-3}	0.32	2.21×10^{-4}	0.04	0	0.09	3.09×10^{-3}	0.48
TOTAL VOCS	0.03	1.97	0.27	0.22	0.02	1.15	0	0.25	4.79	8.70

3.6 On-Road Mobile

3.6.1 Emission Source Description

The on-road mobile air emissions inventory includes emissions from the following sources:

- Exhaust emissions passenger cars - petrol
- Exhaust emissions light duty – diesel
- Exhaust emissions light duty commercial – petrol
- Exhaust emissions heavy duty commercial – diesel
- Exhaust emissions – other
- Evaporative emissions – petrol

Refer to DECC (2007f) for further information regarding the source types included in the on-road mobile air emissions inventory and the emissions estimation methodology.

3.6.2 Annual Emission Estimates

Table 3.101 shows total estimated annual emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.101 Total estimated annual emissions from on-road mobile sources in each region

Substance	On-Road Mobile Annual Emissions (tonnes/year)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	431,270	31,675	19,173	76,929	559,047
LEAD AND COMPOUNDS	10.713	0.708	0.473	1.807	13.701
OXIDES OF NITROGEN	65,996	4,947	3,255	14,410	88,609
PARTICULATE MATTER < 10 µm	2,552	177	119	501	3,349
PARTICULATE MATTER < 2.5 µm	2,426	169	113	479	3,188
SULFUR DIOXIDE	1,254	98.113	59.448	249	1,660
TOTAL VOCS	50,171	3,556	2,195	8,572	64,493

Table 3.102 shows the proportion of total estimated annual anthropogenic emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.102 Proportion of total estimated annual emissions from on-road mobile sources in each region

Substance	On-Road Mobile Proportion of Anthropogenic Total Annual Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	81.7	36.5	3.51	60.9	43.5
LEAD AND COMPOUNDS	36.9	29.4	7.27	4.20	16.9
OXIDES OF NITROGEN	71.1	50.2	26.5	8.14	30.3
PARTICULATE MATTER < 10 µm	12.0	6.02	3.92	1.05	4.46
PARTICULATE MATTER < 2.5 µm	18.5	10.0	5.17	3.55	10.5
SULFUR DIOXIDE	9.11	0.92	0.56	0.09	0.55
TOTAL VOCS	38.3	36.6	34.0	35.6	37.7

Figure 3.26 shows the proportion of total estimated annual GMR on-road mobile emissions from all on-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

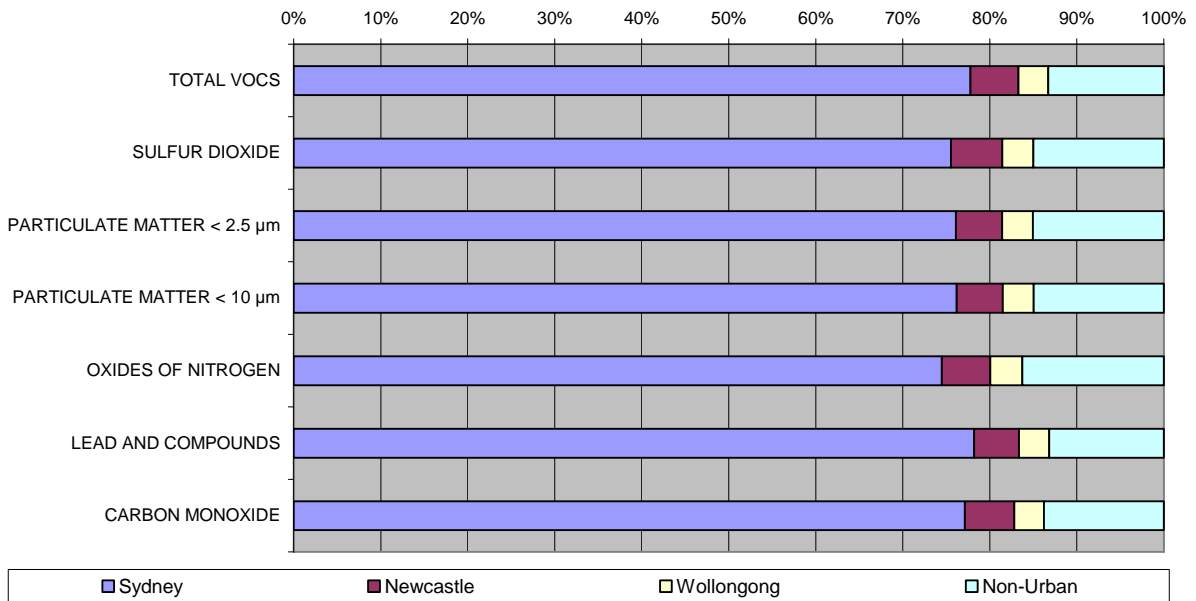


Figure 3.26 Proportion of total estimated annual emissions from on-road mobile sources in each region

Table 3.103 shows total estimated annual emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.104 shows the proportion of total estimated annual anthropogenic emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 3.103 Total estimated annual emissions by on-road mobile source type in each region

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Annual Emissions (tonnes/year) - GMR							
CARBON MONOXIDE	413,721	10,194	71,129	12,424	51,579	0	559,047
LEAD & COMPOUNDS	8.183	1.440	0.473	2.881	0.723	0	13.701
OXIDES OF NITROGEN	49,011	5,287	5,851	25,289	3,171	0	88,609
PARTICULATE MATTER < 10 µm	1,056	1,106	61.030	1,033	93.280	0	3,349
PARTICULATE MATTER < 2.5 µm	972	1,073	56.148	1,002	85.818	0	3,188
SULFUR DIOXIDE	821	318	63.807	425	31.909	0	1,660
TOTAL VOCS	33,062	1,147	5,916	3,583	5,829	14,956	64,493
Annual Emissions (tonnes/year) - Sydney							
CARBON MONOXIDE	323,953	7,935	55,294	8,534	35,554	0	431,270
LEAD & COMPOUNDS	6.715	1.128	0.388	1.958	0.524	0	10.713
OXIDES OF NITROGEN	38,175	4,245	4,534	16,908	2,135	0	65,996
PARTICULATE MATTER < 10 µm	867	866	50.141	702	67.685	0	2,552
PARTICULATE MATTER < 2.5 µm	797	840	46.130	681	62.270	0	2,426
SULFUR DIOXIDE	645	249	49.669	288	22.223	0	1,254
TOTAL VOCS	26,066	955	4,627	2,597	4,143	11,783	50,171
Annual Emissions (tonnes/year) - Newcastle							
CARBON MONOXIDE	24,897	568	2,784	638	2,788	0	31,675
LEAD & COMPOUNDS	0.424	0.081	0.016	0.150	0.036	0	0.708
OXIDES OF NITROGEN	2,952	265	217	1,340	173	0	4,947
PARTICULATE MATTER < 10 µm	54.707	61.985	2.100	53.935	4.694	0	177
PARTICULATE MATTER < 2.5 µm	50.331	60.125	1.932	52.316	4.319	0	169
SULFUR DIOXIDE	51.490	18.499	2.640	23.706	1.778	0	98.113
TOTAL VOCS	1,925	50.179	226	166	316	872	3,556

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – On-Road Mobile

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Annual Emissions (tonnes/year) – Wollongong							
CARBON MONOXIDE	14,415	347	2,050	513	1,848	0	19,173
LEAD & COMPOUNDS	0.267	0.049	0.013	0.116	0.027	0	0.473
OXIDES OF NITROGEN	1,743	170	164	1,067	112	0	3,255
PARTICULATE MATTER < 10 µm	34.438	37.628	1.699	41.731	3.502	0	119
PARTICULATE MATTER < 2.5 µm	31.683	36.499	1.563	40.480	3.221	0	113
SULFUR DIOXIDE	29.384	10.968	1.930	15.945	1.221	0	59.448
TOTAL VOCS	1,133	34.328	168	146	206	507	2,195
Annual Emissions (tonnes/year) – Non-Urban							
CARBON MONOXIDE	50,456	1,344	11,001	2,740	11,388	0	76,929
LEAD & COMPOUNDS	0.777	0.183	0.055	0.657	0.135	0	1.807
OXIDES OF NITROGEN	6,142	607	937	5,974	751	0	14,410
PARTICULATE MATTER < 10 µm	100	140	7.090	235	17.400	0	501
PARTICULATE MATTER < 2.5 µm	92.324	136	6.523	228	16.008	0	479
SULFUR DIOXIDE	95.640	38.991	9.568	97.738	6.688	0	249
TOTAL VOCS	3,937	108	895	675	1,163	1,795	8,572

Table 3.104 Proportion of total estimated annual emissions by on-road mobile source type in each region

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total Annual Emissions (%) - GMR							
CARBON MONOXIDE	32.2	0.79	5.53	0.97	4.01	0	43.5
LEAD & COMPOUNDS	10.1	1.78	0.58	3.56	0.89	0	16.9
OXIDES OF NITROGEN	16.8	1.81	2.00	8.66	1.09	0	30.3
PARTICULATE MATTER < 10 µm	1.41	1.47	0.08	1.37	0.12	0	4.46
PARTICULATE MATTER < 2.5 µm	3.19	3.52	0.18	3.28	0.28	0	10.5
SULFUR DIOXIDE	0.27	0.11	0.02	0.14	0.01	0	0.55
TOTAL VOCS	19.3	0.67	3.46	2.09	3.41	8.74	37.7
Proportion of Anthropogenic Total Annual Emissions (%) - Sydney							
CARBON MONOXIDE	61.4	1.50	10.5	1.62	6.73	0	81.7
LEAD & COMPOUNDS	23.1	3.88	1.34	6.74	1.81	0	36.9
OXIDES OF NITROGEN	41.2	4.58	4.89	18.2	2.30	0	71.1
PARTICULATE MATTER < 10 µm	4.07	4.06	0.24	3.29	0.32	0	12.0
PARTICULATE MATTER < 2.5 µm	6.08	6.40	0.35	5.19	0.47	0	18.5
SULFUR DIOXIDE	4.69	1.81	0.36	2.09	0.16	0	9.11
TOTAL VOCS	19.9	0.73	3.54	1.98	3.17	9.01	38.3
Proportion of Anthropogenic Total Annual Emissions (%) - Newcastle							
CARBON MONOXIDE	28.7	0.65	3.21	0.74	3.21	0	36.5
LEAD & COMPOUNDS	17.6	3.36	0.68	6.26	1.51	0	29.4
OXIDES OF NITROGEN	29.9	2.69	2.20	13.6	1.76	0	50.2
PARTICULATE MATTER < 10 µm	1.86	2.10	0.07	1.83	0.16	0	6.02
PARTICULATE MATTER < 2.5 µm	2.98	3.56	0.11	3.10	0.26	0	10.0
SULFUR DIOXIDE	0.48	0.17	0.02	0.22	0.02	0	0.92
TOTAL VOCS	19.8	0.52	2.32	1.71	3.25	8.96	36.6

Criteria Pollutant Emissions for all Sectors
 3. Data Sources and Results – On-Road Mobile

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total Annual Emissions (%) - Wollongong							
CARBON MONOXIDE	2.64	0.06	0.38	0.09	0.34	0	3.51
LEAD & COMPOUNDS	4.11	0.75	0.20	1.79	0.42	0	7.27
OXIDES OF NITROGEN	14.2	1.38	1.33	8.68	0.91	0	26.5
PARTICULATE MATTER < 10 µm	1.14	1.24	0.06	1.38	0.12	0	3.92
PARTICULATE MATTER < 2.5 µm	1.44	1.66	0.07	1.85	0.15	0	5.17
SULFUR DIOXIDE	0.28	0.10	0.02	0.15	0.01	0	0.56
TOTAL VOCS	17.6	0.53	2.61	2.26	3.20	7.85	34.0
Proportion of Anthropogenic Total Annual Emissions (%) – Non-Urban							
CARBON MONOXIDE	39.9	1.06	8.70	2.17	9.01	0	60.9
LEAD & COMPOUNDS	1.81	0.43	0.13	1.53	0.31	0	4.20
OXIDES OF NITROGEN	3.47	0.34	0.53	3.37	0.42	0	8.14
PARTICULATE MATTER < 10 µm	0.21	0.29	0.01	0.49	0.04	0	1.05
PARTICULATE MATTER < 2.5 µm	0.68	1.01	0.05	1.69	0.12	0	3.55
SULFUR DIOXIDE	0.04	0.01	3.59×10^{-3}	0.04	2.51×10^{-3}	0	0.09
TOTAL VOCS	16.4	0.45	3.72	2.80	4.83	7.46	35.6

3.6.3 Daily Emission Estimates

Table 3.105 shows total estimated daily emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.105 Total estimated daily emissions from on-road mobile sources in each region for typical January weekday

Substance	On-Road Mobile January Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	837	61.443	37.191	149	1,084
LEAD AND COMPOUNDS	0.027	1.75×10^{-3}	1.17×10^{-3}	4.47×10^{-3}	0.034
OXIDES OF NITROGEN	167	12.549	8.257	36.553	225
PARTICULATE MATTER < 10 µm	6.319	0.439	0.295	1.240	8.293
PARTICULATE MATTER < 2.5 µm	6.008	0.419	0.281	1.187	7.894
SULFUR DIOXIDE	3.104	0.243	0.147	0.616	4.110
TOTAL VOCS	112	7.922	4.877	18.971	143

Table 3.106 shows the proportion of total estimated daily anthropogenic emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.106 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical January weekday

Substance	On-Road Mobile Proportion of Anthropogenic Total January Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	82.8	30.5	2.57	56.2	37.1
LEAD AND COMPOUNDS	38.3	31.2	7.12	4.65	18.1
OXIDES OF NITROGEN	70.7	49.6	25.6	7.71	29.2
PARTICULATE MATTER < 10 µm	14.5	6.26	4.05	1.04	4.68
PARTICULATE MATTER < 2.5 µm	26.2	11.7	5.44	3.73	12.4
SULFUR DIOXIDE	8.56	0.85	0.52	0.09	0.50
TOTAL VOCS	36.3	34.8	32.0	33.5	35.6

Figure 3.27 shows the proportion of total estimated daily GMR on-road mobile emissions from all on-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

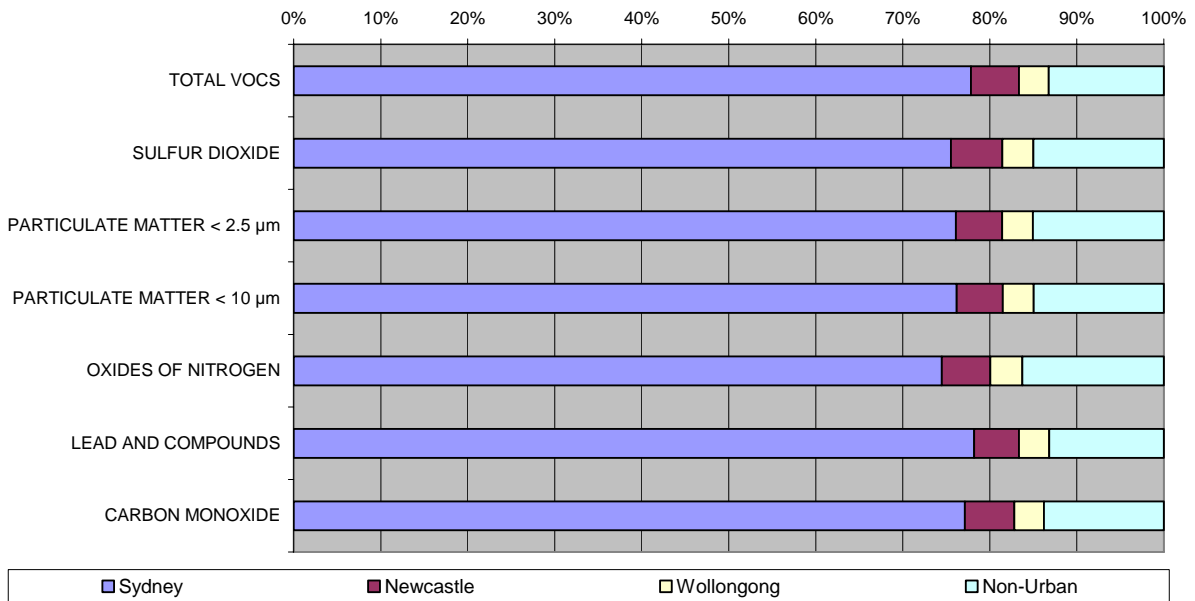


Figure 3.27 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical January weekday

Table 3.107 shows total estimated daily emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.108 shows the proportion of total estimated daily anthropogenic emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekday daily emissions.

Table 3.107 Total estimated daily emissions by on-road mobile source type in each region for typical January weekday

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
January Weekday Emissions (tonnes/day) – GMR							
CARBON MONOXIDE	803	19.773	138	24.101	100	0	1,084
LEAD & COMPOUNDS	0.020	3.57×10^{-3}	1.17×10^{-3}	7.13×10^{-3}	1.79×10^{-3}	0	0.034
OXIDES OF NITROGEN	124	13.410	14.843	64.148	8.044	0	225
PARTICULATE MATTER < 10 µm	2.615	2.738	0.151	2.557	0.231	0	8.293
PARTICULATE MATTER < 2.5 µm	2.406	2.656	0.139	2.481	0.212	0	7.894
SULFUR DIOXIDE	2.034	0.786	0.158	1.053	0.079	0	4.110
TOTAL VOCS	70.339	2.440	12.587	7.623	12.401	37.939	143
January Weekday Emissions (tonnes/day) – Sydney							
CARBON MONOXIDE	628	15.393	107	16.553	68.967	0	837
LEAD & COMPOUNDS	0.017	2.79×10^{-3}	9.62×10^{-4}	4.85×10^{-3}	1.30×10^{-3}	0	0.027
OXIDES OF NITROGEN	96.836	10.768	11.501	42.889	5.415	0	167
PARTICULATE MATTER < 10 µm	2.146	2.144	0.124	1.737	0.168	0	6.319
PARTICULATE MATTER < 2.5 µm	1.975	2.079	0.114	1.685	0.154	0	6.008
SULFUR DIOXIDE	1.597	0.617	0.123	0.713	0.055	0	3.104
TOTAL VOCS	55.456	2.031	9.843	5.524	8.815	29.889	112
January Weekday Emissions (tonnes/day) – Newcastle							
CARBON MONOXIDE	48.295	1.102	5.400	1.237	5.409	0	61.443
LEAD & COMPOUNDS	1.05×10^{-3}	2.0×10^{-4}	4.03×10^{-5}	3.73×10^{-4}	9.01×10^{-5}	0	1.75×10^{-3}
OXIDES OF NITROGEN	7.487	0.672	0.551	3.400	0.439	0	12.549
PARTICULATE MATTER < 10 µm	0.135	0.153	5.20×10^{-3}	0.134	0.012	0	0.439
PARTICULATE MATTER < 2.5 µm	0.125	0.149	4.78×10^{-3}	0.130	0.011	0	0.419
SULFUR DIOXIDE	0.127	0.046	6.54×10^{-3}	0.059	4.40×10^{-3}	0	0.243
TOTAL VOCS	4.095	0.107	0.480	0.354	0.673	2.212	7.922

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
January Weekday Emissions (tonnes/day) – Wollongong							
CARBON MONOXIDE	27.962	0.672	3.976	0.995	3.585	0	37.191
LEAD & COMPOUNDS	6.61×10^{-4}	1.21×10^{-4}	3.26×10^{-5}	2.88×10^{-4}	6.72×10^{-5}	0	1.17×10^{-3}
OXIDES OF NITROGEN	4.420	0.430	0.415	2.707	0.285	0	8.257
PARTICULATE MATTER < 10 µm	0.085	0.093	4.21×10^{-3}	0.103	8.67×10^{-3}	0	0.295
PARTICULATE MATTER < 2.5 µm	0.078	0.090	3.87×10^{-3}	0.100	7.98×10^{-3}	0	0.281
SULFUR DIOXIDE	0.073	0.027	4.78×10^{-3}	0.039	3.02×10^{-3}	0	0.147
TOTAL VOCS	2.411	0.073	0.358	0.310	0.439	1.285	4.877
January Weekday Emissions (tonnes/day) – Non-Urban							
CARBON MONOXIDE	97.874	2.607	21.340	5.315	22.091	0	149
LEAD & COMPOUNDS	1.93×10^{-3}	4.53×10^{-4}	1.36×10^{-4}	1.63×10^{-3}	3.34×10^{-4}	0	4.47×10^{-3}
OXIDES OF NITROGEN	15.579	1.540	2.376	15.153	1.905	0	36.553
PARTICULATE MATTER < 10 µm	0.248	0.348	0.018	0.583	0.043	0	1.240
PARTICULATE MATTER < 2.5 µm	0.229	0.337	0.016	0.565	0.040	0	1.187
SULFUR DIOXIDE	0.237	0.097	0.024	0.242	0.017	0	0.616
TOTAL VOCS	8.376	0.229	1.905	1.435	2.473	4.553	18.971

Table 3.108 Proportion of total estimated annual emissions by on-road mobile source type in each region for typical January weekday

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total January Weekday Emissions (%) - GMR							
CARBON MONOXIDE	27.4	0.68	4.72	0.82	3.42	0	37.1
LEAD & COMPOUNDS	10.8	1.90	0.62	3.80	0.95	0	18.1
OXIDES OF NITROGEN	16.2	1.74	1.93	8.35	1.05	0	29.2
PARTICULATE MATTER < 10 µm	1.48	1.55	0.09	1.44	0.13	0	4.68
PARTICULATE MATTER < 2.5 µm	3.79	4.18	0.22	3.91	0.33	0	12.4
SULFUR DIOXIDE	0.25	0.10	0.02	0.13	9.67 × 10 ⁻³	0	0.50
TOTAL VOCS	17.5	0.61	3.13	1.90	3.08	9.43	35.6
Proportion of Anthropogenic Total January Weekday Emissions (%) - Sydney							
CARBON MONOXIDE	62.2	1.52	10.6	1.64	6.82	0	82.8
LEAD & COMPOUNDS	24.0	4.03	1.39	6.99	1.87	0	38.3
OXIDES OF NITROGEN	40.9	4.55	4.86	18.1	2.29	0	70.7
PARTICULATE MATTER < 10 µm	4.94	4.93	0.29	4.00	0.39	0	14.5
PARTICULATE MATTER < 2.5 µm	8.63	9.08	0.50	7.36	0.67	0	26.2
SULFUR DIOXIDE	4.40	1.70	0.34	1.97	0.15	0	8.56
TOTAL VOCS	18.0	0.66	3.20	1.80	2.87	9.72	36.3
Proportion of Anthropogenic Total January Weekday Emissions (%) - Newcastle							
CARBON MONOXIDE	24.0	0.55	2.68	0.61	2.69	0	30.5
LEAD & COMPOUNDS	18.7	3.55	0.72	6.63	1.60	0	31.2
OXIDES OF NITROGEN	29.6	2.66	2.18	13.4	1.74	0	49.6
PARTICULATE MATTER < 10 µm	1.93	2.19	0.07	1.90	0.17	0	6.26
PARTICULATE MATTER < 2.5 µm	3.47	4.15	0.13	3.61	0.30	0	11.7
SULFUR DIOXIDE	0.45	0.16	0.02	0.21	0.02	0	0.85
TOTAL VOCS	18.0	0.47	2.11	1.55	2.95	9.71	34.8

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total January Weekday Emissions (%) – Wollongong							
CARBON MONOXIDE	1.93	0.05	0.27	0.07	0.25	0	2.57
LEAD & COMPOUNDS	4.02	0.74	0.20	1.76	0.41	0	7.12
OXIDES OF NITROGEN	13.7	1.33	1.28	8.38	0.88	0	25.6
PARTICULATE MATTER < 10 µm	1.17	1.28	0.06	1.42	0.12	0	4.05
PARTICULATE MATTER < 2.5 µm	1.52	1.75	0.07	1.94	0.15	0	5.44
SULFUR DIOXIDE	0.26	0.10	0.02	0.14	0.01	0	0.52
TOTAL VOCS	15.8	0.48	2.35	2.03	2.88	8.43	32.0
Proportion of Anthropogenic Total January Weekday Emissions (%) – Non-Urban							
CARBON MONOXIDE	36.9	0.98	8.04	2.00	8.32	0	56.2
LEAD & COMPOUNDS	2.00	0.47	0.14	1.69	0.35	0	4.65
OXIDES OF NITROGEN	3.29	0.32	0.50	3.20	0.40	0	7.71
PARTICULATE MATTER < 10 µm	0.21	0.29	0.01	0.49	0.04	0	1.04
PARTICULATE MATTER < 2.5 µm	0.72	1.06	0.05	1.77	0.12	0	3.73
SULFUR DIOXIDE	0.03	0.01	3.28×10^{-3}	0.03	2.29×10^{-3}	0	0.09
TOTAL VOCS	14.8	0.40	3.36	2.53	4.37	8.04	33.5

Table 3.109 shows total estimated daily emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.109 Total estimated daily emissions from on-road mobile sources in each region for typical January weekend day

Substance	On-Road Mobile January Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	732	53.762	32.542	131	949
LEAD AND COMPOUNDS	0.023	1.53×10^{-3}	1.02×10^{-3}	3.92×10^{-3}	0.030
OXIDES OF NITROGEN	146	10.981	7.225	31.984	197
PARTICULATE MATTER < 10 µm	5.529	0.384	0.258	1.085	7.256
PARTICULATE MATTER < 2.5 µm	5.257	0.366	0.246	1.039	6.908
SULFUR DIOXIDE	2.716	0.213	0.129	0.539	3.596
TOTAL VOCS	97.615	6.931	4.267	16.599	125

Table 3.110 shows the proportion of total estimated daily anthropogenic emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.110 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical January weekend day

Substance	On-Road Mobile Proportion of Anthropogenic Total January Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	64.3	26.2	2.23	43.5	30.6
LEAD AND COMPOUNDS	38.9	33.3	6.66	5.06	18.9
OXIDES OF NITROGEN	67.5	46.5	23.0	6.84	26.6
PARTICULATE MATTER < 10 µm	13.3	6.56	3.62	0.98	4.39
PARTICULATE MATTER < 2.5 µm	22.5	11.0	4.74	3.50	11.2
SULFUR DIOXIDE	7.48	0.75	0.45	0.07	0.44
TOTAL VOCS	30.9	30.5	26.3	26.5	30.0

Figure 3.28 shows the proportion of total estimated daily GMR on-road mobile emissions from all on-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

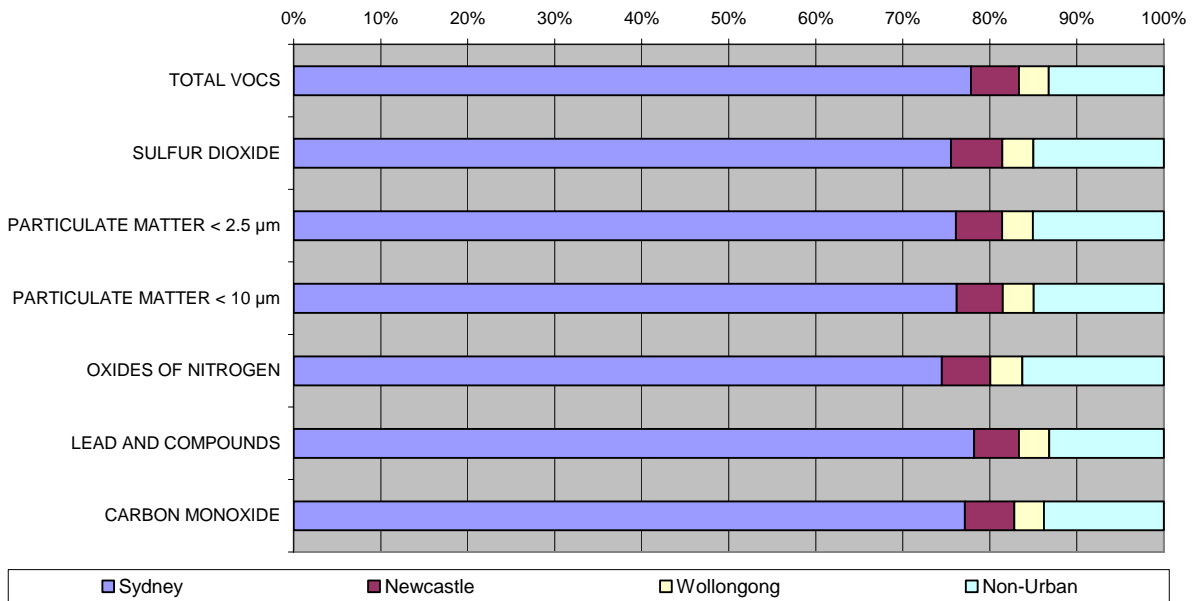


Figure 3.28 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical January weekend day

Table 3.111 shows total estimated daily emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.112 shows the proportion of total estimated daily anthropogenic emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical January weekend day daily emissions.

Table 3.111 Total estimated daily emissions by on-road mobile source type in each region for typical January weekend day

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
January Weekend Day Emissions (tonnes/day) - GMR							
CARBON MONOXIDE	702	17.302	121	21.088	87.546	0	949
LEAD & COMPOUNDS	0.018	3.12×10^{-3}	1.02×10^{-3}	6.24×10^{-3}	1.57×10^{-3}	0	0.030
OXIDES OF NITROGEN	109	11.734	12.987	56.130	7.038	0	197
PARTICULATE MATTER < 10 µm	2.288	2.396	0.132	2.238	0.202	0	7.256
PARTICULATE MATTER < 2.5 µm	2.105	2.324	0.122	2.170	0.186	0	6.908
SULFUR DIOXIDE	1.780	0.688	0.138	0.921	0.069	0	3.596
TOTAL VOCS	61.546	2.135	11.014	6.671	10.851	33.197	125
January Weekend Day Emissions (tonnes/day) - Sydney							
CARBON MONOXIDE	550	13.469	93.850	14.484	60.346	0	732
LEAD & COMPOUNDS	0.015	2.44×10^{-3}	8.42×10^{-4}	4.24×10^{-3}	1.14×10^{-3}	0	0.023
OXIDES OF NITROGEN	84.732	9.422	10.063	37.528	4.738	0	146
PARTICULATE MATTER < 10 µm	1.878	1.876	0.109	1.520	0.147	0	5.529
PARTICULATE MATTER < 2.5 µm	1.728	1.820	0.100	1.475	0.135	0	5.257
SULFUR DIOXIDE	1.397	0.540	0.108	0.624	0.048	0	2.716
TOTAL VOCS	48.524	1.777	8.613	4.834	7.713	26.153	97.615
January Weekend Day Emissions (tonnes/day) - Newcastle							
CARBON MONOXIDE	42.258	0.964	4.725	1.083	4.733	0	53.762
LEAD & COMPOUNDS	9.18×10^{-4}	1.75×10^{-4}	3.52×10^{-5}	3.26×10^{-4}	7.88×10^{-5}	0	1.53×10^{-3}
OXIDES OF NITROGEN	6.551	0.588	0.482	2.975	0.384	0	10.981
PARTICULATE MATTER < 10 µm	0.119	0.134	4.55×10^{-3}	0.117	0.010	0	0.384
PARTICULATE MATTER < 2.5 µm	0.109	0.130	4.19×10^{-3}	0.113	9.36×10^{-3}	0	0.366
SULFUR DIOXIDE	0.112	0.040	5.72×10^{-3}	0.051	3.85×10^{-3}	0	0.213
TOTAL VOCS	3.583	0.093	0.420	0.310	0.589	1.936	6.931

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
January Weekend Day Emissions (tonnes/day) – Wollongong							
CARBON MONOXIDE	24.467	0.588	3.479	0.871	3.137	0	32.542
LEAD & COMPOUNDS	5.78×10^{-4}	1.06×10^{-4}	2.85×10^{-5}	2.52×10^{-4}	5.88×10^{-5}	0	1.02×10^{-3}
OXIDES OF NITROGEN	3.868	0.377	0.363	2.368	0.250	0	7.225
PARTICULATE MATTER < 10 µm	0.075	0.082	3.68×10^{-3}	0.090	7.59×10^{-3}	0	0.258
PARTICULATE MATTER < 2.5 µm	0.069	0.079	3.39×10^{-3}	0.088	6.98×10^{-3}	0	0.246
SULFUR DIOXIDE	0.064	0.024	4.18×10^{-3}	0.035	2.64×10^{-3}	0	0.129
TOTAL VOCS	2.110	0.064	0.314	0.271	0.384	1.124	4.267
January Weekend Day Emissions (tonnes/day) – Non-Urban							
CARBON MONOXIDE	85.640	2.281	18.673	4.650	19.330	0	131
LEAD & COMPOUNDS	1.68×10^{-3}	3.96×10^{-4}	1.19×10^{-4}	1.42×10^{-3}	2.92×10^{-4}	0	3.92×10^{-3}
OXIDES OF NITROGEN	13.632	1.347	2.079	13.259	1.667	0	31.984
PARTICULATE MATTER < 10 µm	0.217	0.304	0.015	0.510	0.038	0	1.085
PARTICULATE MATTER < 2.5 µm	0.200	0.295	0.014	0.495	0.035	0	1.039
SULFUR DIOXIDE	0.207	0.084	0.021	0.212	0.014	0	0.539
TOTAL VOCS	7.329	0.200	1.667	1.256	2.164	3.983	16.599

Table 3.112 Proportion of total estimated annual emissions by on-road mobile source type in each region for typical January weekend day

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - GMR							
CARBON MONOXIDE	22.7	0.56	3.90	0.68	2.82	0	30.6
LEAD & COMPOUNDS	11.3	1.99	0.65	3.98	1.00	0	18.9
OXIDES OF NITROGEN	14.7	1.59	1.76	7.59	0.95	0	26.6
PARTICULATE MATTER < 10 µm	1.38	1.45	0.08	1.35	0.12	0	4.39
PARTICULATE MATTER < 2.5 µm	3.42	3.78	0.20	3.53	0.30	0	11.2
SULFUR DIOXIDE	0.22	0.08	0.02	0.11	8.47 × 10 ⁻³	0	0.44
TOTAL VOCS	14.7	0.51	2.64	1.60	2.60	7.95	30.0
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Sydney							
CARBON MONOXIDE	48.3	1.18	8.25	1.27	5.30	0	64.3
LEAD & COMPOUNDS	24.4	4.10	1.41	7.11	1.90	0	38.9
OXIDES OF NITROGEN	39.0	4.34	4.64	17.3	2.18	0	67.5
PARTICULATE MATTER < 10 µm	4.51	4.50	0.26	3.65	0.35	0	13.3
PARTICULATE MATTER < 2.5 µm	7.41	7.80	0.43	6.32	0.58	0	22.5
SULFUR DIOXIDE	3.85	1.49	0.30	1.72	0.13	0	7.48
TOTAL VOCS	15.4	0.56	2.73	1.53	2.44	8.28	30.9
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Newcastle							
CARBON MONOXIDE	20.6	0.47	2.31	0.53	2.31	0	26.2
LEAD & COMPOUNDS	20.0	3.80	0.77	7.09	1.71	0	33.3
OXIDES OF NITROGEN	27.7	2.49	2.04	12.6	1.63	0	46.5
PARTICULATE MATTER < 10 µm	2.02	2.29	0.08	1.99	0.17	0	6.56
PARTICULATE MATTER < 2.5 µm	3.27	3.91	0.13	3.40	0.28	0	11.0
SULFUR DIOXIDE	0.39	0.14	0.02	0.18	0.01	0	0.75
TOTAL VOCS	15.8	0.41	1.85	1.36	2.59	8.52	30.5

Criteria Pollutant Emissions for all Sectors
3. Data Sources and Results – On-Road Mobile

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total January Weekend Day Emissions (%) - Wollongong							
CARBON MONOXIDE	1.68	0.04	0.24	0.06	0.22	0	2.23
LEAD & COMPOUNDS	3.76	0.69	0.19	1.64	0.38	0	6.66
OXIDES OF NITROGEN	12.3	1.20	1.16	7.54	0.80	0	23.0
PARTICULATE MATTER < 10 µm	1.05	1.14	0.05	1.27	0.11	0	3.62
PARTICULATE MATTER < 2.5 µm	1.32	1.52	0.07	1.69	0.13	0	4.74
SULFUR DIOXIDE	0.22	0.08	0.01	0.12	9.28×10^{-3}	0	0.45
TOTAL VOCS	13.0	0.39	1.93	1.67	2.37	6.93	26.3
Proportion of Anthropogenic Total January Weekend Day Emissions (%) – Non-Urban							
CARBON MONOXIDE	28.5	0.76	6.22	1.55	6.44	0	43.5
LEAD & COMPOUNDS	2.18	0.51	0.15	1.84	0.38	0	5.06
OXIDES OF NITROGEN	2.91	0.29	0.44	2.83	0.36	0	6.84
PARTICULATE MATTER < 10 µm	0.20	0.28	0.01	0.46	0.03	0	0.98
PARTICULATE MATTER < 2.5 µm	0.67	1.00	0.05	1.67	0.12	0	3.50
SULFUR DIOXIDE	0.03	0.01	2.87×10^{-3}	0.03	2.0×10^{-3}	0	0.07
TOTAL VOCS	11.7	0.32	2.66	2.00	3.45	6.36	26.5

Table 3.113 shows total estimated daily emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.113 Total estimated daily emissions from on-road mobile sources in each region for typical July weekday

Substance	On-Road Mobile July Weekday Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1,526	112	67.834	272	1,978
LEAD AND COMPOUNDS	0.032	2.10×10^{-3}	1.40×10^{-3}	5.36×10^{-3}	0.041
OXIDES OF NITROGEN	192	14.372	9.457	41.863	257
PARTICULATE MATTER < 10 µm	7.572	0.526	0.353	1.486	9.938
PARTICULATE MATTER < 2.5 µm	7.199	0.502	0.337	1.423	9.460
SULFUR DIOXIDE	3.720	0.291	0.176	0.738	4.925
TOTAL VOCs	162	11.494	7.109	27.842	209

Table 3.114 shows the proportion of total estimated daily anthropogenic emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.114 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical July weekday

Substance	On-Road Mobile Proportion of Anthropogenic Total July Weekday Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	82.5	41.7	4.56	65.7	49.2
LEAD AND COMPOUNDS	37.8	29.6	7.76	4.27	17.3
OXIDES OF NITROGEN	72.0	51.9	27.9	8.50	31.4
PARTICULATE MATTER < 10 µm	9.35	5.16	3.72	1.08	4.17
PARTICULATE MATTER < 2.5 µm	12.5	7.76	4.73	3.41	8.39
SULFUR DIOXIDE	9.92	1.02	0.62	0.10	0.59
TOTAL VOCs	38.5	36.0	34.3	36.6	38.0

Figure 3.29 shows the proportion of total estimated daily GMR on-road mobile emissions from all on-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

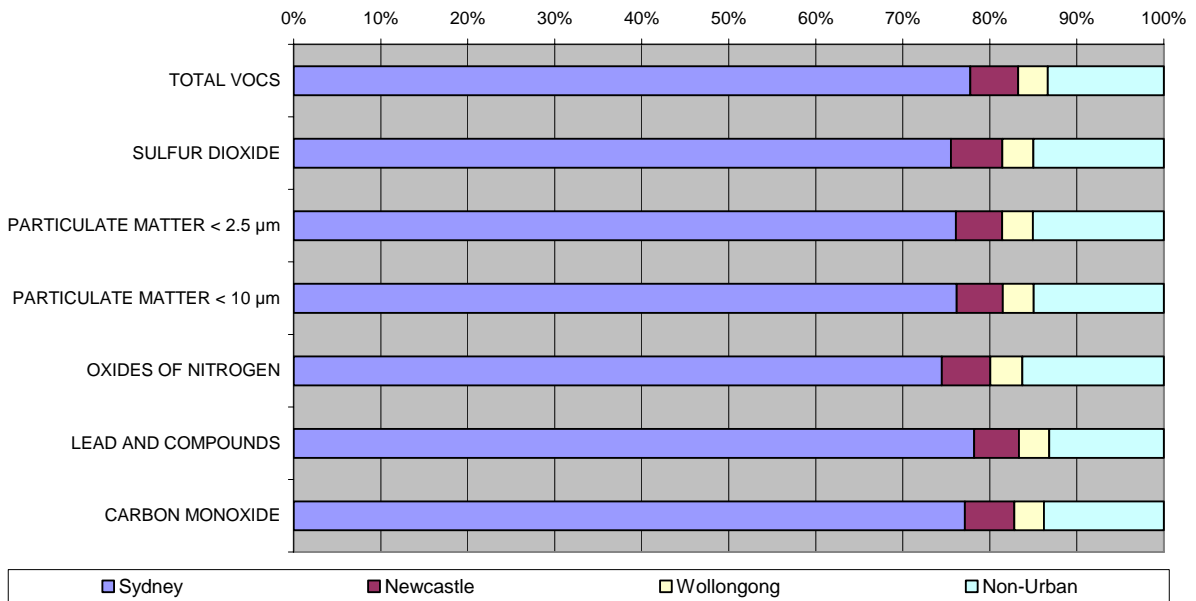


Figure 3.29 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical July weekday

Table 3.115 shows total estimated daily emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.116 shows the proportion of total estimated daily anthropogenic emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekday daily emissions.

Table 3.115 Total estimated daily emissions by on-road mobile source type in each region for typical July weekday

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
July Weekday Emissions (tonnes/day) - GMR							
CARBON MONOXIDE	1,464	36.066	252	43.958	182	0	1,978
LEAD & COMPOUNDS	0.024	4.27 × 10 ⁻³	1.40 × 10 ⁻³	8.55 × 10 ⁻³	2.14 × 10 ⁻³	0	0.041
OXIDES OF NITROGEN	142	15.359	16.999	73.467	9.212	0	257
PARTICULATE MATTER < 10 µm	3.134	3.281	0.181	3.064	0.277	0	9.938
PARTICULATE MATTER < 2.5 µm	2.883	3.183	0.167	2.972	0.255	0	9.460
SULFUR DIOXIDE	2.437	0.942	0.189	1.262	0.095	0	4.925
TOTAL VOCS	110	3.829	19.755	11.965	19.463	43.451	209
July Weekday Emissions (tonnes/day) - Sydney							
CARBON MONOXIDE	1,146	28.076	196	30.192	126	0	1,526
LEAD & COMPOUNDS	0.020	3.35 × 10 ⁻³	1.15 × 10 ⁻³	5.81 × 10 ⁻³	1.56 × 10 ⁻³	0	0.032
OXIDES OF NITROGEN	111	12.332	13.172	49.119	6.201	0	192
PARTICULATE MATTER < 10 µm	2.572	2.569	0.149	2.082	0.201	0	7.572
PARTICULATE MATTER < 2.5 µm	2.366	2.492	0.137	2.020	0.185	0	7.199
SULFUR DIOXIDE	1.914	0.739	0.147	0.854	0.066	0	3.720
TOTAL VOCS	87.036	3.188	15.449	8.670	13.835	34.232	162
July Weekday Emissions (tonnes/day) - Newcastle							
CARBON MONOXIDE	88.088	2.009	9.850	2.257	9.866	0	112
LEAD & COMPOUNDS	1.26 × 10 ⁻³	2.40 × 10 ⁻⁴	4.83 × 10 ⁻⁵	4.46 × 10 ⁻⁴	1.08 × 10 ⁻⁴	0	2.10 × 10 ⁻³
OXIDES OF NITROGEN	8.575	0.770	0.631	3.894	0.503	0	14.372
PARTICULATE MATTER < 10 µm	0.162	0.184	6.23 × 10 ⁻³	0.160	0.014	0	0.526
PARTICULATE MATTER < 2.5 µm	0.149	0.178	5.73 × 10 ⁻³	0.155	0.013	0	0.502
SULFUR DIOXIDE	0.153	0.055	7.83 × 10 ⁻³	0.070	5.27 × 10 ⁻³	0	0.291
TOTAL VOCS	6.427	0.168	0.753	0.556	1.057	2.534	11.494

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
July Weekday Emissions (tonnes/day) – Wollongong							
CARBON MONOXIDE	51.001	1.226	7.252	1.815	6.540	0	67.834
LEAD & COMPOUNDS	7.92×10^{-4}	1.45×10^{-4}	3.91×10^{-5}	3.45×10^{-4}	8.05×10^{-5}	0	1.40×10^{-3}
OXIDES OF NITROGEN	5.063	0.493	0.475	3.100	0.327	0	9.457
PARTICULATE MATTER < 10 µm	0.102	0.112	5.04×10^{-3}	0.124	0.010	0	0.353
PARTICULATE MATTER < 2.5 µm	0.094	0.108	4.64×10^{-3}	0.120	9.56×10^{-3}	0	0.337
SULFUR DIOXIDE	0.087	0.033	5.73×10^{-3}	0.047	3.62×10^{-3}	0	0.176
TOTAL VOCS	3.785	0.115	0.562	0.486	0.689	1.472	7.109
July Weekday Emissions (tonnes/day) – Non-Urban							
CARBON MONOXIDE	179	4.755	38.923	9.694	40.293	0	272
LEAD & COMPOUNDS	2.31×10^{-3}	5.43×10^{-4}	1.63×10^{-4}	1.95×10^{-3}	4.0×10^{-4}	0	5.36×10^{-3}
OXIDES OF NITROGEN	17.842	1.763	2.721	17.355	2.181	0	41.863
PARTICULATE MATTER < 10 µm	0.298	0.417	0.021	0.698	0.052	0	1.486
PARTICULATE MATTER < 2.5 µm	0.274	0.404	0.019	0.678	0.047	0	1.423
SULFUR DIOXIDE	0.284	0.116	0.028	0.290	0.020	0	0.738
TOTAL VOCS	13.145	0.359	2.990	2.252	3.882	5.214	27.842

Table 3.116 Proportion of total estimated annual emissions by on-road mobile source type in each region for typical July weekday

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total July Weekday Emissions (%) - GMR							
CARBON MONOXIDE	36.4	0.90	6.26	1.09	4.54	0	49.2
LEAD & COMPOUNDS	10.3	1.82	0.60	3.64	0.91	0	17.3
OXIDES OF NITROGEN	17.4	1.87	2.07	8.96	1.12	0	31.4
PARTICULATE MATTER < 10 µm	1.31	1.38	0.08	1.29	0.12	0	4.17
PARTICULATE MATTER < 2.5 µm	2.56	2.82	0.15	2.64	0.23	0	8.39
SULFUR DIOXIDE	0.29	0.11	0.02	0.15	0.01	0	0.59
TOTAL VOCS	20.1	0.70	3.59	2.18	3.54	7.90	38.0
Proportion of Anthropogenic Total July Weekday Emissions (%) - Sydney							
CARBON MONOXIDE	62.0	1.52	10.6	1.63	6.80	0	82.5
LEAD & COMPOUNDS	23.7	3.98	1.37	6.91	1.85	0	37.8
OXIDES OF NITROGEN	41.7	4.63	4.95	18.4	2.33	0	72.0
PARTICULATE MATTER < 10 µm	3.18	3.17	0.18	2.57	0.25	0	9.35
PARTICULATE MATTER < 2.5 µm	4.12	4.34	0.24	3.52	0.32	0	12.5
SULFUR DIOXIDE	5.10	1.97	0.39	2.28	0.18	0	9.92
TOTAL VOCS	20.7	0.76	3.67	2.06	3.28	8.12	38.5
Proportion of Anthropogenic Total July Weekday Emissions (%) - Newcastle							
CARBON MONOXIDE	32.7	0.75	3.66	0.84	3.67	0	41.7
LEAD & COMPOUNDS	17.7	3.37	0.68	6.28	1.52	0	29.6
OXIDES OF NITROGEN	31.0	2.78	2.28	14.1	1.82	0	51.9
PARTICULATE MATTER < 10 µm	1.59	1.80	0.06	1.57	0.14	0	5.16
PARTICULATE MATTER < 2.5 µm	2.31	2.76	0.09	2.40	0.20	0	7.76
SULFUR DIOXIDE	0.53	0.19	0.03	0.25	0.02	0	1.02
TOTAL VOCS	20.1	0.52	2.36	1.74	3.31	7.94	36.0

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total July Weekday Emissions (%) - Wollongong							
CARBON MONOXIDE	3.43	0.08	0.49	0.12	0.44	0	4.56
LEAD & COMPOUNDS	4.38	0.80	0.22	1.91	0.45	0	7.76
OXIDES OF NITROGEN	14.9	1.46	1.40	9.15	0.96	0	27.9
PARTICULATE MATTER < 10 µm	1.08	1.18	0.05	1.30	0.11	0	3.72
PARTICULATE MATTER < 2.5 µm	1.32	1.52	0.07	1.69	0.13	0	4.73
SULFUR DIOXIDE	0.31	0.11	0.02	0.17	0.01	0	0.62
TOTAL VOCS	18.2	0.55	2.71	2.34	3.32	7.09	34.3
Proportion of Anthropogenic Total July Weekday Emissions (%) – Non-Urban							
CARBON MONOXIDE	43.1	1.15	9.39	2.34	9.72	0	65.7
LEAD & COMPOUNDS	1.84	0.43	0.13	1.55	0.32	0	4.27
OXIDES OF NITROGEN	3.62	0.36	0.55	3.52	0.44	0	8.50
PARTICULATE MATTER < 10 µm	0.22	0.30	0.02	0.51	0.04	0	1.08
PARTICULATE MATTER < 2.5 µm	0.66	0.97	0.05	1.62	0.11	0	3.41
SULFUR DIOXIDE	0.04	0.02	3.82×10^{-3}	0.04	2.67×10^{-3}	0	0.10
TOTAL VOCS	17.3	0.47	3.93	2.96	5.10	6.86	36.6

Table 3.117 shows total estimated daily emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.117 Total estimated daily emissions from on-road mobile sources in each region for typical July weekend day

Substance	On-Road Mobile July Weekend Day Emissions (tonnes/day)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	1,335	98.060	59.355	238	1,731
LEAD AND COMPOUNDS	0.028	1.84×10^{-3}	1.23×10^{-3}	4.69×10^{-3}	0.036
OXIDES OF NITROGEN	168	12.576	8.275	36.630	225
PARTICULATE MATTER < 10 µm	6.626	0.461	0.309	1.300	8.695
PARTICULATE MATTER < 2.5 µm	6.299	0.439	0.295	1.245	8.277
SULFUR DIOXIDE	3.255	0.255	0.154	0.645	4.310
TOTAL VOCS	142	10.058	6.220	24.362	183

Table 3.118 shows the proportion of total estimated daily anthropogenic emissions from all on-road mobile sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.118 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical July weekend day

Substance	On-Road Mobile Proportion of Anthropogenic Total July Weekend Day Emissions (%)				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
CARBON MONOXIDE	70.4	37.2	3.98	55.9	42.4
LEAD AND COMPOUNDS	38.7	32.4	7.36	4.70	18.3
OXIDES OF NITROGEN	68.7	49.1	25.2	7.56	28.6
PARTICULATE MATTER < 10 µm	6.74	4.34	2.98	1.01	3.51
PARTICULATE MATTER < 2.5 µm	8.17	5.62	3.60	2.96	6.12
SULFUR DIOXIDE	8.64	0.89	0.54	0.09	0.51
TOTAL VOCS	32.2	30.3	27.7	30.0	31.6

Figure 3.30 shows the proportion of total estimated daily GMR on-road mobile emissions from all on-road mobile sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

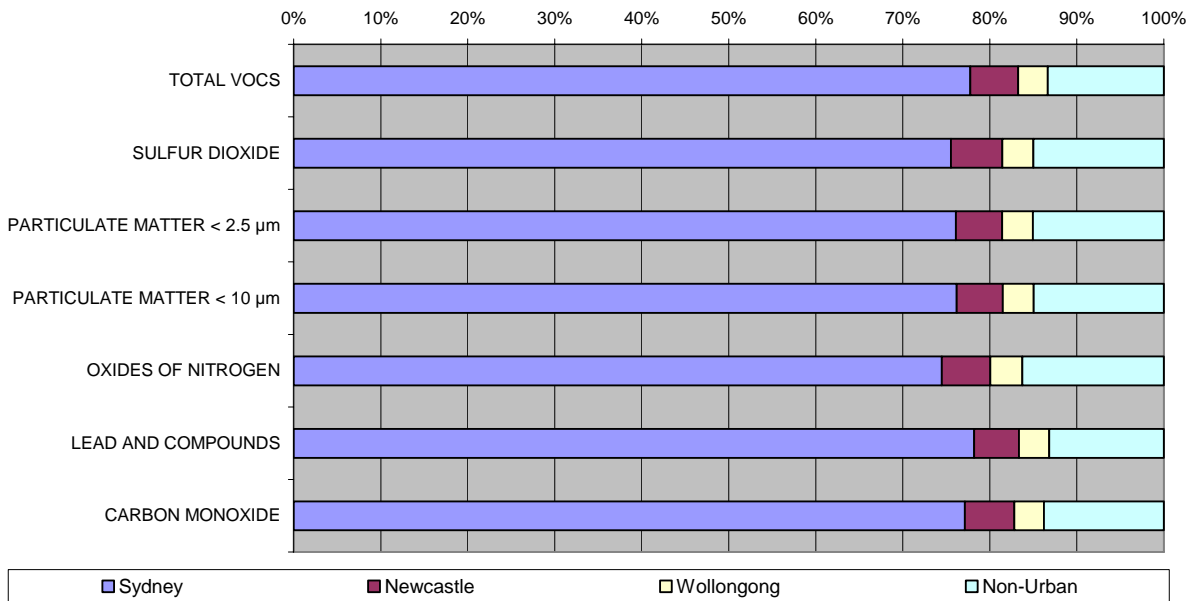


Figure 3.30 Proportion of total estimated daily emissions from on-road mobile sources in each region for typical July weekend day

Table 3.119 shows total estimated daily emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.120 shows the proportion of total estimated daily anthropogenic emissions from each on-road mobile source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions. These estimates are representative of typical July weekend day daily emissions.

Table 3.119 Total estimated daily emissions by on-road mobile source type in each region for typical July weekend day

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
July Weekend Day Emissions (tonnes/day) - GMR							
CARBON MONOXIDE	1,281	31.558	220	38.464	160	0	1,731
LEAD & COMPOUNDS	0.021	3.74×10^{-3}	1.23×10^{-3}	7.48×10^{-3}	1.88×10^{-3}	0	0.036
OXIDES OF NITROGEN	125	13.439	14.874	64.284	8.061	0	225
PARTICULATE MATTER < 10 µm	2.742	2.871	0.158	2.681	0.242	0	8.695
PARTICULATE MATTER < 2.5 µm	2.523	2.785	0.146	2.601	0.223	0	8.277
SULFUR DIOXIDE	2.133	0.824	0.166	1.104	0.083	0	4.310
TOTAL VOCS	96.594	3.351	17.285	10.469	17.030	38.019	183
July Weekend Day Emissions (tonnes/day) - Sydney							
CARBON MONOXIDE	1,003	24.566	171	26.418	110	0	1,335
LEAD & COMPOUNDS	0.017	2.93×10^{-3}	1.01×10^{-3}	5.08×10^{-3}	1.36×10^{-3}	0	0.028
OXIDES OF NITROGEN	97.041	10.791	11.525	42.979	5.426	0	168
PARTICULATE MATTER < 10 µm	2.250	2.248	0.130	1.822	0.176	0	6.626
PARTICULATE MATTER < 2.5 µm	2.070	2.180	0.120	1.767	0.162	0	6.299
SULFUR DIOXIDE	1.674	0.647	0.129	0.747	0.058	0	3.255
TOTAL VOCS	76.157	2.789	13.518	7.587	12.106	29.953	142
July Weekend Day Emissions (tonnes/day) - Newcastle							
CARBON MONOXIDE	77.077	1.758	8.619	1.975	8.632	0	98.060
LEAD & COMPOUNDS	1.10×10^{-3}	2.10×10^{-4}	4.22×10^{-5}	3.91×10^{-4}	9.44×10^{-5}	0	1.84×10^{-3}
OXIDES OF NITROGEN	7.503	0.674	0.552	3.407	0.440	0	12.576
PARTICULATE MATTER < 10 µm	0.142	0.161	5.45×10^{-3}	0.140	0.012	0	0.461
PARTICULATE MATTER < 2.5 µm	0.131	0.156	5.02×10^{-3}	0.136	0.011	0	0.439
SULFUR DIOXIDE	0.134	0.048	6.85×10^{-3}	0.062	4.62×10^{-3}	0	0.255
TOTAL VOCS	5.624	0.147	0.659	0.486	0.924	2.217	10.058

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
July Weekend Day Emissions (tonnes/day) – Wollongong							
CARBON MONOXIDE	44.626	1.073	6.346	1.588	5.722	0	59.355
LEAD & COMPOUNDS	6.93×10^{-4}	1.27×10^{-4}	3.42×10^{-5}	3.02×10^{-4}	7.04×10^{-5}	0	1.23×10^{-3}
OXIDES OF NITROGEN	4.430	0.431	0.416	2.712	0.286	0	8.275
PARTICULATE MATTER < 10 µm	0.089	0.098	4.41×10^{-3}	0.108	9.09×10^{-3}	0	0.309
PARTICULATE MATTER < 2.5 µm	0.082	0.095	4.06×10^{-3}	0.105	8.36×10^{-3}	0	0.295
SULFUR DIOXIDE	0.076	0.028	5.01×10^{-3}	0.041	3.17×10^{-3}	0	0.154
TOTAL VOCS	3.311	0.100	0.492	0.426	0.603	1.288	6.220
July Weekend Day Emissions (tonnes/day) – Non-Urban							
CARBON MONOXIDE	156	4.160	34.058	8.482	35.256	0	238
LEAD & COMPOUNDS	2.02×10^{-3}	4.75×10^{-4}	1.43×10^{-4}	1.71×10^{-3}	3.50×10^{-4}	0	4.69×10^{-3}
OXIDES OF NITROGEN	15.612	1.543	2.381	15.185	1.909	0	36.630
PARTICULATE MATTER < 10 µm	0.261	0.365	0.018	0.611	0.045	0	1.300
PARTICULATE MATTER < 2.5 µm	0.240	0.354	0.017	0.593	0.042	0	1.245
SULFUR DIOXIDE	0.248	0.101	0.025	0.254	0.017	0	0.645
TOTAL VOCS	11.502	0.314	2.616	1.971	3.397	4.562	24.362

Table 3.120 Proportion of total estimated annual emissions by on-road mobile source type in each region for typical July weekend day

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - GMR							
CARBON MONOXIDE	31.4	0.77	5.40	0.94	3.92	0	42.4
LEAD & COMPOUNDS	11.0	1.93	0.63	3.86	0.97	0	18.3
OXIDES OF NITROGEN	15.8	1.71	1.89	8.17	1.02	0	28.6
PARTICULATE MATTER < 10 µm	1.11	1.16	0.06	1.08	0.10	0	3.51
PARTICULATE MATTER < 2.5 µm	1.87	2.06	0.11	1.92	0.16	0	6.12
SULFUR DIOXIDE	0.25	0.10	0.02	0.13	9.87 × 10 ⁻³	0	0.51
TOTAL VOCS	16.7	0.58	2.99	1.81	2.95	6.58	31.6
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Sydney							
CARBON MONOXIDE	52.9	1.30	9.03	1.39	5.81	0	70.4
LEAD & COMPOUNDS	24.3	4.08	1.40	7.08	1.90	0	38.7
OXIDES OF NITROGEN	39.8	4.42	4.72	17.6	2.22	0	68.7
PARTICULATE MATTER < 10 µm	2.29	2.29	0.13	1.85	0.18	0	6.74
PARTICULATE MATTER < 2.5 µm	2.68	2.83	0.16	2.29	0.21	0	8.17
SULFUR DIOXIDE	4.44	1.72	0.34	1.98	0.15	0	8.64
TOTAL VOCS	17.3	0.63	3.06	1.72	2.74	6.79	32.2
Proportion of Anthropogenic Total July Weekend Day Emissions (%) - Newcastle							
CARBON MONOXIDE	29.2	0.67	3.27	0.75	3.27	0	37.2
LEAD & COMPOUNDS	19.4	3.69	0.74	6.89	1.66	0	32.4
OXIDES OF NITROGEN	29.3	2.63	2.15	13.3	1.72	0	49.1
PARTICULATE MATTER < 10 µm	1.34	1.51	0.05	1.32	0.11	0	4.34
PARTICULATE MATTER < 2.5 µm	1.67	2.00	0.06	1.74	0.14	0	5.62
SULFUR DIOXIDE	0.47	0.17	0.02	0.22	0.02	0	0.89
TOTAL VOCS	17.0	0.44	1.99	1.47	2.79	6.69	30.3

Criteria Pollutant Emissions for all Sectors
 3. Data Sources and Results – On-Road Mobile

Substance	On-Road Mobile Source Type						
	Exhaust Emissions Passenger Cars – Petrol	Exhaust Emissions Light Duty – Diesel	Exhaust Emissions Light Duty Commercial – Petrol	Exhaust Emissions Heavy Duty Commercial – Diesel	Exhaust Emissions – Other	Evaporative Emissions – Petrol	On-Road Mobile Total
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Wollongong							
CARBON MONOXIDE	2.99	0.07	0.43	0.11	0.38	0	3.98
LEAD & COMPOUNDS	4.15	0.76	0.21	1.81	0.42	0	7.36
OXIDES OF NITROGEN	13.5	1.31	1.27	8.27	0.87	0	25.2
PARTICULATE MATTER < 10 µm	0.86	0.94	0.04	1.04	0.09	0	2.98
PARTICULATE MATTER < 2.5 µm	1.00	1.16	0.05	1.28	0.10	0	3.60
SULFUR DIOXIDE	0.27	0.10	0.02	0.14	0.01	0	0.54
TOTAL VOCS	14.8	0.45	2.19	1.90	2.69	5.74	27.7
Proportion of Anthropogenic Total July Weekend Day Emissions (%) – Non-Urban							
CARBON MONOXIDE	36.6	0.98	7.99	1.99	8.27	0	55.9
LEAD & COMPOUNDS	2.02	0.48	0.14	1.71	0.35	0	4.70
OXIDES OF NITROGEN	3.22	0.32	0.49	3.13	0.39	0	7.56
PARTICULATE MATTER < 10 µm	0.20	0.28	0.01	0.47	0.04	0	1.01
PARTICULATE MATTER < 2.5 µm	0.57	0.84	0.04	1.41	0.10	0	2.96
SULFUR DIOXIDE	0.03	0.01	3.34×10^{-3}	0.03	2.33×10^{-3}	0	0.09
TOTAL VOCS	14.2	0.39	3.22	2.43	4.18	5.62	30.0

4 EMISSIONS SUMMARY

The Department of Environment and Climate Change NSW (DEC) has developed an air emissions inventory for the 2003 calendar year. The area included in the study covers greater Sydney, Newcastle and Wollongong regions, known collectively as the Greater Metropolitan Region (GMR).

The air emissions inventory includes emissions from biogenic (i.e. natural) and anthropogenic (i.e. human derived) sources.

The anthropogenic source groups included in the air emissions inventory include:

- Commercial businesses (i.e. non-EPA-licensed);
- Domestic-commercial activities;
- Industrial premises (i.e. EPA-licensed);
- Off-road mobile (i.e. non-registered off-road vehicles and equipment); and
- On-road mobile (i.e. registered on-road vehicles).

The pollutants inventoried include criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003), air toxics associated with the *NPI NEPM* (NEPC, 2000) and the *Air Toxics NEPM* (NEPC, 2004) and any other pollutants associated with state specific programs, including: *Load Based Licensing (Protection of the Environment Operations (General) Regulation 1998* (PCO, 1998)); and *Protection of the Environment Operations (Clean Air) Regulation 2002* (PCO, 2005).

This report focuses on emissions of criteria pollutants specified in the *Ambient Air Quality NEPM* (NEPC, 2003), including:

- Carbon monoxide (CO);
- Lead and compounds;
- Oxides of nitrogen (NO_x);
- Particulate matter < 10 μm (PM₁₀);
- Particulate matter < 2.5 μm (PM_{2.5});
- Sulfur dioxide (SO₂); and
- Total volatile organic compounds (VOCs), a surrogate for photochemical oxidants (as ozone).

More detailed information about sources and emissions of other air pollutants from the biogenic, commercial businesses, domestic-commercial activities, industrial premises, off-road mobile and on-road mobile source groups can be found in the individual air emissions inventory reports (DECC, 2007a; DECC, 2007b; DECC, 2007c; DECC, 2007d; DECC, 2007e; & DECC, 2007f), respectively.

4.1 Annual Emission Estimates

Table 4.1 shows total estimated annual emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 4.1 Total estimated annual biogenic and anthropogenic emissions in each region

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total Annual Emissions (tonnes/year)					
CARBON MONOXIDE	27,346	176	145	160,737	188,405
LEAD AND COMPOUNDS	0.813	0.113	5.27×10^{-3}	4.099	5.030
OXIDES OF NITROGEN	1,585	103	52.034	11,604	13,344
PARTICULATE MATTER < 10 µm	2,699	93.261	15.767	14,629	17,436
PARTICULATE MATTER < 2.5 µm	2,331	44.245	13.530	12,680	15,069
SULFUR DIOXIDE	69.393	0.474	0.322	450	520
TOTAL VOCS	33,989	3,285	3,371	151,949	192,594
Anthropogenic Total Annual Emissions (tonnes/year)					
CARBON MONOXIDE	528,011	86,739	545,500	126,391	1,286,641
LEAD AND COMPOUNDS	29.044	2.405	6.497	42.982	80.929
OXIDES OF NITROGEN	92,768	9,864	12,299	177,123	292,054
PARTICULATE MATTER < 10 µm	21,305	2,948	3,034	47,841	75,128
PARTICULATE MATTER < 2.5 µm	13,126	1,687	2,193	13,493	30,499
SULFUR DIOXIDE	13,764	10,673	10,607	266,820	301,863
TOTAL VOCS	130,834	9,728	6,457	24,048	171,067
Biogenic and Anthropogenic Total Annual Emissions (tonnes/year)					
CARBON MONOXIDE	555,357	86,915	545,645	287,129	1,475,045
LEAD AND COMPOUNDS	29.858	2.518	6.503	47.081	85.960
OXIDES OF NITROGEN	94,353	9,967	12,351	188,727	305,398
PARTICULATE MATTER < 10 µm	24,004	3,041	3,050	62,470	92,564
PARTICULATE MATTER < 2.5 µm	15,457	1,731	2,207	26,173	45,568
SULFUR DIOXIDE	13,833	10,673	10,607	267,269	302,383
TOTAL VOCS	164,822	13,013	9,828	175,998	363,661

Table 4.2 shows the proportion of total estimated annual biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 4.2 Proportion of total estimated annual emissions from biogenic and anthropogenic sources in each region

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
Proportion of Annual Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	4.92	0.20	0.03	56.0	12.8
LEAD AND COMPOUNDS	2.72	4.49	0.08	8.71	5.85
OXIDES OF NITROGEN	1.68	1.03	0.42	6.15	4.37
PARTICULATE MATTER < 10 µm	11.2	3.07	0.52	23.4	18.8
PARTICULATE MATTER < 2.5 µm	15.1	2.56	0.61	48.4	33.1
SULFUR DIOXIDE	0.50	4.44×10^{-3}	3.04×10^{-3}	0.17	0.17
TOTAL VOCS	20.6	25.2	34.3	86.3	53.0
Anthropogenic Total					
Proportion of Annual Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	95.1	99.8	100.0	44.0	87.2
LEAD AND COMPOUNDS	97.3	95.5	99.9	91.3	94.1
OXIDES OF NITROGEN	98.3	99.0	99.6	93.9	95.6
PARTICULATE MATTER < 10 µm	88.8	96.9	99.5	76.6	81.2
PARTICULATE MATTER < 2.5 µm	84.9	97.4	99.4	51.6	66.9
SULFUR DIOXIDE	99.5	100.0	100.0	99.8	99.8
TOTAL VOCS	79.4	74.8	65.7	13.7	47.0

Figure 4.1 shows the proportion of total estimated annual GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

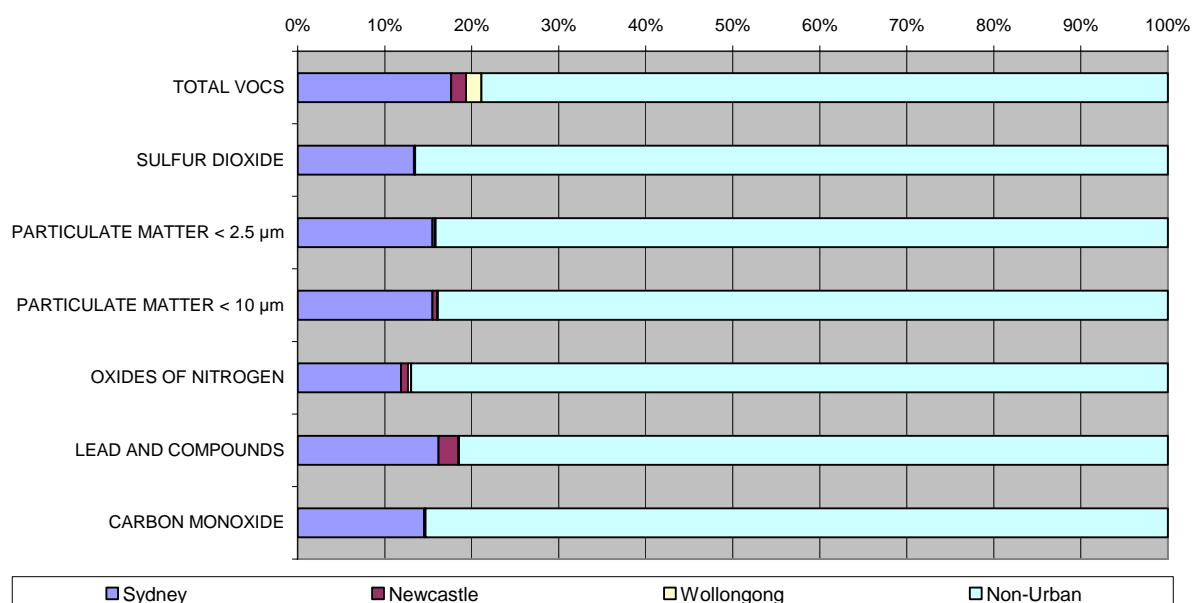


Figure 4.1 Proportion of total estimated annual emissions from biogenic sources in each region

Figure 4.2 shows the proportion of total estimated annual GMR anthropogenic emissions from all anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

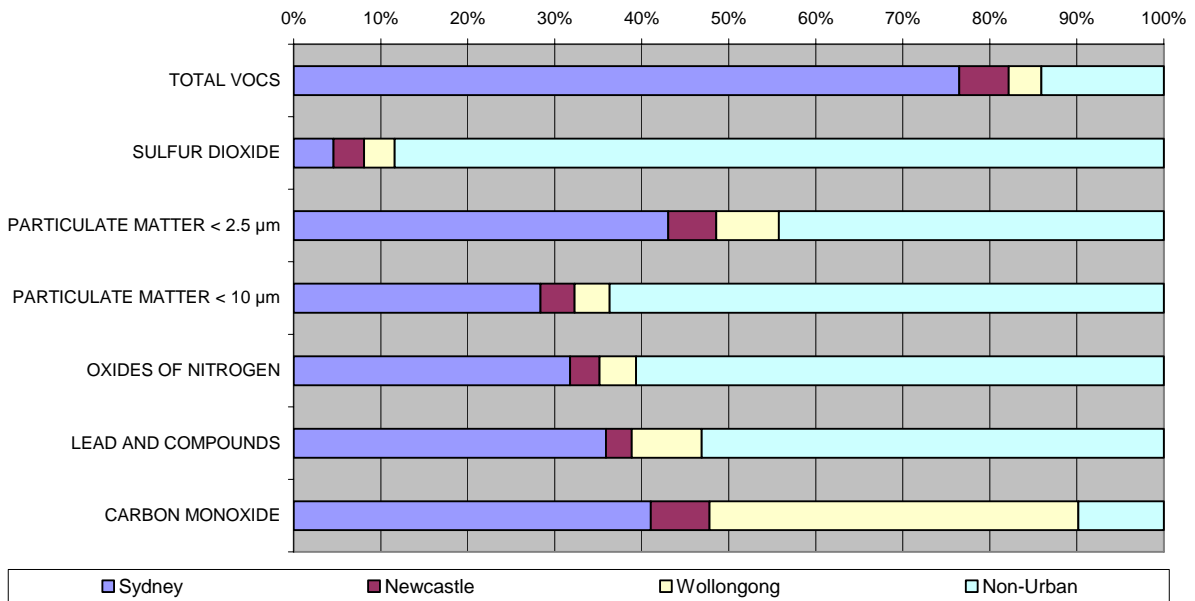


Figure 4.2 Proportion of total estimated annual emissions from anthropogenic sources in each region

Figure 4.3 shows the proportion of total estimated annual GMR biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions.

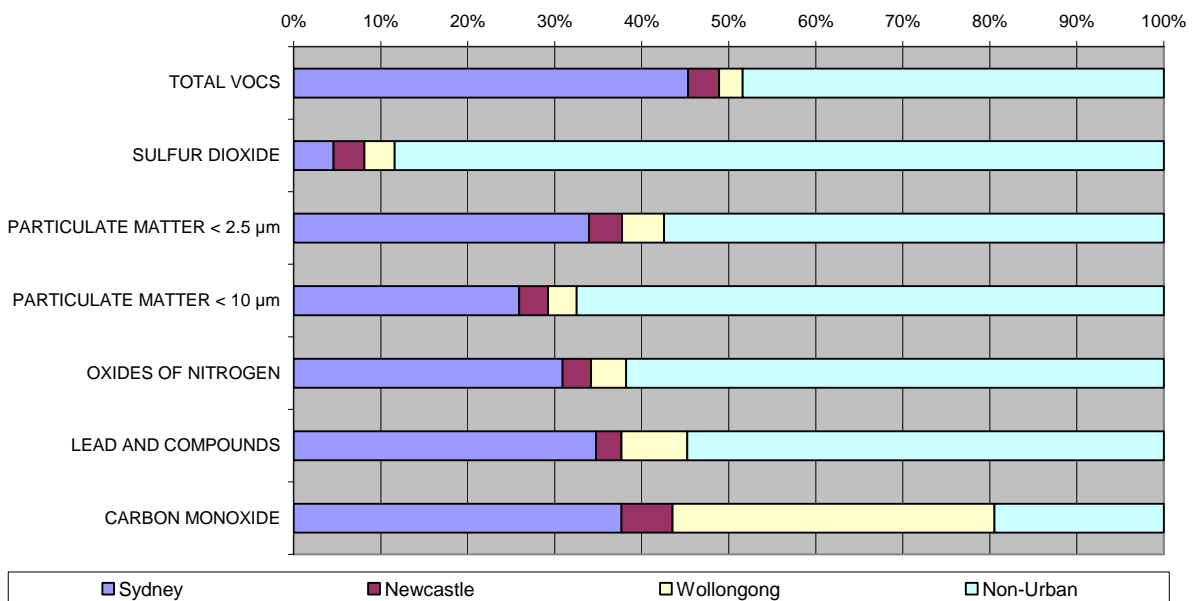


Figure 4.3 Proportion of total estimated annual emissions from biogenic and anthropogenic sources in each region

Table 4.3 shows total estimated annual emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 4.4 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions.

Table 4.3 Total estimated annual anthropogenic emissions by source type in each region

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Annual Emissions (tonnes/year) – GMR						
CARBON MONOXIDE	1,801	90,516	603,133	32,144	559,047	1,286,641
LEAD AND COMPOUNDS	0.194	0.153	11.964	54.917	13.701	80.929
OXIDES OF NITROGEN	2,648	1,791	175,537	23,470	88,609	292,054
PARTICULATE MATTER < 10 µm	4,032	6,651	46,530	14,566	3,349	75,128
PARTICULATE MATTER < 2.5 µm	1,270	6,428	13,127	6,486	3,188	30,499
SULFUR DIOXIDE	71.005	143	295,819	4,170	1,660	301,863
TOTAL VOCS	13,844	67,303	17,786	7,640	64,493	171,067
Annual Emissions (tonnes/year) - Sydney						
CARBON MONOXIDE	1,265	67,221	8,004	20,251	431,270	528,011
LEAD AND COMPOUNDS	0.189	0.114	4.703	13.325	10.713	29.044
OXIDES OF NITROGEN	1,870	1,356	14,032	9,514	65,996	92,768
PARTICULATE MATTER < 10 µm	2,143	4,993	7,911	3,707	2,552	21,305
PARTICULATE MATTER < 2.5 µm	723	4,826	3,390	1,761	2,426	13,126
SULFUR DIOXIDE	48.074	108	10,980	1,374	1,254	13,764
TOTAL VOCS	9,973	51,929	13,989	4,772	50,171	130,834
Annual Emissions (tonnes/year) - Newcastle						
CARBON MONOXIDE	68.243	5,781	47,763	1,452	31,675	86,739
LEAD AND COMPOUNDS	8.18×10^{-4}	9.65×10^{-3}	0.246	1.441	0.708	2.405
OXIDES OF NITROGEN	134	105	1,728	2,950	4,947	9,864
PARTICULATE MATTER < 10 µm	173	423	1,706	469	177	2,948
PARTICULATE MATTER < 2.5 µm	49.137	408	808	253	169	1,687
SULFUR DIOXIDE	0.867	8.871	9,300	1,264	98.113	10,673
TOTAL VOCS	799	3,786	1,274	312	3,556	9,728

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Annual Emissions (tonnes/year) - Wollongong						
CARBON MONOXIDE	104	3,636	521,795	793	19,173	545,500
LEAD AND COMPOUNDS	7.58×10^{-4}	6.15×10^{-3}	4.128	1.890	0.473	6.497
OXIDES OF NITROGEN	132	68.345	7,929	914	3,255	12,299
PARTICULATE MATTER < 10 µm	64.334	274	2,069	508	119	3,034
PARTICULATE MATTER < 2.5 µm	30.576	265	1,556	228	113	2,193
SULFUR DIOXIDE	1.225	5.757	10,290	250	59.448	10,607
TOTAL VOCS	624	2,618	788	232	2,195	6,457
Annual Emissions (tonnes/year) - Non-Urban						
CARBON MONOXIDE	364	13,877	25,571	9,649	76,929	126,391
LEAD AND COMPOUNDS	4.23×10^{-3}	0.023	2.887	38.260	1.807	42.982
OXIDES OF NITROGEN	512	262	151,847	10,092	14,410	177,123
PARTICULATE MATTER < 10 µm	1,652	961	34,844	9,883	501	47,841
PARTICULATE MATTER < 2.5 µm	467	929	7,373	4,244	479	13,493
SULFUR DIOXIDE	20.840	20.825	265,248	1,281	249	266,820
TOTAL VOCS	2,448	8,971	1,734	2,323	8,572	24,048

Table 4.4 Proportion of total estimated annual anthropogenic emissions by source type in each region

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of Annual Anthropogenic Emissions (%) - GMR						
CARBON MONOXIDE	0.14	7.04	46.9	2.50	43.5	100.0
LEAD AND COMPOUNDS	0.24	0.19	14.8	67.9	16.9	100.0
OXIDES OF NITROGEN	0.91	0.61	60.1	8.04	30.3	100.0
PARTICULATE MATTER < 10 µm	5.37	8.85	61.9	19.4	4.46	100.0
PARTICULATE MATTER < 2.5 µm	4.16	21.1	43.0	21.3	10.5	100.0
SULFUR DIOXIDE	0.02	0.05	98.0	1.38	0.55	100.0
TOTAL VOCS	8.09	39.3	10.4	4.47	37.7	100.0
Proportion of Annual Anthropogenic Emissions (%) - Sydney						
CARBON MONOXIDE	0.24	12.7	1.52	3.84	81.7	100.0
LEAD AND COMPOUNDS	0.65	0.39	16.2	45.9	36.9	100.0
OXIDES OF NITROGEN	2.02	1.46	15.1	10.3	71.1	100.0
PARTICULATE MATTER < 10 µm	10.1	23.4	37.1	17.4	12.0	100.0
PARTICULATE MATTER < 2.5 µm	5.51	36.8	25.8	13.4	18.5	100.0
SULFUR DIOXIDE	0.35	0.78	79.8	9.98	9.11	100.0
TOTAL VOCS	7.62	39.7	10.7	3.65	38.3	100.0
Proportion of Annual Anthropogenic Emissions (%) - Newcastle						
CARBON MONOXIDE	0.08	6.67	55.1	1.67	36.5	100.0
LEAD AND COMPOUNDS	0.03	0.40	10.2	59.9	29.4	100.0
OXIDES OF NITROGEN	1.36	1.06	17.5	29.9	50.2	100.0
PARTICULATE MATTER < 10 µm	5.88	14.3	57.9	15.9	6.02	100.0
PARTICULATE MATTER < 2.5 µm	2.91	24.2	47.9	15.0	10.0	100.0
SULFUR DIOXIDE	8.12×10^{-3}	0.08	87.1	11.8	0.92	100.0
TOTAL VOCS	8.22	38.9	13.1	3.21	36.6	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of Annual Anthropogenic Emissions (%) - Wollongong						
CARBON MONOXIDE	0.02	0.67	95.7	0.15	3.51	100.0
LEAD AND COMPOUNDS	0.01	0.09	63.5	29.1	7.27	100.0
OXIDES OF NITROGEN	1.07	0.56	64.5	7.43	26.5	100.0
PARTICULATE MATTER < 10 µm	2.12	9.03	68.2	16.7	3.92	100.0
PARTICULATE MATTER < 2.5 µm	1.39	12.1	71.0	10.4	5.17	100.0
SULFUR DIOXIDE	0.01	0.05	97.0	2.36	0.56	100.0
TOTAL VOCS	9.66	40.5	12.2	3.59	34.0	100.0
Proportion of Annual Anthropogenic Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.29	11.0	20.2	7.63	60.9	100.0
LEAD AND COMPOUNDS	9.84×10^{-3}	0.05	6.72	89.0	4.20	100.0
OXIDES OF NITROGEN	0.29	0.15	85.7	5.70	8.14	100.0
PARTICULATE MATTER < 10 µm	3.45	2.01	72.8	20.7	1.05	100.0
PARTICULATE MATTER < 2.5 µm	3.46	6.88	54.6	31.5	3.55	100.0
SULFUR DIOXIDE	7.81×10^{-3}	7.80×10^{-3}	99.4	0.48	0.09	100.0
TOTAL VOCS	10.2	37.3	7.21	9.66	35.6	100.0

Figure 4.4 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the GMR.

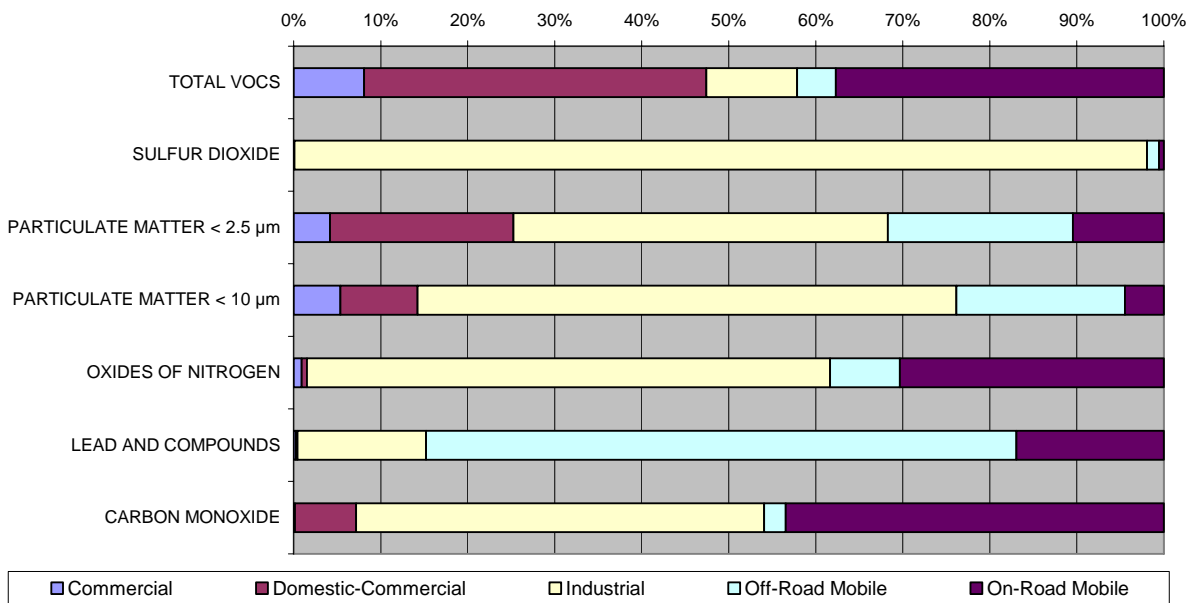


Figure 4.4 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the GMR

Figure 4.5 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Sydney region.

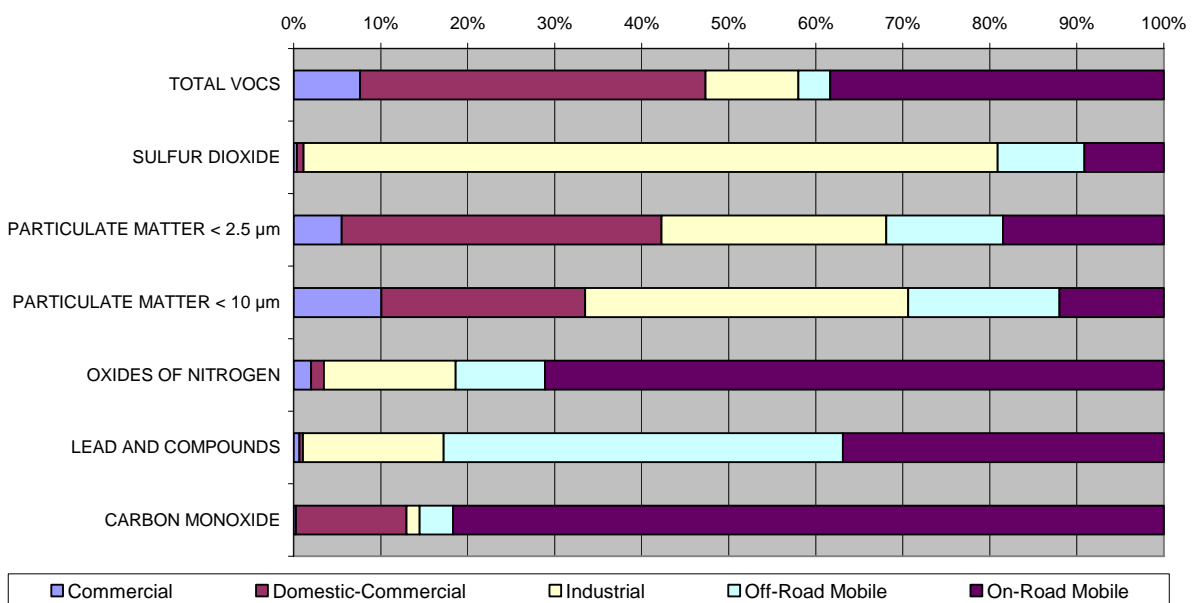


Figure 4.5 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Sydney region

Figure 4.6 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Newcastle region.

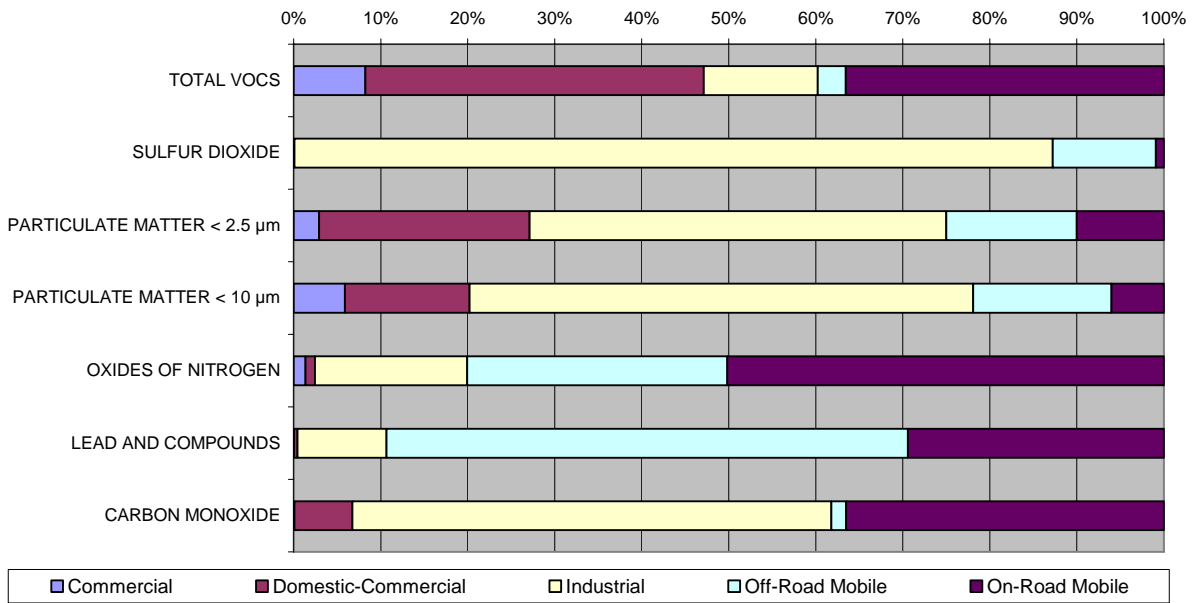


Figure 4.6 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Newcastle region

Figure 4.7 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Wollongong region.

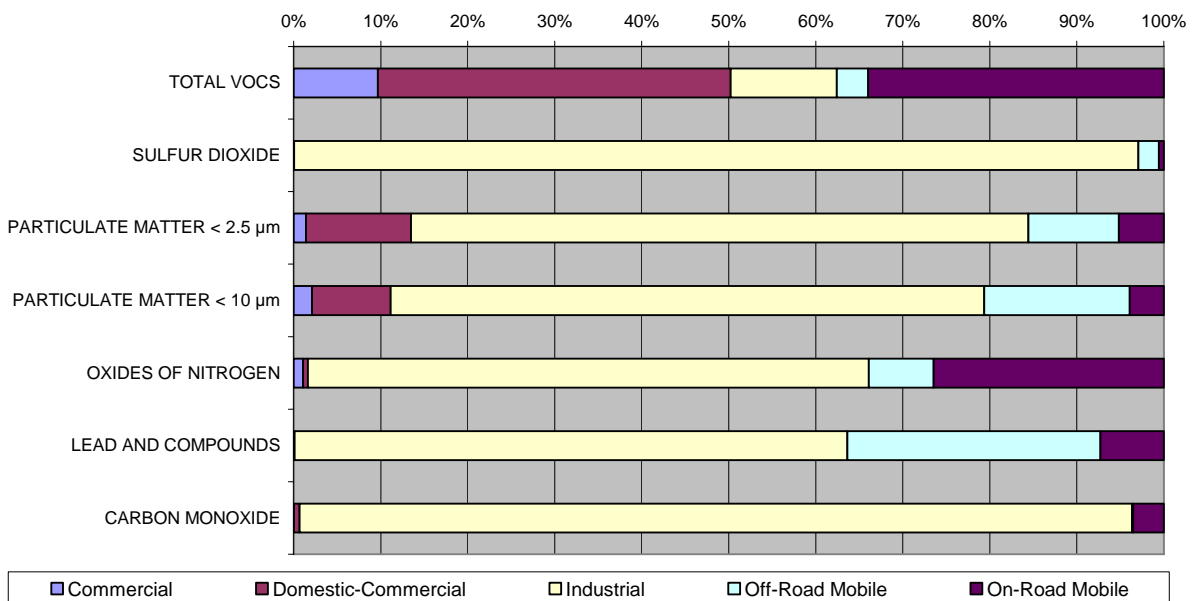


Figure 4.7 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Wollongong region

Figure 4.8 shows the proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in the Non-Urban region.

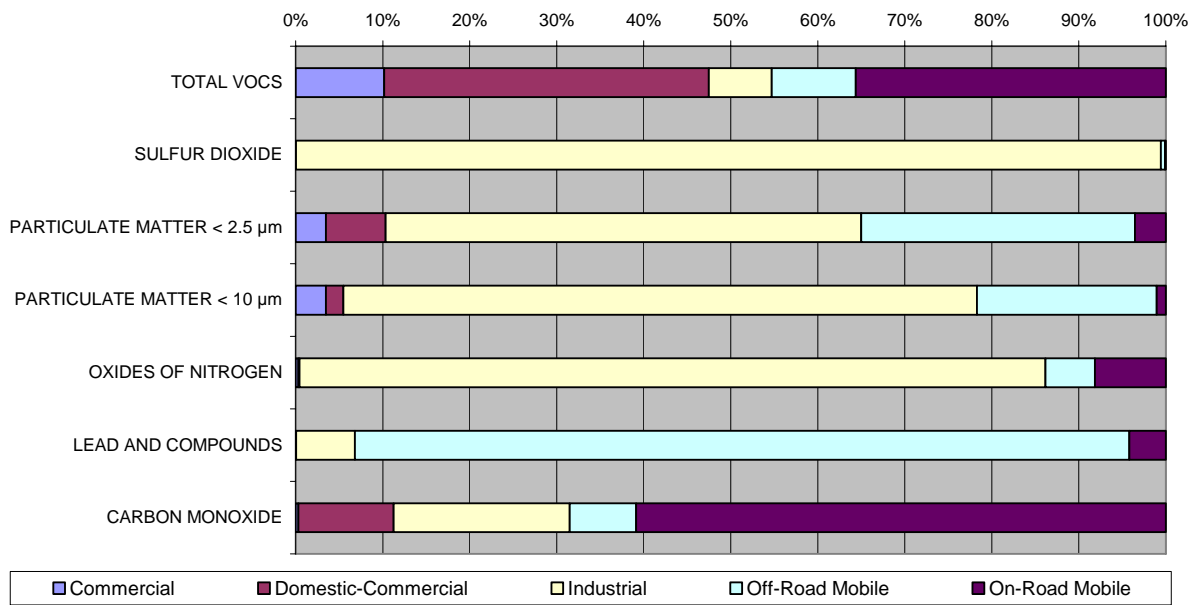


Figure 4.8 Proportion of total estimated annual anthropogenic emissions from each anthropogenic source type in Non-Urban region

4.2 Ranked Annual Emission Estimates

4.2.1 Carbon Monoxide

Table 4.5 shows anthropogenic sources of carbon monoxide emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.5 Ranking of anthropogenic sources of carbon monoxide

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Primary iron and steel production	520,451	40.5	40.5
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	413,721	32.2	72.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial – Petrol	71,129	5.53	78.1
Industrial	Primary aluminium production	57,393	4.46	82.6
On-Road Mobile	Exhaust Emissions - Other	51,579	4.01	86.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	41,580	3.23	89.8
Domestic-Commercial	Solid Fuel Combustion	37,079	2.88	92.7
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial – Diesel	12,424	0.97	93.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	11,292	0.88	94.6
Off-Road Mobile	Aircraft	10,489	0.82	95.4
On-Road Mobile	Exhaust Emissions Light Duty – Diesel	10,194	0.79	96.2
Off-Road Mobile	Recreational Boats	9,633	0.75	96.9
Industrial	Generation of electrical power from coal	6,856	0.53	97.4
Off-Road Mobile	Commercial Boats	5,589	0.43	97.9
Industrial	Cement or lime production	3,279	0.25	98.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	2,999	0.23	98.4
Industrial	Secondary iron and steel production	2,597	0.20	98.6
Industrial	Generation of electrical power from gas	2,520	0.20	98.8
Industrial	Coal mining	2,316	0.18	98.9
Industrial	Storage of Petroleum and/or Petroleum Products	1,604	0.12	99.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	1,206	0.09	99.2
Industrial	Metal plating or coating works	1,197	0.09	99.3
Commercial	Hospitals (Except Psychiatric Hospitals)	1,110	0.09	99.3
Off-Road Mobile	Commercial Ships	1,047	0.08	99.4
Industrial	Ceramics production (excluding glass)	808	0.06	99.5
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	755	0.06	99.5
Industrial	Crushing, grinding or separating works	657	0.05	99.6
Industrial	Petroleum refining	546	0.04	99.6
Commercial	Unaccounted Gaseous Fuel Combustion	429	0.03	99.7
Off-Road Mobile	Railways	425	0.03	99.7
Industrial	Composting and related reprocessing or treatment	396	0.03	99.7
Domestic-Commercial	Gaseous Fuel Combustion	324	0.03	99.8
Industrial	Production of ammonium nitrate	303	0.02	99.8
Industrial	Petrochemical production	302	0.02	99.8

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Solid waste landfilling	272	0.02	99.8
Industrial	Other land-based extraction	239	0.02	99.9
Domestic-Commercial	Barbecues	231	0.02	99.9
Industrial	Sewage Treatment - processing by small plants	226	0.02	99.9
Industrial	Secondary non-ferrous production (excluding aluminium)	158	0.01	99.9
Industrial	Bitumen pre-mix or hotmix production	148	0.01	99.9
Industrial	Other metal processing	146	0.01	99.9
Commercial	Plaster Product Manufacturing	132	0.01	99.9
Industrial	Generation of electrical power other than from coal or gas	101	7.82×10^{-3}	99.9
Industrial	Sewage Treatment - processing by large plants	95.904	7.45×10^{-3}	99.9
Industrial	Secondary aluminium production	76.895	5.98×10^{-3}	100.0
Industrial	Other chemical processing	74.313	5.78×10^{-3}	100.0
Industrial	Waste storage, transfer, separating or processing	53.981	4.20×10^{-3}	100.0
Industrial	Paper production using recycled materials	46.967	3.65×10^{-3}	100.0
Commercial	Port Operators	31.326	2.43×10^{-3}	100.0
Industrial	Wood or timber milling	31.075	2.42×10^{-3}	100.0
Industrial	Other agricultural crop processing	29.008	2.25×10^{-3}	100.0
Commercial	Glass and Glass Product Manufacturing	20.664	1.61×10^{-3}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	20.211	1.57×10^{-3}	100.0
Industrial	Production of container glass	18.678	1.45×10^{-3}	100.0
Industrial	Rendering or fat extraction	17.962	1.40×10^{-3}	100.0
Industrial	Beer or distilled alcohol production	15.035	1.17×10^{-3}	100.0
Commercial	Ceramic Product Manufacturing	11.601	9.02×10^{-4}	100.0
Industrial	Printing	11.362	8.83×10^{-4}	100.0
Commercial	Food Manufacturing n.e.c.	10.777	8.38×10^{-4}	100.0
Industrial	Production of float glass	10.388	8.07×10^{-4}	100.0
Industrial	Milk processing	10.067	7.82×10^{-4}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	9.651	7.50×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	9.227	7.17×10^{-4}	100.0
Commercial	Biscuit Manufacturing	7.893	6.13×10^{-4}	100.0
Industrial	Coke production	7.532	5.85×10^{-4}	100.0
Industrial	Production of phosphate fertilizer	6.741	5.24×10^{-4}	100.0
Industrial	Animal slaughtering	6.575	5.11×10^{-4}	100.0
Industrial	Other livestock processing	6.380	4.96×10^{-4}	100.0
Commercial	Bread Manufacturing	6.062	4.71×10^{-4}	100.0
Industrial	Pharmaceutical or veterinary products production	5.781	4.49×10^{-4}	100.0
Industrial	Biomedical waste incineration	5.488	4.27×10^{-4}	100.0
Industrial	Oil and fat manufacturing	5.315	4.13×10^{-4}	100.0
Commercial	Basic Iron and Steel Manufacturing	5.214	4.05×10^{-4}	100.0
Industrial	Concrete batching	5.189	4.03×10^{-4}	100.0
Industrial	Poultry production	4.739	3.68×10^{-4}	100.0
Industrial	Soap or detergent production	4.591	3.57×10^{-4}	100.0
Industrial	Other Chemical Storage	4.283	3.33×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	4.241	3.30×10^{-4}	100.0
Industrial	Environmentally sensitive area landfilling	3.972	3.09×10^{-4}	100.0
Commercial	Metal Coating and Finishing	3.718	2.89×10^{-4}	100.0
Industrial	Landfilling in designated areas	3.585	2.79×10^{-4}	100.0
Industrial	Plastics production	3.552	2.76×10^{-4}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Funeral Directors, Crematoria and Cemeteries	3.386	2.63×10^{-4}	100.0
Commercial	Printing	3.020	2.35×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	2.959	2.30×10^{-4}	100.0
Industrial	Waste oil recovery	2.751	2.14×10^{-4}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	2.661	2.07×10^{-4}	100.0
Industrial	Paint production	2.521	1.96×10^{-4}	100.0
Commercial	Aircraft Manufacturing	2.352	1.83×10^{-4}	100.0
Industrial	Services to air transport	2.244	1.74×10^{-4}	100.0
Industrial	Cement or lime handling	2.210	1.72×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	2.005	1.56×10^{-4}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	1.932	1.50×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	1.822	1.42×10^{-4}	100.0
Industrial	Bread manufacturing	1.684	1.31×10^{-4}	100.0
Commercial	Furniture Manufacturing n.e.c.	1.594	1.24×10^{-4}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	1.465	1.14×10^{-4}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.400	1.09×10^{-4}	100.0
Commercial	Cake and Pastry Manufacturing	1.337	1.04×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	1.302	1.01×10^{-4}	100.0
Industrial	Cake and pastry manufacturing	1.263	9.82×10^{-5}	100.0
Industrial	Dry cleaning	1.245	9.68×10^{-5}	100.0
Commercial	Gas Supply	1.210	9.40×10^{-5}	100.0
Commercial	Ice Cream Manufacturing	1.029	8.0×10^{-5}	100.0
Commercial	Milk and Cream Processing	1.028	7.99×10^{-5}	100.0
Industrial	Soft drink manufacturing	0.972	7.55×10^{-5}	100.0
Industrial	Coal loading	0.865	6.72×10^{-5}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.861	6.69×10^{-5}	100.0
Industrial	Drum or container reconditioning	0.678	5.27×10^{-5}	100.0
Commercial	Fruit and Vegetable Processing	0.564	4.39×10^{-5}	100.0
Commercial	Laundries and Dry-Cleaners	0.453	3.52×10^{-5}	100.0
Industrial	Inert waste landfilling	0.434	3.37×10^{-5}	100.0
Industrial	Hard-rock gravel quarrying	0.392	3.05×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.210	1.64×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.184	1.43×10^{-5}	100.0
Industrial	Confectionary manufacturing	0.168	1.31×10^{-5}	100.0
Industrial	Pesticides production	0.143	1.11×10^{-5}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	0.088	6.83×10^{-6}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.037	2.86×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	0.022	1.72×10^{-6}	100.0
Industrial	Coal washery reject or slag landfilling	7.28×10^{-3}	5.66×10^{-7}	100.0
Commercial	Non-Ferrous Metal Casting	7.20×10^{-3}	5.60×10^{-7}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	7.20×10^{-3}	5.60×10^{-7}	100.0
Commercial	Spring and Wire Product Manufacturing	5.12×10^{-3}	3.98×10^{-7}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	4.80×10^{-3}	3.73×10^{-7}	100.0
Commercial	Industrial Gas Manufacturing	1.88×10^{-3}	1.46×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	1.48×10^{-3}	1.15×10^{-7}	100.0
Industrial	Explosives or pyrotechnics production	1.20×10^{-3}	9.33×10^{-8}	100.0
Commercial	Wood Product Manufacturing n.e.c.	5.0×10^{-4}	3.89×10^{-8}	100.0
Commercial	Wine Manufacturing	2.41×10^{-4}	1.87×10^{-8}	100.0

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Anthropogenic	All	1,286,641	100.0	
Newcastle				
Industrial	Primary aluminium production	44,697	51.5	51.5
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	24,897	28.7	80.2
On-Road Mobile	Exhaust Emissions – Other	2,788	3.21	83.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial – Petrol	2,784	3.21	86.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	2,645	3.05	89.7
Industrial	Secondary iron and steel production	2,597	2.99	92.7
Domestic-Commercial	Solid Fuel Combustion	2,358	2.72	95.4
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	749	0.86	96.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial – Diesel	638	0.74	97.0
On-Road Mobile	Exhaust Emissions Light Duty – Diesel	568	0.65	97.7
Off-Road Mobile	Commercial Ships	408	0.47	98.1
Off-Road Mobile	Aircraft	318	0.37	98.5
Industrial	Production of ammonium nitrate	303	0.35	98.9
Off-Road Mobile	Recreational Boats	290	0.33	99.2
Off-Road Mobile	Commercial Boats	235	0.27	99.5
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	71.977	0.08	99.5
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	62.730	0.07	99.6
Industrial	Other metal processing	58.123	0.07	99.7
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	43.812	0.05	99.7
Commercial	Hospitals (Except Psychiatric Hospitals)	41.452	0.05	99.8
Industrial	Other chemical processing	25.139	0.03	99.8
Industrial	Bitumen pre-mix or hotmix production	23.016	0.03	99.8
Commercial	Unaccounted Gaseous Fuel Combustion	22.246	0.03	99.9
Off-Road Mobile	Railways	21.259	0.02	99.9
Industrial	Primary non-ferrous production (excluding aluminium)	20.211	0.02	99.9
Domestic-Commercial	Gaseous Fuel Combustion	16.802	0.02	99.9
Domestic-Commercial	Barbecues	12.456	0.01	99.9
Industrial	Coal mining	9.484	0.01	100.0
Industrial	Other agricultural crop processing	8.281	9.55×10^{-3}	100.0
Industrial	Solid waste landfilling	5.456	6.29×10^{-3}	100.0
Industrial	Production of phosphate fertilizer	5.319	6.13×10^{-3}	100.0
Industrial	Crushing, grinding or separating works	3.000	3.46×10^{-3}	100.0
Industrial	Animal slaughtering	2.771	3.19×10^{-3}	100.0
Industrial	Milk processing	2.594	2.99×10^{-3}	100.0
Commercial	Metal Coating and Finishing	2.458	2.83×10^{-3}	100.0
Industrial	Metal plating or coating works	1.761	2.03×10^{-3}	100.0
Commercial	Bread Manufacturing	1.682	1.94×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.478	5.52×10^{-4}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.400	4.61×10^{-4}	100.0
Industrial	Cement or lime handling	0.369	4.26×10^{-4}	100.0
Industrial	Other land-based extraction	0.171	1.97×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.035	3.98×10^{-5}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	6.13×10^{-3}	7.07×10^{-6}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	4.80×10^{-3}	5.53×10^{-6}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Waste storage, transfer, separating or processing	4.15×10^{-3}	4.79×10^{-6}	100.0
Industrial	Explosives or pyrotechnics production	1.20×10^{-3}	1.38×10^{-6}	100.0
Anthropogenic	All	86,739	100.0	
Non-Urban				
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	50,456	39.9	39.9
Industrial	Primary aluminium production	12,696	10.0	50.0
On-Road Mobile	Exhaust Emissions - Other	11,388	9.01	59.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	11,001	8.70	67.7
Industrial	Generation of electrical power from coal	6,856	5.42	73.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	5,937	4.70	77.8
Domestic-Commercial	Solid Fuel Combustion	5,294	4.19	82.0
Off-Road Mobile	Commercial Boats	3,274	2.59	84.6
Industrial	Cement or lime production	3,197	2.53	87.1
Off-Road Mobile	Recreational Boats	2,862	2.26	89.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	2,740	2.17	91.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	2,575	2.04	93.6
Industrial	Coal mining	2,297	1.82	95.4
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	2,153	1.70	97.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1,344	1.06	98.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	596	0.47	98.6
Commercial	Hospitals (Except Psychiatric Hospitals)	303	0.24	98.9
Off-Road Mobile	Commercial Ships	293	0.23	99.1
Industrial	Sewage Treatment - processing by small plants	203	0.16	99.3
Industrial	Ceramics production (excluding glass)	203	0.16	99.4
Off-Road Mobile	Aircraft	184	0.15	99.6
Off-Road Mobile	Railways	182	0.14	99.7
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	104	0.08	99.8
Commercial	Unaccounted Gaseous Fuel Combustion	52.944	0.04	99.8
Domestic-Commercial	Gaseous Fuel Combustion	39.986	0.03	99.9
Industrial	Wood or timber milling	31.075	0.02	99.9
Domestic-Commercial	Barbecues	30.270	0.02	99.9
Industrial	Secondary aluminium production	29.485	0.02	99.9
Industrial	Rendering or fat extraction	9.640	7.63×10^{-3}	100.0
Industrial	Bitumen pre-mix or hotmix production	9.397	7.43×10^{-3}	100.0
Industrial	Other land-based extraction	8.611	6.81×10^{-3}	100.0
Industrial	Other agricultural crop processing	6.119	4.84×10^{-3}	100.0
Industrial	Solid waste landfilling	5.890	4.66×10^{-3}	100.0
Industrial	Sewage Treatment - processing by large plants	4.302	3.40×10^{-3}	100.0
Commercial	Food Manufacturing n.e.c.	3.875	3.07×10^{-3}	100.0
Industrial	Other livestock processing	3.729	2.95×10^{-3}	100.0
Industrial	Environmentally sensitive area landfilling	2.863	2.26×10^{-3}	100.0
Industrial	Waste oil recovery	2.659	2.10×10^{-3}	100.0
Industrial	Other chemical processing	1.680	1.33×10^{-3}	100.0
Commercial	Furniture Manufacturing n.e.c.	1.594	1.26×10^{-3}	100.0
Industrial	Concrete batching	1.581	1.25×10^{-3}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	1.301	1.03×10^{-3}	100.0

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Domestic-Commercial	Liquid Fuel Combustion	1,139	9.01×10^{-4}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.795	6.29×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.766	6.06×10^{-4}	100.0
Industrial	Plastics production	0.554	4.39×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.520	4.11×10^{-4}	100.0
Industrial	Composting and related reprocessing or treatment	0.506	4.0×10^{-4}	100.0
Industrial	Inert waste landfilling	0.434	3.43×10^{-4}	100.0
Industrial	Coal loading	0.335	2.65×10^{-4}	100.0
Industrial	Crushing, grinding or separating works	0.265	2.10×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.081	6.42×10^{-5}	100.0
Industrial	Animal slaughtering	0.060	4.76×10^{-5}	100.0
Industrial	Poultry production	0.036	2.85×10^{-5}	100.0
Industrial	Landfilling in designated areas	0.026	2.06×10^{-5}	100.0
Industrial	Other Chemical Storage	0.017	1.37×10^{-5}	100.0
Commercial	Non-Ferrous Metal Casting	7.20×10^{-3}	5.70×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	5.65×10^{-3}	4.47×10^{-6}	100.0
Commercial	Glass and Glass Product Manufacturing	4.42×10^{-3}	3.50×10^{-6}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	2.55×10^{-3}	2.02×10^{-6}	100.0
Anthropogenic	All	126,391	100.0	
Sydney				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	323,953	61.4	61.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	55,294	10.5	71.8
On-Road Mobile	Exhaust Emissions - Other	35,554	6.73	78.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	31,274	5.92	84.5
Domestic-Commercial	Solid Fuel Combustion	27,889	5.28	89.8
Off-Road Mobile	Aircraft	9,979	1.89	91.7
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	8,534	1.62	93.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	7,935	1.50	94.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	7,617	1.44	96.2
Off-Road Mobile	Recreational Boats	6,088	1.15	97.4
Industrial	Generation of electrical power from gas	2,520	0.48	97.8
Off-Road Mobile	Commercial Boats	1,924	0.36	98.2
Industrial	Storage of Petroleum and/or Petroleum Products	1,604	0.30	98.5
Commercial	Hospitals (Except Psychiatric Hospitals)	695	0.13	98.6
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	666	0.13	98.8
Industrial	Crushing, grinding or separating works	654	0.12	98.9
Industrial	Ceramics production (excluding glass)	605	0.11	99.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	591	0.11	99.1
Industrial	Petroleum refining	546	0.10	99.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	526	0.10	99.3
Industrial	Composting and related reprocessing or treatment	396	0.07	99.4
Commercial	Unaccounted Gaseous Fuel Combustion	338	0.06	99.5
Industrial	Petrochemical production	302	0.06	99.5

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Off-Road Mobile	Commercial Ships	272	0.05	99.6
Domestic-Commercial	Gaseous Fuel Combustion	255	0.05	99.6
Industrial	Other land-based extraction	230	0.04	99.7
Off-Road Mobile	Railways	204	0.04	99.7
Domestic-Commercial	Barbecues	179	0.03	99.7
Industrial	Secondary non-ferrous production (excluding aluminium)	158	0.03	99.8
Industrial	Solid waste landfilling	136	0.03	99.8
Commercial	Plaster Product Manufacturing	132	0.02	99.8
Industrial	Generation of electrical power other than from coal or gas	101	0.02	99.8
Industrial	Bitumen pre-mix or hotmix production	91.001	0.02	99.9
Industrial	Sewage Treatment - processing by large plants	90.908	0.02	99.9
Industrial	Other metal processing	87.516	0.02	99.9
Industrial	Cement or lime production	81.600	0.02	99.9
Industrial	Waste storage, transfer, separating or processing	53.977	0.01	99.9
Industrial	Secondary aluminium production	47.410	8.98×10^{-3}	99.9
Industrial	Paper production using recycled materials	46.967	8.90×10^{-3}	99.9
Industrial	Other chemical processing	46.340	8.78×10^{-3}	99.9
Commercial	Port Operators	31.326	5.93×10^{-3}	99.9
Industrial	Sewage Treatment - processing by small plants	21.474	4.07×10^{-3}	100.0
Commercial	Glass and Glass Product Manufacturing	20.660	3.91×10^{-3}	100.0
Industrial	Production of container glass	18.678	3.54×10^{-3}	100.0
Industrial	Beer or distilled alcohol production	15.035	2.85×10^{-3}	100.0
Industrial	Other agricultural crop processing	14.608	2.77×10^{-3}	100.0
Industrial	Metal plating or coating works	12.812	2.43×10^{-3}	100.0
Industrial	Printing	11.362	2.15×10^{-3}	100.0
Industrial	Production of float glass	10.388	1.97×10^{-3}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	9.642	1.83×10^{-3}	100.0
Industrial	Rendering or fat extraction	8.322	1.58×10^{-3}	100.0
Commercial	Biscuit Manufacturing	7.893	1.49×10^{-3}	100.0
Industrial	Milk processing	7.473	1.42×10^{-3}	100.0
Industrial	Coal mining	7.400	1.40×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	7.262	1.38×10^{-3}	100.0
Commercial	Food Manufacturing n.e.c.	6.902	1.31×10^{-3}	100.0
Industrial	Pharmaceutical or veterinary products production	5.781	1.09×10^{-3}	100.0
Industrial	Biomedical waste incineration	5.488	1.04×10^{-3}	100.0
Industrial	Other activities - oil and fat manufacturing	5.315	1.01×10^{-3}	100.0
Industrial	Poultry production	4.703	8.91×10^{-4}	100.0
Industrial	Soap or detergent production	4.591	8.70×10^{-4}	100.0
Commercial	Bread Manufacturing	4.380	8.30×10^{-4}	100.0
Industrial	Chemical Storage - Other Chemical Storage	4.266	8.08×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	4.146	7.85×10^{-4}	100.0
Industrial	Coke production	3.924	7.43×10^{-4}	100.0
Industrial	Animal slaughtering	3.744	7.09×10^{-4}	100.0
Industrial	Concrete batching	3.608	6.83×10^{-4}	100.0
Industrial	Landfilling in designated areas	3.559	6.74×10^{-4}	100.0
Commercial	Printing	3.020	5.72×10^{-4}	100.0
Industrial	Plastics production	2.998	5.68×10^{-4}	100.0

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Soft Drink, Cordial and Syrup Manufacturing	2.661	5.04×10^{-4}	100.0
Industrial	Other livestock processing	2.651	5.02×10^{-4}	100.0
Industrial	Paint production	2.521	4.77×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	2.439	4.62×10^{-4}	100.0
Commercial	Aircraft Manufacturing	2.352	4.45×10^{-4}	100.0
Industrial	Services to air transport	2.244	4.25×10^{-4}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	2.040	3.86×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	2.005	3.80×10^{-4}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	1.932	3.66×10^{-4}	100.0
Industrial	Cement or lime handling	1.840	3.49×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	1.741	3.30×10^{-4}	100.0
Industrial	Bread manufacturing	1.684	3.19×10^{-4}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	1.465	2.77×10^{-4}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.400	2.65×10^{-4}	100.0
Commercial	Cake and Pastry Manufacturing	1.337	2.53×10^{-4}	100.0
Industrial	Cake and pastry manufacturing	1.263	2.39×10^{-4}	100.0
Commercial	Metal Coating and Finishing	1.260	2.39×10^{-4}	100.0
Industrial	Dry cleaning	1.245	2.36×10^{-4}	100.0
Commercial	Gas Supply	1.210	2.29×10^{-4}	100.0
Industrial	Environmentally sensitive area landfilling	1.109	2.10×10^{-4}	100.0
Commercial	Ice Cream Manufacturing	1.029	1.95×10^{-4}	100.0
Commercial	Milk and Cream Processing	1.028	1.95×10^{-4}	100.0
Industrial	Soft drink manufacturing	0.972	1.84×10^{-4}	100.0
Industrial	Drum or container reconditioning	0.676	1.28×10^{-4}	100.0
Commercial	Basic Iron and Steel Manufacturing	0.645	1.22×10^{-4}	100.0
Commercial	Fruit and Vegetable Processing	0.564	1.07×10^{-4}	100.0
Commercial	Laundries and Dry-Cleaners	0.453	8.58×10^{-5}	100.0
Industrial	Hard-rock gravel quarrying	0.392	7.42×10^{-5}	100.0
Industrial	Primary iron and steel production	0.208	3.94×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.208	3.94×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.184	3.49×10^{-5}	100.0
Industrial	Confectionary manufacturing	0.168	3.19×10^{-5}	100.0
Industrial	Pesticides production	0.143	2.71×10^{-5}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.095	1.80×10^{-5}	100.0
Industrial	Waste oil recovery	0.092	1.74×10^{-5}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	0.088	1.66×10^{-5}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.037	6.97×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	0.016	3.12×10^{-6}	100.0
Commercial	Spring and Wire Product Manufacturing	4.52×10^{-3}	8.55×10^{-7}	100.0
Commercial	Industrial Gas Manufacturing	1.88×10^{-3}	3.56×10^{-7}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	1.44×10^{-3}	2.73×10^{-7}	100.0
Commercial	Wood Product Manufacturing n.e.c.	5.0×10^{-4}	9.47×10^{-8}	100.0
Commercial	Wine Manufacturing	2.41×10^{-4}	4.56×10^{-8}	100.0
Anthropogenic	All	528,011	100.0	
Wollongong				
Industrial	Primary iron and steel production	520,451	95.4	95.4
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	14,415	2.64	98.1

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Carbon Monoxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	2,050	0.38	98.4
On-Road Mobile	Exhaust Emissions - Other	1,848	0.34	98.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	1,725	0.32	99.1
Domestic-Commercial	Solid Fuel Combustion	1,538	0.28	99.4
Industrial	Metal plating or coating works	1,182	0.22	99.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	513	0.09	99.7
Off-Road Mobile	Recreational Boats	393	0.07	99.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	352	0.06	99.8
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	347	0.06	99.9
Off-Road Mobile	Commercial Boats	156	0.03	99.9
Industrial	Solid waste landfilling	125	0.02	99.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	108	0.02	99.9
Off-Road Mobile	Commercial Ships	73.295	0.01	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	71.125	0.01	100.0
Industrial	Bitumen pre-mix or hotmix production	24.512	4.49×10^{-3}	100.0
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	21.714	3.98×10^{-3}	100.0
Off-Road Mobile	Railways	17.432	3.20×10^{-3}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	16.175	2.97×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	15.863	2.91×10^{-3}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	12.217	2.24×10^{-3}	100.0
Commercial	Ceramic Product Manufacturing	11.601	2.13×10^{-3}	100.0
Domestic-Commercial	Barbecues	9.016	1.65×10^{-3}	100.0
Off-Road Mobile	Aircraft	7.773	1.42×10^{-3}	100.0
Commercial	Basic Iron and Steel Manufacturing	4.570	8.38×10^{-4}	100.0
Industrial	Coke production	3.608	6.61×10^{-4}	100.0
Industrial	Coal mining	2.000	3.67×10^{-4}	100.0
Industrial	Sewage Treatment - processing by small plants	1.454	2.67×10^{-4}	100.0
Industrial	Production of phosphate fertilizer	1.422	2.61×10^{-4}	100.0
Industrial	Other chemical processing	1.154	2.12×10^{-4}	100.0
Industrial	Sewage Treatment - processing by large plants	0.693	1.27×10^{-4}	100.0
Industrial	Other metal processing	0.576	1.06×10^{-4}	100.0
Industrial	Coal loading	0.530	9.72×10^{-5}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.348	6.38×10^{-5}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.152	2.78×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.060	1.11×10^{-5}	100.0
Industrial	Coal washery reject or slag landfilling	7.28×10^{-3}	1.33×10^{-6}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	7.20×10^{-3}	1.32×10^{-6}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	2.69×10^{-3}	4.93×10^{-7}	100.0
Industrial	Drum or container reconditioning	2.10×10^{-3}	3.85×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	1.48×10^{-3}	2.71×10^{-7}	100.0
Commercial	Spring and Wire Product Manufacturing	6.0×10^{-4}	1.10×10^{-7}	100.0
Anthropogenic	All	545,500	100.0	

4.2.2 Lead and Compounds

Table 4.6 shows anthropogenic sources of lead and compounds emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.6 Ranking of anthropogenic sources of lead and compounds

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	50.364	62.2	62.2
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	8.183	10.1	72.3
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	4.216	5.21	77.6
Industrial	Primary iron and steel production	3.852	4.76	82.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	2.881	3.56	85.9
Industrial	Glass Production - Production of container glass	2.280	2.82	88.7
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1.440	1.78	90.5
Industrial	Coal mining	1.416	1.75	92.2
Industrial	Generation of electrical power from coal	1.033	1.28	93.5
Industrial	Battery production	0.952	1.18	94.7
Industrial	Secondary non-ferrous production (excluding aluminium)	0.723	0.89	95.6
On-Road Mobile	Exhaust Emissions - Other	0.723	0.89	96.5
Industrial	Cement or lime production	0.499	0.62	97.1
Industrial	Coke production	0.484	0.60	97.7
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.473	0.58	98.3
Off-Road Mobile	Aircraft	0.324	0.40	98.7
Industrial	Petrochemical production	0.181	0.22	98.9
Commercial	Paint Manufacturing	0.138	0.17	99.1
Industrial	Primary aluminium production	0.103	0.13	99.2
Industrial	Secondary iron and steel production	0.100	0.12	99.3
Domestic-Commercial	Solid Fuel Combustion	0.068	0.08	99.4
Industrial	Petroleum refining	0.058	0.07	99.5
Industrial	Metal plating or coating works	0.058	0.07	99.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	0.056	0.07	99.6
Industrial	Wood or timber milling	0.032	0.04	99.6
Industrial	Biomedical waste incineration	0.029	0.04	99.7
Industrial	Crushing, grinding or separating works	0.028	0.03	99.7
Industrial	Drum or container reconditioning	0.023	0.03	99.7
Industrial	Paper production using recycled materials	0.022	0.03	99.8
Industrial	Coal loading	0.020	0.03	99.8
Industrial	Bitumen pre-mix or hotmix production	0.019	0.02	99.8
Commercial	Glass and Glass Product Manufacturing	0.019	0.02	99.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	0.016	0.02	99.9
Commercial	Plaster Product Manufacturing	0.013	0.02	99.9
Industrial	Storage of Petroleum and/or Petroleum Products	8.84×10^{-3}	0.01	99.9
Domestic-Commercial	Barbecues	6.65×10^{-3}	8.21×10^{-3}	99.9
Commercial	Hospitals (Except Psychiatric Hospitals)	6.61×10^{-3}	8.16×10^{-3}	99.9
Industrial	Other land-based extraction	6.29×10^{-3}	7.77×10^{-3}	99.9
Industrial	Sewage Treatment - processing by small plants	5.91×10^{-3}	7.30×10^{-3}	99.9

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Other metal processing	5.88×10^{-3}	7.27×10^{-3}	99.9
Commercial	Unaccounted Gaseous Fuel Combustion	5.37×10^{-3}	6.64×10^{-3}	99.9
Industrial	Hard-rock gravel quarrying	5.23×10^{-3}	6.46×10^{-3}	99.9
Commercial	Basic Iron and Steel Manufacturing	4.84×10^{-3}	5.98×10^{-3}	99.9
Domestic-Commercial	Gaseous Fuel Combustion	4.10×10^{-3}	5.06×10^{-3}	99.9
Off-Road Mobile	Commercial Ships	3.97×10^{-3}	4.90×10^{-3}	99.9
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	3.70×10^{-3}	4.57×10^{-3}	100.0
Industrial	Plastics production	3.67×10^{-3}	4.53×10^{-3}	100.0
Industrial	Concrete batching	3.28×10^{-3}	4.06×10^{-3}	100.0
Off-Road Mobile	Commercial Boats	3.26×10^{-3}	4.02×10^{-3}	100.0
Commercial	Gravel and Sand Quarrying	3.01×10^{-3}	3.71×10^{-3}	100.0
Industrial	Secondary aluminium production	2.79×10^{-3}	3.44×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	2.78×10^{-3}	3.44×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	2.37×10^{-3}	2.93×10^{-3}	100.0
Off-Road Mobile	Railways	2.36×10^{-3}	2.92×10^{-3}	100.0
Industrial	Generation of electrical power from gas	2.23×10^{-3}	2.75×10^{-3}	100.0
Industrial	Freeway or tollway construction	1.84×10^{-3}	2.27×10^{-3}	100.0
Industrial	Animal slaughtering	1.70×10^{-3}	2.10×10^{-3}	100.0
Industrial	Production of ammonium nitrate	1.15×10^{-3}	1.42×10^{-3}	100.0
Industrial	Solid waste landfilling	1.01×10^{-3}	1.25×10^{-3}	100.0
Industrial	Waste oil recovery	5.98×10^{-4}	7.39×10^{-4}	100.0
Industrial	Other chemical processing	5.24×10^{-4}	6.48×10^{-4}	100.0
Commercial	Food Manufacturing n.e.c.	4.61×10^{-4}	5.70×10^{-4}	100.0
Industrial	Mining (other than coal)	4.07×10^{-4}	5.03×10^{-4}	100.0
Commercial	Port Operators	4.0×10^{-4}	4.94×10^{-4}	100.0
Industrial	Rendering or fat extraction	3.01×10^{-4}	3.72×10^{-4}	100.0
Industrial	Production of float glass	2.91×10^{-4}	3.60×10^{-4}	100.0
Industrial	Other vessel construction or maintenance	2.83×10^{-4}	3.49×10^{-4}	100.0
Industrial	Ceramics production (excluding glass)	1.97×10^{-4}	2.43×10^{-4}	100.0
Industrial	Other agricultural crop processing	1.75×10^{-4}	2.16×10^{-4}	100.0
Off-Road Mobile	Recreational Boats	1.70×10^{-4}	2.10×10^{-4}	100.0
Industrial	Cement or lime handling	1.61×10^{-4}	1.99×10^{-4}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	1.40×10^{-4}	1.73×10^{-4}	100.0
Commercial	Construction Material Mining n.e.c.	1.31×10^{-4}	1.62×10^{-4}	100.0
Industrial	Beer or distilled alcohol production	8.95×10^{-5}	1.11×10^{-4}	100.0
Industrial	Paint production	7.46×10^{-5}	9.21×10^{-5}	100.0
Industrial	Printing	6.40×10^{-5}	7.90×10^{-5}	100.0
Industrial	Milk processing	6.0×10^{-5}	7.41×10^{-5}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	5.15×10^{-5}	6.36×10^{-5}	100.0
Industrial	Environmentally sensitive area landfilling	4.91×10^{-5}	6.07×10^{-5}	100.0
Commercial	Biscuit Manufacturing	4.70×10^{-5}	5.81×10^{-5}	100.0
Commercial	Bread Manufacturing	4.35×10^{-5}	5.38×10^{-5}	100.0
Industrial	Other livestock processing	3.74×10^{-5}	4.62×10^{-5}	100.0
Industrial	Production of phosphate fertilizer	3.73×10^{-5}	4.61×10^{-5}	100.0
Industrial	Sewage Treatment - processing by large plants	3.54×10^{-5}	4.38×10^{-5}	100.0
Industrial	Pharmaceutical or veterinary products production	3.39×10^{-5}	4.19×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	3.34×10^{-5}	4.13×10^{-5}	100.0
Industrial	Oil and fat manufacturing	3.17×10^{-5}	3.92×10^{-5}	100.0

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Concrete Slurry Manufacturing	3.05×10^{-5}	3.77×10^{-5}	100.0
Commercial	Ceramic Product Manufacturing	2.90×10^{-5}	3.58×10^{-5}	100.0
Industrial	Poultry production	2.73×10^{-5}	3.38×10^{-5}	100.0
Industrial	Soap or detergent production	2.73×10^{-5}	3.37×10^{-5}	100.0
Industrial	Waste storage, transfer, separating or processing	2.57×10^{-5}	3.18×10^{-5}	100.0
Industrial	Other Chemical Storage	2.55×10^{-5}	3.15×10^{-5}	100.0
Commercial	Metal Coating and Finishing	2.21×10^{-5}	2.73×10^{-5}	100.0
Commercial	Printing	2.15×10^{-5}	2.66×10^{-5}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	1.75×10^{-5}	2.17×10^{-5}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	1.62×10^{-5}	2.01×10^{-5}	100.0
Commercial	Aircraft Manufacturing	1.40×10^{-5}	1.73×10^{-5}	100.0
Industrial	Services to air transport	1.34×10^{-5}	1.65×10^{-5}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	1.26×10^{-5}	1.56×10^{-5}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	1.15×10^{-5}	1.42×10^{-5}	100.0
Industrial	Inert waste landfilling	1.13×10^{-5}	1.39×10^{-5}	100.0
Commercial	Paper Product Manufacturing n.e.c.	1.04×10^{-5}	1.28×10^{-5}	100.0
Industrial	Bread manufacturing	1.0×10^{-5}	1.24×10^{-5}	100.0
Commercial	Furniture Manufacturing n.e.c.	9.49×10^{-6}	1.17×10^{-5}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	8.72×10^{-6}	1.08×10^{-5}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	8.33×10^{-6}	1.03×10^{-5}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	8.11×10^{-6}	1.0×10^{-5}	100.0
Commercial	Cake and Pastry Manufacturing	7.96×10^{-6}	9.84×10^{-6}	100.0
Industrial	Dry cleaning	7.85×10^{-6}	9.70×10^{-6}	100.0
Industrial	Cake and pastry manufacturing	7.52×10^{-6}	9.29×10^{-6}	100.0
Commercial	Gas Supply	7.20×10^{-6}	8.90×10^{-6}	100.0
Commercial	Milk and Cream Processing	6.12×10^{-6}	7.56×10^{-6}	100.0
Commercial	Ice Cream Manufacturing	6.12×10^{-6}	7.56×10^{-6}	100.0
Industrial	Soft drink manufacturing	5.78×10^{-6}	7.15×10^{-6}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	5.0×10^{-6}	6.18×10^{-6}	100.0
Industrial	Composting and related reprocessing or treatment	3.70×10^{-6}	4.58×10^{-6}	100.0
Industrial	Confectionary manufacturing	3.50×10^{-6}	4.33×10^{-6}	100.0
Commercial	Fruit and Vegetable Processing	3.36×10^{-6}	4.15×10^{-6}	100.0
Industrial	Bulk cargo handling	2.76×10^{-6}	3.41×10^{-6}	100.0
Commercial	Laundries and Dry-Cleaners	2.70×10^{-6}	3.33×10^{-6}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	1.91×10^{-6}	2.36×10^{-6}	100.0
Commercial	Non-Ferrous Metal Casting	1.81×10^{-6}	2.23×10^{-6}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	1.25×10^{-6}	1.55×10^{-6}	100.0
Commercial	Confectionery Manufacturing	1.10×10^{-6}	1.36×10^{-6}	100.0
Industrial	Pesticides production	8.51×10^{-7}	1.05×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	4.50×10^{-7}	5.56×10^{-7}	100.0
Industrial	Explosives or pyrotechnics production	3.01×10^{-7}	3.72×10^{-7}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	2.19×10^{-7}	2.71×10^{-7}	100.0
Commercial	Spring and Wire Product Manufacturing	2.69×10^{-8}	3.32×10^{-8}	100.0
Commercial	Road and Bridge Construction	1.72×10^{-8}	2.13×10^{-8}	100.0
Commercial	Synthetic Resin Manufacturing	8.80×10^{-9}	1.09×10^{-8}	100.0
Commercial	Wood Product Manufacturing n.e.c.	2.98×10^{-9}	3.68×10^{-9}	100.0
Anthropogenic	All	80.929	100.0	

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Newcastle				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1.209	50.3	50.3
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	0.424	17.6	67.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	0.219	9.12	77.0
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	0.150	6.26	83.2
Industrial	Primary aluminium production	0.103	4.28	87.5
Industrial	Secondary iron and steel production	0.092	3.80	91.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	0.081	3.36	94.7
On-Road Mobile	Exhaust Emissions - Other	0.036	1.51	96.2
Industrial	Coal mining	0.033	1.36	97.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.016	0.68	98.2
Industrial	Bitumen pre-mix or hotmix production	0.012	0.50	98.7
Off-Road Mobile	Aircraft	0.011	0.47	99.2
Domestic-Commercial	Solid Fuel Combustion	4.30×10^{-3}	0.18	99.4
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	3.57×10^{-3}	0.15	99.5
Industrial	Animal slaughtering	1.67×10^{-3}	0.07	99.6
Off-Road Mobile	Commercial Ships	1.55×10^{-3}	0.06	99.7
Industrial	Hard-rock gravel quarrying	1.47×10^{-3}	0.06	99.7
Industrial	Production of ammonium nitrate	1.15×10^{-3}	0.05	99.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	1.06×10^{-3}	0.04	99.8
Industrial	Solid waste landfilling	9.78×10^{-4}	0.04	99.9
Domestic-Commercial	Barbecues	3.59×10^{-4}	0.01	99.9
Industrial	Other land-based extraction	3.57×10^{-4}	0.01	99.9
Industrial	Other metal processing	3.51×10^{-4}	0.01	99.9
Industrial	Other chemical processing	3.15×10^{-4}	0.01	99.9
Commercial	Unaccounted Gaseous Fuel Combustion	2.78×10^{-4}	0.01	99.9
Commercial	Hospitals (Except Psychiatric Hospitals)	2.45×10^{-4}	0.01	99.9
Domestic-Commercial	Gaseous Fuel Combustion	2.12×10^{-4}	8.83×10^{-3}	99.9
Commercial	Gravel and Sand Quarrying	1.73×10^{-4}	7.17×10^{-3}	99.9
Domestic-Commercial	Liquid Fuel Combustion	1.44×10^{-4}	6.0×10^{-3}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	1.40×10^{-4}	5.83×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	1.38×10^{-4}	5.72×10^{-3}	100.0
Off-Road Mobile	Commercial Boats	1.37×10^{-4}	5.70×10^{-3}	100.0
Industrial	Crushing, grinding or separating works	1.29×10^{-4}	5.38×10^{-3}	100.0
Industrial	Other vessel construction or maintenance	1.25×10^{-4}	5.20×10^{-3}	100.0
Off-Road Mobile	Railways	1.18×10^{-4}	4.91×10^{-3}	100.0
Industrial	Concrete batching	1.04×10^{-4}	4.34×10^{-3}	100.0
Commercial	Construction Material Mining n.e.c.	9.46×10^{-5}	3.93×10^{-3}	100.0
Industrial	Other agricultural crop processing	4.93×10^{-5}	2.05×10^{-3}	100.0
Industrial	Production of phosphate fertilizer	2.75×10^{-5}	1.14×10^{-3}	100.0
Industrial	Coal loading	1.68×10^{-5}	6.97×10^{-4}	100.0
Industrial	Milk processing	1.55×10^{-5}	6.44×10^{-4}	100.0
Commercial	Metal Coating and Finishing	1.46×10^{-5}	6.08×10^{-4}	100.0
Industrial	Metal plating or coating works	1.05×10^{-5}	4.36×10^{-4}	100.0
Commercial	Bread Manufacturing	1.0×10^{-5}	4.16×10^{-4}	100.0
Off-Road Mobile	Recreational Boats	5.12×10^{-6}	2.13×10^{-4}	100.0
Industrial	Waste storage, transfer, separating or processing	3.02×10^{-6}	1.25×10^{-4}	100.0

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Concrete Slurry Manufacturing	3.0×10^{-6}	1.25×10^{-4}	100.0
Industrial	Bulk cargo handling	2.76×10^{-6}	1.15×10^{-4}	100.0
Industrial	Cement or lime handling	2.20×10^{-6}	9.14×10^{-5}	100.0
Industrial	Explosives or pyrotechnics production	3.01×10^{-7}	1.25×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	2.06×10^{-7}	8.55×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	5.31×10^{-8}	2.21×10^{-6}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	3.65×10^{-8}	1.52×10^{-6}	100.0
Commercial	Road and Bridge Construction	1.52×10^{-9}	6.32×10^{-8}	100.0
Anthropogenic	All	2.405	100.0	
Non-Urban				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	36.161	84.1	84.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	2.083	4.85	89.0
Industrial	Coal mining	1.374	3.20	92.2
Industrial	Generation of electrical power from coal	1.033	2.40	94.6
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	0.777	1.81	96.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	0.657	1.53	97.9
Industrial	Cement or lime production	0.428	1.00	98.9
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	0.183	0.43	99.3
On-Road Mobile	Exhaust Emissions - Other	0.135	0.31	99.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.055	0.13	99.8
Industrial	Wood or timber milling	0.032	0.07	99.8
Off-Road Mobile	Aircraft	0.012	0.03	99.9
Domestic-Commercial	Solid Fuel Combustion	9.65×10^{-3}	0.02	99.9
Industrial	Coal loading	8.86×10^{-3}	0.02	99.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	8.02×10^{-3}	0.02	99.9
Industrial	Plastics production	3.65×10^{-3}	8.50×10^{-3}	99.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	3.65×10^{-3}	8.50×10^{-3}	100.0
Industrial	Hard-rock gravel quarrying	3.61×10^{-3}	8.40×10^{-3}	100.0
Off-Road Mobile	Commercial Boats	1.91×10^{-3}	4.44×10^{-3}	100.0
Industrial	Other land-based extraction	1.85×10^{-3}	4.31×10^{-3}	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	1.80×10^{-3}	4.19×10^{-3}	100.0
Commercial	Gravel and Sand Quarrying	1.26×10^{-3}	2.93×10^{-3}	100.0
Off-Road Mobile	Commercial Ships	1.11×10^{-3}	2.59×10^{-3}	100.0
Off-Road Mobile	Railways	1.01×10^{-3}	2.36×10^{-3}	100.0
Domestic-Commercial	Barbecues	8.71×10^{-4}	2.03×10^{-3}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	6.63×10^{-4}	1.54×10^{-3}	100.0
Industrial	Waste oil recovery	5.98×10^{-4}	1.39×10^{-3}	100.0
Industrial	Secondary aluminium production	5.70×10^{-4}	1.33×10^{-3}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	5.05×10^{-4}	1.18×10^{-3}	100.0
Industrial	Bitumen pre-mix or hotmix production	4.47×10^{-4}	1.04×10^{-3}	100.0
Commercial	Food Manufacturing n.e.c.	4.20×10^{-4}	9.78×10^{-4}	100.0
Industrial	Mining (other than coal)	3.81×10^{-4}	8.86×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	3.43×10^{-4}	7.99×10^{-4}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	3.27×10^{-4}	7.61×10^{-4}	100.0
Industrial	Concrete batching	2.33×10^{-4}	5.43×10^{-4}	100.0
Industrial	Crushing, grinding or separating works	2.33×10^{-4}	5.42×10^{-4}	100.0
Industrial	Cement or lime handling	1.43×10^{-4}	3.32×10^{-4}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Ceramics production (excluding glass)	9.51×10^{-5}	2.21×10^{-4}	100.0
Industrial	Primary aluminium production	5.98×10^{-5}	1.39×10^{-4}	100.0
Industrial	Rendering or fat extraction	5.65×10^{-5}	1.31×10^{-4}	100.0
Off-Road Mobile	Recreational Boats	5.05×10^{-5}	1.18×10^{-4}	100.0
Commercial	Construction Material Mining n.e.c.	3.67×10^{-5}	8.55×10^{-5}	100.0
Industrial	Other agricultural crop processing	3.62×10^{-5}	8.43×10^{-5}	100.0
Industrial	Other livestock processing	2.16×10^{-5}	5.03×10^{-5}	100.0
Industrial	Sewage Treatment - processing by small plants	1.64×10^{-5}	3.82×10^{-5}	100.0
Commercial	Glass and Glass Product Manufacturing	1.20×10^{-5}	2.79×10^{-5}	100.0
Commercial	Furniture Manufacturing n.e.c.	9.49×10^{-6}	2.21×10^{-5}	100.0
Commercial	Concrete Slurry Manufacturing	8.43×10^{-6}	1.96×10^{-5}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	7.74×10^{-6}	1.80×10^{-5}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	4.56×10^{-6}	1.06×10^{-5}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	3.09×10^{-6}	7.20×10^{-6}	100.0
Industrial	Composting and related reprocessing or treatment	3.01×10^{-6}	7.0×10^{-6}	100.0
Industrial	Solid waste landfilling	1.95×10^{-6}	4.53×10^{-6}	100.0
Commercial	Non-Ferrous Metal Casting	1.81×10^{-6}	4.20×10^{-6}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	9.31×10^{-7}	2.17×10^{-6}	100.0
Industrial	Sewage Treatment - processing by large plants	5.92×10^{-7}	1.38×10^{-6}	100.0
Industrial	Animal slaughtering	3.58×10^{-7}	8.34×10^{-7}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.06×10^{-7}	2.46×10^{-7}	100.0
Industrial	Other Chemical Storage	1.03×10^{-7}	2.40×10^{-7}	100.0
Commercial	Road and Bridge Construction	1.57×10^{-8}	3.65×10^{-8}	100.0
Anthropogenic	All	42.982	100.0	
Sydney				
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	11.181	38.5	38.5
On-Road Mobile	Exhaust Emissions Passenger Cars – Petrol	6.715	23.1	61.6
Industrial	Glass Production - Production of container glass	2.280	7.85	69.5
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1.958	6.74	76.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	1.838	6.33	82.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1.128	3.88	86.4
Industrial	Battery production	0.952	3.28	89.7
Industrial	Secondary non-ferrous production (excluding aluminium)	0.723	2.49	92.2
On-Road Mobile	Exhaust Emissions - Other	0.524	1.81	94.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.388	1.34	95.3
Off-Road Mobile	Aircraft	0.301	1.04	96.4
Industrial	Coke production	0.252	0.87	97.2
Industrial	Petrochemical production	0.181	0.62	97.9
Commercial	Paint Manufacturing	0.138	0.48	98.3
Industrial	Cement or lime production	0.071	0.24	98.6
Industrial	Petroleum refining	0.058	0.20	98.8
Domestic-Commercial	Solid Fuel Combustion	0.051	0.17	98.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	0.042	0.15	99.1
Industrial	Biomedical waste incineration	0.029	0.10	99.2
Industrial	Crushing, grinding or separating works	0.027	0.09	99.3
Industrial	Primary iron and steel production	0.027	0.09	99.4

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Drum or container reconditioning	0.023	0.08	99.5
Industrial	Paper production using recycled materials	0.022	0.08	99.5
Commercial	Glass and Glass Product Manufacturing	0.019	0.06	99.6
Commercial	Plaster Product Manufacturing	0.013	0.04	99.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	0.011	0.04	99.7
Industrial	Secondary iron and steel production	8.90×10^{-3}	0.03	99.7
Industrial	Storage of Petroleum and/or Petroleum Products	8.84×10^{-3}	0.03	99.7
Industrial	Coal mining	7.68×10^{-3}	0.03	99.8
Industrial	Bitumen pre-mix or hotmix production	6.11×10^{-3}	0.02	99.8
Industrial	Sewage Treatment - processing by small plants	5.89×10^{-3}	0.02	99.8
Industrial	Other metal processing	5.53×10^{-3}	0.02	99.8
Domestic-Commercial	Barbecues	5.16×10^{-3}	0.02	99.8
Commercial	Basic Iron and Steel Manufacturing	4.82×10^{-3}	0.02	99.9
Commercial	Unaccounted Gaseous Fuel Combustion	4.23×10^{-3}	0.01	99.9
Commercial	Hospitals (Except Psychiatric Hospitals)	4.14×10^{-3}	0.01	99.9
Industrial	Other land-based extraction	4.08×10^{-3}	0.01	99.9
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	3.70×10^{-3}	0.01	99.9
Domestic-Commercial	Gaseous Fuel Combustion	3.22×10^{-3}	0.01	99.9
Industrial	Concrete batching	2.91×10^{-3}	0.01	99.9
Industrial	Generation of electrical power from gas	2.23×10^{-3}	7.68×10^{-3}	99.9
Industrial	Secondary aluminium production	2.22×10^{-3}	7.63×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	2.19×10^{-3}	7.54×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	1.86×10^{-3}	6.39×10^{-3}	100.0
Industrial	Freeway or tollway construction	1.84×10^{-3}	6.33×10^{-3}	100.0
Commercial	Gravel and Sand Quarrying	1.50×10^{-3}	5.16×10^{-3}	100.0
Off-Road Mobile	Railways	1.13×10^{-3}	3.91×10^{-3}	100.0
Off-Road Mobile	Commercial Boats	1.12×10^{-3}	3.86×10^{-3}	100.0
Off-Road Mobile	Commercial Ships	1.03×10^{-3}	3.55×10^{-3}	100.0
Commercial	Port Operators	4.0×10^{-4}	1.38×10^{-3}	100.0
Industrial	Production of float glass	2.91×10^{-4}	1.0×10^{-3}	100.0
Industrial	Rendering or fat extraction	2.45×10^{-4}	8.42×10^{-4}	100.0
Industrial	Other chemical processing	2.03×10^{-4}	6.98×10^{-4}	100.0
Industrial	Other vessel construction or maintenance	1.58×10^{-4}	5.42×10^{-4}	100.0
Industrial	Hard-rock gravel quarrying	1.48×10^{-4}	5.08×10^{-4}	100.0
Off-Road Mobile	Recreational Boats	1.07×10^{-4}	3.70×10^{-4}	100.0
Industrial	Ceramics production (excluding glass)	1.02×10^{-4}	3.50×10^{-4}	100.0
Industrial	Beer or distilled alcohol production	8.95×10^{-5}	3.08×10^{-4}	100.0
Industrial	Other agricultural crop processing	8.94×10^{-5}	3.08×10^{-4}	100.0
Industrial	Metal plating or coating works	7.64×10^{-5}	2.63×10^{-4}	100.0
Industrial	Paint production	7.46×10^{-5}	2.57×10^{-4}	100.0
Industrial	Printing	6.40×10^{-5}	2.20×10^{-4}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	5.05×10^{-5}	1.74×10^{-4}	100.0
Commercial	Biscuit Manufacturing	4.70×10^{-5}	1.62×10^{-4}	100.0
Industrial	Milk processing	4.45×10^{-5}	1.53×10^{-4}	100.0
Commercial	Food Manufacturing n.e.c.	4.11×10^{-5}	1.41×10^{-4}	100.0
Industrial	Solid waste landfilling	3.48×10^{-5}	1.20×10^{-4}	100.0
Industrial	Pharmaceutical or veterinary products production	3.39×10^{-5}	1.17×10^{-4}	100.0
Commercial	Bread Manufacturing	3.35×10^{-5}	1.15×10^{-4}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Sewage Treatment - processing by large plants	3.22×10^{-5}	1.11×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	3.20×10^{-5}	1.10×10^{-4}	100.0
Industrial	Oil and fat manufacturing	3.17×10^{-5}	1.09×10^{-4}	100.0
Industrial	Animal slaughtering	2.83×10^{-5}	9.73×10^{-5}	100.0
Industrial	Poultry production	2.73×10^{-5}	9.41×10^{-5}	100.0
Industrial	Soap or detergent production	2.73×10^{-5}	9.40×10^{-5}	100.0
Industrial	Mining (other than coal)	2.63×10^{-5}	9.07×10^{-5}	100.0
Industrial	Other Chemical Storage	2.54×10^{-5}	8.74×10^{-5}	100.0
Industrial	Waste storage, transfer, separating or processing	2.27×10^{-5}	7.82×10^{-5}	100.0
Commercial	Printing	2.15×10^{-5}	7.41×10^{-5}	100.0
Commercial	Concrete Slurry Manufacturing	1.86×10^{-5}	6.41×10^{-5}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	1.62×10^{-5}	5.59×10^{-5}	100.0
Industrial	Other livestock processing	1.58×10^{-5}	5.43×10^{-5}	100.0
Industrial	Plastics production	1.57×10^{-5}	5.42×10^{-5}	100.0
Industrial	Cement or lime handling	1.56×10^{-5}	5.36×10^{-5}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	1.44×10^{-5}	4.97×10^{-5}	100.0
Commercial	Aircraft Manufacturing	1.40×10^{-5}	4.82×10^{-5}	100.0
Industrial	Services to air transport	1.34×10^{-5}	4.60×10^{-5}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	1.26×10^{-5}	4.35×10^{-5}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	1.15×10^{-5}	3.96×10^{-5}	100.0
Commercial	Paper Product Manufacturing n.e.c.	1.04×10^{-5}	3.57×10^{-5}	100.0
Industrial	Bread manufacturing	1.0×10^{-5}	3.45×10^{-5}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	8.72×10^{-6}	3.0×10^{-5}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	8.33×10^{-6}	2.87×10^{-5}	100.0
Commercial	Cake and Pastry Manufacturing	7.96×10^{-6}	2.74×10^{-5}	100.0
Industrial	Dry cleaning	7.85×10^{-6}	2.70×10^{-5}	100.0
Industrial	Cake and pastry manufacturing	7.52×10^{-6}	2.59×10^{-5}	100.0
Commercial	Metal Coating and Finishing	7.50×10^{-6}	2.58×10^{-5}	100.0
Commercial	Gas Supply	7.20×10^{-6}	2.48×10^{-5}	100.0
Commercial	Milk and Cream Processing	6.12×10^{-6}	2.11×10^{-5}	100.0
Commercial	Ice Cream Manufacturing	6.12×10^{-6}	2.11×10^{-5}	100.0
Industrial	Soft drink manufacturing	5.78×10^{-6}	1.99×10^{-5}	100.0
Industrial	Environmentally sensitive area landfilling	3.95×10^{-6}	1.36×10^{-5}	100.0
Industrial	Confectionary manufacturing	3.50×10^{-6}	1.21×10^{-5}	100.0
Commercial	Fruit and Vegetable Processing	3.36×10^{-6}	1.16×10^{-5}	100.0
Commercial	Laundries and Dry-Cleaners	2.70×10^{-6}	9.28×10^{-6}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	1.24×10^{-6}	4.26×10^{-6}	100.0
Commercial	Confectionery Manufacturing	1.10×10^{-6}	3.78×10^{-6}	100.0
Industrial	Pesticides production	8.51×10^{-7}	2.93×10^{-6}	100.0
Industrial	Composting and related reprocessing or treatment	6.95×10^{-7}	2.39×10^{-6}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	4.44×10^{-7}	1.53×10^{-6}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	3.61×10^{-7}	1.24×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	2.71×10^{-7}	9.33×10^{-7}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	2.19×10^{-7}	7.55×10^{-7}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	1.05×10^{-7}	3.62×10^{-7}	100.0
Commercial	Spring and Wire Product Manufacturing	2.69×10^{-8}	9.25×10^{-8}	100.0

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Wood Product Manufacturing n.e.c.	2.98×10^{-9}	1.02×10^{-8}	100.0
Anthropogenic	All	29.044	100.0	
Wollongong				
Industrial	Primary iron and steel production	3.825	58.9	58.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1.813	27.9	86.8
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	0.267	4.11	90.9
Industrial	Coke production	0.232	3.57	94.5
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	0.116	1.79	96.3
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	0.076	1.17	97.4
Industrial	Metal plating or coating works	0.058	0.89	98.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	0.049	0.75	99.1
On-Road Mobile	Exhaust Emissions - Other	0.027	0.42	99.5
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	0.013	0.20	99.7
Industrial	Coal loading	0.011	0.18	99.9
Domestic-Commercial	Solid Fuel Combustion	2.80×10^{-3}	0.04	99.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	2.33×10^{-3}	0.04	99.9
Industrial	Coal mining	1.09×10^{-3}	0.02	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	5.0×10^{-4}	7.69×10^{-3}	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	4.23×10^{-4}	6.52×10^{-3}	100.0
Off-Road Mobile	Aircraft	3.63×10^{-4}	5.59×10^{-3}	100.0
Off-Road Mobile	Commercial Ships	2.78×10^{-4}	4.28×10^{-3}	100.0
Industrial	Bitumen pre-mix or hotmix production	2.72×10^{-4}	4.18×10^{-3}	100.0
Domestic-Commercial	Barbecues	2.60×10^{-4}	3.99×10^{-3}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	2.02×10^{-4}	3.12×10^{-3}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	1.54×10^{-4}	2.38×10^{-3}	100.0
Industrial	Crushing, grinding or separating works	1.35×10^{-4}	2.07×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	1.05×10^{-4}	1.61×10^{-3}	100.0
Off-Road Mobile	Railways	9.69×10^{-5}	1.49×10^{-3}	100.0
Off-Road Mobile	Commercial Boats	9.07×10^{-5}	1.40×10^{-3}	100.0
Commercial	Gravel and Sand Quarrying	7.34×10^{-5}	1.13×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	4.98×10^{-5}	7.66×10^{-4}	100.0
Industrial	Environmentally sensitive area landfilling	4.52×10^{-5}	6.95×10^{-4}	100.0
Industrial	Concrete batching	3.36×10^{-5}	5.17×10^{-4}	100.0
Commercial	Ceramic Product Manufacturing	2.90×10^{-5}	4.46×10^{-4}	100.0
Commercial	Basic Iron and Steel Manufacturing	2.72×10^{-5}	4.19×10^{-4}	100.0
Industrial	Inert waste landfilling	1.13×10^{-5}	1.74×10^{-4}	100.0
Industrial	Production of phosphate fertilizer	9.76×10^{-6}	1.50×10^{-4}	100.0
Off-Road Mobile	Recreational Boats	6.94×10^{-6}	1.07×10^{-4}	100.0
Industrial	Other chemical processing	6.87×10^{-6}	1.06×10^{-4}	100.0
Industrial	Sewage Treatment - processing by small plants	4.80×10^{-6}	7.39×10^{-5}	100.0
Industrial	Other metal processing	3.43×10^{-6}	5.28×10^{-5}	100.0
Industrial	Sewage Treatment - processing by large plants	2.64×10^{-6}	4.06×10^{-5}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	1.81×10^{-6}	2.78×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	1.18×10^{-6}	1.81×10^{-5}	100.0
Industrial	Drum or container reconditioning	5.27×10^{-7}	8.11×10^{-6}	100.0
Commercial	Concrete Slurry Manufacturing	4.96×10^{-7}	7.63×10^{-6}	100.0

Criteria Pollutant Emissions for all Sectors
 4. Emissions Summary

Source Group	Source Type	Lead and Compounds		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Funeral Directors, Crematoria and Cemeteries	2.01×10^{-8}	3.10×10^{-7}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	1.60×10^{-8}	2.46×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	8.80×10^{-9}	1.35×10^{-7}	100.0
Anthropogenic	All	6.497	100.0	

4.2.3 Oxides of Nitrogen

Table 4.7 shows anthropogenic sources of oxides of nitrogen emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.7 Ranking of anthropogenic sources of oxides of nitrogen

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Generation of electrical power from coal	145,440	49.8	49.8
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	49,011	16.8	66.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	25,289	8.66	75.2
Industrial	Primary iron and steel production	7,827	2.68	77.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	6,800	2.33	80.2
Off-Road Mobile	Commercial Ships	6,176	2.11	82.4
Industrial	Cement or lime production	6,115	2.09	84.5
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	5,851	2.00	86.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	5,287	1.81	88.3
Off-Road Mobile	Railways	3,350	1.15	89.4
Off-Road Mobile	Aircraft	3,267	1.12	90.5
On-Road Mobile	Exhaust Emissions - Other	3,171	1.09	91.6
Industrial	Petroleum refining	2,789	0.96	92.6
Industrial	Generation of electrical power from gas	2,681	0.92	93.5
Off-Road Mobile	Commercial Boats	2,478	0.85	94.3
Industrial	Production of container glass	1,609	0.55	94.9
Industrial	Coal mining	1,400	0.48	95.4
Commercial	Hospitals (Except Psychiatric Hospitals)	1,323	0.45	95.8
Industrial	Petrochemical production	1,199	0.41	96.2
Industrial	Production of ammonium nitrate	1,056	0.36	96.6
Industrial	Generation of electrical power other than from coal or gas	1,026	0.35	97.0
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	1,008	0.35	97.3
Commercial	Unaccounted Gaseous Fuel Combustion	1,006	0.34	97.6
Industrial	Storage of Petroleum and/or Petroleum Products	864	0.30	97.9
Industrial	Production of float glass	839	0.29	98.2
Domestic-Commercial	Gaseous Fuel Combustion	762	0.26	98.5
Industrial	Sewage Treatment - processing by large plants	604	0.21	98.7
Domestic-Commercial	Solid Fuel Combustion	480	0.16	98.9
Industrial	Primary aluminium production	343	0.12	99.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	269	0.09	99.1
Industrial	Crushing, grinding or separating works	248	0.08	99.1
Industrial	Ceramics production (excluding glass)	237	0.08	99.2
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	218	0.07	99.3
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	177	0.06	99.4
Off-Road Mobile	Recreational Boats	172	0.06	99.4
Industrial	Other metal processing	148	0.05	99.5

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Other chemical processing	135	0.05	99.5
Industrial	Paper production using recycled materials	121	0.04	99.6
Commercial	Port Operators	102	0.04	99.6
Industrial	Other land-based extraction	78.961	0.03	99.6
Industrial	Metal plating or coating works	72.511	0.02	99.6
Domestic-Commercial	Barbecues	70.426	0.02	99.7
Industrial	Secondary aluminium production	68.149	0.02	99.7
Industrial	Animal slaughtering	62.578	0.02	99.7
Commercial	Glass and Glass Product Manufacturing	48.936	0.02	99.7
Industrial	Primary non-ferrous production (excluding aluminium)	46.911	0.02	99.8
Industrial	Wood or timber milling	44.657	0.02	99.8
Industrial	Sewage Treatment - processing by small plants	43.637	0.01	99.8
Industrial	Waste storage, transfer, separating or processing	41.525	0.01	99.8
Commercial	Plaster Product Manufacturing	36.074	0.01	99.8
Industrial	Other agricultural crop processing	34.366	0.01	99.8
Industrial	Secondary non-ferrous production (excluding aluminium)	33.218	0.01	99.8
Domestic-Commercial	Liquid Fuel Combustion	33.218	0.01	99.8
Industrial	Coke production	30.428	0.01	99.9
Commercial	Metal Coating and Finishing	30.277	0.01	99.9
Industrial	Beer or distilled alcohol production	29.736	0.01	99.9
Industrial	Bitumen pre-mix or hotmix production	29.632	0.01	99.9
Commercial	Food Manufacturing n.e.c.	26.602	9.11×10^{-3}	99.9
Industrial	Secondary iron and steel production	26.131	8.95×10^{-3}	99.9
Industrial	Printing	22.249	7.62×10^{-3}	99.9
Industrial	Rendering or fat extraction	21.565	7.38×10^{-3}	99.9
Industrial	Hazardous, industrial or group A waste generation or storage	14.350	4.91×10^{-3}	99.9
Industrial	Production of phosphate fertilizer	13.752	4.71×10^{-3}	99.9
Industrial	Plastics production	13.273	4.54×10^{-3}	99.9
Industrial	Milk processing	12.873	4.41×10^{-3}	99.9
Industrial	Oil and fat manufacturing	11.370	3.89×10^{-3}	99.9
Industrial	Waste oil recovery	10.800	3.70×10^{-3}	99.9
Commercial	Biscuit Manufacturing	9.397	3.22×10^{-3}	99.9
Commercial	Basic Iron and Steel Manufacturing	8.356	2.86×10^{-3}	99.9
Industrial	Other livestock processing	8.090	2.77×10^{-3}	100.0
Industrial	Pharmaceutical or veterinary products production	8.013	2.74×10^{-3}	100.0
Industrial	Concrete batching	7.510	2.57×10^{-3}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	7.449	2.55×10^{-3}	100.0
Industrial	Scrap metal recovery	6.672	2.28×10^{-3}	100.0
Industrial	Poultry production	6.532	2.24×10^{-3}	100.0
Industrial	Other Chemical Storage	6.320	2.16×10^{-3}	100.0
Industrial	Solid waste landfilling	6.236	2.14×10^{-3}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	5.133	1.76×10^{-3}	100.0
Industrial	Soap or detergent production	4.781	1.64×10^{-3}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	4.734	1.62×10^{-3}	100.0
Commercial	Printing	4.690	1.61×10^{-3}	100.0

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Bread Manufacturing	4.557	1.56×10^{-3}	100.0
Industrial	Composting and related reprocessing or treatment	4.320	1.48×10^{-3}	100.0
Industrial	Coal loading	4.057	1.39×10^{-3}	100.0
Industrial	Biomedical waste incineration	3.829	1.31×10^{-3}	100.0
Commercial	Ceramic Product Manufacturing	3.499	1.20×10^{-3}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	3.250	1.11×10^{-3}	100.0
Industrial	Drum or container reconditioning	3.200	1.10×10^{-3}	100.0
Industrial	Paint production	3.075	1.05×10^{-3}	100.0
Commercial	Aircraft Manufacturing	2.800	9.59×10^{-4}	100.0
Industrial	Services to air transport	2.672	9.15×10^{-4}	100.0
Industrial	Cement or lime handling	2.630	9.01×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	2.450	8.39×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	2.410	8.25×10^{-4}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	2.300	7.88×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	2.024	6.93×10^{-4}	100.0
Industrial	Bread manufacturing	2.005	6.87×10^{-4}	100.0
Commercial	Furniture Manufacturing n.e.c.	1.898	6.50×10^{-4}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	1.744	5.97×10^{-4}	100.0
Commercial	Ice Cream Manufacturing	1.715	5.87×10^{-4}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.700	5.82×10^{-4}	100.0
Commercial	Cake and Pastry Manufacturing	1.592	5.45×10^{-4}	100.0
Industrial	Dry cleaning	1.560	5.34×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	1.555	5.32×10^{-4}	100.0
Industrial	Cake and pastry manufacturing	1.504	5.15×10^{-4}	100.0
Commercial	Gas Supply	1.440	4.93×10^{-4}	100.0
Commercial	Milk and Cream Processing	1.224	4.19×10^{-4}	100.0
Industrial	Confectionary manufacturing	1.191	4.08×10^{-4}	100.0
Industrial	Soft drink manufacturing	1.157	3.96×10^{-4}	100.0
Commercial	Spring and Wire Product Manufacturing	0.781	2.68×10^{-4}	100.0
Commercial	Steel Pipe and Tube Manufacturing	0.744	2.55×10^{-4}	100.0
Commercial	Fruit and Vegetable Processing	0.672	2.30×10^{-4}	100.0
Industrial	Other vessel construction or maintenance	0.578	1.98×10^{-4}	100.0
Commercial	Laundries and Dry-Cleaners	0.539	1.85×10^{-4}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.422	1.45×10^{-4}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.251	8.58×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.220	7.52×10^{-5}	100.0
Industrial	Explosives or pyrotechnics production	0.177	6.07×10^{-5}	100.0
Industrial	Pesticides production	0.170	5.83×10^{-5}	100.0
Commercial	Non-Building Construction n.e.c.	0.160	5.49×10^{-5}	100.0
Commercial	Lifting and Material Handling Equipment Manufacturing	0.124	4.24×10^{-5}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	0.105	3.60×10^{-5}	100.0
Industrial	Environmentally sensitive area landfilling	0.060	2.06×10^{-5}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	0.035	1.19×10^{-5}	100.0
Commercial	Non-Ferrous Metal Casting	0.029	9.86×10^{-6}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Rubber Product Manufacturing n.e.c.	0.029	9.86×10^{-6}	100.0
Industrial	Coal washery reject or slag landfilling	0.027	9.37×10^{-6}	100.0
Commercial	Industrial Gas Manufacturing	0.014	4.67×10^{-6}	100.0
Commercial	Synthetic Resin Manufacturing	1.76×10^{-3}	6.03×10^{-7}	100.0
Commercial	Wine Manufacturing	1.75×10^{-3}	5.98×10^{-7}	100.0
Commercial	Wood Product Manufacturing n.e.c.	5.95×10^{-4}	2.04×10^{-7}	100.0
Anthropogenic	All	292,054	100.0	
Newcastle				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	2,952	29.9	29.9
Off-Road Mobile	Commercial Ships	2,409	24.4	54.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1,340	13.6	67.9
Industrial	Production of ammonium nitrate	1,056	10.7	78.6
Industrial	Primary aluminium production	296	3.00	81.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	265	2.69	84.3
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	217	2.20	86.5
On-Road Mobile	Exhaust Emissions - Other	173	1.76	88.3
Off-Road Mobile	Railways	168	1.70	90.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	163	1.65	91.6
Off-Road Mobile	Commercial Boats	104	1.06	92.7
Industrial	Other metal processing	104	1.05	93.7
Industrial	Other chemical processing	82.754	0.84	94.6
Industrial	Animal slaughtering	57.530	0.58	95.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	52.418	0.53	95.7
Commercial	Unaccounted Gaseous Fuel Combustion	52.140	0.53	96.2
Commercial	Hospitals (Except Psychiatric Hospitals)	50.427	0.51	96.7
Industrial	Primary non-ferrous production (excluding aluminium)	46.905	0.48	97.2
Domestic-Commercial	Gaseous Fuel Combustion	39.493	0.40	97.6
Off-Road Mobile	Aircraft	36.198	0.37	98.0
Domestic-Commercial	Solid Fuel Combustion	30.525	0.31	98.3
Commercial	Metal Coating and Finishing	28.586	0.29	98.6
Industrial	Secondary iron and steel production	25.387	0.26	98.8
Industrial	Coal mining	23.501	0.24	99.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	17.804	0.18	99.3
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	12.665	0.13	99.4
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	11.260	0.11	99.5
Industrial	Other agricultural crop processing	9.858	0.10	99.6
Industrial	Crushing, grinding or separating works	7.376	0.07	99.7
Industrial	Production of phosphate fertilizer	5.504	0.06	99.7
Off-Road Mobile	Recreational Boats	5.167	0.05	99.8
Domestic-Commercial	Barbecues	3.798	0.04	99.8
Industrial	Bitumen pre-mix or hotmix production	3.591	0.04	99.9
Industrial	Milk processing	3.098	0.03	99.9
Industrial	Metal plating or coating works	2.096	0.02	99.9
Commercial	Bread Manufacturing	2.002	0.02	99.9

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Scrap metal recovery	1.859	0.02	99.9
Domestic-Commercial	Liquid Fuel Combustion	1.722	0.02	100.0
Industrial	Other land-based extraction	1.242	0.01	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.880	8.92×10^{-3}	100.0
Industrial	Other vessel construction or maintenance	0.578	5.86×10^{-3}	100.0
Industrial	Cement or lime handling	0.440	4.46×10^{-3}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.413	4.19×10^{-3}	100.0
Industrial	Explosives or pyrotechnics production	0.177	1.80×10^{-3}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.041	4.17×10^{-4}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	0.035	3.53×10^{-4}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	7.30×10^{-3}	7.40×10^{-5}	100.0
Industrial	Waste storage, transfer, separating or processing	4.94×10^{-3}	5.01×10^{-5}	100.0
Anthropogenic	All	9,864	100.0	
Non-Urban				
Industrial	Generation of electrical power from coal	145,440	82.1	82.1
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	6,142	3.47	85.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	5,974	3.37	89.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	4,882	2.76	91.7
Industrial	Cement or lime production	4,778	2.70	94.4
Off-Road Mobile	Commercial Ships	1,729	0.98	95.4
Off-Road Mobile	Commercial Boats	1,452	0.82	96.2
Off-Road Mobile	Railways	1,437	0.81	97.0
Industrial	Coal mining	1,336	0.75	97.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	937	0.53	98.3
On-Road Mobile	Exhaust Emissions - Other	751	0.42	98.7
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	607	0.34	99.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	498	0.28	99.3
Commercial	Hospitals (Except Psychiatric Hospitals)	361	0.20	99.5
Commercial	Unaccounted Gaseous Fuel Combustion	124	0.07	99.6
Domestic-Commercial	Gaseous Fuel Combustion	93.989	0.05	99.7
Industrial	Ceramics production (excluding glass)	75.109	0.04	99.7
Domestic-Commercial	Solid Fuel Combustion	68.527	0.04	99.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	61.225	0.03	99.8
Off-Road Mobile	Recreational Boats	51.007	0.03	99.8
Industrial	Primary aluminium production	46.945	0.03	99.8
Industrial	Wood or timber milling	44.657	0.03	99.9
Industrial	Other land-based extraction	40.020	0.02	99.9
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	30.133	0.02	99.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	25.277	0.01	99.9
Industrial	Sewage Treatment - processing by small plants	20.799	0.01	99.9
Commercial	Food Manufacturing n.e.c.	18.386	0.01	99.9
Off-Road Mobile	Aircraft	12.263	6.92×10^{-3}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Rendering or fat extraction	11.477	6.48×10^{-3}	100.0
Industrial	Waste oil recovery	10.046	5.67×10^{-3}	100.0
Industrial	Secondary aluminium production	9.761	5.51×10^{-3}	100.0
Domestic-Commercial	Barbecues	9.230	5.21×10^{-3}	100.0
Industrial	Other agricultural crop processing	7.243	4.09×10^{-3}	100.0
Industrial	Other chemical processing	6.312	3.56×10^{-3}	100.0
Industrial	Other livestock processing	5.021	2.83×10^{-3}	100.0
Industrial	Composting and related reprocessing or treatment	4.320	2.44×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	4.099	2.31×10^{-3}	100.0
Industrial	Concrete batching	3.072	1.73×10^{-3}	100.0
Industrial	Bitumen pre-mix or hotmix production	1.970	1.11×10^{-3}	100.0
Industrial	Plastics production	1.931	1.09×10^{-3}	100.0
Commercial	Furniture Manufacturing n.e.c.	1.898	1.07×10^{-3}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.748	9.87×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	1.743	9.84×10^{-4}	100.0
Industrial	Coal loading	1.557	8.79×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	1.549	8.74×10^{-4}	100.0
Industrial	Crushing, grinding or separating works	1.233	6.96×10^{-4}	100.0
Commercial	Spring and Wire Product Manufacturing	0.772	4.36×10^{-4}	100.0
Industrial	Sewage Treatment - processing by large plants	0.505	2.85×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.450	2.54×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.377	2.13×10^{-4}	100.0
Industrial	Poultry production	0.261	1.47×10^{-4}	100.0
Industrial	Animal slaughtering	0.072	4.05×10^{-5}	100.0
Industrial	Environmentally sensitive area landfilling	0.060	3.40×10^{-5}	100.0
Commercial	Non-Building Construction n.e.c.	0.041	2.31×10^{-5}	100.0
Commercial	Glass and Glass Product Manufacturing	0.036	2.01×10^{-5}	100.0
Commercial	Non-Ferrous Metal Casting	0.029	1.63×10^{-5}	100.0
Industrial	Other Chemical Storage	0.021	1.16×10^{-5}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	3.04×10^{-3}	1.72×10^{-6}	100.0
Anthropogenic	All	177,123	100.0	
Sydney				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	38,175	41.2	41.2
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	16,908	18.2	59.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	4,534	4.89	64.3
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	4,245	4.58	68.8
Off-Road Mobile	Aircraft	3,218	3.47	72.3
Industrial	Petroleum refining	2,789	3.01	75.3
Industrial	Generation of electrical power from gas	2,681	2.89	78.2
On-Road Mobile	Exhaust Emissions - Other	2,135	2.30	80.5
Industrial	Production of container glass	1,609	1.73	82.2
Off-Road Mobile	Railways	1,608	1.73	84.0
Off-Road Mobile	Commercial Ships	1,606	1.73	85.7

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1,510	1.63	87.3
Industrial	Cement or lime production	1,337	1.44	88.8
Industrial	Petrochemical production	1,199	1.29	90.1
Industrial	Generation of electrical power other than from coal or gas	1,026	1.11	91.2
Industrial	Storage of Petroleum and/or Petroleum Products	864	0.93	92.1
Off-Road Mobile	Commercial Boats	853	0.92	93.0
Industrial	Production of float glass	839	0.90	93.9
Commercial	Hospitals (Except Psychiatric Hospitals)	827	0.89	94.8
Commercial	Unaccounted Gaseous Fuel Combustion	791	0.85	95.7
Industrial	Sewage Treatment - processing by large plants	601	0.65	96.3
Domestic-Commercial	Gaseous Fuel Combustion	599	0.65	97.0
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	440	0.47	97.4
Domestic-Commercial	Solid Fuel Combustion	361	0.39	97.8
Industrial	Crushing, grinding or separating works	239	0.26	98.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	181	0.20	98.3
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	171	0.18	98.5
Industrial	Ceramics production (excluding glass)	161	0.17	98.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	133	0.14	98.8
Industrial	Paper production using recycled materials	121	0.13	98.9
Off-Road Mobile	Recreational Boats	109	0.12	99.0
Commercial	Port Operators	102	0.11	99.1
Industrial	Secondary aluminium production	58.388	0.06	99.2
Domestic-Commercial	Barbecues	54.648	0.06	99.3
Commercial	Glass and Glass Product Manufacturing	48.900	0.05	99.3
Industrial	Other chemical processing	44.136	0.05	99.4
Industrial	Other metal processing	44.116	0.05	99.4
Industrial	Waste storage, transfer, separating or processing	41.520	0.04	99.5
Industrial	Other land-based extraction	37.699	0.04	99.5
Commercial	Plaster Product Manufacturing	36.074	0.04	99.5
Industrial	Secondary non-ferrous production (excluding aluminium)	33.218	0.04	99.6
Industrial	Coal mining	31.300	0.03	99.6
Industrial	Beer or distilled alcohol production	29.736	0.03	99.6
Domestic-Commercial	Liquid Fuel Combustion	26.144	0.03	99.7
Industrial	Printing	22.249	0.02	99.7
Industrial	Sewage Treatment - processing by small plants	21.821	0.02	99.7
Industrial	Bitumen pre-mix or hotmix production	21.500	0.02	99.7
Industrial	Other agricultural crop processing	17.265	0.02	99.8
Industrial	Metal plating or coating works	16.330	0.02	99.8
Industrial	Coke production	15.784	0.02	99.8
Industrial	Hazardous, industrial or group A waste generation or storage	14.340	0.02	99.8
Industrial	Oil and fat manufacturing	11.370	0.01	99.8
Industrial	Plastics production	11.342	0.01	99.8
Industrial	Rendering or fat extraction	10.088	0.01	99.8

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Milk processing	9.775	0.01	99.9
Commercial	Biscuit Manufacturing	9.397	0.01	99.9
Commercial	Food Manufacturing n.e.c.	8.217	8.86×10^{-3}	99.9
Industrial	Pharmaceutical or veterinary products production	8.013	8.64×10^{-3}	99.9
Industrial	Other Chemical Storage	6.299	6.79×10^{-3}	99.9
Industrial	Poultry production	6.271	6.76×10^{-3}	99.9
Industrial	Hazardous, industrial, group A or group B waste processing	5.020	5.41×10^{-3}	99.9
Industrial	Animal slaughtering	4.976	5.36×10^{-3}	99.9
Industrial	Scrap metal recovery	4.813	5.19×10^{-3}	99.9
Industrial	Soap or detergent production	4.781	5.15×10^{-3}	99.9
Commercial	Printing	4.690	5.06×10^{-3}	99.9
Commercial	Funeral Directors, Crematoria and Cemeteries	4.488	4.84×10^{-3}	99.9
Industrial	Concrete batching	4.437	4.78×10^{-3}	99.9
Industrial	Biomedical waste incineration	3.829	4.13×10^{-3}	99.9
Commercial	Soft Drink, Cordial and Syrup Manufacturing	3.250	3.50×10^{-3}	99.9
Industrial	Drum or container reconditioning	3.191	3.44×10^{-3}	99.9
Industrial	Paint production	3.075	3.31×10^{-3}	99.9
Industrial	Other livestock processing	3.069	3.31×10^{-3}	99.9
Commercial	Medicinal and Pharmaceutical Product Manufacturing	2.991	3.22×10^{-3}	100.0
Commercial	Basic Iron and Steel Manufacturing	2.916	3.14×10^{-3}	100.0
Commercial	Aircraft Manufacturing	2.800	3.02×10^{-3}	100.0
Industrial	Services to air transport	2.672	2.88×10^{-3}	100.0
Commercial	Bread Manufacturing	2.555	2.75×10^{-3}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	2.410	2.60×10^{-3}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	2.300	2.48×10^{-3}	100.0
Industrial	Cement or lime handling	2.191	2.36×10^{-3}	100.0
Commercial	Paper Product Manufacturing n.e.c.	2.073	2.23×10^{-3}	100.0
Industrial	Bread manufacturing	2.005	2.16×10^{-3}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	1.744	1.88×10^{-3}	100.0
Commercial	Ice Cream Manufacturing	1.715	1.85×10^{-3}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.700	1.83×10^{-3}	100.0
Commercial	Metal Coating and Finishing	1.690	1.82×10^{-3}	100.0
Commercial	Cake and Pastry Manufacturing	1.592	1.72×10^{-3}	100.0
Industrial	Dry cleaning	1.560	1.68×10^{-3}	100.0
Industrial	Cake and pastry manufacturing	1.504	1.62×10^{-3}	100.0
Commercial	Gas Supply	1.440	1.55×10^{-3}	100.0
Commercial	Milk and Cream Processing	1.224	1.32×10^{-3}	100.0
Industrial	Confectionary manufacturing	1.191	1.28×10^{-3}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	1.161	1.25×10^{-3}	100.0
Industrial	Soft drink manufacturing	1.157	1.25×10^{-3}	100.0
Industrial	Waste oil recovery	0.755	8.14×10^{-4}	100.0
Industrial	Secondary iron and steel production	0.744	8.02×10^{-4}	100.0
Commercial	Steel Pipe and Tube Manufacturing	0.744	8.02×10^{-4}	100.0
Commercial	Fruit and Vegetable Processing	0.672	7.24×10^{-4}	100.0
Commercial	Laundries and Dry-Cleaners	0.539	5.81×10^{-4}	100.0

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.422	4.55×10^{-4}	100.0
Industrial	Primary iron and steel production	0.247	2.67×10^{-4}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.247	2.67×10^{-4}	100.0
Commercial	Confectionery Manufacturing	0.220	2.37×10^{-4}	100.0
Industrial	Pesticides production	0.170	1.83×10^{-4}	100.0
Commercial	Lifting and Material Handling Equipment Manufacturing	0.124	1.34×10^{-4}	100.0
Commercial	Non-Building Construction n.e.c.	0.119	1.29×10^{-4}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	0.105	1.13×10^{-4}	100.0
Commercial	Industrial Gas Manufacturing	0.014	1.47×10^{-5}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	6.25×10^{-3}	6.74×10^{-6}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	5.76×10^{-3}	6.21×10^{-6}	100.0
Commercial	Spring and Wire Product Manufacturing	5.38×10^{-3}	5.80×10^{-6}	100.0
Commercial	Wine Manufacturing	1.75×10^{-3}	1.88×10^{-6}	100.0
Commercial	Wood Product Manufacturing n.e.c.	5.95×10^{-4}	6.42×10^{-7}	100.0
Anthropogenic	All	92,768	100.0	
Wollongong				
Industrial	Primary iron and steel production	7,826	63.6	63.6
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	1,743	14.2	77.8
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1,067	8.68	86.5
Off-Road Mobile	Commercial Ships	432	3.52	90.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	245	1.99	92.0
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	170	1.38	93.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	164	1.33	94.7
Off-Road Mobile	Railways	137	1.12	95.8
On-Road Mobile	Exhaust Emissions - Other	112	0.91	96.7
Commercial	Hospitals (Except Psychiatric Hospitals)	84.673	0.69	97.4
Off-Road Mobile	Commercial Boats	69.024	0.56	98.0
Industrial	Metal plating or coating works	54.085	0.44	98.4
Commercial	Unaccounted Gaseous Fuel Combustion	37.911	0.31	98.7
Domestic-Commercial	Gaseous Fuel Combustion	28.716	0.23	99.0
Domestic-Commercial	Solid Fuel Combustion	19.907	0.16	99.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	18.145	0.15	99.3
Industrial	Coke production	14.644	0.12	99.4
Industrial	Coal mining	9.400	0.08	99.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	8.378	0.07	99.5
Industrial	Production of phosphate fertilizer	8.248	0.07	99.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	7.343	0.06	99.7
Off-Road Mobile	Recreational Boats	7.001	0.06	99.7
Industrial	Solid waste landfilling	6.236	0.05	99.8
Commercial	Basic Iron and Steel Manufacturing	5.440	0.04	99.8
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	4.585	0.04	99.8
Commercial	Ceramic Product Manufacturing	3.499	0.03	99.9
Domestic-Commercial	Barbecues	2.749	0.02	99.9

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Oxides of Nitrogen		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Bitumen pre-mix or hotmix production	2.571	0.02	99.9
Industrial	Coal loading	2.500	0.02	99.9
Industrial	Sewage Treatment - processing by large plants	2.336	0.02	100.0
Industrial	Other chemical processing	1.374	0.01	100.0
Domestic-Commercial	Liquid Fuel Combustion	1.252	0.01	100.0
Industrial	Sewage Treatment - processing by small plants	1.017	8.27×10^{-3}	100.0
Industrial	Other metal processing	0.686	5.58×10^{-3}	100.0
Off-Road Mobile	Aircraft	0.562	4.57×10^{-3}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.334	2.71×10^{-3}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.072	5.85×10^{-4}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	0.029	2.34×10^{-4}	100.0
Industrial	Coal washery reject or slag landfilling	0.027	2.22×10^{-4}	100.0
Industrial	Drum or container reconditioning	8.40×10^{-3}	6.83×10^{-5}	100.0
Commercial	Spring and Wire Product Manufacturing	4.35×10^{-3}	3.54×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	3.20×10^{-3}	2.60×10^{-5}	100.0
Commercial	Synthetic Resin Manufacturing	1.76×10^{-3}	1.43×10^{-5}	100.0
Anthropogenic	All	12,299	100.0	

4.2.4 Particulate Matter < 10µm

Table 4.8 shows anthropogenic sources of particulate matter < 10 µm emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.8 Ranking of anthropogenic sources of particulate matter < 10 µm

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Coal mining	25,256	33.6	33.6
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	12,584	16.8	50.4
Domestic-Commercial	Solid Fuel Combustion	6,172	8.22	58.6
Industrial	Generation of electrical power from coal	4,816	6.41	65.0
Industrial	Other land-based extraction	3,472	4.62	69.6
Industrial	Crushing, grinding or separating works	2,513	3.34	73.0
Commercial	Poultry Farming (Meat)	1,841	2.45	75.4
Industrial	Hard-rock gravel quarrying	1,687	2.25	77.7
Industrial	Primary iron and steel production	1,620	2.16	79.8
Commercial	Gravel and Sand Quarrying	1,252	1.67	81.5
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	1,159	1.54	83.0
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1,106	1.47	84.5
Industrial	Ceramics production (excluding glass)	1,099	1.46	86.0
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	1,056	1.41	87.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1,033	1.37	88.7
Industrial	Solid waste landfilling	928	1.24	90.0
Industrial	Concrete batching	606	0.81	90.8
Commercial	Poultry Farming (Eggs)	594	0.79	91.6
Industrial	Poultry production	444	0.59	92.2
Industrial	Primary aluminium production	433	0.58	92.7
Industrial	Mining (other than coal)	371	0.49	93.2
Industrial	Coal loading	310	0.41	93.6
Industrial	Cement or lime production	282	0.38	94.0
Industrial	Petroleum refining	265	0.35	94.4
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	251	0.33	94.7
Off-Road Mobile	Recreational Boats	233	0.31	95.0
Off-Road Mobile	Commercial Ships	213	0.28	95.3
Industrial	Production of ammonium nitrate	210	0.28	95.6
Industrial	Cement or lime handling	199	0.26	95.8
Industrial	Bitumen pre-mix or hotmix production	198	0.26	96.1
Industrial	Plastics production	194	0.26	96.4
Off-Road Mobile	Commercial Boats	167	0.22	96.6
Industrial	Inert waste landfilling	164	0.22	96.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	154	0.20	97.0
Industrial	Production of float glass	113	0.15	97.2
Commercial	Hospitals (Except Psychiatric Hospitals)	101	0.13	97.3
Off-Road Mobile	Railways	99.774	0.13	97.4
On-Road Mobile	Exhaust Emissions - Other	93.280	0.12	97.6
Off-Road Mobile	Aircraft	92.498	0.12	97.7
Industrial	Bulk cargo handling	89.727	0.12	97.8
Industrial	Freeway or tollway construction	87.387	0.12	97.9

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Production of container glass	86.310	0.11	98.0
Industrial	Production of phosphate fertilizer	81.642	0.11	98.1
Commercial	Unaccounted Gaseous Fuel Combustion	80.447	0.11	98.2
Industrial	Environmentally sensitive area landfilling	76.803	0.10	98.3
Industrial	Sewage Treatment - processing by small plants	71.771	0.10	98.4
Industrial	Other agricultural crop processing	71.056	0.09	98.5
Industrial	Coke production	69.391	0.09	98.6
Industrial	Storage of Petroleum and/or Petroleum Products	67.881	0.09	98.7
Industrial	Composting and related reprocessing or treatment	63.905	0.09	98.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	61.030	0.08	98.9
Domestic-Commercial	Gaseous Fuel Combustion	60.768	0.08	99.0
Industrial	Coal washery reject or slag landfilling	56.748	0.08	99.0
Industrial	Scrap metal recovery	52.369	0.07	99.1
Commercial	Construction Material Mining n.e.c.	50.255	0.07	99.2
Industrial	Other metal processing	48.127	0.06	99.2
Industrial	Generation of electrical power from gas	46.617	0.06	99.3
Industrial	Petrochemical production	45.276	0.06	99.4
Industrial	Metal plating or coating works	42.565	0.06	99.4
Industrial	Other vessel construction or maintenance	40.669	0.05	99.5
Industrial	Other chemical processing	39.838	0.05	99.5
Industrial	Secondary iron and steel production	35.174	0.05	99.6
Industrial	Waste storage, transfer, separating or processing	34.298	0.05	99.6
Industrial	Secondary aluminium production	29.533	0.04	99.7
Industrial	Landfilling in designated areas	22.278	0.03	99.7
Commercial	Paint Manufacturing	21.681	0.03	99.7
Industrial	Wood or timber milling	18.685	0.02	99.7
Commercial	Concrete Slurry Manufacturing	18.361	0.02	99.8
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	17.093	0.02	99.8
Industrial	Primary non-ferrous production (excluding aluminium)	15.165	0.02	99.8
Commercial	Plaster Product Manufacturing	14.402	0.02	99.8
Domestic-Commercial	Barbecues	12.331	0.02	99.8
Industrial	Paint production	10.345	0.01	99.9
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	9.971	0.01	99.9
Commercial	Port Operators	8.951	0.01	99.9
Commercial	Glass and Glass Product Manufacturing	7.739	0.01	99.9
Commercial	Basic Iron and Steel Manufacturing	7.494	9.97×10^{-3}	99.9
Commercial	Ceramic Product Manufacturing	7.298	9.71×10^{-3}	99.9
Industrial	Secondary non-ferrous production (excluding aluminium)	5.754	7.66×10^{-3}	99.9
Industrial	Hazardous, industrial, group A or group B waste processing	5.319	7.08×10^{-3}	99.9
Industrial	Railway activities	4.677	6.23×10^{-3}	99.9
Commercial	Steel Pipe and Tube Manufacturing	4.530	6.03×10^{-3}	99.9
Industrial	Rendering or fat extraction	4.394	5.85×10^{-3}	99.9
Industrial	Battery production	4.125	5.49×10^{-3}	100.0
Industrial	Vessel construction or maintenance using dry or floating docks	3.891	5.18×10^{-3}	100.0
Commercial	Metal Coating and Finishing	3.309	4.40×10^{-3}	100.0
Industrial	Animal slaughtering	2.232	2.97×10^{-3}	100.0

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Hazardous, industrial or group A waste generation or storage	1.981	2.64 × 10 ⁻³	100.0
Industrial	Beer or distilled alcohol production	1.725	2.30 × 10 ⁻³	100.0
Industrial	Sewage Treatment - processing by large plants	1.687	2.25 × 10 ⁻³	100.0
Industrial	Paper production using recycled materials	1.498	1.99 × 10 ⁻³	100.0
Commercial	Food Manufacturing n.e.c.	1.395	1.86 × 10 ⁻³	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	1.304	1.74 × 10 ⁻³	100.0
Industrial	Printing	1.179	1.57 × 10 ⁻³	100.0
Industrial	Milk processing	0.937	1.25 × 10 ⁻³	100.0
Commercial	Plastic Bag and Film Manufacturing	0.899	1.20 × 10 ⁻³	100.0
Commercial	Electric Cable and Wire Manufacturing	0.840	1.12 × 10 ⁻³	100.0
Commercial	Bread Manufacturing	0.814	1.08 × 10 ⁻³	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.738	9.83 × 10 ⁻⁴	100.0
Industrial	Biomedical waste incineration	0.720	9.58 × 10 ⁻⁴	100.0
Commercial	Biscuit Manufacturing	0.714	9.51 × 10 ⁻⁴	100.0
Commercial	Ink Manufacturing	0.615	8.19 × 10 ⁻⁴	100.0
Industrial	Other Chemical Storage	0.602	8.01 × 10 ⁻⁴	100.0
Industrial	Other livestock processing	0.590	7.86 × 10 ⁻⁴	100.0
Industrial	Pharmaceutical or veterinary products production	0.579	7.71 × 10 ⁻⁴	100.0
Industrial	Generation of electrical power other than from coal or gas	0.492	6.55 × 10 ⁻⁴	100.0
Industrial	Oil and fat manufacturing	0.482	6.42 × 10 ⁻⁴	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.429	5.71 × 10 ⁻⁴	100.0
Industrial	Soap or detergent production	0.417	5.55 × 10 ⁻⁴	100.0
Commercial	Printing	0.327	4.35 × 10 ⁻⁴	100.0
Industrial	Waste oil recovery	0.281	3.75 × 10 ⁻⁴	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.270	3.59 × 10 ⁻⁴	100.0
Industrial	Bread manufacturing	0.259	3.45 × 10 ⁻⁴	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.247	3.29 × 10 ⁻⁴	100.0
Commercial	Non-Ferrous Metal Casting	0.244	3.24 × 10 ⁻⁴	100.0
Commercial	Aircraft Manufacturing	0.213	2.83 × 10 ⁻⁴	100.0
Industrial	Services to air transport	0.203	2.70 × 10 ⁻⁴	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.184	2.45 × 10 ⁻⁴	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.182	2.42 × 10 ⁻⁴	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.175	2.33 × 10 ⁻⁴	100.0
Commercial	Furniture Manufacturing n.e.c.	0.144	1.92 × 10 ⁻⁴	100.0
Commercial	Chemical Product Manufacturing n.e.c.	0.138	1.83 × 10 ⁻⁴	100.0
Commercial	Spring and Wire Product Manufacturing	0.130	1.73 × 10 ⁻⁴	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	0.127	1.69 × 10 ⁻⁴	100.0
Industrial	Drum or container reconditioning	0.123	1.64 × 10 ⁻⁴	100.0
Commercial	Cake and Pastry Manufacturing	0.121	1.61 × 10 ⁻⁴	100.0
Industrial	Dry cleaning	0.119	1.59 × 10 ⁻⁴	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.118	1.57 × 10 ⁻⁴	100.0
Industrial	Cake and pastry manufacturing	0.114	1.52 × 10 ⁻⁴	100.0
Commercial	Gas Supply	0.109	1.46 × 10 ⁻⁴	100.0
Commercial	Road and Bridge Construction	0.095	1.26 × 10 ⁻⁴	100.0
Commercial	Milk and Cream Processing	0.093	1.24 × 10 ⁻⁴	100.0
Commercial	Ice Cream Manufacturing	0.093	1.24 × 10 ⁻⁴	100.0
Industrial	Soft drink manufacturing	0.088	1.17 × 10 ⁻⁴	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Confectionary manufacturing	0.053	7.09×10^{-5}	100.0
Commercial	Fruit and Vegetable Processing	0.051	6.80×10^{-5}	100.0
Commercial	Laundries and Dry-Cleaners	0.041	5.45×10^{-5}	100.0
Commercial	Lifting and Material Handling Equipment Manufacturing	0.024	3.26×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.022	2.91×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.017	2.22×10^{-5}	100.0
Industrial	Pesticides production	0.013	1.72×10^{-5}	100.0
Commercial	Structural Steel Fabricating	9.79×10^{-3}	1.30×10^{-5}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	7.34×10^{-3}	9.77×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	4.98×10^{-3}	6.62×10^{-6}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	1.08×10^{-3}	1.44×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	6.12×10^{-4}	8.14×10^{-7}	100.0
Commercial	Industrial Gas Manufacturing	4.23×10^{-4}	5.64×10^{-7}	100.0
Industrial	Explosives or pyrotechnics production	2.60×10^{-4}	3.46×10^{-7}	100.0
Industrial	Contaminated soil treatment	2.50×10^{-4}	3.33×10^{-7}	100.0
Commercial	Mining and Construction Machinery Manufacturing	2.01×10^{-4}	2.67×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	1.34×10^{-4}	1.78×10^{-7}	100.0
Commercial	Wine Manufacturing	5.42×10^{-5}	7.21×10^{-8}	100.0
Commercial	Wood Product Manufacturing n.e.c.	4.52×10^{-5}	6.02×10^{-8}	100.0
Anthropogenic	All	75,128	100.0	
Newcastle				
Industrial	Coal mining	494	16.8	16.8
Domestic-Commercial	Solid Fuel Combustion	393	13.3	30.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	302	10.2	40.3
Industrial	Production of ammonium nitrate	210	7.13	47.5
Industrial	Hard-rock gravel quarrying	158	5.37	52.8
Industrial	Primary aluminium production	153	5.20	58.0
Industrial	Bitumen pre-mix or hotmix production	129	4.38	62.4
Industrial	Crushing, grinding or separating works	93.085	3.16	65.6
Off-Road Mobile	Commercial Ships	83.227	2.82	68.4
Commercial	Gravel and Sand Quarrying	80.570	2.73	71.1
Industrial	Bulk cargo handling	80.043	2.72	73.8
Industrial	Production of phosphate fertilizer	79.279	2.69	76.5
Industrial	Other land-based extraction	65.325	2.22	78.8
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	61.985	2.10	80.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	60.248	2.04	82.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	54.707	1.86	84.8
Industrial	Inert waste landfilling	54.051	1.83	86.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	53.935	1.83	88.4
Commercial	Poultry Farming (Meat)	46.195	1.57	90.0
Industrial	Other chemical processing	34.414	1.17	91.2
Commercial	Construction Material Mining n.e.c.	33.879	1.15	92.3
Industrial	Concrete batching	31.250	1.06	93.4
Industrial	Secondary iron and steel production	28.263	0.96	94.3
Industrial	Solid waste landfilling	23.207	0.79	95.1
Industrial	Other vessel construction or maintenance	17.931	0.61	95.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	15.947	0.54	96.3
Industrial	Other metal processing	15.425	0.52	96.8

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Primary non-ferrous production (excluding aluminium)	14.844	0.50	97.3
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	10.188	0.35	97.6
Industrial	Other agricultural crop processing	9.872	0.33	98.0
Off-Road Mobile	Commercial Boats	7.038	0.24	98.2
Off-Road Mobile	Recreational Boats	7.003	0.24	98.4
Off-Road Mobile	Railways	4.989	0.17	98.6
On-Road Mobile	Exhaust Emissions - Other	4.694	0.16	98.8
Industrial	Cement or lime handling	4.243	0.14	98.9
Commercial	Unaccounted Gaseous Fuel Combustion	4.171	0.14	99.1
Industrial	Vessel construction or maintenance using dry or floating docks	3.891	0.13	99.2
Commercial	Hospitals (Except Psychiatric Hospitals)	3.824	0.13	99.3
Domestic-Commercial	Gaseous Fuel Combustion	3.151	0.11	99.4
Off-Road Mobile	Aircraft	2.980	0.10	99.5
Commercial	Metal Coating and Finishing	2.693	0.09	99.6
Industrial	Metal plating or coating works	2.468	0.08	99.7
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	2.100	0.07	99.8
Industrial	Animal slaughtering	1.875	0.06	99.8
Commercial	Concrete Slurry Manufacturing	1.591	0.05	99.9
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.991	0.03	99.9
Domestic-Commercial	Barbecues	0.665	0.02	99.9
Commercial	Bread Manufacturing	0.304	0.01	100.0
Industrial	Waste storage, transfer, separating or processing	0.299	0.01	100.0
Industrial	Wood or timber milling	0.272	9.23×10^{-3}	100.0
Industrial	Milk processing	0.260	8.83×10^{-3}	100.0
Industrial	Coal loading	0.225	7.64×10^{-3}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.192	6.51×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.038	1.30×10^{-3}	100.0
Commercial	Road and Bridge Construction	0.033	1.11×10^{-3}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	3.13×10^{-3}	1.06×10^{-4}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	1.08×10^{-3}	3.66×10^{-5}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	5.55×10^{-4}	1.88×10^{-5}	100.0
Industrial	Explosives or pyrotechnics production	2.60×10^{-4}	8.82×10^{-6}	100.0
Commercial	Mining and Construction Machinery Manufacturing	2.01×10^{-4}	6.80×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	7.23×10^{-5}	2.45×10^{-6}	100.0
Anthropogenic	All	2,948	100.0	
Non-Urban				
Industrial	Coal mining	24,587	51.4	51.4
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	9,036	18.9	70.3
Industrial	Generation of electrical power from coal	4,816	10.1	80.3
Industrial	Other land-based extraction	1,639	3.43	83.8
Industrial	Hard-rock gravel quarrying	1,404	2.93	86.7
Commercial	Poultry Farming (Meat)	953	1.99	88.7
Domestic-Commercial	Solid Fuel Combustion	881	1.84	90.5
Commercial	Gravel and Sand Quarrying	578	1.21	91.7
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	572	1.20	92.9
Industrial	Solid waste landfilling	392	0.82	93.8

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Crushing, grinding or separating works	363	0.76	94.5
Industrial	Mining (other than coal)	359	0.75	95.3
Industrial	Primary aluminium production	280	0.58	95.9
Industrial	Ceramics production (excluding glass)	259	0.54	96.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	235	0.49	96.9
Industrial	Cement or lime production	211	0.44	97.3
Industrial	Cement or lime handling	143	0.30	97.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	140	0.29	97.9
Industrial	Coal loading	129	0.27	98.2
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	100	0.21	98.4
Off-Road Mobile	Commercial Boats	98.009	0.20	98.6
Industrial	Concrete batching	74.948	0.16	98.8
Off-Road Mobile	Recreational Boats	69.130	0.14	98.9
Industrial	Poultry production	61.209	0.13	99.0
Commercial	Poultry Farming (Eggs)	60.293	0.13	99.2
Off-Road Mobile	Commercial Ships	59.753	0.12	99.3
Industrial	Freeway or tollway construction	44.095	0.09	99.4
Off-Road Mobile	Railways	42.803	0.09	99.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	35.800	0.07	99.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	35.037	0.07	99.6
Commercial	Hospitals (Except Psychiatric Hospitals)	27.397	0.06	99.7
Industrial	Environmentally sensitive area landfilling	19.390	0.04	99.7
Industrial	Wood or timber milling	18.413	0.04	99.8
On-Road Mobile	Exhaust Emissions - Other	17.400	0.04	99.8
Industrial	Other agricultural crop processing	17.025	0.04	99.8
Commercial	Construction Material Mining n.e.c.	16.376	0.03	99.9
Industrial	Secondary aluminium production	10.992	0.02	99.9
Commercial	Unaccounted Gaseous Fuel Combustion	9.927	0.02	99.9
Domestic-Commercial	Gaseous Fuel Combustion	7.499	0.02	99.9
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	7.090	0.01	99.9
Industrial	Bitumen pre-mix or hotmix production	5.114	0.01	99.9
Industrial	Sewage Treatment - processing by small plants	4.759	9.95×10^{-3}	100.0
Commercial	Concrete Slurry Manufacturing	4.435	9.27×10^{-3}	100.0
Industrial	Inert waste landfilling	3.941	8.24×10^{-3}	100.0
Off-Road Mobile	Aircraft	3.129	6.54×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	2.359	4.93×10^{-3}	100.0
Domestic-Commercial	Barbecues	1.616	3.38×10^{-3}	100.0
Industrial	Landfilling in designated areas	1.060	2.22×10^{-3}	100.0
Industrial	Rendering or fat extraction	0.871	1.82×10^{-3}	100.0
Commercial	Electric Cable and Wire Manufacturing	0.840	1.76×10^{-3}	100.0
Commercial	Food Manufacturing n.e.c.	0.770	1.61×10^{-3}	100.0
Industrial	Other chemical processing	0.597	1.25×10^{-3}	100.0
Industrial	Other livestock processing	0.350	7.32×10^{-4}	100.0
Industrial	Waste oil recovery	0.272	5.69×10^{-4}	100.0
Commercial	Non-Ferrous Metal Casting	0.244	5.10×10^{-4}	100.0
Industrial	Chemical Storage - Other Chemical Storage	0.216	4.51×10^{-4}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	0.163	3.41×10^{-4}	100.0

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Furniture Manufacturing n.e.c.	0.144	3.01×10^{-4}	100.0
Commercial	Spring and Wire Product Manufacturing	0.129	2.70×10^{-4}	100.0
Industrial	Composting and related reprocessing or treatment	0.124	2.59×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.118	2.46×10^{-4}	100.0
Industrial	Sewage Treatment - processing by large plants	0.104	2.18×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.091	1.90×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.069	1.45×10^{-4}	100.0
Industrial	Plastics production	0.054	1.13×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.047	9.83×10^{-5}	100.0
Commercial	Road and Bridge Construction	0.032	6.79×10^{-5}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.027	5.54×10^{-5}	100.0
Commercial	Glass and Glass Product Manufacturing	8.95×10^{-3}	1.87×10^{-5}	100.0
Industrial	Animal slaughtering	5.45×10^{-3}	1.14×10^{-5}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	5.0×10^{-3}	1.05×10^{-5}	100.0
Commercial	Non-Building Construction n.e.c.	1.27×10^{-3}	2.66×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.44×10^{-4}	3.0×10^{-7}	100.0
Anthropogenic	All	47,841	100.0	
Sydney				
Domestic-Commercial	Solid Fuel Combustion	4,642	21.8	21.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	2,794	13.1	34.9
Industrial	Crushing, grinding or separating works	2,051	9.63	44.5
Industrial	Other land-based extraction	1,768	8.30	52.8
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	867	4.07	56.9
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	866	4.06	61.0
Industrial	Ceramics production (excluding glass)	841	3.95	64.9
Commercial	Poultry Farming (Meat)	831	3.90	68.8
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	702	3.29	72.1
Commercial	Gravel and Sand Quarrying	560	2.63	74.7
Commercial	Poultry Farming (Eggs)	534	2.51	77.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	505	2.37	79.6
Industrial	Concrete batching	487	2.29	81.9
Industrial	Solid waste landfilling	484	2.27	84.2
Industrial	Poultry production	383	1.80	86.0
Industrial	Petroleum refining	265	1.25	87.2
Industrial	Plastics production	194	0.91	88.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	189	0.89	89.0
Off-Road Mobile	Recreational Boats	147	0.69	89.7
Industrial	Hard-rock gravel quarrying	125	0.59	90.3
Industrial	Production of float glass	113	0.53	90.8
Industrial	Coal mining	109	0.51	91.3
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	104	0.49	91.8
Industrial	Production of container glass	86.310	0.41	92.2
Off-Road Mobile	Aircraft	86.238	0.40	92.6
Industrial	Cement or lime production	71.487	0.34	93.0
Industrial	Storage of Petroleum and/or Petroleum Products	67.881	0.32	93.3
On-Road Mobile	Exhaust Emissions - Other	67.685	0.32	93.6

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Sewage Treatment - processing by small plants	66.924	0.31	93.9
Industrial	Composting and related reprocessing or treatment	63.781	0.30	94.2
Commercial	Unaccounted Gaseous Fuel Combustion	63.316	0.30	94.5
Commercial	Hospitals (Except Psychiatric Hospitals)	62.887	0.30	94.8
Industrial	Inert waste landfilling	61.823	0.29	95.1
Industrial	Bitumen pre-mix or hotmix production	60.754	0.29	95.4
Off-Road Mobile	Commercial Boats	57.586	0.27	95.7
Off-Road Mobile	Commercial Ships	55.485	0.26	95.9
Industrial	Scrap metal recovery	52.369	0.25	96.2
Industrial	Cement or lime handling	51.960	0.24	96.4
Industrial	Environmentally sensitive area landfilling	50.797	0.24	96.6
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	50.141	0.24	96.9
Off-Road Mobile	Railways	47.891	0.22	97.1
Domestic-Commercial	Gaseous Fuel Combustion	47.827	0.22	97.3
Industrial	Generation of electrical power from gas	46.617	0.22	97.5
Industrial	Petrochemical production	45.276	0.21	97.8
Industrial	Other agricultural crop processing	44.159	0.21	98.0
Industrial	Freeway or tollway construction	43.293	0.20	98.2
Industrial	Coke production	35.984	0.17	98.3
Industrial	Waste storage, transfer, separating or processing	33.999	0.16	98.5
Industrial	Other metal processing	32.462	0.15	98.6
Industrial	Metal plating or coating works	29.773	0.14	98.8
Industrial	Other vessel construction or maintenance	22.738	0.11	98.9
Commercial	Paint Manufacturing	21.681	0.10	99.0
Industrial	Landfilling in designated areas	21.218	0.10	99.1
Industrial	Secondary aluminium production	18.541	0.09	99.2
Commercial	Plaster Product Manufacturing	14.402	0.07	99.2
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	13.384	0.06	99.3
Industrial	Mining (other than coal)	12.609	0.06	99.4
Commercial	Concrete Slurry Manufacturing	12.074	0.06	99.4
Industrial	Paint production	10.345	0.05	99.5
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	9.971	0.05	99.5
Domestic-Commercial	Barbecues	9.568	0.04	99.6
Industrial	Bulk cargo handling	9.130	0.04	99.6
Commercial	Port Operators	8.951	0.04	99.7
Commercial	Glass and Glass Product Manufacturing	7.730	0.04	99.7
Commercial	Basic Iron and Steel Manufacturing	7.080	0.03	99.7
Industrial	Secondary iron and steel production	6.911	0.03	99.8
Industrial	Secondary non-ferrous production (excluding aluminium)	5.754	0.03	99.8
Industrial	Hazardous, industrial, group A or group B waste processing	5.142	0.02	99.8
Industrial	Railway activities	4.677	0.02	99.8
Industrial	Battery production	4.125	0.02	99.8
Industrial	Other chemical processing	3.845	0.02	99.9
Industrial	Rendering or fat extraction	3.522	0.02	99.9
Industrial	Primary iron and steel production	2.216	0.01	99.9
Industrial	Hazardous, industrial or group A waste generation or storage	1.817	8.53×10^{-3}	99.9

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Beer or distilled alcohol production	1.725	8.10 × 10 ⁻³	99.9
Industrial	Paper production using recycled materials	1.498	7.03 × 10 ⁻³	99.9
Industrial	Sewage Treatment - processing by large plants	1.486	6.98 × 10 ⁻³	99.9
Industrial	Printing	1.179	5.53 × 10 ⁻³	99.9
Commercial	Fabricated Metal Product Manufacturing n.e.c.	1.043	4.90 × 10 ⁻³	99.9
Commercial	Steel Pipe and Tube Manufacturing	1.020	4.79 × 10 ⁻³	99.9
Commercial	Plastic Bag and Film Manufacturing	0.899	4.22 × 10 ⁻³	99.9
Industrial	Biomedical waste incineration	0.720	3.38 × 10 ⁻³	99.9
Commercial	Biscuit Manufacturing	0.714	3.35 × 10 ⁻³	99.9
Industrial	Milk processing	0.676	3.17 × 10 ⁻³	100.0
Commercial	Food Manufacturing n.e.c.	0.624	2.93 × 10 ⁻³	100.0
Commercial	Metal Coating and Finishing	0.616	2.89 × 10 ⁻³	100.0
Commercial	Ink Manufacturing	0.615	2.89 × 10 ⁻³	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.581	2.73 × 10 ⁻³	100.0
Industrial	Pharmaceutical or veterinary products production	0.579	2.72 × 10 ⁻³	100.0
Commercial	Bread Manufacturing	0.510	2.39 × 10 ⁻³	100.0
Industrial	Generation of electrical power other than from coal or gas	0.492	2.31 × 10 ⁻³	100.0
Industrial	Oil and fat manufacturing	0.482	2.26 × 10 ⁻³	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.429	2.01 × 10 ⁻³	100.0
Industrial	Soap or detergent production	0.417	1.96 × 10 ⁻³	100.0
Industrial	Other Chemical Storage	0.386	1.81 × 10 ⁻³	100.0
Industrial	Animal slaughtering	0.352	1.65 × 10 ⁻³	100.0
Commercial	Printing	0.327	1.53 × 10 ⁻³	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	0.321	1.51 × 10 ⁻³	100.0
Industrial	Bread manufacturing	0.259	1.22 × 10 ⁻³	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.247	1.16 × 10 ⁻³	100.0
Industrial	Other livestock processing	0.240	1.13 × 10 ⁻³	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.223	1.05 × 10 ⁻³	100.0
Commercial	Aircraft Manufacturing	0.213	9.99 × 10 ⁻⁴	100.0
Industrial	Services to air transport	0.203	9.53 × 10 ⁻⁴	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.182	8.52 × 10 ⁻⁴	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.175	8.20 × 10 ⁻⁴	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.158	7.39 × 10 ⁻⁴	100.0
Commercial	Chemical Product Manufacturing n.e.c.	0.133	6.23 × 10 ⁻⁴	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	0.127	5.95 × 10 ⁻⁴	100.0
Industrial	Drum or container reconditioning	0.123	5.75 × 10 ⁻⁴	100.0
Commercial	Cake and Pastry Manufacturing	0.121	5.68 × 10 ⁻⁴	100.0
Industrial	Dry cleaning	0.119	5.60 × 10 ⁻⁴	100.0
Industrial	Cake and pastry manufacturing	0.114	5.37 × 10 ⁻⁴	100.0
Commercial	Gas Supply	0.109	5.14 × 10 ⁻⁴	100.0
Commercial	Milk and Cream Processing	0.093	4.37 × 10 ⁻⁴	100.0
Commercial	Ice Cream Manufacturing	0.093	4.37 × 10 ⁻⁴	100.0
Industrial	Soft drink manufacturing	0.088	4.13 × 10 ⁻⁴	100.0
Industrial	Confectionary manufacturing	0.053	2.50 × 10 ⁻⁴	100.0
Commercial	Fruit and Vegetable Processing	0.051	2.40 × 10 ⁻⁴	100.0
Commercial	Laundries and Dry-Cleaners	0.041	1.92 × 10 ⁻⁴	100.0
Commercial	Road and Bridge Construction	0.030	1.39 × 10 ⁻⁴	100.0

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Lifting and Material Handling Equipment Manufacturing	0.024	1.15 × 10 ⁻⁴	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.022	1.02 × 10 ⁻⁴	100.0
Commercial	Confectionery Manufacturing	0.017	7.83 × 10 ⁻⁵	100.0
Industrial	Pesticides production	0.013	6.07 × 10 ⁻⁵	100.0
Commercial	Structural Steel Fabricating	9.79 × 10 ⁻³	4.60 × 10 ⁻⁵	100.0
Industrial	Waste oil recovery	9.14 × 10 ⁻³	4.29 × 10 ⁻⁵	100.0
Commercial	Rubber Product Manufacturing n.e.c.	5.78 × 10 ⁻³	2.71 × 10 ⁻⁵	100.0
Commercial	Non-Building Construction n.e.c.	3.71 × 10 ⁻³	1.74 × 10 ⁻⁵	100.0
Commercial	Industrial Gas Manufacturing	4.23 × 10 ⁻⁴	1.99 × 10 ⁻⁶	100.0
Commercial	Spring and Wire Product Manufacturing	4.09 × 10 ⁻⁴	1.92 × 10 ⁻⁶	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	3.69 × 10 ⁻⁴	1.73 × 10 ⁻⁶	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	3.12 × 10 ⁻⁴	1.46 × 10 ⁻⁶	100.0
Industrial	Contaminated soil treatment	2.50 × 10 ⁻⁴	1.17 × 10 ⁻⁶	100.0
Commercial	Wine Manufacturing	5.42 × 10 ⁻⁵	2.54 × 10 ⁻⁷	100.0
Commercial	Wood Product Manufacturing n.e.c.	4.52 × 10 ⁻⁵	2.12 × 10 ⁻⁷	100.0
Anthropogenic	All	21,305	100.0	
Wollongong				
Industrial	Primary iron and steel production	1,618	53.3	53.3
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	453	14.9	68.3
Domestic-Commercial	Solid Fuel Combustion	256	8.44	76.7
Industrial	Coal loading	180	5.94	82.6
Industrial	Coal mining	65.076	2.15	84.8
Industrial	Coal washery reject or slag landfilling	56.748	1.87	86.7
Industrial	Inert waste landfilling	44.668	1.47	88.1
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	41.731	1.38	89.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	37.628	1.24	90.7
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	34.438	1.14	91.9
Industrial	Coke production	33.407	1.10	93.0
Commercial	Gravel and Sand Quarrying	32.737	1.08	94.1
Industrial	Solid waste landfilling	28.632	0.94	95.0
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	20.855	0.69	95.7
Off-Road Mobile	Commercial Ships	14.938	0.49	96.2
Industrial	Concrete batching	12.327	0.41	96.6
Commercial	Poultry Farming (Meat)	10.644	0.35	96.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	10.400	0.34	97.3
Industrial	Metal plating or coating works	10.324	0.34	97.6
Off-Road Mobile	Recreational Boats	9.488	0.31	97.9
Commercial	Ceramic Product Manufacturing	7.298	0.24	98.2
Industrial	Environmentally sensitive area landfilling	6.615	0.22	98.4
Commercial	Hospitals (Except Psychiatric Hospitals)	6.435	0.21	98.6
Industrial	Crushing, grinding or separating works	4.852	0.16	98.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	4.795	0.16	98.9
Off-Road Mobile	Commercial Boats	4.660	0.15	99.1
Off-Road Mobile	Railways	4.091	0.13	99.2
Commercial	Steel Pipe and Tube Manufacturing	3.510	0.12	99.3
Industrial	Bitumen pre-mix or hotmix production	3.505	0.12	99.4
On-Road Mobile	Exhaust Emissions - Other	3.502	0.12	99.6

Source Group	Source Type	Particulate Matter < 10 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Unaccounted Gaseous Fuel Combustion	3.033	0.10	99.7
Industrial	Production of phosphate fertilizer	2.363	0.08	99.7
Domestic-Commercial	Gaseous Fuel Combustion	2.291	0.08	99.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	1.699	0.06	99.9
Industrial	Other chemical processing	0.982	0.03	99.9
Industrial	Bulk cargo handling	0.554	0.02	99.9
Domestic-Commercial	Barbecues	0.481	0.02	99.9
Commercial	Basic Iron and Steel Manufacturing	0.413	0.01	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.359	0.01	100.0
Commercial	Concrete Slurry Manufacturing	0.261	8.60×10^{-3}	100.0
Industrial	Other metal processing	0.240	7.90×10^{-3}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.173	5.71×10^{-3}	100.0
Off-Road Mobile	Aircraft	0.151	4.96×10^{-3}	100.0
Industrial	Sewage Treatment - processing by large plants	0.096	3.17×10^{-3}	100.0
Industrial	Sewage Treatment - processing by small plants	0.088	2.89×10^{-3}	100.0
Industrial	Cement or lime handling	0.060	1.97×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.028	9.17×10^{-4}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	1.56×10^{-3}	5.14×10^{-5}	100.0
Industrial	Drum or container reconditioning	4.55×10^{-4}	1.50×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	2.43×10^{-4}	8.02×10^{-6}	100.0
Commercial	Spring and Wire Product Manufacturing	1.35×10^{-4}	4.45×10^{-6}	100.0
Commercial	Synthetic Resin Manufacturing	1.34×10^{-4}	4.41×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	2.74×10^{-5}	9.03×10^{-7}	100.0
Anthropogenic	All	3,034	100.0	

4.2.5 Particulate Matter < 2.5 µm

Table 4.9 shows anthropogenic sources of particulate matter < 2.5 µm emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.9 Ranking of anthropogenic sources of particulate matter < 2.5 µm

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Domestic-Commercial	Solid Fuel Combustion	5,986	19.6	19.6
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	5,191	17.0	36.6
Industrial	Coal mining	4,154	13.6	50.3
Industrial	Generation of electrical power from coal	1,708	5.60	55.9
Industrial	Primary iron and steel production	1,444	4.73	60.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1,073	3.52	64.1
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	1,002	3.28	67.4
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	972	3.19	70.6
Industrial	Crushing, grinding or separating works	918	3.01	73.6
Industrial	Other land-based extraction	799	2.62	76.2
Industrial	Ceramics production (excluding glass)	798	2.61	78.8
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	528	1.73	80.6
Commercial	Poultry Farming (Meat)	526	1.72	82.3
Industrial	Hard-rock gravel quarrying	435	1.43	83.7
Industrial	Primary aluminium production	312	1.02	84.7
Commercial	Gravel and Sand Quarrying	296	0.97	85.7
Industrial	Petroleum refining	237	0.78	86.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	231	0.76	87.2
Off-Road Mobile	Recreational Boats	214	0.70	87.9
Industrial	Production of ammonium nitrate	207	0.68	88.6
Off-Road Mobile	Commercial Ships	204	0.67	89.3
Industrial	Plastics production	192	0.63	89.9
Industrial	Solid waste landfilling	189	0.62	90.5
Industrial	Cement or lime production	175	0.57	91.1
Commercial	Poultry Farming (Eggs)	170	0.56	91.7
Off-Road Mobile	Commercial Boats	155	0.51	92.2
Industrial	Bitumen pre-mix or hotmix production	145	0.48	92.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	143	0.47	93.1
Industrial	Concrete batching	134	0.44	93.6
Industrial	Poultry production	120	0.39	94.0
Industrial	Production of float glass	111	0.36	94.3
Commercial	Hospitals (Except Psychiatric Hospitals)	101	0.33	94.7
Off-Road Mobile	Railways	90.136	0.30	94.9
Industrial	Production of container glass	86.310	0.28	95.2
On-Road Mobile	Exhaust Emissions - Other	85.818	0.28	95.5
Off-Road Mobile	Aircraft	85.786	0.28	95.8
Commercial	Unaccounted Gaseous Fuel Combustion	80.447	0.26	96.1
Industrial	Production of phosphate fertilizer	79.949	0.26	96.3
Industrial	Mining (other than coal)	77.973	0.26	96.6
Industrial	Coke production	69.391	0.23	96.8

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Storage of Petroleum and/or Petroleum Products	67.672	0.22	97.0
Industrial	Cement or lime handling	60.836	0.20	97.2
Domestic-Commercial	Gaseous Fuel Combustion	60.768	0.20	97.4
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	56.148	0.18	97.6
Industrial	Other metal processing	48.076	0.16	97.8
Industrial	Generation of electrical power from gas	46.377	0.15	97.9
Industrial	Petrochemical production	45.275	0.15	98.1
Industrial	Metal plating or coating works	41.214	0.14	98.2
Industrial	Scrap metal recovery	39.215	0.13	98.3
Industrial	Other chemical processing	39.107	0.13	98.5
Industrial	Other vessel construction or maintenance	37.372	0.12	98.6
Industrial	Inert waste landfilling	34.297	0.11	98.7
Industrial	Coal loading	33.815	0.11	98.8
Industrial	Secondary iron and steel production	32.348	0.11	98.9
Industrial	Other agricultural crop processing	23.599	0.08	99.0
Commercial	Paint Manufacturing	21.434	0.07	99.1
Industrial	Secondary aluminium production	19.780	0.06	99.1
Industrial	Sewage Treatment - processing by small plants	17.743	0.06	99.2
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	16.453	0.05	99.2
Industrial	Environmentally sensitive area landfilling	15.579	0.05	99.3
Industrial	Freeway or tollway construction	14.500	0.05	99.3
Industrial	Bulk cargo handling	13.514	0.04	99.4
Industrial	Composting and related reprocessing or treatment	12.925	0.04	99.4
Industrial	Primary non-ferrous production (excluding aluminium)	12.208	0.04	99.5
Industrial	Coal washery reject or slag landfilling	11.429	0.04	99.5
Commercial	Construction Material Mining n.e.c.	10.273	0.03	99.5
Industrial	Paint production	10.241	0.03	99.6
Commercial	Port Operators	8.951	0.03	99.6
Commercial	Plaster Product Manufacturing	8.642	0.03	99.6
Commercial	Glass and Glass Product Manufacturing	7.598	0.02	99.6
Industrial	Wood or timber milling	7.523	0.02	99.7
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	7.469	0.02	99.7
Industrial	Waste storage, transfer, separating or processing	7.224	0.02	99.7
Domestic-Commercial	Barbecues	6.875	0.02	99.7
Commercial	Ceramic Product Manufacturing	6.728	0.02	99.8
Commercial	Basic Iron and Steel Manufacturing	6.651	0.02	99.8
Industrial	Secondary non-ferrous production (excluding aluminium)	5.283	0.02	99.8
Industrial	Hazardous, industrial, group A or group B waste processing	5.184	0.02	99.8
Industrial	Railway activities	4.677	0.02	99.8
Commercial	Steel Pipe and Tube Manufacturing	4.530	0.01	99.9
Industrial	Landfilling in designated areas	4.487	0.01	99.9
Industrial	Battery production	4.125	0.01	99.9
Industrial	Vessel construction or maintenance using dry or floating docks	3.575	0.01	99.9
Commercial	Metal Coating and Finishing	3.296	0.01	99.9
Commercial	Concrete Slurry Manufacturing	2.781	9.12×10^{-3}	99.9
Industrial	Rendering or fat extraction	2.483	8.14×10^{-3}	99.9

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Hazardous, industrial or group A waste generation or storage	1.818	5.96×10^{-3}	99.9
Industrial	Beer or distilled alcohol production	1.725	5.66×10^{-3}	99.9
Industrial	Sewage Treatment - processing by large plants	1.685	5.52×10^{-3}	99.9
Industrial	Paper production using recycled materials	1.498	4.91×10^{-3}	99.9
Commercial	Fabricated Metal Product Manufacturing n.e.c.	1.304	4.28×10^{-3}	99.9
Industrial	Printing	1.179	3.86×10^{-3}	99.9
Commercial	Food Manufacturing n.e.c.	1.127	3.69×10^{-3}	100.0
Industrial	Animal slaughtering	1.109	3.64×10^{-3}	100.0
Industrial	Milk processing	0.937	3.07×10^{-3}	100.0
Commercial	Plastic Bag and Film Manufacturing	0.832	2.73×10^{-3}	100.0
Commercial	Bread Manufacturing	0.814	2.67×10^{-3}	100.0
Industrial	Biomedical waste incineration	0.720	2.36×10^{-3}	100.0
Commercial	Biscuit Manufacturing	0.714	2.34×10^{-3}	100.0
Commercial	Electric Cable and Wire Manufacturing	0.629	2.06×10^{-3}	100.0
Commercial	Ink Manufacturing	0.610	2.0×10^{-3}	100.0
Industrial	Other livestock processing	0.590	1.93×10^{-3}	100.0
Industrial	Pharmaceutical or veterinary products production	0.573	1.88×10^{-3}	100.0
Industrial	Other Chemical Storage	0.506	1.66×10^{-3}	100.0
Industrial	Generation of electrical power other than from coal or gas	0.492	1.61×10^{-3}	100.0
Industrial	Oil and fat manufacturing	0.482	1.58×10^{-3}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.429	1.41×10^{-3}	100.0
Industrial	Soap or detergent production	0.417	1.37×10^{-3}	100.0
Commercial	Printing	0.327	1.07×10^{-3}	100.0
Industrial	Waste oil recovery	0.279	9.15×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.270	8.84×10^{-4}	100.0
Industrial	Bread manufacturing	0.259	8.49×10^{-4}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.247	8.10×10^{-4}	100.0
Commercial	Aircraft Manufacturing	0.213	6.98×10^{-4}	100.0
Industrial	Services to air transport	0.203	6.66×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.185	6.05×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.184	6.03×10^{-4}	100.0
Commercial	Non-Ferrous Metal Casting	0.183	6.0×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.182	5.95×10^{-4}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.175	5.73×10^{-4}	100.0
Commercial	Furniture Manufacturing n.e.c.	0.144	4.73×10^{-4}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	0.138	4.51×10^{-4}	100.0
Commercial	Spring and Wire Product Manufacturing	0.130	4.25×10^{-4}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	0.127	4.15×10^{-4}	100.0
Industrial	Drum or container reconditioning	0.123	4.03×10^{-4}	100.0
Commercial	Cake and Pastry Manufacturing	0.121	3.97×10^{-4}	100.0
Industrial	Dry cleaning	0.119	3.91×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.118	3.87×10^{-4}	100.0
Industrial	Cake and pastry manufacturing	0.114	3.75×10^{-4}	100.0
Commercial	Gas Supply	0.109	3.59×10^{-4}	100.0
Commercial	Milk and Cream Processing	0.093	3.05×10^{-4}	100.0
Commercial	Ice Cream Manufacturing	0.093	3.05×10^{-4}	100.0
Industrial	Soft drink manufacturing	0.088	2.88×10^{-4}	100.0

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Confectionary manufacturing	0.053	1.75×10^{-4}	100.0
Commercial	Fruit and Vegetable Processing	0.051	1.67×10^{-4}	100.0
Commercial	Laundries and Dry-Cleaners	0.041	1.34×10^{-4}	100.0
Commercial	Lifting and Material Handling Equipment Manufacturing	0.024	8.03×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.022	7.18×10^{-5}	100.0
Commercial	Road and Bridge Construction	0.019	6.24×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.017	5.47×10^{-5}	100.0
Industrial	Pesticides production	0.013	4.24×10^{-5}	100.0
Commercial	Structural Steel Fabricating	9.79×10^{-3}	3.21×10^{-5}	100.0
Commercial	Non-Building Construction n.e.c.	4.93×10^{-3}	1.62×10^{-5}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	1.55×10^{-3}	5.08×10^{-6}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	1.07×10^{-3}	3.51×10^{-6}	100.0
Commercial	Industrial Gas Manufacturing	4.19×10^{-4}	1.38×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	4.09×10^{-4}	1.34×10^{-6}	100.0
Industrial	Explosives or pyrotechnics production	2.58×10^{-4}	8.46×10^{-7}	100.0
Commercial	Mining and Construction Machinery Manufacturing	2.01×10^{-4}	6.58×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	1.34×10^{-4}	4.39×10^{-7}	100.0
Commercial	Wine Manufacturing	5.37×10^{-5}	1.76×10^{-7}	100.0
Commercial	Wood Product Manufacturing n.e.c.	4.52×10^{-5}	1.48×10^{-7}	100.0
Industrial	Contaminated soil treatment	2.49×10^{-5}	8.16×10^{-8}	100.0
Anthropogenic	All	30,499	100.0	
Newcastle				
Domestic-Commercial	Solid Fuel Combustion	381	22.6	22.6
Industrial	Production of ammonium nitrate	207	12.3	34.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	125	7.39	42.2
Industrial	Bitumen pre-mix or hotmix production	114	6.78	49.0
Industrial	Primary aluminium production	111	6.56	55.6
Off-Road Mobile	Commercial Ships	79.627	4.72	60.3
Industrial	Production of phosphate fertilizer	77.586	4.60	64.9
Industrial	Coal mining	70.989	4.21	69.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	60.125	3.56	72.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	52.316	3.10	75.7
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	50.331	2.98	78.7
Industrial	Hard-rock gravel quarrying	40.764	2.42	81.1
Industrial	Other chemical processing	34.395	2.04	83.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	27.479	1.63	84.8
Industrial	Crushing, grinding or separating works	25.322	1.50	86.3
Industrial	Secondary iron and steel production	25.170	1.49	87.8
Commercial	Gravel and Sand Quarrying	17.934	1.06	88.9
Industrial	Other vessel construction or maintenance	16.472	0.98	89.8
Industrial	Other metal processing	15.425	0.91	90.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	14.671	0.87	91.6
Commercial	Poultry Farming (Meat)	13.198	0.78	92.4
Industrial	Other land-based extraction	12.527	0.74	93.2
Industrial	Primary non-ferrous production (excluding aluminium)	11.944	0.71	93.9
Industrial	Bulk cargo handling	11.713	0.69	94.6
Industrial	Inert waste landfilling	10.886	0.65	95.2

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	9.462	0.56	95.8
Commercial	Construction Material Mining n.e.c.	6.583	0.39	96.2
Off-Road Mobile	Commercial Boats	6.532	0.39	96.5
Off-Road Mobile	Recreational Boats	6.447	0.38	96.9
Industrial	Concrete batching	4.697	0.28	97.2
Industrial	Solid waste landfilling	4.694	0.28	97.5
Off-Road Mobile	Railways	4.507	0.27	97.7
On-Road Mobile	Exhaust Emissions - Other	4.319	0.26	98.0
Commercial	Unaccounted Gaseous Fuel Combustion	4.171	0.25	98.3
Commercial	Hospitals (Except Psychiatric Hospitals)	3.823	0.23	98.5
Industrial	Vessel construction or maintenance using dry or floating docks	3.575	0.21	98.7
Industrial	Other agricultural crop processing	3.440	0.20	98.9
Domestic-Commercial	Gaseous Fuel Combustion	3.151	0.19	99.1
Off-Road Mobile	Aircraft	2.760	0.16	99.2
Commercial	Metal Coating and Finishing	2.681	0.16	99.4
Industrial	Metal plating or coating works	2.468	0.15	99.6
Industrial	Cement or lime handling	2.384	0.14	99.7
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	1.932	0.11	99.8
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.954	0.06	99.9
Industrial	Animal slaughtering	0.751	0.04	99.9
Domestic-Commercial	Barbecues	0.371	0.02	99.9
Commercial	Bread Manufacturing	0.304	0.02	99.9
Industrial	Milk processing	0.260	0.02	100.0
Commercial	Concrete Slurry Manufacturing	0.242	0.01	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.192	0.01	100.0
Industrial	Wood or timber milling	0.100	5.93×10^{-3}	100.0
Industrial	Waste storage, transfer, separating or processing	0.056	3.35×10^{-3}	100.0
Industrial	Coal loading	0.022	1.33×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	9.57×10^{-3}	5.67×10^{-4}	100.0
Commercial	Road and Bridge Construction	6.56×10^{-3}	3.89×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	3.13×10^{-3}	1.85×10^{-4}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	1.07×10^{-3}	6.34×10^{-5}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	5.55×10^{-4}	3.29×10^{-5}	100.0
Industrial	Explosives or pyrotechnics production	2.58×10^{-4}	1.53×10^{-5}	100.0
Commercial	Mining and Construction Machinery Manufacturing	2.01×10^{-4}	1.19×10^{-5}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	4.83×10^{-5}	2.86×10^{-6}	100.0
Anthropogenic	All	1,687	100.0	
Non-Urban				
Industrial	Coal mining	4,056	30.1	30.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	3,727	27.6	57.7
Industrial	Generation of electrical power from coal	1,708	12.7	70.3
Domestic-Commercial	Solid Fuel Combustion	855	6.33	76.7
Industrial	Other land-based extraction	368	2.73	79.4
Industrial	Hard-rock gravel quarrying	360	2.67	82.1
Commercial	Poultry Farming (Meat)	272	2.02	84.1
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	261	1.93	86.0

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	228	1.69	87.7
Industrial	Primary aluminium production	202	1.50	89.2
Industrial	Ceramics production (excluding glass)	191	1.42	90.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	136	1.01	91.6
Commercial	Gravel and Sand Quarrying	134	1.00	92.6
Industrial	Cement or lime production	128	0.95	93.6
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	92.324	0.68	94.3
Off-Road Mobile	Commercial Boats	90.966	0.67	94.9
Industrial	Crushing, grinding or separating works	83.385	0.62	95.6
Industrial	Solid waste landfilling	78.964	0.59	96.1
Industrial	Mining (other than coal)	75.447	0.56	96.7
Off-Road Mobile	Recreational Boats	63.638	0.47	97.2
Off-Road Mobile	Commercial Ships	57.168	0.42	97.6
Off-Road Mobile	Railways	38.668	0.29	97.9
Industrial	Cement or lime handling	33.867	0.25	98.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	32.936	0.24	98.4
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	32.540	0.24	98.6
Commercial	Hospitals (Except Psychiatric Hospitals)	27.397	0.20	98.8
Commercial	Poultry Farming (Eggs)	17.226	0.13	98.9
On-Road Mobile	Exhaust Emissions - Other	16.008	0.12	99.1
Industrial	Poultry production	14.486	0.11	99.2
Industrial	Coal loading	14.353	0.11	99.3
Industrial	Concrete batching	13.704	0.10	99.4
Industrial	Secondary aluminium production	10.992	0.08	99.5
Commercial	Unaccounted Gaseous Fuel Combustion	9.927	0.07	99.5
Industrial	Freeway or tollway construction	8.751	0.06	99.6
Domestic-Commercial	Gaseous Fuel Combustion	7.499	0.06	99.7
Industrial	Wood or timber milling	7.423	0.06	99.7
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	6.523	0.05	99.8
Industrial	Other agricultural crop processing	5.201	0.04	99.8
Industrial	Sewage Treatment - processing by small plants	4.759	0.04	99.8
Industrial	Environmentally sensitive area landfilling	3.917	0.03	99.9
Commercial	Construction Material Mining n.e.c.	3.690	0.03	99.9
Off-Road Mobile	Aircraft	2.885	0.02	99.9
Industrial	Bitumen pre-mix or hotmix production	2.537	0.02	99.9
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	2.271	0.02	99.9
Domestic-Commercial	Barbecues	0.901	6.68×10^{-3}	100.0
Industrial	Rendering or fat extraction	0.859	6.36×10^{-3}	100.0
Industrial	Inert waste landfilling	0.794	5.88×10^{-3}	100.0
Commercial	Concrete Slurry Manufacturing	0.673	4.99×10^{-3}	100.0
Commercial	Electric Cable and Wire Manufacturing	0.629	4.66×10^{-3}	100.0
Industrial	Other chemical processing	0.590	4.38×10^{-3}	100.0
Commercial	Food Manufacturing n.e.c.	0.502	3.72×10^{-3}	100.0
Industrial	Other livestock processing	0.350	2.59×10^{-3}	100.0
Industrial	Waste oil recovery	0.270	2.0×10^{-3}	100.0
Industrial	Landfilling in designated areas	0.213	1.58×10^{-3}	100.0
Commercial	Non-Ferrous Metal Casting	0.183	1.36×10^{-3}	100.0
Commercial	Furniture Manufacturing n.e.c.	0.144	1.07×10^{-3}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Spring and Wire Product Manufacturing	0.129	9.57×10^{-4}	100.0
Industrial	Other Chemical Storage	0.120	8.88×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.118	8.72×10^{-4}	100.0
Industrial	Sewage Treatment - processing by large plants	0.104	7.72×10^{-4}	100.0
Industrial	Composting and related reprocessing or treatment	0.072	5.30×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.069	5.14×10^{-4}	100.0
Industrial	Plastics production	0.054	3.99×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.047	3.48×10^{-4}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	0.032	2.35×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.026	1.95×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.023	1.69×10^{-4}	100.0
Commercial	Road and Bridge Construction	6.51×10^{-3}	4.83×10^{-5}	100.0
Industrial	Animal slaughtering	5.45×10^{-3}	4.04×10^{-5}	100.0
Commercial	Chemical Product Manufacturing n.e.c.	5.0×10^{-3}	3.71×10^{-5}	100.0
Commercial	Glass and Glass Product Manufacturing	1.96×10^{-3}	1.45×10^{-5}	100.0
Commercial	Non-Building Construction n.e.c.	1.26×10^{-3}	9.33×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	9.59×10^{-5}	7.11×10^{-7}	100.0
Anthropogenic	All	13,493	100.0	
Sydney				
Domestic-Commercial	Solid Fuel Combustion	4,503	34.3	34.3
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	1,152	8.78	43.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	840	6.40	49.5
Industrial	Crushing, grinding or separating works	807	6.15	55.6
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	797	6.08	61.7
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	681	5.19	66.9
Industrial	Ceramics production (excluding glass)	606	4.62	71.5
Industrial	Other land-based extraction	418	3.18	74.7
Commercial	Poultry Farming (Meat)	237	1.81	76.5
Industrial	Petroleum refining	237	1.80	78.3
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	230	1.76	80.1
Industrial	Plastics production	192	1.46	81.5
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	173	1.32	82.8
Commercial	Poultry Farming (Eggs)	153	1.16	84.0
Commercial	Gravel and Sand Quarrying	136	1.04	85.0
Off-Road Mobile	Recreational Boats	135	1.03	86.1
Industrial	Concrete batching	114	0.87	86.9
Industrial	Production of float glass	111	0.85	87.8
Industrial	Poultry production	106	0.80	88.6
Industrial	Solid waste landfilling	98.506	0.75	89.3
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	96.263	0.73	90.1
Industrial	Production of container glass	86.310	0.66	90.7
Off-Road Mobile	Aircraft	80.002	0.61	91.3
Industrial	Storage of Petroleum and/or Petroleum Products	67.672	0.52	91.9
Commercial	Unaccounted Gaseous Fuel Combustion	63.316	0.48	92.3

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Hospitals (Except Psychiatric Hospitals)	62.887	0.48	92.8
On-Road Mobile	Exhaust Emissions - Other	62.270	0.47	93.3
Off-Road Mobile	Commercial Boats	53.447	0.41	93.7
Off-Road Mobile	Commercial Ships	53.085	0.40	94.1
Domestic-Commercial	Gaseous Fuel Combustion	47.827	0.36	94.5
Industrial	Cement or lime production	47.282	0.36	94.8
Industrial	Generation of electrical power from gas	46.377	0.35	95.2
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	46.130	0.35	95.5
Industrial	Petrochemical production	45.275	0.34	95.9
Off-Road Mobile	Railways	43.265	0.33	96.2
Industrial	Scrap metal recovery	39.215	0.30	96.5
Industrial	Coke production	35.984	0.27	96.8
Industrial	Hard-rock gravel quarrying	34.175	0.26	97.0
Industrial	Other metal processing	32.443	0.25	97.3
Industrial	Metal plating or coating works	29.251	0.22	97.5
Industrial	Bitumen pre-mix or hotmix production	25.875	0.20	97.7
Industrial	Cement or lime handling	24.576	0.19	97.9
Commercial	Paint Manufacturing	21.434	0.16	98.1
Industrial	Other vessel construction or maintenance	20.901	0.16	98.2
Industrial	Other agricultural crop processing	14.958	0.11	98.3
Industrial	Coal mining	14.041	0.11	98.4
Industrial	Inert waste landfilling	13.634	0.10	98.5
Industrial	Sewage Treatment - processing by small plants	12.897	0.10	98.6
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	12.883	0.10	98.7
Industrial	Composting and related reprocessing or treatment	12.854	0.10	98.8
Industrial	Environmentally sensitive area landfilling	10.396	0.08	98.9
Industrial	Paint production	10.241	0.08	99.0
Commercial	Port Operators	8.951	0.07	99.1
Industrial	Secondary aluminium production	8.788	0.07	99.1
Commercial	Plaster Product Manufacturing	8.642	0.07	99.2
Commercial	Glass and Glass Product Manufacturing	7.596	0.06	99.3
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	7.469	0.06	99.3
Industrial	Secondary iron and steel production	7.177	0.05	99.4
Industrial	Waste storage, transfer, separating or processing	7.167	0.05	99.4
Commercial	Basic Iron and Steel Manufacturing	6.237	0.05	99.5
Industrial	Freeway or tollway construction	5.748	0.04	99.5
Domestic-Commercial	Barbecues	5.334	0.04	99.6
Industrial	Secondary non-ferrous production (excluding aluminium)	5.283	0.04	99.6
Industrial	Hazardous, industrial, group A or group B waste processing	5.142	0.04	99.6
Industrial	Railway activities	4.677	0.04	99.7
Industrial	Landfilling in designated areas	4.273	0.03	99.7
Industrial	Battery production	4.125	0.03	99.7
Industrial	Other chemical processing	3.841	0.03	99.8
Industrial	Mining (other than coal)	2.525	0.02	99.8
Commercial	Concrete Slurry Manufacturing	1.827	0.01	99.8
Industrial	Hazardous, industrial or group A waste generation or storage	1.786	0.01	99.8
Industrial	Bulk cargo handling	1.746	0.01	99.8

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Beer or distilled alcohol production	1.725	0.01	99.8
Industrial	Rendering or fat extraction	1.624	0.01	99.8
Industrial	Primary iron and steel production	1.584	0.01	99.9
Industrial	Paper production using recycled materials	1.498	0.01	99.9
Industrial	Sewage Treatment - processing by large plants	1.485	0.01	99.9
Industrial	Printing	1.179	8.98 × 10 ⁻³	99.9
Commercial	Fabricated Metal Product Manufacturing n.e.c.	1.043	7.95 × 10 ⁻³	99.9
Commercial	Steel Pipe and Tube Manufacturing	1.020	7.77 × 10 ⁻³	99.9
Commercial	Plastic Bag and Film Manufacturing	0.832	6.34 × 10 ⁻³	99.9
Industrial	Biomedical waste incineration	0.720	5.49 × 10 ⁻³	99.9
Commercial	Biscuit Manufacturing	0.714	5.44 × 10 ⁻³	99.9
Industrial	Milk processing	0.676	5.15 × 10 ⁻³	99.9
Commercial	Food Manufacturing n.e.c.	0.624	4.76 × 10 ⁻³	99.9
Commercial	Metal Coating and Finishing	0.616	4.69 × 10 ⁻³	99.9
Commercial	Ink Manufacturing	0.610	4.65 × 10 ⁻³	99.9
Industrial	Pharmaceutical or veterinary products production	0.573	4.37 × 10 ⁻³	99.9
Commercial	Bread Manufacturing	0.510	3.88 × 10 ⁻³	99.9
Industrial	Generation of electrical power other than from coal or gas	0.492	3.75 × 10 ⁻³	100.0
Industrial	Oil and fat manufacturing	0.482	3.67 × 10 ⁻³	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	0.429	3.27 × 10 ⁻³	100.0
Industrial	Soap or detergent production	0.417	3.18 × 10 ⁻³	100.0
Industrial	Other Chemical Storage	0.386	2.94 × 10 ⁻³	100.0
Industrial	Animal slaughtering	0.352	2.68 × 10 ⁻³	100.0
Commercial	Printing	0.327	2.49 × 10 ⁻³	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	0.264	2.01 × 10 ⁻³	100.0
Industrial	Bread manufacturing	0.259	1.97 × 10 ⁻³	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.247	1.88 × 10 ⁻³	100.0
Industrial	Other livestock processing	0.240	1.83 × 10 ⁻³	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.223	1.70 × 10 ⁻³	100.0
Commercial	Aircraft Manufacturing	0.213	1.62 × 10 ⁻³	100.0
Industrial	Services to air transport	0.203	1.55 × 10 ⁻³	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.182	1.38 × 10 ⁻³	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.175	1.33 × 10 ⁻³	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.158	1.20 × 10 ⁻³	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.145	1.11 × 10 ⁻³	100.0
Commercial	Chemical Product Manufacturing n.e.c.	0.133	1.01 × 10 ⁻³	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	0.127	9.65 × 10 ⁻⁴	100.0
Industrial	Drum or container reconditioning	0.123	9.33 × 10 ⁻⁴	100.0
Commercial	Cake and Pastry Manufacturing	0.121	9.22 × 10 ⁻⁴	100.0
Industrial	Dry cleaning	0.119	9.09 × 10 ⁻⁴	100.0
Industrial	Cake and pastry manufacturing	0.114	8.71 × 10 ⁻⁴	100.0
Commercial	Gas Supply	0.109	8.34 × 10 ⁻⁴	100.0
Commercial	Milk and Cream Processing	0.093	7.09 × 10 ⁻⁴	100.0
Commercial	Ice Cream Manufacturing	0.093	7.09 × 10 ⁻⁴	100.0
Industrial	Soft drink manufacturing	0.088	6.70 × 10 ⁻⁴	100.0
Industrial	Confectionary manufacturing	0.053	4.06 × 10 ⁻⁴	100.0
Commercial	Fruit and Vegetable Processing	0.051	3.89 × 10 ⁻⁴	100.0
Commercial	Laundries and Dry-Cleaners	0.041	3.12 × 10 ⁻⁴	100.0

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Lifting and Material Handling Equipment Manufacturing	0.024	1.86 × 10 ⁻⁴	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.022	1.65 × 10 ⁻⁴	100.0
Commercial	Confectionery Manufacturing	0.017	1.27 × 10 ⁻⁴	100.0
Industrial	Pesticides production	0.013	9.85 × 10 ⁻⁵	100.0
Commercial	Structural Steel Fabricating	9.79 × 10 ⁻³	7.46 × 10 ⁻⁵	100.0
Industrial	Waste oil recovery	9.14 × 10 ⁻³	6.96 × 10 ⁻⁵	100.0
Commercial	Road and Bridge Construction	5.97 × 10 ⁻³	4.54 × 10 ⁻⁵	100.0
Commercial	Non-Building Construction n.e.c.	3.67 × 10 ⁻³	2.80 × 10 ⁻⁵	100.0
Commercial	Industrial Gas Manufacturing	4.19 × 10 ⁻⁴	3.20 × 10 ⁻⁶	100.0
Commercial	Spring and Wire Product Manufacturing	4.09 × 10 ⁻⁴	3.11 × 10 ⁻⁶	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	3.10 × 10 ⁻⁴	2.36 × 10 ⁻⁶	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	2.46 × 10 ⁻⁴	1.88 × 10 ⁻⁶	100.0
Commercial	Wine Manufacturing	5.37 × 10 ⁻⁵	4.09 × 10 ⁻⁷	100.0
Commercial	Wood Product Manufacturing n.e.c.	4.52 × 10 ⁻⁵	3.45 × 10 ⁻⁷	100.0
Industrial	Contaminated soil treatment	2.49 × 10 ⁻⁵	1.90 × 10 ⁻⁷	100.0
Anthropogenic	All	13,126	100.0	
Wollongong				
Industrial	Primary iron and steel production	1,442	65.8	65.8
Domestic-Commercial	Solid Fuel Combustion	248	11.3	77.1
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	187	8.52	85.6
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	40.480	1.85	87.5
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	36.499	1.66	89.1
Industrial	Coke production	33.407	1.52	90.6
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	31.683	1.44	92.1
Industrial	Coal loading	19.440	0.89	93.0
Off-Road Mobile	Commercial Ships	14.292	0.65	93.6
Industrial	Coal mining	13.595	0.62	94.2
Industrial	Coal washery reject or slag landfilling	11.429	0.52	94.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	9.568	0.44	95.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	9.512	0.43	95.6
Industrial	Metal plating or coating works	9.495	0.43	96.1
Industrial	Inert waste landfilling	8.984	0.41	96.5
Off-Road Mobile	Recreational Boats	8.735	0.40	96.9
Commercial	Gravel and Sand Quarrying	7.374	0.34	97.2
Industrial	Solid waste landfilling	7.049	0.32	97.5
Commercial	Ceramic Product Manufacturing	6.728	0.31	97.8
Commercial	Hospitals (Except Psychiatric Hospitals)	6.435	0.29	98.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	4.453	0.20	98.3
Off-Road Mobile	Commercial Boats	4.325	0.20	98.5
Off-Road Mobile	Railways	3.696	0.17	98.7
Commercial	Steel Pipe and Tube Manufacturing	3.510	0.16	98.9
On-Road Mobile	Exhaust Emissions - Other	3.221	0.15	99.0
Commercial	Poultry Farming (Meat)	3.041	0.14	99.1
Commercial	Unaccounted Gaseous Fuel Combustion	3.033	0.14	99.3
Industrial	Production of phosphate fertilizer	2.363	0.11	99.4
Industrial	Bitumen pre-mix or hotmix production	2.353	0.11	99.5
Domestic-Commercial	Gaseous Fuel Combustion	2.291	0.10	99.6

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Particulate Matter < 2.5 µm		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Crushing, grinding or separating works	2.060	0.09	99.7
Industrial	Concrete batching	1.856	0.08	99.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	1.563	0.07	99.9
Industrial	Environmentally sensitive area landfilling	1.266	0.06	99.9
Commercial	Basic Iron and Steel Manufacturing	0.413	0.02	99.9
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.346	0.02	99.9
Industrial	Other chemical processing	0.281	0.01	100.0
Domestic-Commercial	Barbecues	0.268	0.01	100.0
Industrial	Other metal processing	0.208	9.47×10^{-3}	100.0
Off-Road Mobile	Aircraft	0.139	6.32×10^{-3}	100.0
Industrial	Sewage Treatment - processing by large plants	0.096	4.36×10^{-3}	100.0
Industrial	Sewage Treatment - processing by small plants	0.088	3.99×10^{-3}	100.0
Industrial	Bulk cargo handling	0.055	2.51×10^{-3}	100.0
Commercial	Concrete Slurry Manufacturing	0.040	1.81×10^{-3}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.038	1.74×10^{-3}	100.0
Industrial	Cement or lime handling	9.93×10^{-3}	4.53×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	6.96×10^{-3}	3.17×10^{-4}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	1.55×10^{-3}	7.06×10^{-5}	100.0
Industrial	Drum or container reconditioning	4.52×10^{-4}	2.06×10^{-5}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	2.43×10^{-4}	1.11×10^{-5}	100.0
Commercial	Synthetic Resin Manufacturing	1.34×10^{-4}	6.10×10^{-6}	100.0
Commercial	Spring and Wire Product Manufacturing	1.34×10^{-4}	6.10×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.83×10^{-5}	8.35×10^{-7}	100.0
Anthropogenic	All	2,193	100.0	

4.2.6 Sulfur Dioxide

Table 4.10 shows anthropogenic sources of sulfur dioxide emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.10 Ranking of anthropogenic sources of sulfur dioxide

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
Industrial	Generation of electrical power from coal	261,317	86.6	86.6
Industrial	Primary aluminium production	12,589	4.17	90.7
Industrial	Primary iron and steel production	9,972	3.30	94.0
Industrial	Petroleum refining	6,953	2.30	96.3
Off-Road Mobile	Commercial Ships	3,148	1.04	97.4
Industrial	Storage of Petroleum and/or Petroleum Products	1,397	0.46	97.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	821	0.27	98.1
Industrial	Ceramics production (excluding glass)	690	0.23	98.4
Industrial	Production of container glass	646	0.21	98.6
Industrial	Coke production	553	0.18	98.7
Off-Road Mobile	Railways	468	0.16	98.9
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	425	0.14	99.0
Industrial	Petrochemical production	357	0.12	99.2
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	318	0.11	99.3
Industrial	Crushing, grinding or separating works	258	0.09	99.4
Off-Road Mobile	Aircraft	240	0.08	99.4
Industrial	Cement or lime production	206	0.07	99.5
Industrial	Other land-based extraction	204	0.07	99.6
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	195	0.06	99.6
Industrial	Production of float glass	179	0.06	99.7
Domestic-Commercial	Solid Fuel Combustion	96.610	0.03	99.7
Industrial	Secondary non-ferrous production (excluding aluminium)	89.011	0.03	99.8
Industrial	Coal mining	78.746	0.03	99.8
Industrial	Animal slaughtering	75.918	0.03	99.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	63.807	0.02	99.8
Off-Road Mobile	Commercial Boats	59.753	0.02	99.8
Industrial	Other chemical processing	53.264	0.02	99.9
Industrial	Wood or timber milling	41.952	0.01	99.9
On-Road Mobile	Exhaust Emissions - Other	31.909	0.01	99.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	31.615	0.01	99.9
Industrial	Metal plating or coating works	30.213	0.01	99.9
Industrial	Secondary aluminium production	28.529	9.45×10^{-3}	99.9
Commercial	Chemical Product Manufacturing n.e.c.	22.693	7.52×10^{-3}	99.9
Off-Road Mobile	Recreational Boats	21.414	7.09×10^{-3}	99.9
Industrial	Production of phosphate fertilizer	20.765	6.88×10^{-3}	99.9
Commercial	Food Manufacturing n.e.c.	17.803	5.90×10^{-3}	99.9
Industrial	Waste oil recovery	15.801	5.23×10^{-3}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	15.048	4.99×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	13.103	4.34×10^{-3}	100.0
Industrial	Generation of electrical power from gas	12.637	4.19×10^{-3}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Paper production using recycled materials	11.858	3.93×10^{-3}	100.0
Commercial	Port Operators	9.937	3.29×10^{-3}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	9.396	3.11×10^{-3}	100.0
Industrial	Rendering or fat extraction	9.007	2.98×10^{-3}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	8.465	2.80×10^{-3}	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	7.018	2.32×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	6.680	2.21×10^{-3}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	6.449	2.14×10^{-3}	100.0
Industrial	Bitumen pre-mix or hotmix production	5.175	1.71×10^{-3}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	4.864	1.61×10^{-3}	100.0
Commercial	Plaster Product Manufacturing	4.599	1.52×10^{-3}	100.0
Domestic-Commercial	Barbecues	3.989	1.32×10^{-3}	100.0
Industrial	Other metal processing	3.978	1.32×10^{-3}	100.0
Industrial	Secondary iron and steel production	3.335	1.10×10^{-3}	100.0
Industrial	Soap or detergent production	2.498	8.27×10^{-4}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.313	4.35×10^{-4}	100.0
Industrial	Sewage Treatment - processing by small plants	1.235	4.09×10^{-4}	100.0
Industrial	Production of ammonium nitrate	1.200	3.98×10^{-4}	100.0
Industrial	Biomedical waste incineration	1.145	3.79×10^{-4}	100.0
Commercial	Ceramic Product Manufacturing	0.442	1.46×10^{-4}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	0.361	1.20×10^{-4}	100.0
Industrial	Sewage Treatment - processing by large plants	0.265	8.77×10^{-5}	100.0
Industrial	Other agricultural crop processing	0.259	8.59×10^{-5}	100.0
Industrial	Coal loading	0.242	8.03×10^{-5}	100.0
Industrial	Generation of electrical power other than from coal or gas	0.165	5.46×10^{-5}	100.0
Commercial	Glass and Glass Product Manufacturing	0.153	5.06×10^{-5}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	0.129	4.27×10^{-5}	100.0
Industrial	Beer or distilled alcohol production	0.094	3.10×10^{-5}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.088	2.90×10^{-5}	100.0
Industrial	Printing	0.083	2.74×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.069	2.28×10^{-5}	100.0
Industrial	Milk processing	0.063	2.08×10^{-5}	100.0
Industrial	Pharmaceutical or veterinary products production	0.062	2.06×10^{-5}	100.0
Commercial	Biscuit Manufacturing	0.049	1.63×10^{-5}	100.0
Commercial	Bread Manufacturing	0.045	1.51×10^{-5}	100.0
Industrial	Other livestock processing	0.039	1.29×10^{-5}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.036	1.18×10^{-5}	100.0
Industrial	Oil and fat manufacturing	0.033	1.10×10^{-5}	100.0
Commercial	Basic Iron and Steel Manufacturing	0.032	1.07×10^{-5}	100.0
Industrial	Concrete batching	0.032	1.06×10^{-5}	100.0
Industrial	Paint production	0.029	9.72×10^{-6}	100.0
Industrial	Poultry production	0.029	9.47×10^{-6}	100.0
Industrial	Other Chemical Storage	0.027	8.83×10^{-6}	100.0
Commercial	Metal Coating and Finishing	0.023	7.66×10^{-6}	100.0
Commercial	Printing	0.022	7.45×10^{-6}	100.0
Commercial	Non-Ferrous Metal Casting	0.022	7.20×10^{-6}	100.0

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Plastics production	0.021	7.12×10^{-6}	100.0
Industrial	Drum or container reconditioning	0.021	7.0×10^{-6}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.018	6.07×10^{-6}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.017	5.63×10^{-6}	100.0
Commercial	Aircraft Manufacturing	0.015	4.85×10^{-6}	100.0
Commercial	Ice Cream Manufacturing	0.014	4.77×10^{-6}	100.0
Industrial	Services to air transport	0.014	4.63×10^{-6}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.012	3.98×10^{-6}	100.0
Industrial	Bread manufacturing	0.010	3.47×10^{-6}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	0.010	3.38×10^{-6}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.010	3.36×10^{-6}	100.0
Commercial	Furniture Manufacturing n.e.c.	9.91×10^{-3}	3.28×10^{-6}	100.0
Industrial	Cement or lime handling	9.60×10^{-3}	3.18×10^{-6}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	8.71×10^{-3}	2.88×10^{-6}	100.0
Commercial	Cake and Pastry Manufacturing	8.32×10^{-3}	2.76×10^{-6}	100.0
Industrial	Dry cleaning	8.20×10^{-3}	2.72×10^{-6}	100.0
Industrial	Cake and pastry manufacturing	7.86×10^{-3}	2.60×10^{-6}	100.0
Commercial	Gas Supply	7.52×10^{-3}	2.49×10^{-6}	100.0
Commercial	Milk and Cream Processing	6.40×10^{-3}	2.12×10^{-6}	100.0
Industrial	Soft drink manufacturing	6.04×10^{-3}	2.0×10^{-6}	100.0
Industrial	Waste storage, transfer, separating or processing	6.01×10^{-3}	1.99×10^{-6}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	5.27×10^{-3}	1.75×10^{-6}	100.0
Industrial	Confectionary manufacturing	3.66×10^{-3}	1.21×10^{-6}	100.0
Commercial	Fruit and Vegetable Processing	3.51×10^{-3}	1.16×10^{-6}	100.0
Industrial	Composting and related reprocessing or treatment	3.15×10^{-3}	1.04×10^{-6}	100.0
Industrial	Environmentally sensitive area landfilling	3.10×10^{-3}	1.03×10^{-6}	100.0
Commercial	Laundries and Dry-Cleaners	2.82×10^{-3}	9.33×10^{-7}	100.0
Industrial	Explosives or pyrotechnics production	1.70×10^{-3}	5.63×10^{-7}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	1.31×10^{-3}	4.34×10^{-7}	100.0
Commercial	Confectionery Manufacturing	1.15×10^{-3}	3.80×10^{-7}	100.0
Industrial	Coal washery reject or slag landfilling	8.89×10^{-4}	2.95×10^{-7}	100.0
Industrial	Pesticides production	8.89×10^{-4}	2.95×10^{-7}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	2.29×10^{-4}	7.59×10^{-8}	100.0
Commercial	Spring and Wire Product Manufacturing	2.81×10^{-5}	9.31×10^{-9}	100.0
Commercial	Synthetic Resin Manufacturing	9.20×10^{-6}	3.05×10^{-9}	100.0
Commercial	Wood Product Manufacturing n.e.c.	3.11×10^{-6}	1.03×10^{-9}	100.0
Commercial	Non-Building Construction n.e.c.	8.29×10^{-7}	2.75×10^{-10}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	1.80×10^{-7}	5.96×10^{-11}	100.0
Commercial	Industrial Gas Manufacturing	7.06×10^{-8}	2.34×10^{-11}	100.0
Commercial	Wine Manufacturing	9.03×10^{-9}	2.99×10^{-12}	100.0
Anthropogenic	All	301,863	100.0	
Newcastle				
Industrial	Primary aluminium production	9,156	85.8	85.8
Off-Road Mobile	Commercial Ships	1,228	11.5	97.3
Industrial	Animal slaughtering	75.858	0.71	98.0
Industrial	Other chemical processing	52.787	0.49	98.5
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	51.490	0.48	99.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	23.706	0.22	99.2
Off-Road Mobile	Railways	23.413	0.22	99.4
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	18.499	0.17	99.6
Industrial	Primary non-ferrous production (excluding aluminium)	8.442	0.08	99.7
Domestic-Commercial	Solid Fuel Combustion	6.145	0.06	99.7
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	4.674	0.04	99.8
Off-Road Mobile	Aircraft	3.639	0.03	99.8
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	2.640	0.02	99.8
Off-Road Mobile	Commercial Boats	2.514	0.02	99.9
Industrial	Secondary iron and steel production	2.007	0.02	99.9
On-Road Mobile	Exhaust Emissions - Other	1.778	0.02	99.9
Industrial	Bitumen pre-mix or hotmix production	1.725	0.02	99.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	1.644	0.02	99.9
Industrial	Production of ammonium nitrate	1.200	0.01	99.9
Industrial	Coal mining	1.000	9.37×10^{-3}	99.9
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	0.957	8.97×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.679	6.37×10^{-3}	100.0
Off-Road Mobile	Recreational Boats	0.645	6.04×10^{-3}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	0.623	5.84×10^{-3}	100.0
Industrial	Crushing, grinding or separating works	0.478	4.48×10^{-3}	100.0
Industrial	Other metal processing	0.392	3.67×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.387	3.63×10^{-3}	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	0.351	3.29×10^{-3}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	0.334	3.13×10^{-3}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	0.252	2.36×10^{-3}	100.0
Domestic-Commercial	Barbecues	0.215	2.02×10^{-3}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.155	1.45×10^{-3}	100.0
Industrial	Other agricultural crop processing	0.128	1.20×10^{-3}	100.0
Industrial	Production of phosphate fertilizer	0.045	4.18×10^{-4}	100.0
Industrial	Milk processing	0.016	1.52×10^{-4}	100.0
Commercial	Metal Coating and Finishing	0.015	1.43×10^{-4}	100.0
Industrial	Metal plating or coating works	0.011	1.03×10^{-4}	100.0
Commercial	Bread Manufacturing	0.010	9.80×10^{-5}	100.0
Industrial	Cement or lime handling	2.30×10^{-3}	2.15×10^{-5}	100.0
Industrial	Explosives or pyrotechnics production	1.70×10^{-3}	1.59×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	2.15×10^{-4}	2.01×10^{-6}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	3.82×10^{-5}	3.58×10^{-7}	100.0
Industrial	Waste storage, transfer, separating or processing	2.58×10^{-5}	2.42×10^{-7}	100.0
Industrial	Other land-based extraction	6.42×10^{-6}	6.02×10^{-8}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	1.80×10^{-7}	1.69×10^{-9}	100.0
Anthropogenic	All	10,673	100.0	
Non-Urban				
Industrial	Generation of electrical power from coal	261,317	97.9	97.9
Industrial	Primary aluminium production	3,433	1.29	99.2
Off-Road Mobile	Commercial Ships	881	0.33	99.6
Off-Road Mobile	Railways	201	0.08	99.6

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Cement or lime production	193	0.07	99.7
Industrial	Ceramics production (excluding glass)	168	0.06	99.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	140	0.05	99.8
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	97.738	0.04	99.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	95.640	0.04	99.9
Industrial	Coal mining	75.536	0.03	99.9
Industrial	Wood or timber milling	41.952	0.02	99.9
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	38.991	0.01	99.9
Off-Road Mobile	Commercial Boats	35.007	0.01	100.0
Commercial	Food Manufacturing n.e.c.	17.760	6.66×10^{-3}	100.0
Industrial	Waste oil recovery	15.801	5.92×10^{-3}	100.0
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	15.618	5.85×10^{-3}	100.0
Domestic-Commercial	Solid Fuel Combustion	13.794	5.17×10^{-3}	100.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	9.568	3.59×10^{-3}	100.0
On-Road Mobile	Exhaust Emissions - Other	6.688	2.51×10^{-3}	100.0
Off-Road Mobile	Recreational Boats	6.362	2.38×10^{-3}	100.0
Industrial	Other land-based extraction	2.633	9.87×10^{-4}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	2.149	8.05×10^{-4}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	2.142	8.03×10^{-4}	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	1.901	7.12×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	1.617	6.06×10^{-4}	100.0
Off-Road Mobile	Aircraft	1.217	4.56×10^{-4}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.922	3.45×10^{-4}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	0.796	2.98×10^{-4}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	0.600	2.25×10^{-4}	100.0
Domestic-Commercial	Barbecues	0.523	1.96×10^{-4}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.308	1.15×10^{-4}	100.0
Industrial	Secondary aluminium production	0.281	1.05×10^{-4}	100.0
Industrial	Bitumen pre-mix or hotmix production	0.264	9.88×10^{-5}	100.0
Industrial	Other chemical processing	0.205	7.69×10^{-5}	100.0
Industrial	Sewage Treatment - processing by small plants	0.181	6.80×10^{-5}	100.0
Industrial	Coal loading	0.102	3.84×10^{-5}	100.0
Industrial	Rendering or fat extraction	0.093	3.48×10^{-5}	100.0
Industrial	Crushing, grinding or separating works	0.081	3.04×10^{-5}	100.0
Industrial	Other agricultural crop processing	0.038	1.42×10^{-5}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.025	9.30×10^{-6}	100.0
Industrial	Other livestock processing	0.023	8.47×10^{-6}	100.0
Commercial	Non-Ferrous Metal Casting	0.022	8.14×10^{-6}	100.0
Commercial	Furniture Manufacturing n.e.c.	9.91×10^{-3}	3.72×10^{-6}	100.0
Industrial	Concrete batching	9.73×10^{-3}	3.65×10^{-6}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	8.09×10^{-3}	3.03×10^{-6}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	4.77×10^{-3}	1.79×10^{-6}	100.0
Industrial	Sewage Treatment - processing by large plants	4.06×10^{-3}	1.52×10^{-6}	100.0
Industrial	Plastics production	3.45×10^{-3}	1.29×10^{-6}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	3.23×10^{-3}	1.21×10^{-6}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Composting and related reprocessing or treatment	3.15×10^{-3}	1.18×10^{-6}	100.0
Industrial	Environmentally sensitive area landfilling	3.10×10^{-3}	1.16×10^{-6}	100.0
Commercial	Glass and Glass Product Manufacturing	2.80×10^{-3}	1.05×10^{-6}	100.0
Industrial	Animal slaughtering	3.75×10^{-4}	1.40×10^{-7}	100.0
Industrial	Other Chemical Storage	1.08×10^{-4}	4.04×10^{-8}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	1.59×10^{-5}	5.95×10^{-9}	100.0
Industrial	Poultry production	1.35×10^{-6}	5.06×10^{-10}	100.0
Commercial	Non-Building Construction n.e.c.	2.12×10^{-7}	7.94×10^{-11}	100.0
Anthropogenic	All	266,820	100.0	
Sydney				
Industrial	Petroleum refining	6,953	50.5	50.5
Industrial	Storage of Petroleum and/or Petroleum Products	1,397	10.1	60.7
Off-Road Mobile	Commercial Ships	818	5.95	66.6
Industrial	Production of container glass	646	4.69	71.3
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	645	4.69	76.0
Industrial	Ceramics production (excluding glass)	522	3.79	79.8
Industrial	Petrochemical production	357	2.60	82.4
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	288	2.09	84.5
Industrial	Coke production	287	2.09	86.6
Industrial	Crushing, grinding or separating works	257	1.87	88.4
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	249	1.81	90.2
Off-Road Mobile	Aircraft	235	1.71	91.9
Off-Road Mobile	Railways	225	1.63	93.6
Industrial	Other land-based extraction	202	1.47	95.0
Industrial	Production of float glass	179	1.30	96.3
Industrial	Secondary non-ferrous production (excluding aluminium)	89.011	0.65	97.0
Domestic-Commercial	Solid Fuel Combustion	72.664	0.53	97.5
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	49.669	0.36	97.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	43.233	0.31	98.2
Industrial	Secondary aluminium production	28.248	0.21	98.4
Commercial	Chemical Product Manufacturing n.e.c.	22.693	0.16	98.6
On-Road Mobile	Exhaust Emissions - Other	22.223	0.16	98.7
Off-Road Mobile	Commercial Boats	20.568	0.15	98.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	13.784	0.10	99.0
Off-Road Mobile	Recreational Boats	13.535	0.10	99.1
Industrial	Cement or lime production	13.440	0.10	99.2
Industrial	Generation of electrical power from gas	12.637	0.09	99.3
Industrial	Paper production using recycled materials	11.858	0.09	99.3
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	11.319	0.08	99.4
Domestic-Commercial	Liquid Fuel Combustion	10.312	0.07	99.5
Commercial	Port Operators	9.937	0.07	99.6
Industrial	Rendering or fat extraction	8.914	0.06	99.6
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	6.337	0.05	99.7
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	5.230	0.04	99.7
Commercial	Unaccounted Gaseous Fuel Combustion	5.076	0.04	99.8

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Plaster Product Manufacturing	4.599	0.03	99.8
Commercial	Hospitals (Except Psychiatric Hospitals)	4.324	0.03	99.8
Domestic-Commercial	Gaseous Fuel Combustion	3.828	0.03	99.9
Industrial	Other metal processing	3.582	0.03	99.9
Domestic-Commercial	Barbecues	3.095	0.02	99.9
Industrial	Bitumen pre-mix or hotmix production	2.795	0.02	99.9
Industrial	Soap or detergent production	2.498	0.02	99.9
Industrial	Coal mining	1.690	0.01	100.0
Industrial	Secondary iron and steel production	1.328	9.64×10^{-3}	100.0
Industrial	Biomedical waste incineration	1.145	8.32×10^{-3}	100.0
Industrial	Sewage Treatment - processing by small plants	1.048	7.61×10^{-3}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.791	5.75×10^{-3}	100.0
Industrial	Hazardous, industrial or group A waste generation or storage	0.361	2.62×10^{-3}	100.0
Industrial	Other chemical processing	0.264	1.92×10^{-3}	100.0
Industrial	Sewage Treatment - processing by large plants	0.258	1.87×10^{-3}	100.0
Industrial	Generation of electrical power other than from coal or gas	0.165	1.20×10^{-3}	100.0
Commercial	Glass and Glass Product Manufacturing	0.150	1.09×10^{-3}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	0.129	9.36×10^{-4}	100.0
Industrial	Beer or distilled alcohol production	0.094	6.79×10^{-4}	100.0
Industrial	Other agricultural crop processing	0.093	6.79×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.088	6.37×10^{-4}	100.0
Industrial	Printing	0.083	6.0×10^{-4}	100.0
Industrial	Metal plating or coating works	0.081	5.86×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	0.068	4.95×10^{-4}	100.0
Industrial	Pharmaceutical or veterinary products production	0.062	4.52×10^{-4}	100.0
Industrial	Animal slaughtering	0.060	4.34×10^{-4}	100.0
Commercial	Biscuit Manufacturing	0.049	3.57×10^{-4}	100.0
Industrial	Milk processing	0.046	3.38×10^{-4}	100.0
Commercial	Food Manufacturing n.e.c.	0.043	3.12×10^{-4}	100.0
Commercial	Bread Manufacturing	0.035	2.54×10^{-4}	100.0
Industrial	Oil and fat manufacturing	0.033	2.41×10^{-4}	100.0
Industrial	Paint production	0.029	2.13×10^{-4}	100.0
Industrial	Poultry production	0.029	2.08×10^{-4}	100.0
Industrial	Other Chemical Storage	0.027	1.93×10^{-4}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	0.023	1.66×10^{-4}	100.0
Commercial	Printing	0.022	1.63×10^{-4}	100.0
Industrial	Concrete batching	0.022	1.62×10^{-4}	100.0
Industrial	Drum or container reconditioning	0.018	1.32×10^{-4}	100.0
Industrial	Plastics production	0.018	1.31×10^{-4}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.017	1.23×10^{-4}	100.0
Industrial	Other livestock processing	0.016	1.20×10^{-4}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.015	1.10×10^{-4}	100.0
Commercial	Aircraft Manufacturing	0.015	1.06×10^{-4}	100.0
Commercial	Ice Cream Manufacturing	0.014	1.05×10^{-4}	100.0
Industrial	Services to air transport	0.014	1.01×10^{-4}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.012	8.73×10^{-5}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Paper Product Manufacturing n.e.c.	0.011	7.87×10^{-5}	100.0
Industrial	Bread manufacturing	0.010	7.61×10^{-5}	100.0
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	8.71×10^{-3}	6.33×10^{-5}	100.0
Commercial	Cake and Pastry Manufacturing	8.32×10^{-3}	6.04×10^{-5}	100.0
Industrial	Dry cleaning	8.20×10^{-3}	5.96×10^{-5}	100.0
Industrial	Cake and pastry manufacturing	7.86×10^{-3}	5.71×10^{-5}	100.0
Commercial	Metal Coating and Finishing	7.84×10^{-3}	5.70×10^{-5}	100.0
Commercial	Gas Supply	7.52×10^{-3}	5.47×10^{-5}	100.0
Industrial	Cement or lime handling	7.30×10^{-3}	5.30×10^{-5}	100.0
Commercial	Milk and Cream Processing	6.40×10^{-3}	4.65×10^{-5}	100.0
Industrial	Soft drink manufacturing	6.04×10^{-3}	4.39×10^{-5}	100.0
Industrial	Waste storage, transfer, separating or processing	5.98×10^{-3}	4.35×10^{-5}	100.0
Commercial	Basic Iron and Steel Manufacturing	4.01×10^{-3}	2.91×10^{-5}	100.0
Industrial	Confectionary manufacturing	3.66×10^{-3}	2.66×10^{-5}	100.0
Commercial	Fruit and Vegetable Processing	3.51×10^{-3}	2.55×10^{-5}	100.0
Commercial	Laundries and Dry-Cleaners	2.82×10^{-3}	2.05×10^{-5}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	2.04×10^{-3}	1.48×10^{-5}	100.0
Industrial	Primary iron and steel production	1.29×10^{-3}	9.39×10^{-6}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	1.29×10^{-3}	9.39×10^{-6}	100.0
Commercial	Confectionery Manufacturing	1.15×10^{-3}	8.33×10^{-6}	100.0
Industrial	Pesticides production	8.89×10^{-4}	6.46×10^{-6}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	5.02×10^{-4}	3.65×10^{-6}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	2.29×10^{-4}	1.66×10^{-6}	100.0
Industrial	Waste oil recovery	1.40×10^{-4}	1.02×10^{-6}	100.0
Commercial	Spring and Wire Product Manufacturing	2.81×10^{-5}	2.04×10^{-7}	100.0
Commercial	Wood Product Manufacturing n.e.c.	3.11×10^{-6}	2.26×10^{-8}	100.0
Commercial	Non-Building Construction n.e.c.	6.18×10^{-7}	4.49×10^{-9}	100.0
Commercial	Industrial Gas Manufacturing	7.06×10^{-8}	5.13×10^{-10}	100.0
Commercial	Wine Manufacturing	9.03×10^{-9}	6.56×10^{-11}	100.0
Anthropogenic	All	13,764	100.0	
Wollongong				
Industrial	Primary iron and steel production	9,972	94.0	94.0
Industrial	Coke production	266	2.51	96.5
Off-Road Mobile	Commercial Ships	220	2.08	98.6
Industrial	Metal plating or coating works	30.121	0.28	98.9
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	29.384	0.28	99.2
Industrial	Production of phosphate fertilizer	20.720	0.20	99.4
Off-Road Mobile	Railways	19.198	0.18	99.5
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	15.945	0.15	99.7
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	10.968	0.10	99.8
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	7.011	0.07	99.9
Domestic-Commercial	Solid Fuel Combustion	4.007	0.04	99.9
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	1.930	0.02	99.9
Off-Road Mobile	Commercial Boats	1.664	0.02	99.9
On-Road Mobile	Exhaust Emissions - Other	1.221	0.01	99.9
Off-Road Mobile	Recreational Boats	0.873	8.23×10^{-3}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	0.624	5.88×10^{-3}	100.0

Source Group	Source Type	Sulfur Dioxide		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	0.569	5.37×10^{-3}	100.0
Industrial	Coal mining	0.520	4.90×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.494	4.66×10^{-3}	100.0
Commercial	Hospitals (Except Psychiatric Hospitals)	0.442	4.17×10^{-3}	100.0
Commercial	Ceramic Product Manufacturing	0.442	4.16×10^{-3}	100.0
Industrial	Bitumen pre-mix or hotmix production	0.391	3.69×10^{-3}	100.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	0.293	2.76×10^{-3}	100.0
Commercial	Unaccounted Gaseous Fuel Combustion	0.243	2.29×10^{-3}	100.0
Domestic-Commercial	Gaseous Fuel Combustion	0.183	1.73×10^{-3}	100.0
Domestic-Commercial	Barbecues	0.156	1.47×10^{-3}	100.0
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	0.140	1.32×10^{-3}	100.0
Industrial	Coal loading	0.140	1.32×10^{-3}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	0.059	5.54×10^{-4}	100.0
Off-Road Mobile	Aircraft	0.044	4.12×10^{-4}	100.0
Commercial	Basic Iron and Steel Manufacturing	0.028	2.68×10^{-4}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	0.010	9.62×10^{-5}	100.0
Industrial	Other chemical processing	7.18×10^{-3}	6.77×10^{-5}	100.0
Industrial	Sewage Treatment - processing by small plants	5.55×10^{-3}	5.23×10^{-5}	100.0
Industrial	Other metal processing	3.59×10^{-3}	3.38×10^{-5}	100.0
Industrial	Drum or container reconditioning	2.98×10^{-3}	2.80×10^{-5}	100.0
Industrial	Sewage Treatment - processing by large plants	2.77×10^{-3}	2.61×10^{-5}	100.0
Industrial	Coal washery reject or slag landfilling	8.89×10^{-4}	8.38×10^{-6}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	3.76×10^{-4}	3.55×10^{-6}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	1.67×10^{-5}	1.58×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	9.20×10^{-6}	8.67×10^{-8}	100.0
Commercial	Spring and Wire Product Manufacturing	2.25×10^{-8}	2.12×10^{-10}	100.0
Anthropogenic	All	10,607	100.0	

4.2.7 Total VOCs

Table 4.11 shows anthropogenic sources of total VOCs emissions ranked according to total estimated annual emissions in the GMR, Newcastle, Non-Urban, Sydney and Wollongong regions.

Table 4.11 Ranking of anthropogenic sources of total VOCs

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
GMR				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	33,062	19.3	19.3
Domestic-Commercial	Aerosols and Solvents	26,220	15.3	34.7
Domestic-Commercial	Surface Coating	16,898	9.88	44.5
On-Road Mobile	Evaporative Emissions - Petrol	14,956	8.74	53.3
Domestic-Commercial	Solid Fuel Combustion	12,663	7.40	60.7
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	5,916	3.46	64.1
On-Road Mobile	Exhaust Emissions - Other	5,829	3.41	67.5
Commercial	Automotive Fuel Retailing	5,625	3.29	70.8
Commercial	Smash Repairing	5,445	3.18	74.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	5,419	3.17	77.2
Off-Road Mobile	Recreational Boats	3,626	2.12	79.3
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	3,583	2.09	81.4
Industrial	Petroleum refining	3,165	1.85	83.2
Industrial	Metal plating or coating works	2,484	1.45	84.7
Industrial	Printing	2,474	1.45	86.1
Domestic-Commercial	Cutback Bitumen	2,374	1.39	87.5
Domestic-Commercial	Natural Gas Leakage	1,988	1.16	88.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	1,643	0.96	89.7
Commercial	Printing	1,296	0.76	90.4
Industrial	Other metal processing	1,228	0.72	91.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	1,147	0.67	91.8
Off-Road Mobile	Loading and Unloading Fuels	1,129	0.66	92.5
Off-Road Mobile	Commercial Boats	1,044	0.61	93.1
Industrial	Generation of electrical power from coal	698	0.41	93.5
Industrial	Other chemical processing	673	0.39	93.9
Off-Road Mobile	Aircraft	666	0.39	94.3
Industrial	Primary iron and steel production	580	0.34	94.6
Industrial	Hazardous, industrial or group A waste generation or storage	580	0.34	94.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	579	0.34	95.3
Industrial	Plastics production	552	0.32	95.6
Industrial	Generation of electrical power from gas	502	0.29	95.9
Industrial	Other Chemical Storage	469	0.27	96.2
Industrial	Solid waste landfilling	462	0.27	96.4
Industrial	Petrochemical production	457	0.27	96.7
Industrial	Storage of Petroleum and/or Petroleum Products	446	0.26	97.0
Industrial	Secondary iron and steel production	290	0.17	97.1
Commercial	Laundries and Dry-Cleaners	277	0.16	97.3
Industrial	Production of ammonium nitrate	265	0.16	97.5
Off-Road Mobile	Commercial Ships	230	0.13	97.6

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Composting and related reprocessing or treatment	209	0.12	97.7
Industrial	Hard-rock gravel quarrying	170	0.10	97.8
Industrial	Concrete batching	155	0.09	97.9
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	151	0.09	98.0
Off-Road Mobile	Railways	144	0.08	98.1
Commercial	Chemical Product Manufacturing n.e.c.	142	0.08	98.2
Industrial	Coal mining	129	0.08	98.2
Industrial	Secondary aluminium production	127	0.07	98.3
Commercial	Food Manufacturing n.e.c.	127	0.07	98.4
Industrial	Cement or lime handling	122	0.07	98.5
Industrial	Ceramics production (excluding glass)	120	0.07	98.5
Industrial	Other vessel construction or maintenance	117	0.07	98.6
Commercial	Paint Manufacturing	113	0.07	98.7
Industrial	Services to air transport	101	0.06	98.7
Commercial	Bread Manufacturing	98.417	0.06	98.8
Industrial	Paint production	94.204	0.06	98.8
Industrial	Wood or timber milling	89.945	0.05	98.9
Industrial	Cement or lime production	85.045	0.05	98.9
Commercial	Wine Manufacturing	84.289	0.05	99.0
Commercial	Electric Cable and Wire Manufacturing	84.000	0.05	99.0
Industrial	Soap or detergent production	83.412	0.05	99.1
Commercial	Petroleum Product Wholesaling	80.414	0.05	99.1
Industrial	Sewage Treatment - processing by small plants	76.521	0.04	99.2
Commercial	Hospitals (Except Psychiatric Hospitals)	72.801	0.04	99.2
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	70.763	0.04	99.3
Industrial	Other land-based extraction	67.869	0.04	99.3
Industrial	Crushing, grinding or separating works	67.376	0.04	99.3
Commercial	Spirit Manufacturing	66.675	0.04	99.4
Industrial	Drum or container reconditioning	66.652	0.04	99.4
Commercial	Unaccounted Gaseous Fuel Combustion	59.061	0.03	99.4
Industrial	Generation of electrical power other than from coal or gas	56.005	0.03	99.5
Domestic-Commercial	Barbecues	51.266	0.03	99.5
Industrial	Pharmaceutical or veterinary products production	50.930	0.03	99.5
Commercial	Basic Iron and Steel Manufacturing	47.308	0.03	99.6
Industrial	Sewage Treatment - processing by large plants	46.465	0.03	99.6
Domestic-Commercial	Gaseous Fuel Combustion	44.615	0.03	99.6
Industrial	Landfilling in designated areas	40.674	0.02	99.6
Industrial	Production of container glass	38.001	0.02	99.7
Commercial	Fabricated Metal Product Manufacturing n.e.c.	37.161	0.02	99.7
Industrial	Animal slaughtering	35.506	0.02	99.7
Industrial	Bitumen pre-mix or hotmix production	33.629	0.02	99.7
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	31.393	0.02	99.7
Industrial	Inert waste landfilling	30.600	0.02	99.8
Industrial	Vessel construction or maintenance using dry or floating docks	29.424	0.02	99.8
Industrial	Paper production using recycled materials	27.571	0.02	99.8
Industrial	Beer or distilled alcohol production	26.474	0.02	99.8
Industrial	Environmentally sensitive area	18.863	0.01	99.8

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
	landfilling			
Industrial	Chemical storage	18.034	0.01	99.8
Commercial	Plastic Bag and Film Manufacturing	17.707	0.01	99.8
Industrial	Poultry production	16.625	9.72×10^{-3}	99.9
Industrial	Railway activities	16.006	9.36×10^{-3}	99.9
Commercial	Solid Paperboard Container Manufacturing	15.307	8.95×10^{-3}	99.9
Commercial	Glass and Glass Product Manufacturing	15.141	8.85×10^{-3}	99.9
Commercial	Automotive Component Manufacturing n.e.c.	13.966	8.16×10^{-3}	99.9
Commercial	Port Operators	13.737	8.03×10^{-3}	99.9
Commercial	Cake and Pastry Manufacturing	13.615	7.96×10^{-3}	99.9
Industrial	Production of float glass	12.585	7.36×10^{-3}	99.9
Industrial	Primary aluminium production	12.273	7.17×10^{-3}	99.9
Commercial	Ink Manufacturing	10.649	6.22×10^{-3}	99.9
Industrial	Other agricultural crop processing	10.624	6.21×10^{-3}	99.9
Commercial	Gas Supply	10.019	5.86×10^{-3}	99.9
Industrial	Hazardous, industrial, group A or group B waste processing	9.505	5.56×10^{-3}	99.9
Commercial	Metal Coating and Finishing	7.718	4.51×10^{-3}	99.9
Commercial	Furniture Manufacturing n.e.c.	7.235	4.23×10^{-3}	100.0
Industrial	Milk processing	6.646	3.88×10^{-3}	100.0
Industrial	Pesticides production	6.457	3.77×10^{-3}	100.0
Commercial	Industrial Gas Manufacturing	5.818	3.40×10^{-3}	100.0
Commercial	Wood Product Manufacturing n.e.c.	5.419	3.17×10^{-3}	100.0
Industrial	Rendering or fat extraction	5.180	3.03×10^{-3}	100.0
Industrial	Other livestock processing	5.024	2.94×10^{-3}	100.0
Industrial	Coal loading	4.306	2.52×10^{-3}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	4.183	2.45×10^{-3}	100.0
Industrial	Mooring and boat storage	3.531	2.06×10^{-3}	100.0
Commercial	Plaster Product Manufacturing	3.411	1.99×10^{-3}	100.0
Industrial	Secondary non-ferrous production (excluding aluminium)	2.537	1.48×10^{-3}	100.0
Commercial	Structural Metal Product Manufacturing n.e.c.	2.487	1.45×10^{-3}	100.0
Industrial	Soft drink manufacturing	2.080	1.22×10^{-3}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	2.041	1.19×10^{-3}	100.0
Industrial	Waste storage, transfer, separating or processing	2.026	1.18×10^{-3}	100.0
Commercial	Wooden Furniture and Upholstered Seat Manufacturing	1.773	1.04×10^{-3}	100.0
Industrial	Aircraft (helicopter) facilities	1.673	9.78×10^{-4}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	1.480	8.65×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	1.316	7.69×10^{-4}	100.0
Commercial	Mining and Construction Machinery Manufacturing	1.281	7.49×10^{-4}	100.0
Industrial	Bulk cargo handling	1.186	6.93×10^{-4}	100.0
Industrial	Production of phosphate fertilizer	1.097	6.41×10^{-4}	100.0
Industrial	Confectionary manufacturing	0.786	4.59×10^{-4}	100.0
Commercial	Chemical Wholesaling	0.782	4.57×10^{-4}	100.0
Commercial	Lifting and Material Handling Equipment Manufacturing	0.745	4.36×10^{-4}	100.0
Industrial	Explosives or pyrotechnics production	0.659	3.85×10^{-4}	100.0
Industrial	Coke production	0.606	3.54×10^{-4}	100.0
Commercial	Ceramic Product Manufacturing	0.587	3.43×10^{-4}	100.0
Industrial	Dry cleaning	0.568	3.32×10^{-4}	100.0

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Biomedical waste incineration	0.556	3.25×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.538	3.14×10^{-4}	100.0
Commercial	Biscuit Manufacturing	0.517	3.02×10^{-4}	100.0
Industrial	Waste oil recovery	0.451	2.64×10^{-4}	100.0
Commercial	Ice Cream Manufacturing	0.438	2.56×10^{-4}	100.0
Commercial	Spring and Wire Product Manufacturing	0.381	2.23×10^{-4}	100.0
Industrial	Oil and fat manufacturing	0.349	2.04×10^{-4}	100.0
Industrial	Bread manufacturing	0.196	1.14×10^{-4}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.179	1.04×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.172	1.0×10^{-4}	100.0
Commercial	Aircraft Manufacturing	0.154	9.0×10^{-5}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.127	7.39×10^{-5}	100.0
Commercial	Gravel and Sand Quarrying	0.107	6.23×10^{-5}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.085	4.99×10^{-5}	100.0
Industrial	Cake and pastry manufacturing	0.083	4.86×10^{-5}	100.0
Commercial	Milk and Cream Processing	0.067	3.94×10^{-5}	100.0
Industrial	Wood preservation	0.042	2.43×10^{-5}	100.0
Commercial	Fruit and Vegetable Processing	0.037	2.16×10^{-5}	100.0
Commercial	Soap and Other Detergent Manufacturing	0.029	1.69×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.016	9.17×10^{-6}	100.0
Commercial	Road and Bridge Construction	0.015	8.68×10^{-6}	100.0
Commercial	Rail Transport	0.014	8.14×10^{-6}	100.0
Industrial	Scrap metal recovery	8.90×10^{-3}	5.20×10^{-6}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	6.87×10^{-3}	4.01×10^{-6}	100.0
Commercial	Construction Material Mining n.e.c.	6.03×10^{-3}	3.53×10^{-6}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	5.75×10^{-3}	3.36×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	3.87×10^{-3}	2.26×10^{-6}	100.0
Industrial	Mining (other than coal)	3.20×10^{-3}	1.87×10^{-6}	100.0
Industrial	Freeway or tollway construction	2.88×10^{-3}	1.68×10^{-6}	100.0
Commercial	Steel Pipe and Tube Manufacturing	1.23×10^{-3}	7.18×10^{-7}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	8.40×10^{-4}	4.91×10^{-7}	100.0
Industrial	Used tyre processing or disposal	7.74×10^{-4}	4.52×10^{-7}	100.0
Industrial	Coal washery reject or slag landfilling	6.86×10^{-4}	4.01×10^{-7}	100.0
Commercial	Non-Ferrous Metal Casting	6.40×10^{-4}	3.74×10^{-7}	100.0
Industrial	Hazardous, industrial, group A or group B waste disposal	4.32×10^{-4}	2.53×10^{-7}	100.0
Commercial	Synthetic Resin Manufacturing	9.68×10^{-5}	5.66×10^{-8}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.09×10^{-8}	6.39×10^{-12}	100.0
Anthropogenic	All	171,067	100.0	
Newcastle				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	1,925	19.8	19.8
Domestic-Commercial	Aerosols and Solvents	1,360	14.0	33.8
Domestic-Commercial	Surface Coating	911	9.37	43.1
On-Road Mobile	Evaporative Emissions - Petrol	872	8.96	52.1
Domestic-Commercial	Solid Fuel Combustion	805	8.28	60.4
Commercial	Automotive Fuel Retailing	427	4.39	64.8
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	345	3.54	68.3
On-Road Mobile	Exhaust Emissions - Other	316	3.25	71.6

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Smash Repairing	289	2.97	74.5
Industrial	Production of ammonium nitrate	265	2.73	77.3
Industrial	Other Chemical Storage	259	2.66	79.9
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	226	2.32	82.2
Industrial	Secondary iron and steel production	188	1.94	84.2
Industrial	Storage of Petroleum and/or Petroleum Products	181	1.86	86.0
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	166	1.71	87.7
Domestic-Commercial	Cutback Bitumen	143	1.47	89.2
Off-Road Mobile	Recreational Boats	109	1.12	90.3
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	109	1.12	91.5
Domestic-Commercial	Natural Gas Leakage	109	1.12	92.6
Industrial	Other metal processing	109	1.12	93.7
Off-Road Mobile	Commercial Ships	89.660	0.92	94.6
Industrial	Solid waste landfilling	61.912	0.64	95.2
Industrial	Printing	56.000	0.58	95.8
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	50.179	0.52	96.3
Industrial	Other chemical processing	46.290	0.48	96.8
Commercial	Bread Manufacturing	46.063	0.47	97.3
Off-Road Mobile	Commercial Boats	43.927	0.45	97.7
Off-Road Mobile	Aircraft	36.536	0.38	98.1
Industrial	Animal slaughtering	30.521	0.31	98.4
Industrial	Vessel construction or maintenance using dry or floating docks	25.680	0.26	98.7
Industrial	Hazardous, industrial or group A waste generation or storage	15.963	0.16	98.9
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	13.884	0.14	99.0
Commercial	Laundries and Dry-Cleaners	13.152	0.14	99.1
Industrial	Primary aluminium production	8.594	0.09	99.2
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	7.857	0.08	99.3
Off-Road Mobile	Railways	7.200	0.07	99.4
Commercial	Chemical Product Manufacturing n.e.c.	6.337	0.07	99.4
Industrial	Other vessel construction or maintenance	6.245	0.06	99.5
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	5.305	0.05	99.6
Commercial	Furniture Manufacturing n.e.c.	4.293	0.04	99.6
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	4.104	0.04	99.6
Industrial	Other agricultural crop processing	3.933	0.04	99.7
Industrial	Coal loading	3.904	0.04	99.7
Industrial	Coal mining	3.125	0.03	99.8
Commercial	Unaccounted Gaseous Fuel Combustion	3.062	0.03	99.8
Commercial	Hospitals (Except Psychiatric Hospitals)	2.800	0.03	99.8
Domestic-Commercial	Barbecues	2.765	0.03	99.8
Domestic-Commercial	Gaseous Fuel Combustion	2.313	0.02	99.9
Industrial	Bitumen pre-mix or hotmix production	2.159	0.02	99.9
Industrial	Primary non-ferrous production (excluding aluminium)	1.480	0.02	99.9
Industrial	Crushing, grinding or separating works	1.442	0.01	99.9
Commercial	Wine Manufacturing	1.401	0.01	99.9
Industrial	Sewage Treatment - processing by large plants	1.062	0.01	99.9

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Mooring and boat storage	0.713	7.33×10^{-3}	100.0
Industrial	Waste storage, transfer, separating or processing	0.650	6.68×10^{-3}	100.0
Industrial	Bulk cargo handling	0.645	6.64×10^{-3}	100.0
Commercial	Metal Coating and Finishing	0.590	6.07×10^{-3}	100.0
Industrial	Metal plating or coating works	0.521	5.35×10^{-3}	100.0
Commercial	Mining and Construction Machinery Manufacturing	0.475	4.88×10^{-3}	100.0
Industrial	Milk processing	0.346	3.56×10^{-3}	100.0
Industrial	Production of phosphate fertilizer	0.304	3.13×10^{-3}	100.0
Commercial	Petroleum Product Wholesaling	0.251	2.58×10^{-3}	100.0
Industrial	Aircraft (helicopter) facilities	0.129	1.33×10^{-3}	100.0
Industrial	Other land-based extraction	0.079	8.13×10^{-4}	100.0
Industrial	Concrete batching	0.077	7.93×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.068	7.01×10^{-4}	100.0
Industrial	Wood preservation	0.042	4.27×10^{-4}	100.0
Industrial	Cement or lime handling	0.029	2.96×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.025	2.54×10^{-4}	100.0
Commercial	Gravel and Sand Quarrying	9.0×10^{-3}	9.25×10^{-5}	100.0
Industrial	Sewage Treatment - processing by small plants	8.79×10^{-3}	9.03×10^{-5}	100.0
Commercial	Road and Bridge Construction	7.02×10^{-3}	7.22×10^{-5}	100.0
Industrial	Hard-rock gravel quarrying	5.20×10^{-3}	5.35×10^{-5}	100.0
Commercial	Construction Material Mining n.e.c.	4.23×10^{-3}	4.35×10^{-5}	100.0
Industrial	Hazardous, industrial, group A or group B waste processing	2.26×10^{-3}	2.32×10^{-5}	100.0
Industrial	Scrap metal recovery	1.65×10^{-3}	1.70×10^{-5}	100.0
Industrial	Explosives or pyrotechnics production	1.28×10^{-3}	1.32×10^{-5}	100.0
Commercial	Ceramic Product Manufacturing n.e.c.	8.40×10^{-4}	8.63×10^{-6}	100.0
Industrial	Used tyre processing or disposal	7.74×10^{-4}	7.96×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	1.29×10^{-9}	1.33×10^{-11}	100.0
Anthropogenic	All	9,728	100.0	
Non-Urban				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	3,937	16.4	16.4
Domestic-Commercial	Aerosols and Solvents	3,236	13.5	29.8
Domestic-Commercial	Surface Coating	2,215	9.21	39.0
Domestic-Commercial	Solid Fuel Combustion	1,808	7.52	46.6
On-Road Mobile	Evaporative Emissions - Petrol	1,795	7.46	54.0
Commercial	Automotive Fuel Retailing	1,433	5.96	60.0
On-Road Mobile	Exhaust Emissions - Other	1,163	4.83	64.8
Off-Road Mobile	Recreational Boats	1,077	4.48	69.3
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	895	3.72	73.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	774	3.22	76.2
Industrial	Generation of electrical power from coal	698	2.90	79.1
Commercial	Smash Repairing	676	2.81	81.9
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	675	2.80	84.7
Off-Road Mobile	Commercial Boats	612	2.54	87.3
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	415	1.73	89.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	375	1.56	90.6

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Domestic-Commercial	Cutback Bitumen	321	1.33	91.9
Industrial	Hazardous, industrial or group A waste generation or storage	239	0.99	92.9
Domestic-Commercial	Natural Gas Leakage	231	0.96	93.9
Industrial	Hard-rock gravel quarrying	166	0.69	94.6
Industrial	Solid waste landfilling	131	0.54	95.1
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	108	0.45	95.5
Industrial	Coal mining	97.352	0.40	95.9
Industrial	Wood or timber milling	89.945	0.37	96.3
Commercial	Electric Cable and Wire Manufacturing	84.000	0.35	96.7
Industrial	Cement or lime production	81.574	0.34	97.0
Commercial	Wine Manufacturing	75.145	0.31	97.3
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	74.642	0.31	97.6
Off-Road Mobile	Commercial Ships	64.372	0.27	97.9
Off-Road Mobile	Railways	61.772	0.26	98.2
Industrial	Other land-based extraction	58.368	0.24	98.4
Commercial	Printing	55.457	0.23	98.6
Commercial	Petroleum Product Wholesaling	43.932	0.18	98.8
Commercial	Laundries and Dry-Cleaners	36.702	0.15	99.0
Industrial	Sewage Treatment - processing by small plants	34.925	0.15	99.1
Industrial	Other Chemical Storage	33.713	0.14	99.3
Industrial	Composting and related reprocessing or treatment	33.214	0.14	99.4
Industrial	Inert waste landfilling	30.598	0.13	99.5
Commercial	Hospitals (Except Psychiatric Hospitals)	19.834	0.08	99.6
Industrial	Ceramics production (excluding glass)	13.456	0.06	99.7
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	9.765	0.04	99.7
Off-Road Mobile	Aircraft	8.519	0.04	99.7
Commercial	Unaccounted Gaseous Fuel Combustion	7.288	0.03	99.8
Domestic-Commercial	Barbecues	6.719	0.03	99.8
Industrial	Environmentally sensitive area landfilling	6.279	0.03	99.8
Domestic-Commercial	Gaseous Fuel Combustion	5.505	0.02	99.8
Commercial	Wood Product Manufacturing n.e.c.	5.419	0.02	99.9
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	4.346	0.02	99.9
Commercial	Chemical Product Manufacturing n.e.c.	4.059	0.02	99.9
Industrial	Primary aluminium production	3.679	0.02	99.9
Industrial	Sewage Treatment - processing by large plants	2.694	0.01	99.9
Industrial	Bitumen pre-mix or hotmix production	2.444	0.01	99.9
Industrial	Concrete batching	1.754	7.30×10^{-3}	99.9
Industrial	Mooring and boat storage	1.751	7.28×10^{-3}	99.9
Industrial	Rendering or fat extraction	1.638	6.81×10^{-3}	100.0
Industrial	Other vessel construction or maintenance	1.385	5.76×10^{-3}	100.0
Industrial	Plastics production	1.295	5.38×10^{-3}	100.0
Industrial	Other chemical processing	1.097	4.56×10^{-3}	100.0
Industrial	Crushing, grinding or separating works	1.007	4.19×10^{-3}	100.0
Commercial	Mining and Construction Machinery Manufacturing	0.806	3.35×10^{-3}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	0.693	2.88×10^{-3}	100.0
Industrial	Explosives or pyrotechnics production	0.658	2.73×10^{-3}	100.0

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Other livestock processing	0.579	2.41×10^{-3}	100.0
Industrial	Other agricultural crop processing	0.491	2.04×10^{-3}	100.0
Commercial	Automotive Component Manufacturing n.e.c.	0.429	1.78×10^{-3}	100.0
Commercial	Spring and Wire Product Manufacturing	0.380	1.58×10^{-3}	100.0
Commercial	Food Manufacturing n.e.c.	0.346	1.44×10^{-3}	100.0
Industrial	Secondary aluminium production	0.303	1.26×10^{-3}	100.0
Industrial	Landfilling in designated areas	0.292	1.21×10^{-3}	100.0
Industrial	Waste oil recovery	0.291	1.21×10^{-3}	100.0
Industrial	Coal loading	0.236	9.82×10^{-4}	100.0
Industrial	Cement or lime handling	0.213	8.86×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.162	6.75×10^{-4}	100.0
Commercial	Furniture Manufacturing n.e.c.	0.105	4.36×10^{-4}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	0.085	3.54×10^{-4}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.059	2.44×10^{-4}	100.0
Commercial	Gravel and Sand Quarrying	0.046	1.93×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.028	1.15×10^{-4}	100.0
Commercial	Rail Transport	0.014	5.79×10^{-5}	100.0
Commercial	Road and Bridge Construction	7.84×10^{-3}	3.26×10^{-5}	100.0
Industrial	Poultry production	6.30×10^{-3}	2.62×10^{-5}	100.0
Industrial	Animal slaughtering	3.94×10^{-3}	1.64×10^{-5}	100.0
Industrial	Mining (other than coal)	3.20×10^{-3}	1.33×10^{-5}	100.0
Commercial	Construction Material Mining n.e.c.	1.80×10^{-3}	7.48×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	9.88×10^{-4}	4.11×10^{-6}	100.0
Commercial	Glass and Glass Product Manufacturing	9.56×10^{-4}	3.98×10^{-6}	100.0
Commercial	Non-Ferrous Metal Casting	6.40×10^{-4}	2.66×10^{-6}	100.0
Industrial	Hazardous, industrial, group A or group B waste disposal	4.32×10^{-4}	1.80×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	2.57×10^{-9}	1.07×10^{-11}	100.0
Anthropogenic	All	24,048	100.0	
Sydney				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	26,066	19.9	19.9
Domestic-Commercial	Aerosols and Solvents	20,637	15.8	35.7
Domestic-Commercial	Surface Coating	13,112	10.0	45.7
On-Road Mobile	Evaporative Emissions - Petrol	11,783	9.01	54.7
Domestic-Commercial	Solid Fuel Combustion	9,524	7.28	62.0
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	4,627	3.54	65.5
Commercial	Smash Repairing	4,271	3.26	68.8
On-Road Mobile	Exhaust Emissions - Other	4,143	3.17	72.0
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	4,076	3.12	75.1
Commercial	Automotive Fuel Retailing	3,445	2.63	77.7
Industrial	Petroleum refining	3,165	2.42	80.1
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	2,597	1.98	82.1
Industrial	Other activities - printing	2,418	1.85	84.0
Industrial	Metal plating or coating works	2,327	1.78	85.8
Off-Road Mobile	Recreational Boats	2,292	1.75	87.5
Domestic-Commercial	Cutback Bitumen	1,826	1.40	88.9
Domestic-Commercial	Natural Gas Leakage	1,569	1.20	90.1

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Commercial	Printing	1,170	0.89	91.0
Off-Road Mobile	Loading and Unloading Fuels	1,121	0.86	91.8
Industrial	Other metal processing	1,118	0.85	92.7
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	1,108	0.85	93.6
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	955	0.73	94.3
Industrial	Other chemical processing	625	0.48	94.8
Off-Road Mobile	Aircraft	621	0.47	95.2
Industrial	Plastics production	551	0.42	95.7
Industrial	Generation of electrical power from gas	502	0.38	96.0
Industrial	Petrochemical production	457	0.35	96.4
Off-Road Mobile	Commercial Boats	359	0.27	96.7
Industrial	Hazardous, industrial or group A waste generation or storage	326	0.25	96.9
Industrial	Storage of Petroleum and/or Petroleum Products	265	0.20	97.1
Industrial	Solid waste landfilling	252	0.19	97.3
Commercial	Laundries and Dry-Cleaners	217	0.17	97.5
Industrial	Other Chemical Storage	177	0.13	97.6
Industrial	Composting and related reprocessing or treatment	176	0.13	97.7
Industrial	Concrete batching	153	0.12	97.9
Commercial	Chemical Product Manufacturing n.e.c.	132	0.10	98.0
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	128	0.10	98.1
Industrial	Secondary aluminium production	127	0.10	98.2
Commercial	Food Manufacturing n.e.c.	127	0.10	98.3
Industrial	Cement or lime handling	122	0.09	98.3
Commercial	Paint Manufacturing	113	0.09	98.4
Industrial	Other vessel construction or maintenance	109	0.08	98.5
Industrial	Ceramics production (excluding glass)	107	0.08	98.6
Industrial	Secondary iron and steel production	102	0.08	98.7
Industrial	Services to air transport	101	0.08	98.8
Industrial	Paint production	94.204	0.07	98.8
Industrial	Soap or detergent production	83.412	0.06	98.9
Off-Road Mobile	Railways	69.116	0.05	98.9
Commercial	Spirit Manufacturing	66.675	0.05	99.0
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	65.878	0.05	99.0
Industrial	Crushing, grinding or separating works	64.927	0.05	99.1
Industrial	Drum or container reconditioning	63.542	0.05	99.1
Off-Road Mobile	Commercial Ships	59.774	0.05	99.2
Industrial	Generation of electrical power other than from coal or gas	56.005	0.04	99.2
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	55.407	0.04	99.3
Commercial	Bread Manufacturing	52.354	0.04	99.3
Industrial	Pharmaceutical or veterinary products production	50.930	0.04	99.3
Commercial	Basic Iron and Steel Manufacturing	46.974	0.04	99.4
Commercial	Unaccounted Gaseous Fuel Combustion	46.484	0.04	99.4
Commercial	Hospitals (Except Psychiatric Hospitals)	45.510	0.03	99.5
Industrial	Sewage Treatment - processing by large plants	42.174	0.03	99.5
Industrial	Sewage Treatment - processing by small plants	40.659	0.03	99.5
Industrial	Landfilling in designated areas	40.382	0.03	99.5
Domestic-Commercial	Barbecues	39.781	0.03	99.6

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Production of container glass	38.001	0.03	99.6
Commercial	Fabricated Metal Product Manufacturing n.e.c.	36.943	0.03	99.6
Commercial	Petroleum Product Wholesaling	36.231	0.03	99.7
Domestic-Commercial	Gaseous Fuel Combustion	35.114	0.03	99.7
Industrial	Paper production using recycled materials	27.571	0.02	99.7
Industrial	Bitumen pre-mix or hotmix production	27.409	0.02	99.7
Industrial	Beer or distilled alcohol production	26.474	0.02	99.8
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	20.355	0.02	99.8
Industrial	Chemical storage	18.034	0.01	99.8
Commercial	Plastic Bag and Film Manufacturing	17.707	0.01	99.8
Industrial	Poultry production	16.619	0.01	99.8
Industrial	Railway activities	16.006	0.01	99.8
Commercial	Solid Paperboard Container Manufacturing	15.307	0.01	99.8
Commercial	Glass and Glass Product Manufacturing	15.140	0.01	99.8
Commercial	Port Operators	13.737	0.01	99.9
Commercial	Cake and Pastry Manufacturing	13.615	0.01	99.9
Commercial	Automotive Component Manufacturing n.e.c.	12.731	9.73×10^{-3}	99.9
Industrial	Production of float glass	12.585	9.62×10^{-3}	99.9
Industrial	Environmentally sensitive area landfilling	12.583	9.62×10^{-3}	99.9
Commercial	Ink Manufacturing	10.649	8.14×10^{-3}	99.9
Industrial	Hazardous, industrial, group A or group B waste processing	9.458	7.23×10^{-3}	99.9
Industrial	Other land-based extraction	9.421	7.20×10^{-3}	99.9
Commercial	Wine Manufacturing	7.743	5.92×10^{-3}	99.9
Commercial	Gas Supply	7.239	5.53×10^{-3}	99.9
Commercial	Metal Coating and Finishing	7.128	5.45×10^{-3}	99.9
Industrial	Pesticides production	6.457	4.94×10^{-3}	99.9
Industrial	Milk processing	6.300	4.82×10^{-3}	99.9
Industrial	Other agricultural crop processing	6.200	4.74×10^{-3}	99.9
Commercial	Industrial Gas Manufacturing	5.818	4.45×10^{-3}	100.0
Industrial	Animal slaughtering	4.981	3.81×10^{-3}	100.0
Industrial	Hard-rock gravel quarrying	4.458	3.41×10^{-3}	100.0
Industrial	Other livestock processing	4.445	3.40×10^{-3}	100.0
Commercial	Electrical and Equipment Manufacturing n.e.c.	4.183	3.20×10^{-3}	100.0
Industrial	Vessel construction or maintenance using dry or floating docks	3.744	2.86×10^{-3}	100.0
Industrial	Rendering or fat extraction	3.542	2.71×10^{-3}	100.0
Industrial	Cement or lime production	3.471	2.65×10^{-3}	100.0
Commercial	Plaster Product Manufacturing	3.411	2.61×10^{-3}	100.0
Commercial	Furniture Manufacturing n.e.c.	2.837	2.17×10^{-3}	100.0
Industrial	Secondary non-ferrous production (excluding aluminium)	2.537	1.94×10^{-3}	100.0
Commercial	Structural Metal Product Manufacturing n.e.c.	2.487	1.90×10^{-3}	100.0
Industrial	Soft drink manufacturing	2.080	1.59×10^{-3}	100.0
Industrial	Coal mining	1.973	1.51×10^{-3}	100.0
Commercial	Wooden Furniture and Upholstered Seat Manufacturing	1.773	1.36×10^{-3}	100.0
Industrial	Aircraft (helicopter) facilities	1.544	1.18×10^{-3}	100.0
Industrial	Waste storage, transfer, separating or processing	1.377	1.05×10^{-3}	100.0
Commercial	Medicinal and Pharmaceutical Product Manufacturing	1.347	1.03×10^{-3}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Industrial	Primary iron and steel production	1.282	9.80×10^{-4}	100.0
Industrial	Mooring and boat storage	1.066	8.15×10^{-4}	100.0
Domestic-Commercial	Liquid Fuel Combustion	1.036	7.92×10^{-4}	100.0
Industrial	Confectionary manufacturing	0.786	6.0×10^{-4}	100.0
Commercial	Chemical Wholesaling	0.782	5.98×10^{-4}	100.0
Commercial	Lifting and Material Handling Equipment Manufacturing	0.745	5.70×10^{-4}	100.0
Industrial	Dry cleaning	0.568	4.34×10^{-4}	100.0
Industrial	Biomedical waste incineration	0.556	4.25×10^{-4}	100.0
Industrial	Bulk cargo handling	0.540	4.12×10^{-4}	100.0
Commercial	Biscuit Manufacturing	0.517	3.95×10^{-4}	100.0
Commercial	Paper Product Manufacturing n.e.c.	0.510	3.90×10^{-4}	100.0
Commercial	Ice Cream Manufacturing	0.438	3.35×10^{-4}	100.0
Industrial	Oil and fat manufacturing	0.349	2.67×10^{-4}	100.0
Industrial	Coke production	0.342	2.61×10^{-4}	100.0
Industrial	Bread manufacturing	0.196	1.49×10^{-4}	100.0
Commercial	Soft Drink, Cordial and Syrup Manufacturing	0.179	1.37×10^{-4}	100.0
Commercial	Plastic Injection Moulded Product Manufacturing	0.172	1.31×10^{-4}	100.0
Industrial	Waste oil recovery	0.161	1.23×10^{-4}	100.0
Commercial	Aircraft Manufacturing	0.154	1.18×10^{-4}	100.0
Commercial	Corrugated Paperboard Container Manufacturing	0.127	9.67×10^{-5}	100.0
Industrial	Cake and pastry manufacturing	0.083	6.35×10^{-5}	100.0
Commercial	Milk and Cream Processing	0.067	5.15×10^{-5}	100.0
Commercial	Gravel and Sand Quarrying	0.048	3.65×10^{-5}	100.0
Commercial	Fruit and Vegetable Processing	0.037	2.82×10^{-5}	100.0
Commercial	Soap and Other Detergent Manufacturing	0.029	2.21×10^{-5}	100.0
Commercial	Confectionery Manufacturing	0.016	1.20×10^{-5}	100.0
Industrial	Scrap metal recovery	6.49×10^{-3}	4.96×10^{-6}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	6.0×10^{-3}	4.59×10^{-6}	100.0
Commercial	Basic Non-Ferrous Metal Manufacturing n.e.c.	5.75×10^{-3}	4.40×10^{-6}	100.0
Commercial	Non-Building Construction n.e.c.	2.88×10^{-3}	2.20×10^{-6}	100.0
Industrial	Freeway or tollway construction	2.88×10^{-3}	2.20×10^{-6}	100.0
Commercial	Steel Pipe and Tube Manufacturing	1.23×10^{-3}	9.39×10^{-7}	100.0
Commercial	Spring and Wire Product Manufacturing	5.06×10^{-4}	3.87×10^{-7}	100.0
Industrial	Inert waste landfilling	5.0×10^{-4}	3.82×10^{-7}	100.0
Industrial	Primary non-ferrous production (excluding aluminium)	4.50×10^{-4}	3.44×10^{-7}	100.0
Commercial	Prepared Animal and Bird Feed Manufacturing	9.60×10^{-5}	7.34×10^{-8}	100.0
Commercial	Wood Product Manufacturing n.e.c.	3.27×10^{-5}	2.50×10^{-8}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	6.59×10^{-9}	5.03×10^{-12}	100.0
Anthropogenic	All	130,834	100.0	
Wollongong				
On-Road Mobile	Exhaust Emissions Passenger Cars - Petrol	1,133	17.6	17.6
Domestic-Commercial	Aerosols and Solvents	989	15.3	32.9
Domestic-Commercial	Surface Coating	660	10.2	43.1
Industrial	Primary iron and steel production	579	8.97	52.0
Domestic-Commercial	Solid Fuel Combustion	525	8.13	60.2
On-Road Mobile	Evaporative Emissions - Petrol	507	7.85	68.0
Commercial	Automotive Fuel Retailing	320	4.96	73.0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
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Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
Domestic-Commercial	Lawn Mowing & Garden Equipment (Domestic)	225	3.48	76.5
Commercial	Smash Repairing	210	3.25	79.7
On-Road Mobile	Exhaust Emissions - Other	206	3.20	82.9
On-Road Mobile	Exhaust Emissions Light Duty Commercial - Petrol	168	2.61	85.5
Industrial	Metal plating or coating works	157	2.43	88.0
Off-Road Mobile	Recreational Boats	148	2.29	90.2
On-Road Mobile	Exhaust Emissions Heavy Duty Commercial - Diesel	146	2.26	92.5
Domestic-Commercial	Cutback Bitumen	84.911	1.32	93.8
Domestic-Commercial	Natural Gas Leakage	79.651	1.23	95.0
Commercial	Printing	70.593	1.09	96.1
Domestic-Commercial	Lawn Mowing & Garden Equipment (POS)	51.264	0.79	96.9
On-Road Mobile	Exhaust Emissions Light Duty - Diesel	34.328	0.53	97.5
Off-Road Mobile	Commercial Boats	29.086	0.45	97.9
Industrial	Coal mining	26.154	0.41	98.3
Off-Road Mobile	Industrial Off-Road Vehicles and Equipment	20.827	0.32	98.6
Industrial	Solid waste landfilling	16.859	0.26	98.9
Off-Road Mobile	Commercial Ships	16.093	0.25	99.2
Commercial	Laundries and Dry-Cleaners	10.413	0.16	99.3
Off-Road Mobile	Loading and Unloading Fuels	7.713	0.12	99.4
Off-Road Mobile	Railways	5.904	0.09	99.5
Commercial	Hospitals (Except Psychiatric Hospitals)	4.657	0.07	99.6
Industrial	Drum or container reconditioning	3.110	0.05	99.6
Commercial	Gas Supply	2.780	0.04	99.7
Off-Road Mobile	Commercial Off-Road Vehicles and Equipment	2.720	0.04	99.7
Commercial	Unaccounted Gaseous Fuel Combustion	2.227	0.03	99.8
Domestic-Commercial	Barbecues	2.001	0.03	99.8
Domestic-Commercial	Gaseous Fuel Combustion	1.682	0.03	99.8
Industrial	Bitumen pre-mix or hotmix production	1.616	0.03	99.8
Off-Road Mobile	Construction Off-Road Vehicles and Equipment	1.486	0.02	99.9
Commercial	Plastic Product, Rigid Fibre Reinforced, Manufacturing	1.387	0.02	99.9
Industrial	Other metal processing	1.322	0.02	99.9
Industrial	Sewage Treatment - processing by small plants	0.927	0.01	99.9
Commercial	Automotive Component Manufacturing n.e.c.	0.807	0.01	99.9
Industrial	Production of phosphate fertilizer	0.793	0.01	100.0
Commercial	Ceramic Product Manufacturing	0.587	9.09×10^{-3}	100.0
Industrial	Sewage Treatment - processing by large plants	0.535	8.28×10^{-3}	100.0
Off-Road Mobile	Aircraft	0.408	6.31×10^{-3}	100.0
Industrial	Storage of Petroleum and/or Petroleum Products	0.369	5.72×10^{-3}	100.0
Commercial	Basic Iron and Steel Manufacturing	0.334	5.18×10^{-3}	100.0
Industrial	Coke production	0.265	4.10×10^{-3}	100.0
Industrial	Coal loading	0.165	2.55×10^{-3}	100.0
Commercial	Fabricated Metal Product Manufacturing n.e.c.	0.134	2.08×10^{-3}	100.0
Industrial	Other chemical processing	0.076	1.18×10^{-3}	100.0
Domestic-Commercial	Liquid Fuel Combustion	0.050	7.68×10^{-4}	100.0
Industrial	Hazardous, industrial, group A or group	0.044	6.82×10^{-4}	100.0

Criteria Pollutant Emissions for all Sectors
4. Emissions Summary

Source Group	Source Type	Total VOCs		
		Annual Emissions (tonnes/year)	Proportion of Annual Anthropogenic Emissions (%)	Cumulative (%)
	B waste processing			
Industrial	Concrete batching	0.027	4.19×10^{-4}	100.0
Industrial	Cement or lime handling	0.023	3.63×10^{-4}	100.0
Commercial	Gravel and Sand Quarrying	3.60×10^{-3}	5.58×10^{-5}	100.0
Industrial	Inert waste landfilling	1.44×10^{-3}	2.23×10^{-5}	100.0
Industrial	Bulk cargo handling	9.90×10^{-4}	1.53×10^{-5}	100.0
Industrial	Other vessel construction or maintenance	9.25×10^{-4}	1.43×10^{-5}	100.0
Commercial	Rubber Product Manufacturing n.e.c.	8.66×10^{-4}	1.34×10^{-5}	100.0
Industrial	Scrap metal recovery	7.63×10^{-4}	1.18×10^{-5}	100.0
Industrial	Coal washery reject or slag landfilling	6.86×10^{-4}	1.06×10^{-5}	100.0
Commercial	Spring and Wire Product Manufacturing	1.05×10^{-4}	1.63×10^{-6}	100.0
Commercial	Synthetic Resin Manufacturing	9.68×10^{-5}	1.50×10^{-6}	100.0
Commercial	Funeral Directors, Crematoria and Cemeteries	4.90×10^{-10}	7.58×10^{-12}	100.0
Anthropogenic	All	6,457	100.0	

4.3 Daily Emission Estimates

4.3.1 January Weekday

Table 4.12 shows total estimated daily emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

Table 4.12 Total estimated daily biogenic and anthropogenic emissions in each region for typical January weekday

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total January Weekday Emissions (tonnes/day)					
CARBON MONOXIDE	495	6.562	0	6,811	7,313
LEAD AND COMPOUNDS	9.79×10^{-3}	6.91×10^{-4}	2.95×10^{-6}	0.104	0.114
OXIDES OF NITROGEN	17.922	0.584	0.186	224	243
PARTICULATE MATTER < 10 µm	42.224	0.881	1.63×10^{-3}	563	606
PARTICULATE MATTER < 2.5 µm	37.583	0.623	6.35×10^{-4}	510	548
SULFUR DIOXIDE	1.415	0.019	0	19.460	20.894
TOTAL VOCS	363	28.037	32.035	2,303	2,726
Anthropogenic Total January Weekday Emissions (tonnes/day)					
CARBON MONOXIDE	1,011	201	1,447	265	2,925
LEAD AND COMPOUNDS	0.069	5.62×10^{-3}	0.016	0.096	0.188
OXIDES OF NITROGEN	237	25.311	32.294	474	769
PARTICULATE MATTER < 10 µm	43.468	7.013	7.270	119	177
PARTICULATE MATTER < 2.5 µm	22.890	3.587	5.164	31.857	63.498
SULFUR DIOXIDE	36.267	28.616	28.451	723	817
TOTAL VOCS	308	22.782	15.239	56.631	402
Biogenic and Anthropogenic Total January Weekday Emissions (tonnes/day)					
CARBON MONOXIDE	1,506	208	1,447	7,076	10,237
LEAD AND COMPOUNDS	0.079	6.32×10^{-3}	0.016	0.200	0.302
OXIDES OF NITROGEN	255	25.896	32.480	698	1,012
PARTICULATE MATTER < 10 µm	85.692	7.894	7.272	683	784
PARTICULATE MATTER < 2.5 µm	60.473	4.210	5.165	542	612
SULFUR DIOXIDE	37.682	28.635	28.451	743	838
TOTAL VOCS	671	50.820	47.274	2,359	3,128

Table 4.13 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

Table 4.13 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical January weekday

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
Proportion of January Weekday Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	32.9	3.16	0	96.2	71.4
LEAD AND COMPOUNDS	12.4	10.9	0.02	51.9	37.8
OXIDES OF NITROGEN	7.04	2.26	0.57	32.1	24.0
PARTICULATE MATTER < 10 µm	49.3	11.2	0.02	82.5	77.4
PARTICULATE MATTER < 2.5 µm	62.1	14.8	0.01	94.1	89.6
SULFUR DIOXIDE	3.76	0.07	0	2.62	2.49
TOTAL VOCS	54.1	55.2	67.8	97.6	87.1
Anthropogenic Total					
Proportion of January Weekday Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	67.1	96.8	100.0	3.75	28.6
LEAD AND COMPOUNDS	87.6	89.1	100.0	48.1	62.2
OXIDES OF NITROGEN	93.0	97.7	99.4	67.9	76.0
PARTICULATE MATTER < 10 µm	50.7	88.8	100.0	17.5	22.6
PARTICULATE MATTER < 2.5 µm	37.9	85.2	100.0	5.88	10.4
SULFUR DIOXIDE	96.2	99.9	100.0	97.4	97.5
TOTAL VOCS	45.9	44.8	32.2	2.40	12.9

Figure 4.9 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

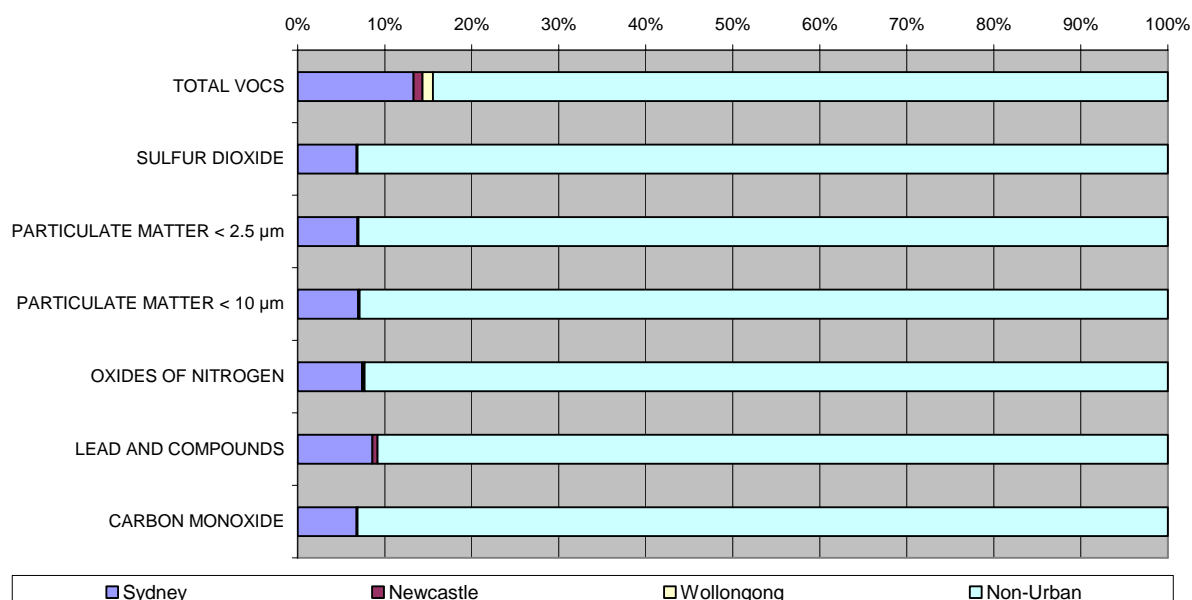


Figure 4.9 Proportion of total estimated daily emissions from biogenic sources in each region for typical January weekday

Figure 4.10 shows the proportion of total estimated daily GMR anthropogenic emissions from all anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

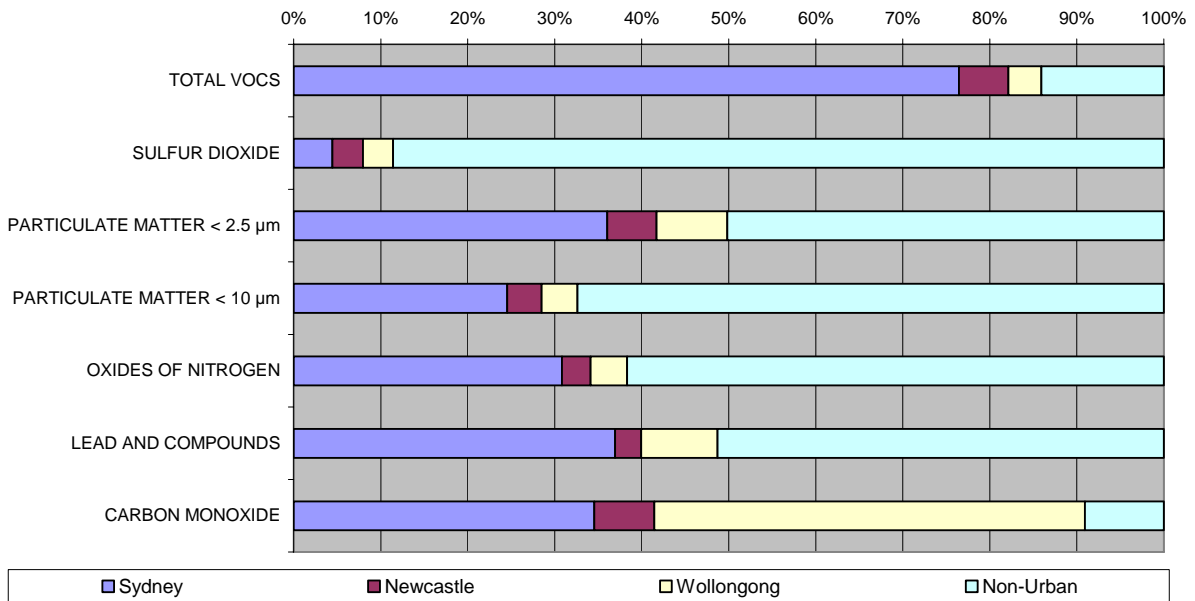


Figure 4.10 Proportion of total estimated daily emissions from anthropogenic sources in each region for typical January weekday

Figure 4.11 shows the proportion of total estimated daily GMR biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

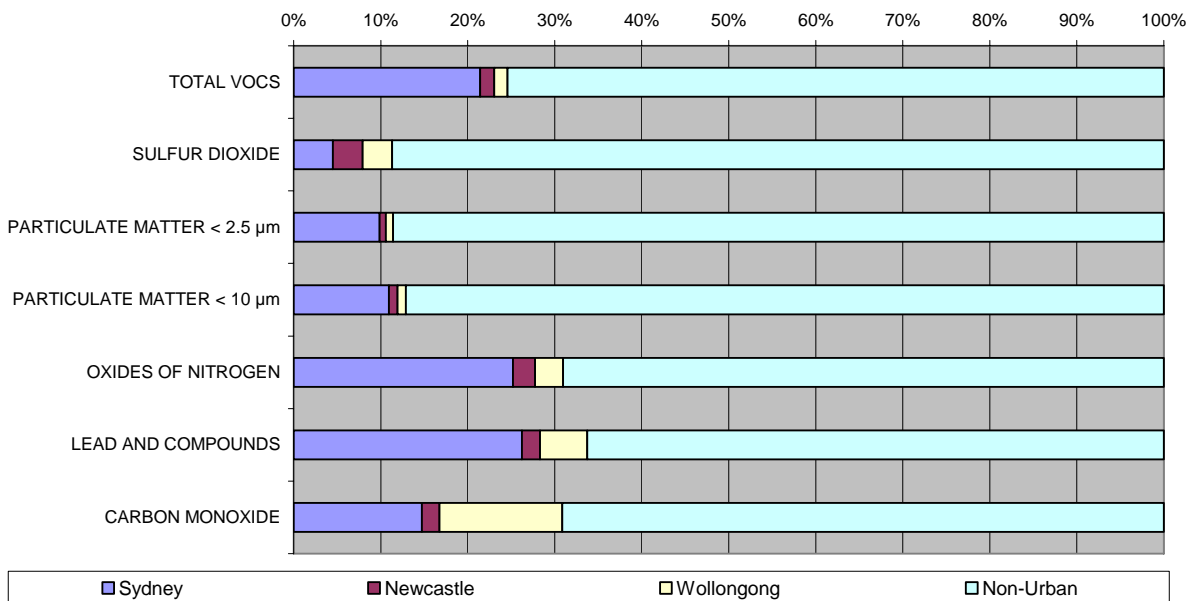


Figure 4.11 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical January weekday

Table 4.14 shows total estimated daily emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

Table 4.15 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekday.

Table 4.14 Total estimated daily anthropogenic emissions by source type in each region for typical January weekday

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
January Weekday Emissions (tonnes/day) - GMR						
CARBON MONOXIDE	4.678	143	1,620	72.147	1,084	2,925
LEAD AND COMPOUNDS	6.68×10^{-4}	2.25×10^{-4}	0.032	0.121	0.034	0.188
OXIDES OF NITROGEN	6.737	3.665	475	58.166	225	769
PARTICULATE MATTER < 10 µm	11.072	3.015	123	32.225	8.293	177
PARTICULATE MATTER < 2.5 µm	3.492	2.863	34.851	14.397	7.894	63.498
SULFUR DIOXIDE	0.187	0.120	802	10.582	4.110	817
TOTAL VOCS	44.233	151	48.714	15.120	143	402
January Weekday Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	3.268	104	21.450	45.946	837	1,011
LEAD AND COMPOUNDS	6.51×10^{-4}	1.64×10^{-4}	0.012	0.030	0.027	0.069
OXIDES OF NITROGEN	4.714	2.721	37.750	24.209	167	237
PARTICULATE MATTER < 10 µm	5.874	2.216	20.807	8.253	6.319	43.468
PARTICULATE MATTER < 2.5 µm	1.978	2.105	8.878	3.921	6.008	22.890
SULFUR DIOXIDE	0.128	0.087	29.442	3.506	3.104	36.267
TOTAL VOCS	31.652	117	38.228	9.406	112	308
January Weekday Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0.177	9.251	127	3.441	61.443	201
LEAD AND COMPOUNDS	2.19×10^{-6}	1.43×10^{-5}	6.34×10^{-4}	3.22×10^{-3}	1.75×10^{-3}	5.62×10^{-3}
OXIDES OF NITROGEN	0.354	0.214	4.700	7.493	12.549	25.311
PARTICULATE MATTER < 10 µm	0.460	0.192	4.847	1.075	0.439	7.013
PARTICULATE MATTER < 2.5 µm	0.134	0.182	2.260	0.593	0.419	3.587
SULFUR DIOXIDE	2.28×10^{-3}	7.51×10^{-3}	25.139	3.225	0.243	28.616
TOTAL VOCS	2.618	8.256	3.310	0.677	7.922	22.782

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
January Weekday Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0.272	5.381	1,403	1.555	37.191	1,447
LEAD AND COMPOUNDS	2.04×10^{-6}	8.47×10^{-6}	0.011	4.15×10^{-3}	1.17×10^{-3}	0.016
OXIDES OF NITROGEN	0.340	0.132	21.315	2.250	8.257	32.294
PARTICULATE MATTER < 10 µm	0.177	0.117	5.566	1.116	0.295	7.270
PARTICULATE MATTER < 2.5 µm	0.083	0.111	4.187	0.503	0.281	5.164
SULFUR DIOXIDE	3.23×10^{-3}	4.43×10^{-3}	27.662	0.634	0.147	28.451
TOTAL VOCS	2.063	5.745	2.141	0.413	4.877	15.239
January Weekday Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	0.960	25.096	68.875	21.206	149	265
LEAD AND COMPOUNDS	1.24×10^{-5}	3.84×10^{-5}	7.64×10^{-3}	0.084	4.47×10^{-3}	0.096
OXIDES OF NITROGEN	1.330	0.598	411	24.214	36.553	474
PARTICULATE MATTER < 10 µm	4.561	0.491	91.315	21.781	1.240	119
PARTICULATE MATTER < 2.5 µm	1.297	0.465	19.527	9.381	1.187	31.857
SULFUR DIOXIDE	0.054	0.021	719	3.217	0.616	723
TOTAL VOCS	7.901	20.101	5.034	4.625	18.971	56.631

Table 4.15 Proportion of total estimated daily anthropogenic emissions by source type in each region for typical January weekday

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of January Weekday Anthropogenic Emissions (%) - GMR						
CARBON MONOXIDE	0.16	4.90	55.4	2.47	37.1	100.0
LEAD AND COMPOUNDS	0.36	0.12	16.8	64.6	18.1	100.0
OXIDES OF NITROGEN	0.88	0.48	61.8	7.57	29.2	100.0
PARTICULATE MATTER < 10 µm	6.25	1.70	69.2	18.2	4.68	100.0
PARTICULATE MATTER < 2.5 µm	5.50	4.51	54.9	22.7	12.4	100.0
SULFUR DIOXIDE	0.02	0.01	98.2	1.30	0.50	100.0
TOTAL VOCS	11.0	37.5	12.1	3.76	35.6	100.0
Proportion of January Weekday Anthropogenic Emissions (%) - Sydney						
CARBON MONOXIDE	0.32	10.3	2.12	4.55	82.8	100.0
LEAD AND COMPOUNDS	0.94	0.24	17.6	43.0	38.3	100.0
OXIDES OF NITROGEN	1.99	1.15	15.9	10.2	70.7	100.0
PARTICULATE MATTER < 10 µm	13.5	5.10	47.9	19.0	14.5	100.0
PARTICULATE MATTER < 2.5 µm	8.64	9.20	38.8	17.1	26.2	100.0
SULFUR DIOXIDE	0.35	0.24	81.2	9.67	8.56	100.0
TOTAL VOCS	10.3	37.9	12.4	3.06	36.3	100.0
Proportion of January Weekday Anthropogenic Emissions (%) - Newcastle						
CARBON MONOXIDE	0.09	4.59	63.1	1.71	30.5	100.0
LEAD AND COMPOUNDS	0.04	0.25	11.3	57.3	31.2	100.0
OXIDES OF NITROGEN	1.40	0.85	18.6	29.6	49.6	100.0
PARTICULATE MATTER < 10 µm	6.56	2.74	69.1	15.3	6.26	100.0
PARTICULATE MATTER < 2.5 µm	3.74	5.08	63.0	16.5	11.7	100.0
SULFUR DIOXIDE	7.97×10^{-3}	0.03	87.8	11.3	0.85	100.0
TOTAL VOCS	11.5	36.2	14.5	2.97	34.8	100.0

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of January Weekday Anthropogenic Emissions (%) - Wollongong						
CARBON MONOXIDE	0.02	0.37	96.9	0.11	2.57	100.0
LEAD AND COMPOUNDS	0.01	0.05	67.6	25.2	7.12	100.0
OXIDES OF NITROGEN	1.05	0.41	66.0	6.97	25.6	100.0
PARTICULATE MATTER < 10 µm	2.43	1.61	76.6	15.3	4.05	100.0
PARTICULATE MATTER < 2.5 µm	1.60	2.15	81.1	9.73	5.44	100.0
SULFUR DIOXIDE	0.01	0.02	97.2	2.23	0.52	100.0
TOTAL VOCS	13.5	37.7	14.1	2.71	32.0	100.0
Proportion of January Weekday Anthropogenic Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.36	9.46	26.0	7.99	56.2	100.0
LEAD AND COMPOUNDS	0.01	0.04	7.94	87.4	4.65	100.0
OXIDES OF NITROGEN	0.28	0.13	86.8	5.11	7.71	100.0
PARTICULATE MATTER < 10 µm	3.82	0.41	76.5	18.2	1.04	100.0
PARTICULATE MATTER < 2.5 µm	4.07	1.46	61.3	29.4	3.73	100.0
SULFUR DIOXIDE	7.46×10^{-3}	2.85×10^{-3}	99.5	0.44	0.09	100.0
TOTAL VOCS	14.0	35.5	8.89	8.17	33.5	100.0

Figure 4.12 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for a typical January weekday.

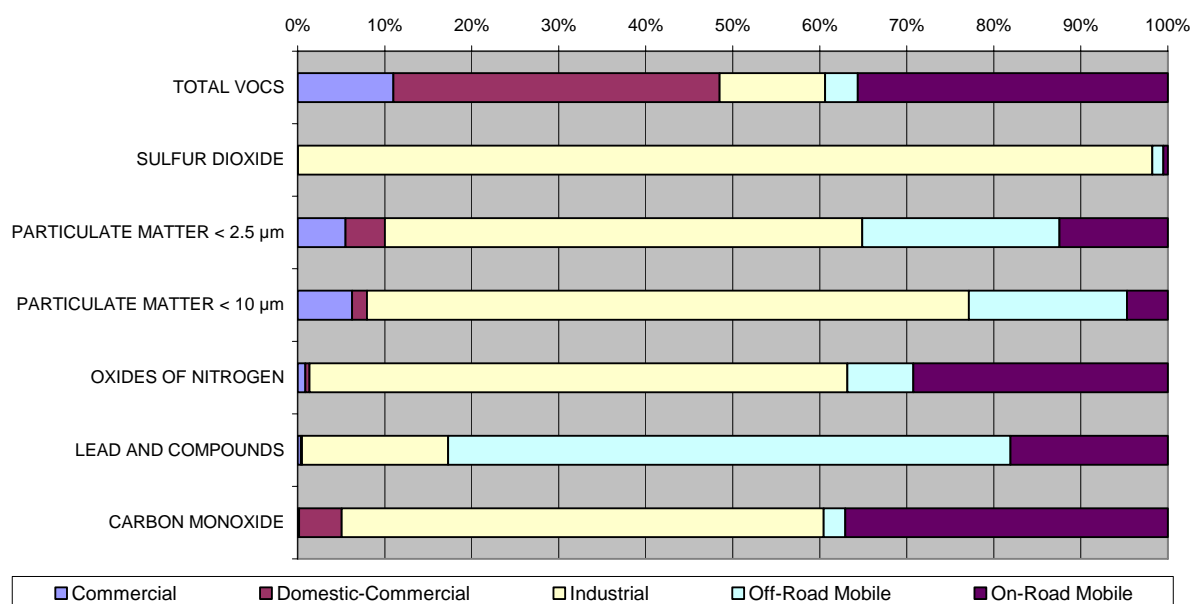


Figure 4.12 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for typical January weekday

Figure 4.13 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Sydney region for a typical January weekday.

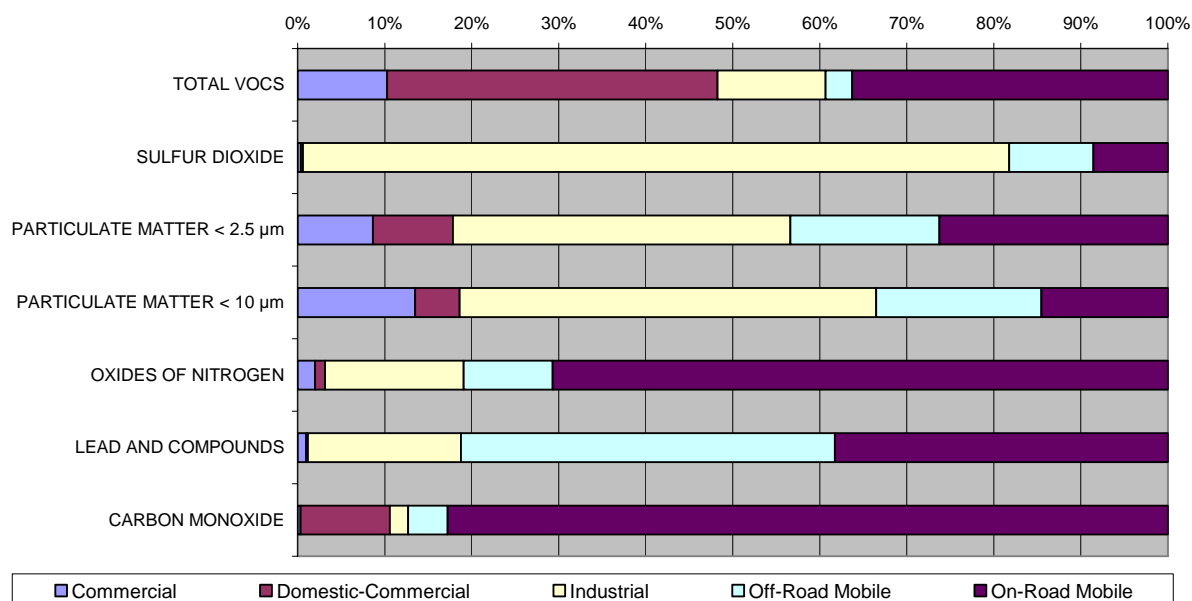


Figure 4.13 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Sydney region for typical January weekday

Figure 4.14 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Newcastle region for a typical January weekday.

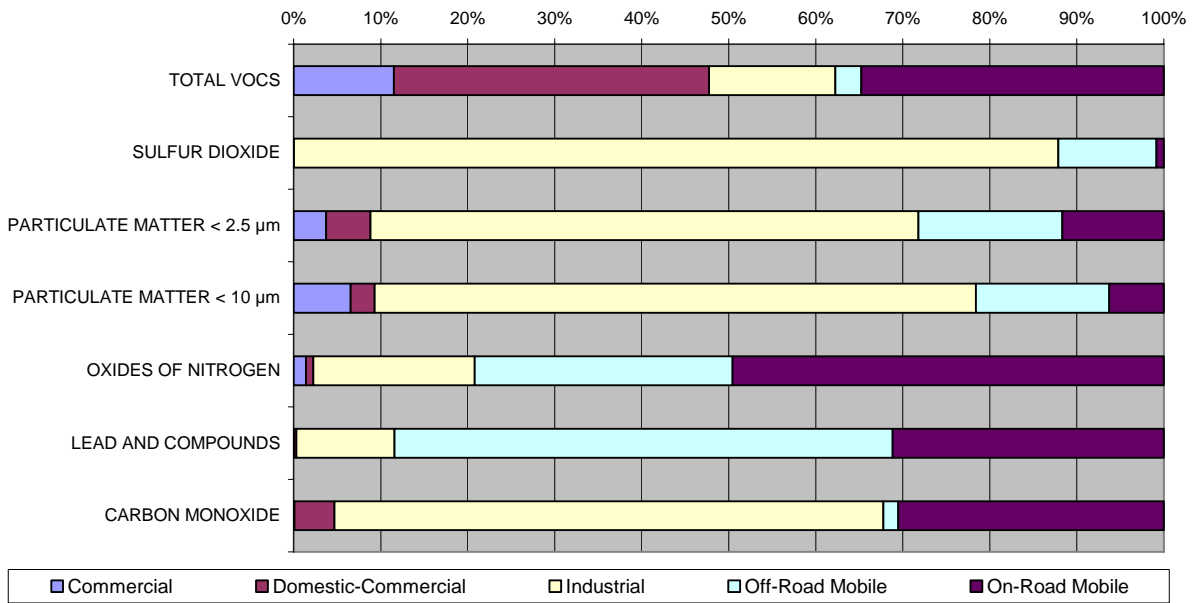


Figure 4.14 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Newcastle region for typical January weekday

Figure 4.15 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Wollongong region for a typical January weekday.

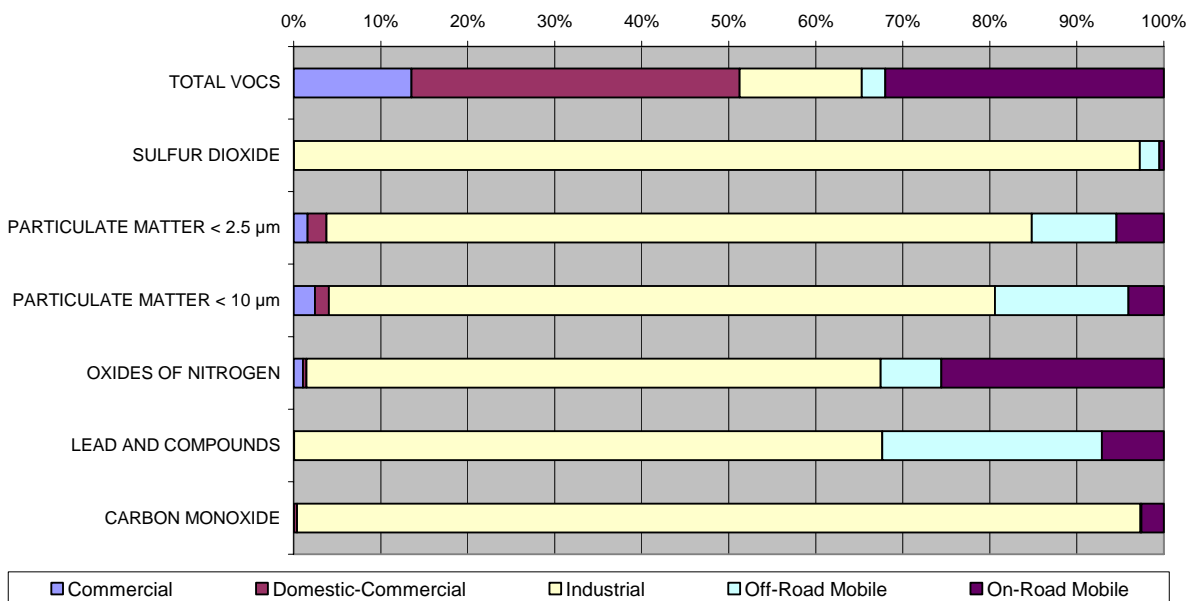


Figure 4.15 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Wollongong region for typical January weekday

Figure 4.16 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Non-Urban region for a typical January weekday.

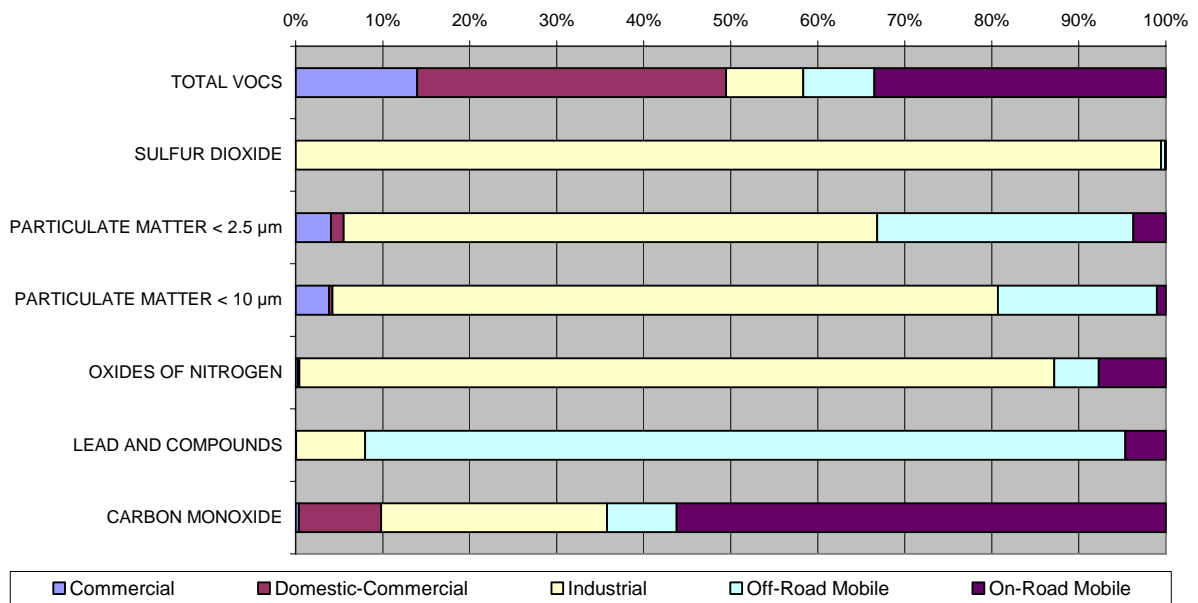


Figure 4.16 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Non-Urban region for typical January weekday

4.3.2 January Weekend Day

Table 4.16 shows total estimated daily emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

Table 4.16 Total estimated daily biogenic and anthropogenic emissions in each region for typical January weekend day

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
January Weekend Day Emissions (tonnes/day)					
CARBON MONOXIDE	845	0.037	0	8.957	854
LEAD AND COMPOUNDS	0.014	6.12×10^{-4}	2.95×10^{-6}	0.021	0.036
OXIDES OF NITROGEN	27.918	0.398	0.186	29.945	58.446
PARTICULATE MATTER < 10 µm	70.533	0.350	1.63×10^{-3}	12.631	83.516
PARTICULATE MATTER < 2.5 µm	63.541	0.138	6.35×10^{-4}	5.290	68.969
SULFUR DIOXIDE	2.415	1.18×10^{-4}	0	0.026	2.441
TOTAL VOCS	417	27.029	32.035	1,251	1,727
Anthropogenic Total					
January Weekend Day Emissions (tonnes/day)					
CARBON MONOXIDE	1,138	205	1,456	300	3,099
LEAD AND COMPOUNDS	0.060	4.60×10^{-3}	0.015	0.077	0.157
OXIDES OF NITROGEN	217	23.613	31.396	468	740
PARTICULATE MATTER < 10 µm	41.654	5.863	7.129	111	165
PARTICULATE MATTER < 2.5 µm	23.327	3.331	5.186	29.640	61.485
SULFUR DIOXIDE	36.318	28.495	28.498	723	817
TOTAL VOCS	316	22.726	16.224	62.647	418
Biogenic and Anthropogenic Total					
January Weekend Day Emissions (tonnes/day)					
CARBON MONOXIDE	1,983	205	1,456	309	3,954
LEAD AND COMPOUNDS	0.074	5.21×10^{-3}	0.015	0.099	0.193
OXIDES OF NITROGEN	245	24.011	31.582	498	798
PARTICULATE MATTER < 10 µm	112	6.213	7.131	123	249
PARTICULATE MATTER < 2.5 µm	86.868	3.468	5.187	34.930	130
SULFUR DIOXIDE	38.733	28.495	28.498	723	819
TOTAL VOCS	733	49.755	48.259	1,314	2,145

Table 4.17 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

Table 4.17 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical January weekend day

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
Proportion of January Weekend Day Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	42.6	0.02	0	2.90	21.6
LEAD AND COMPOUNDS	19.0	11.7	0.02	21.4	18.6
OXIDES OF NITROGEN	11.4	1.66	0.59	6.02	7.32
PARTICULATE MATTER < 10 µm	62.9	5.63	0.02	10.2	33.6
PARTICULATE MATTER < 2.5 µm	73.1	3.97	0.01	15.1	52.9
SULFUR DIOXIDE	6.23	4.14×10^{-4}	0	3.61×10^{-3}	0.30
TOTAL VOCS	56.9	54.3	66.4	95.2	80.5
Anthropogenic Total					
Proportion of January Weekend Day Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	57.4	100.0	100.0	97.1	78.4
LEAD AND COMPOUNDS	81.0	88.3	100.0	78.6	81.4
OXIDES OF NITROGEN	88.6	98.3	99.4	94.0	92.7
PARTICULATE MATTER < 10 µm	37.1	94.4	100.0	89.8	66.4
PARTICULATE MATTER < 2.5 µm	26.9	96.0	100.0	84.9	47.1
SULFUR DIOXIDE	93.8	100.0	100.0	100.0	99.7
TOTAL VOCS	43.1	45.7	33.6	4.77	19.5

Figure 4.17 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

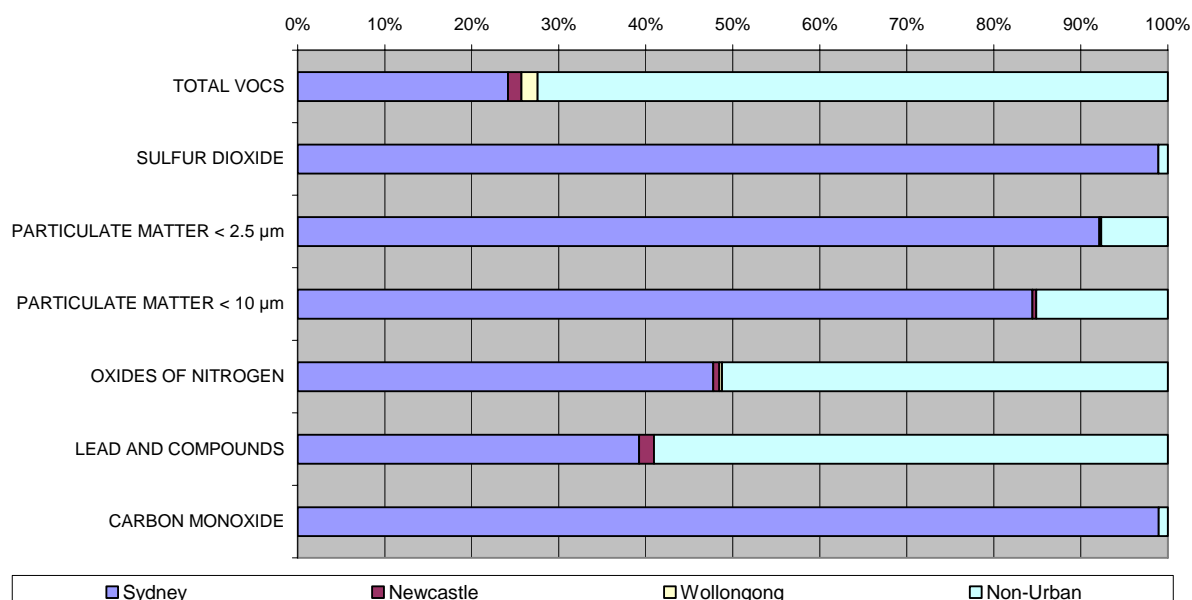


Figure 4.17 Proportion of total estimated daily emissions from biogenic sources in each region for typical January weekend day

Figure 4.18 shows the proportion of total estimated daily GMR anthropogenic emissions from all anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

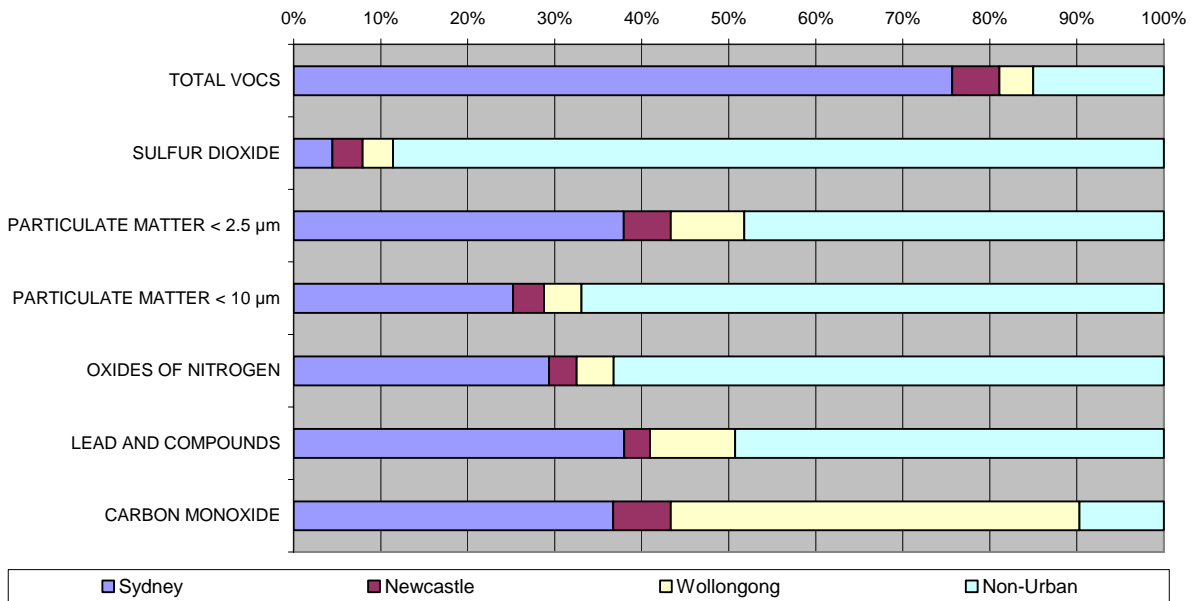


Figure 4.18 Proportion of total estimated daily emissions from anthropogenic sources in each region for typical January weekend day

Figure 4.19 shows the proportion of total estimated daily GMR biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

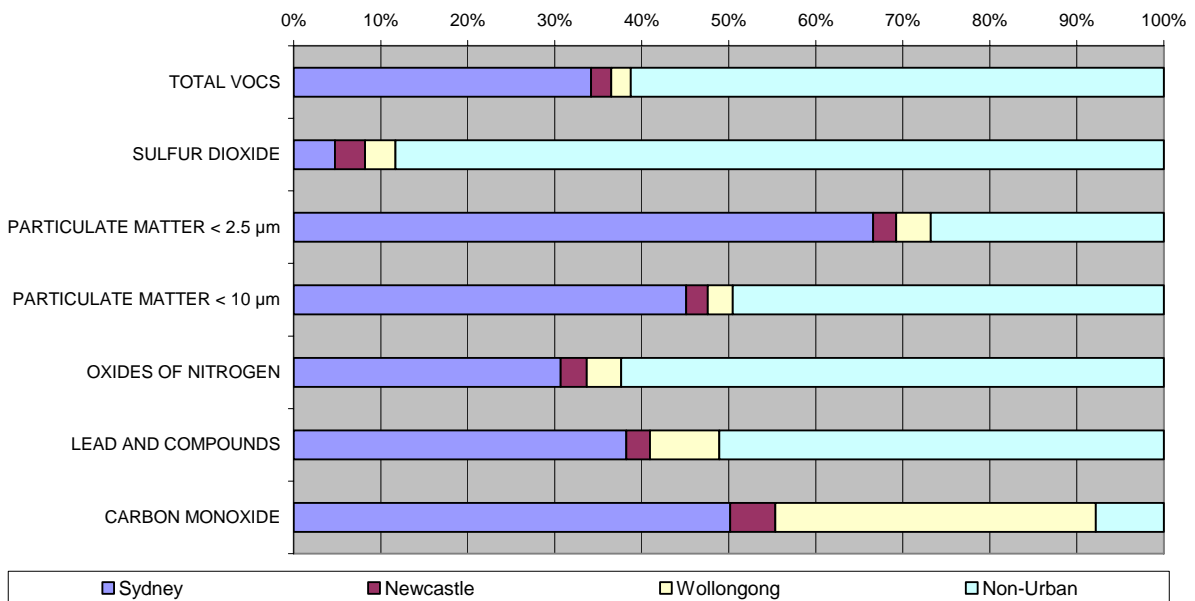


Figure 4.19 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical January weekend day

Table 4.18 shows total estimated daily emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

Table 4.19 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical January weekend day.

Table 4.18 Total estimated daily anthropogenic emissions by source type in each region for typical January weekend day

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
January Weekend Day Emissions (tonnes/day) - GMR						
CARBON MONOXIDE	4.647	372	1,613	160	949	3,099
LEAD AND COMPOUNDS	1.32×10^{-4}	5.47×10^{-4}	0.030	0.097	0.030	0.157
OXIDES OF NITROGEN	6.601	3.776	473	59.602	197	740
PARTICULATE MATTER < 10 µm	9.906	5.032	115	28.359	7.256	165
PARTICULATE MATTER < 2.5 µm	3.031	4.756	32.818	13.972	6.908	61.485
SULFUR DIOXIDE	0.185	0.199	801	11.639	3.596	817
TOTAL VOCS	22.667	181	40.561	47.660	125	418
January Weekend Day Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	3.253	280	20.951	102	732	1,138
LEAD AND COMPOUNDS	1.22×10^{-4}	4.12×10^{-4}	0.011	0.025	0.023	0.060
OXIDES OF NITROGEN	4.686	2.908	37.310	25.664	146	217
PARTICULATE MATTER < 10 µm	5.251	3.791	18.699	8.383	5.529	41.654
PARTICULATE MATTER < 2.5 µm	1.714	3.583	8.076	4.698	5.257	23.327
SULFUR DIOXIDE	0.126	0.151	29.394	3.931	2.716	36.318
TOTAL VOCS	16.501	140	32.053	29.550	97.615	316
January Weekend Day Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0.168	23.651	121	6.151	53.762	205
LEAD AND COMPOUNDS	1.40×10^{-6}	3.44×10^{-5}	3.66×10^{-4}	2.67×10^{-3}	1.53×10^{-3}	4.60×10^{-3}
OXIDES OF NITROGEN	0.262	0.217	4.125	8.029	10.981	23.613
PARTICULATE MATTER < 10 µm	0.391	0.318	3.748	1.022	0.384	5.863
PARTICULATE MATTER < 2.5 µm	0.106	0.301	1.944	0.614	0.366	3.331
SULFUR DIOXIDE	1.98×10^{-3}	0.012	24.790	3.479	0.213	28.495
TOTAL VOCS	1.288	10.166	2.625	1.715	6.931	22.726

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
January Weekend Day Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0.272	15.430	1,403	5.212	32.542	1,456
LEAD AND COMPOUNDS	1.75×10^{-6}	2.26×10^{-5}	0.011	3.23×10^{-3}	1.02×10^{-3}	0.015
OXIDES OF NITROGEN	0.339	0.149	21.311	2.371	7.225	31.396
PARTICULATE MATTER < 10 µm	0.158	0.208	5.522	0.983	0.258	7.129
PARTICULATE MATTER < 2.5 µm	0.076	0.197	4.171	0.496	0.246	5.186
SULFUR DIOXIDE	3.10×10^{-3}	8.18×10^{-3}	27.662	0.696	0.129	28.498
TOTAL VOCS	0.985	7.087	2.087	1.797	4.267	16.224
January Weekend Day Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	0.955	53.110	68.521	46.916	131	300
LEAD AND COMPOUNDS	7.51×10^{-6}	7.76×10^{-5}	7.30×10^{-3}	0.066	3.92×10^{-3}	0.077
OXIDES OF NITROGEN	1.314	0.502	410	23.538	31.984	468
PARTICULATE MATTER < 10 µm	4.106	0.715	86.744	17.972	1.085	111
PARTICULATE MATTER < 2.5 µm	1.136	0.676	18.626	8.163	1.039	29.640
SULFUR DIOXIDE	0.053	0.028	719	3.533	0.539	723
TOTAL VOCS	3.893	23.762	3.795	14.598	16.599	62.647

Table 4.19 Proportion of total estimated daily anthropogenic emissions by source type in each region for typical January weekend day

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of January Weekend Day Anthropogenic Emissions (%) - GMR						
CARBON MONOXIDE	0.15	12.0	52.1	5.17	30.6	100.0
LEAD AND COMPOUNDS	0.08	0.35	19.2	61.5	18.9	100.0
OXIDES OF NITROGEN	0.89	0.51	64.0	8.06	26.6	100.0
PARTICULATE MATTER < 10 µm	5.99	3.04	69.4	17.2	4.39	100.0
PARTICULATE MATTER < 2.5 µm	4.93	7.73	53.4	22.7	11.2	100.0
SULFUR DIOXIDE	0.02	0.02	98.1	1.43	0.44	100.0
TOTAL VOCS	5.43	43.4	9.72	11.4	30.0	100.0
Proportion of January Weekend Day Anthropogenic Emissions (%) - Sydney						
CARBON MONOXIDE	0.29	24.6	1.84	8.97	64.3	100.0
LEAD AND COMPOUNDS	0.20	0.69	19.0	41.2	38.9	100.0
OXIDES OF NITROGEN	2.16	1.34	17.2	11.8	67.5	100.0
PARTICULATE MATTER < 10 µm	12.6	9.10	44.9	20.1	13.3	100.0
PARTICULATE MATTER < 2.5 µm	7.35	15.4	34.6	20.1	22.5	100.0
SULFUR DIOXIDE	0.35	0.42	80.9	10.8	7.48	100.0
TOTAL VOCS	5.22	44.4	10.1	9.35	30.9	100.0
Proportion of January Weekend Day Anthropogenic Emissions (%) - Newcastle						
CARBON MONOXIDE	0.08	11.5	59.1	3.00	26.2	100.0
LEAD AND COMPOUNDS	0.03	0.75	7.95	57.9	33.3	100.0
OXIDES OF NITROGEN	1.11	0.92	17.5	34.0	46.5	100.0
PARTICULATE MATTER < 10 µm	6.67	5.42	63.9	17.4	6.56	100.0
PARTICULATE MATTER < 2.5 µm	3.17	9.02	58.4	18.4	11.0	100.0
SULFUR DIOXIDE	6.96 × 10 ⁻³	0.04	87.0	12.2	0.75	100.0
TOTAL VOCS	5.67	44.7	11.6	7.55	30.5	100.0

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of January Weekend Day Anthropogenic Emissions (%) - Wollongong						
CARBON MONOXIDE	0.02	1.06	96.3	0.36	2.23	100.0
LEAD AND COMPOUNDS	0.01	0.15	72.2	21.0	6.66	100.0
OXIDES OF NITROGEN	1.08	0.48	67.9	7.55	23.0	100.0
PARTICULATE MATTER < 10 µm	2.22	2.92	77.5	13.8	3.62	100.0
PARTICULATE MATTER < 2.5 µm	1.47	3.79	80.4	9.57	4.74	100.0
SULFUR DIOXIDE	0.01	0.03	97.1	2.44	0.45	100.0
TOTAL VOCS	6.07	43.7	12.9	11.1	26.3	100.0
Proportion of January Weekend Day Anthropogenic Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.32	17.7	22.8	15.6	43.5	100.0
LEAD AND COMPOUNDS	9.71×10^{-3}	0.10	9.43	85.4	5.06	100.0
OXIDES OF NITROGEN	0.28	0.11	87.7	5.03	6.84	100.0
PARTICULATE MATTER < 10 µm	3.71	0.65	78.4	16.2	0.98	100.0
PARTICULATE MATTER < 2.5 µm	3.83	2.28	62.8	27.5	3.50	100.0
SULFUR DIOXIDE	7.38×10^{-3}	3.88×10^{-3}	99.4	0.49	0.07	100.0
TOTAL VOCS	6.21	37.9	6.06	23.3	26.5	100.0

Table 4.20 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for a typical January weekend day.

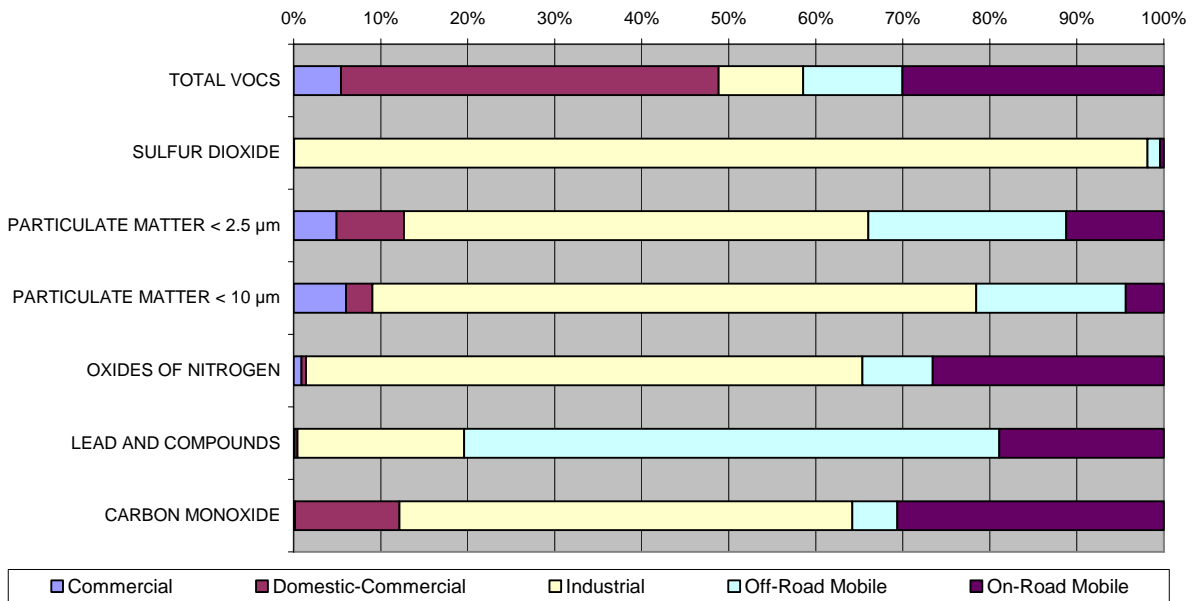


Figure 4.20 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for typical January weekend day

Figure 4.21 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Sydney region for a typical January weekend day.

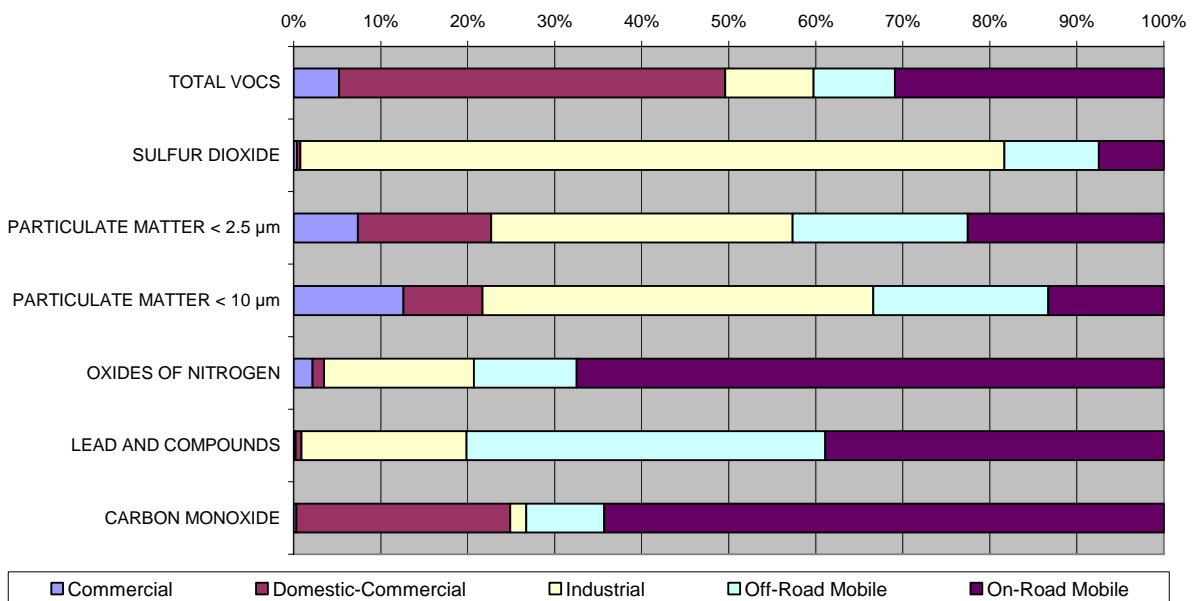


Figure 4.21 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Sydney region for typical January weekend day

Figure 4.22 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Newcastle region for a typical January weekend day.

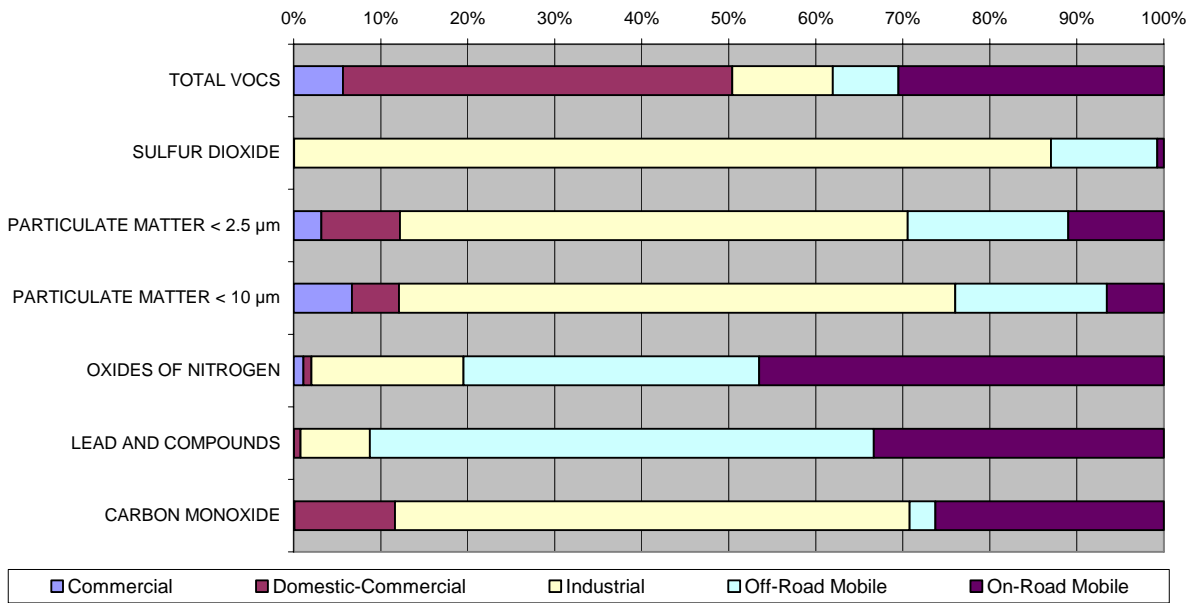


Figure 4.22 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Newcastle region for typical January weekend day

Figure 4.23 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Wollongong region for a typical January weekend day.

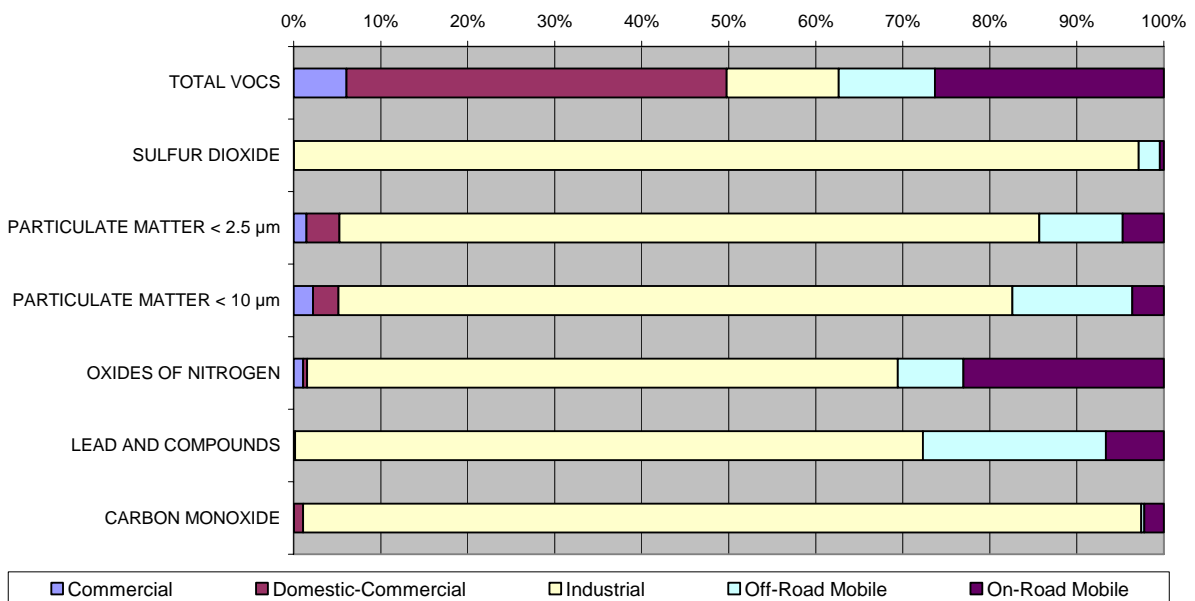


Figure 4.23 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Wollongong region for typical January weekend day

Figure 4.24 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Non-Urban region for a typical January weekend day.

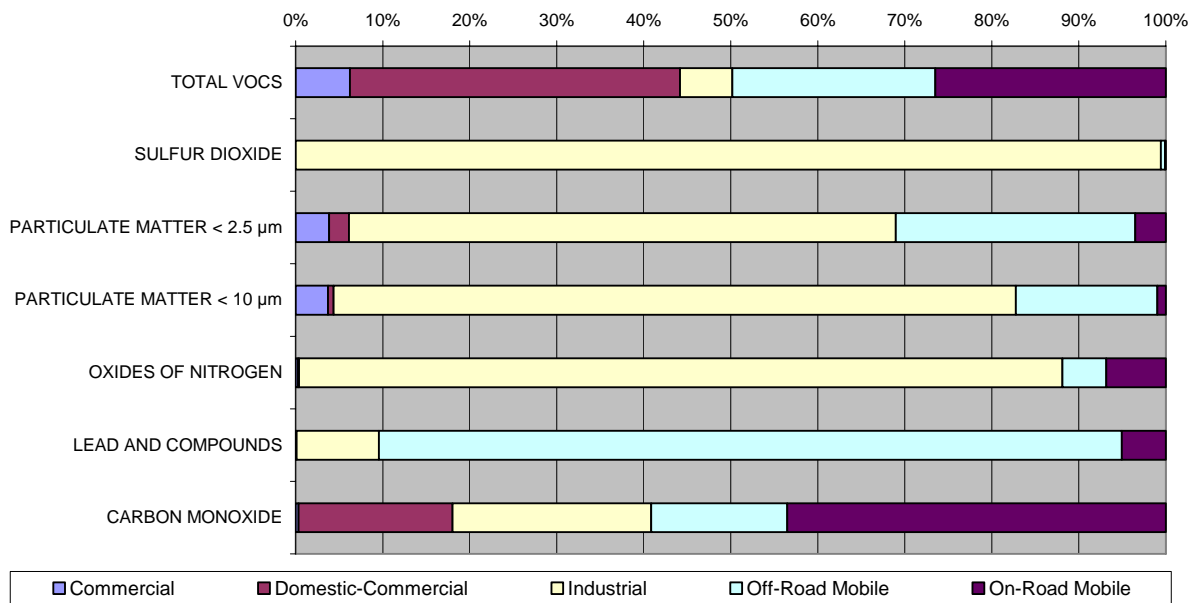


Figure 4.24 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Non-Urban region for typical January weekend day

4.3.3 July Weekday

Table 4.20 shows total estimated daily emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

Table 4.20 Total estimated daily biogenic and anthropogenic emissions in each region for typical July weekday

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
July Weekday Emissions (tonnes/day)					
CARBON MONOXIDE	54.893	0	0	0.236	55.129
LEAD AND COMPOUNDS	1.75×10^{-3}	1.44×10^{-4}	2.82×10^{-6}	2.94×10^{-3}	4.83×10^{-3}
OXIDES OF NITROGEN	2.491	0.173	0.093	12.088	14.845
PARTICULATE MATTER < 10 µm	6.376	0.087	1.56×10^{-3}	1.695	8.159
PARTICULATE MATTER < 2.5 µm	5.584	0.034	6.06×10^{-4}	0.673	6.291
SULFUR DIOXIDE	0.098	0	0	4.22×10^{-4}	0.098
TOTAL VOCS	16.097	1.638	1.656	48.786	68.177
Anthropogenic Total					
July Weekday Emissions (tonnes/day)					
CARBON MONOXIDE	1,849	269	1,486	414	4,018
LEAD AND COMPOUNDS	0.084	7.10×10^{-3}	0.018	0.125	0.235
OXIDES OF NITROGEN	266	27.691	33.868	492	820
PARTICULATE MATTER < 10 µm	80.984	10.209	9.501	138	238
PARTICULATE MATTER < 2.5 µm	57.409	6.460	7.124	41.697	113
SULFUR DIOXIDE	37.491	28.621	28.511	744	839
TOTAL VOCS	421	31.922	20.747	76.047	550
Biogenic and Anthropogenic Total					
July Weekday Emissions (tonnes/day)					
CARBON MONOXIDE	1,904	269	1,486	415	4,073
LEAD AND COMPOUNDS	0.086	7.25×10^{-3}	0.018	0.128	0.239
OXIDES OF NITROGEN	269	27.864	33.961	505	835
PARTICULATE MATTER < 10 µm	87.360	10.297	9.502	139	247
PARTICULATE MATTER < 2.5 µm	62.993	6.494	7.124	42.370	119
SULFUR DIOXIDE	37.589	28.621	28.511	744	839
TOTAL VOCS	437	33.560	22.403	125	618

Table 4.21 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

Table 4.21 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical July weekday

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
Proportion of July Weekday Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	2.88	0	0	0.06	1.35
LEAD AND COMPOUNDS	2.04	1.98	0.02	2.29	2.02
OXIDES OF NITROGEN	0.93	0.62	0.27	2.40	1.78
PARTICULATE MATTER < 10 µm	7.30	0.85	0.02	1.22	3.31
PARTICULATE MATTER < 2.5 µm	8.86	0.52	8.51 × 10 ⁻³	1.59	5.29
SULFUR DIOXIDE	0.26	0	0	5.67 × 10 ⁻⁵	0.01
TOTAL VOCS	3.68	4.88	7.39	39.1	11.0
Anthropogenic Total					
Proportion of July Weekday Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	97.1	100.0	100.0	99.9	98.6
LEAD AND COMPOUNDS	98.0	98.0	100.0	97.7	98.0
OXIDES OF NITROGEN	99.1	99.4	99.7	97.6	98.2
PARTICULATE MATTER < 10 µm	92.7	99.2	100.0	98.8	96.7
PARTICULATE MATTER < 2.5 µm	91.1	99.5	100.0	98.4	94.7
SULFUR DIOXIDE	99.7	100.0	100.0	100.0	100.0
TOTAL VOCS	96.3	95.1	92.6	60.9	89.0

Figure 4.25 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

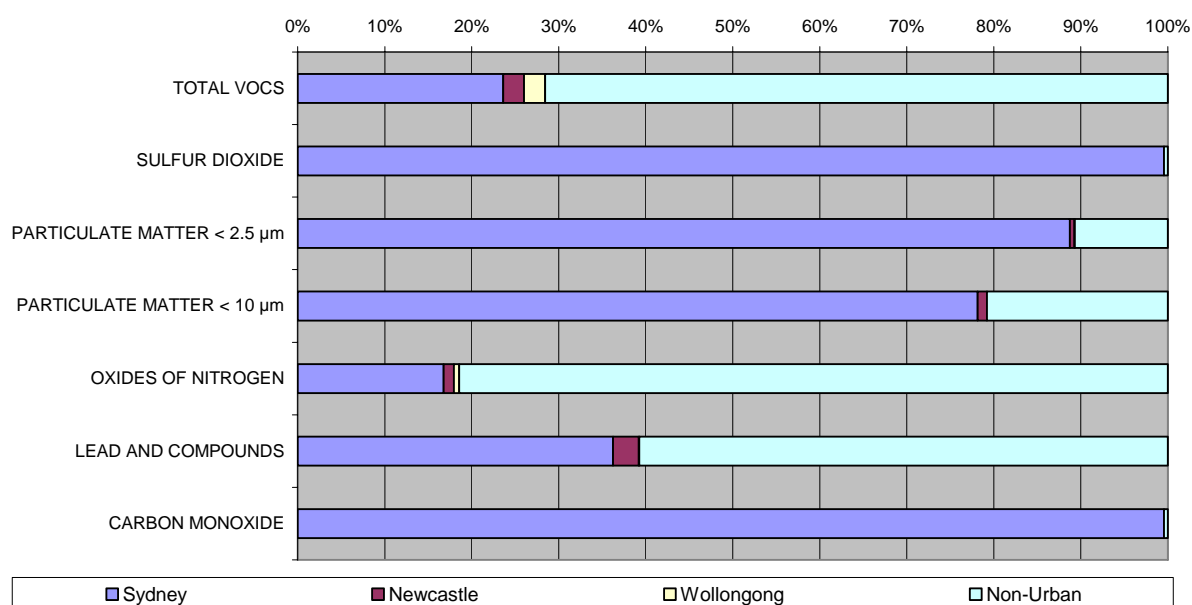


Figure 4.25 Proportion of total estimated daily emissions from biogenic sources in each region for typical July weekday

Figure 4.26 shows the proportion of total estimated daily GMR anthropogenic emissions from all anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

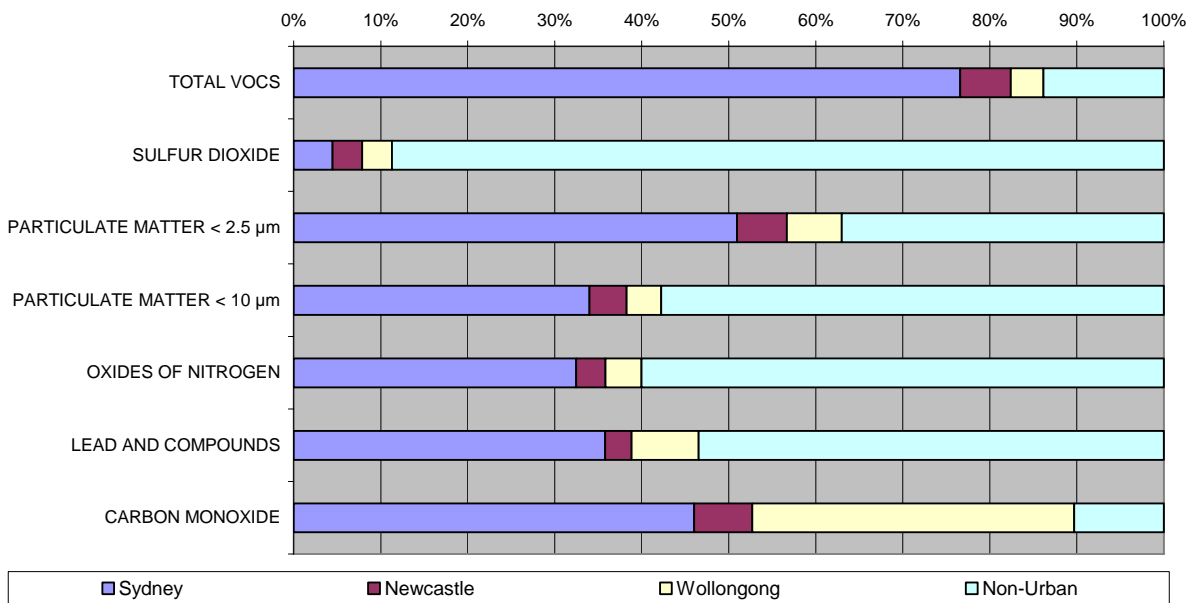


Figure 4.26 Proportion of total estimated daily emissions from anthropogenic sources in each region for typical July weekday

Figure 4.27 shows the proportion of total estimated daily GMR biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

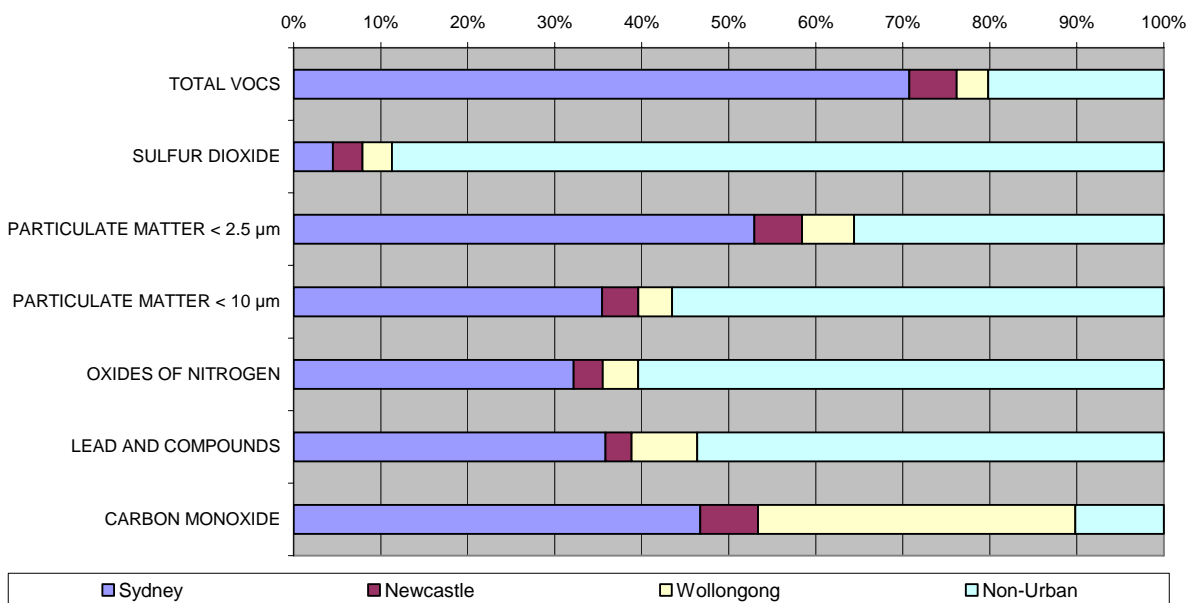


Figure 4.27 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical July weekday

Table 4.22 shows total estimated daily emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

Table 4.23 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekday.

Table 4.22 Total estimated daily anthropogenic emissions by source type in each region for typical July weekday

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
July Weekday Emissions (tonnes/day) - GMR						
CARBON MONOXIDE	5.192	343	1,625	66.441	1,978	4,018
LEAD AND COMPOUNDS	6.81×10^{-4}	6.43×10^{-4}	0.032	0.160	0.041	0.235
OXIDES OF NITROGEN	7.974	7.445	484	63.286	257	820
PARTICULATE MATTER < 10 µm	11.261	46.730	129	41.778	9.938	238
PARTICULATE MATTER < 2.5 µm	3.618	45.287	36.089	18.236	9.460	113
SULFUR DIOXIDE	0.185	0.886	822	10.643	4.925	839
TOTAL VOCS	42.495	235	50.689	13.036	209	550
July Weekday Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	3.674	256	21.570	41.563	1,526	1,849
LEAD AND COMPOUNDS	6.63×10^{-4}	4.83×10^{-4}	0.013	0.039	0.032	0.084
OXIDES OF NITROGEN	5.667	5.655	37.795	25.413	192	266
PARTICULATE MATTER < 10 µm	6.001	35.127	21.969	10.314	7.572	80.984
PARTICULATE MATTER < 2.5 µm	2.076	34.043	9.384	4.708	7.199	57.409
SULFUR DIOXIDE	0.134	0.669	29.452	3.517	3.720	37.491
TOTAL VOCS	30.681	180	39.671	8.164	162	421
July Weekday Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0.204	21.897	132	3.248	112	269
LEAD AND COMPOUNDS	2.68×10^{-6}	4.05×10^{-5}	7.93×10^{-4}	4.17×10^{-3}	2.10×10^{-3}	7.10×10^{-3}
OXIDES OF NITROGEN	0.453	0.440	4.866	7.560	14.372	27.691
PARTICULATE MATTER < 10 µm	0.497	2.970	4.912	1.304	0.526	10.209
PARTICULATE MATTER < 2.5 µm	0.145	2.879	2.251	0.683	0.502	6.460
SULFUR DIOXIDE	2.68×10^{-3}	0.055	25.074	3.198	0.291	28.621
TOTAL VOCS	2.473	13.577	3.787	0.590	11.494	31.922

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
July Weekday Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0.292	13.958	1,403	1.285	67.834	1,486
LEAD AND COMPOUNDS	2.28×10^{-6}	2.61×10^{-5}	0.011	5.54×10^{-3}	1.40×10^{-3}	0.018
OXIDES OF NITROGEN	0.385	0.291	21.315	2.420	9.457	33.868
PARTICULATE MATTER < 10 µm	0.181	1.934	5.576	1.457	0.353	9.501
PARTICULATE MATTER < 2.5 µm	0.087	1.874	4.188	0.639	0.337	7.124
SULFUR DIOXIDE	3.52×10^{-3}	0.036	27.662	0.633	0.176	28.511
TOTAL VOCS	1.923	9.274	2.141	0.301	7.109	20.747
July Weekday Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	1.023	51.329	69.477	20.345	272	414
LEAD AND COMPOUNDS	1.30×10^{-5}	9.43×10^{-5}	7.95×10^{-3}	0.112	5.36×10^{-3}	0.125
OXIDES OF NITROGEN	1.470	1.060	420	27.893	41.863	492
PARTICULATE MATTER < 10 µm	4.582	6.699	96.190	28.703	1.486	138
PARTICULATE MATTER < 2.5 µm	1.311	6.491	20.266	12.206	1.423	41.697
SULFUR DIOXIDE	0.045	0.126	740	3.295	0.738	744
TOTAL VOCS	7.418	31.716	5.089	3.981	27.842	76.047

Table 4.23 Proportion of total estimated daily anthropogenic emissions by source type in each region for typical July weekday

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of July Weekday Anthropogenic Emissions (%) - GMR						
CARBON MONOXIDE	0.13	8.55	40.4	1.65	49.2	100.0
LEAD AND COMPOUNDS	0.29	0.27	13.8	68.3	17.3	100.0
OXIDES OF NITROGEN	0.97	0.91	59.0	7.72	31.4	100.0
PARTICULATE MATTER < 10 µm	4.72	19.6	54.0	17.5	4.17	100.0
PARTICULATE MATTER < 2.5 µm	3.21	40.2	32.0	16.2	8.39	100.0
SULFUR DIOXIDE	0.02	0.11	98.0	1.27	0.59	100.0
TOTAL VOCS	7.73	42.7	9.22	2.37	38.0	100.0
Proportion of July Weekday Anthropogenic Emissions (%) - Sydney						
CARBON MONOXIDE	0.20	13.9	1.17	2.25	82.5	100.0
LEAD AND COMPOUNDS	0.79	0.57	14.9	45.9	37.8	100.0
OXIDES OF NITROGEN	2.13	2.12	14.2	9.54	72.0	100.0
PARTICULATE MATTER < 10 µm	7.41	43.4	27.1	12.7	9.35	100.0
PARTICULATE MATTER < 2.5 µm	3.62	59.3	16.3	8.20	12.5	100.0
SULFUR DIOXIDE	0.36	1.78	78.6	9.38	9.92	100.0
TOTAL VOCS	7.28	42.8	9.42	1.94	38.5	100.0
Proportion of July Weekday Anthropogenic Emissions (%) - Newcastle						
CARBON MONOXIDE	0.08	8.14	48.9	1.21	41.7	100.0
LEAD AND COMPOUNDS	0.04	0.57	11.2	58.7	29.6	100.0
OXIDES OF NITROGEN	1.64	1.59	17.6	27.3	51.9	100.0
PARTICULATE MATTER < 10 µm	4.87	29.1	48.1	12.8	5.16	100.0
PARTICULATE MATTER < 2.5 µm	2.24	44.6	34.9	10.6	7.76	100.0
SULFUR DIOXIDE	9.37 × 10 ⁻³	0.19	87.6	11.2	1.02	100.0
TOTAL VOCS	7.75	42.5	11.9	1.85	36.0	100.0

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of July Weekday Anthropogenic Emissions (%) - Wollongong						
CARBON MONOXIDE	0.02	0.94	94.4	0.09	4.56	100.0
LEAD AND COMPOUNDS	0.01	0.14	61.4	30.7	7.76	100.0
OXIDES OF NITROGEN	1.14	0.86	62.9	7.15	27.9	100.0
PARTICULATE MATTER < 10 µm	1.90	20.4	58.7	15.3	3.72	100.0
PARTICULATE MATTER < 2.5 µm	1.21	26.3	58.8	8.96	4.73	100.0
SULFUR DIOXIDE	0.01	0.13	97.0	2.22	0.62	100.0
TOTAL VOCS	9.27	44.7	10.3	1.45	34.3	100.0
Proportion of July Weekday Anthropogenic Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.25	12.4	16.8	4.91	65.7	100.0
LEAD AND COMPOUNDS	0.01	0.08	6.33	89.3	4.27	100.0
OXIDES OF NITROGEN	0.30	0.22	85.3	5.66	8.50	100.0
PARTICULATE MATTER < 10 µm	3.33	4.87	69.9	20.9	1.08	100.0
PARTICULATE MATTER < 2.5 µm	3.14	15.6	48.6	29.3	3.41	100.0
SULFUR DIOXIDE	6.07×10^{-3}	0.02	99.4	0.44	0.10	100.0
TOTAL VOCS	9.75	41.7	6.69	5.24	36.6	100.0

Figure 4.28 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for a typical July weekday.

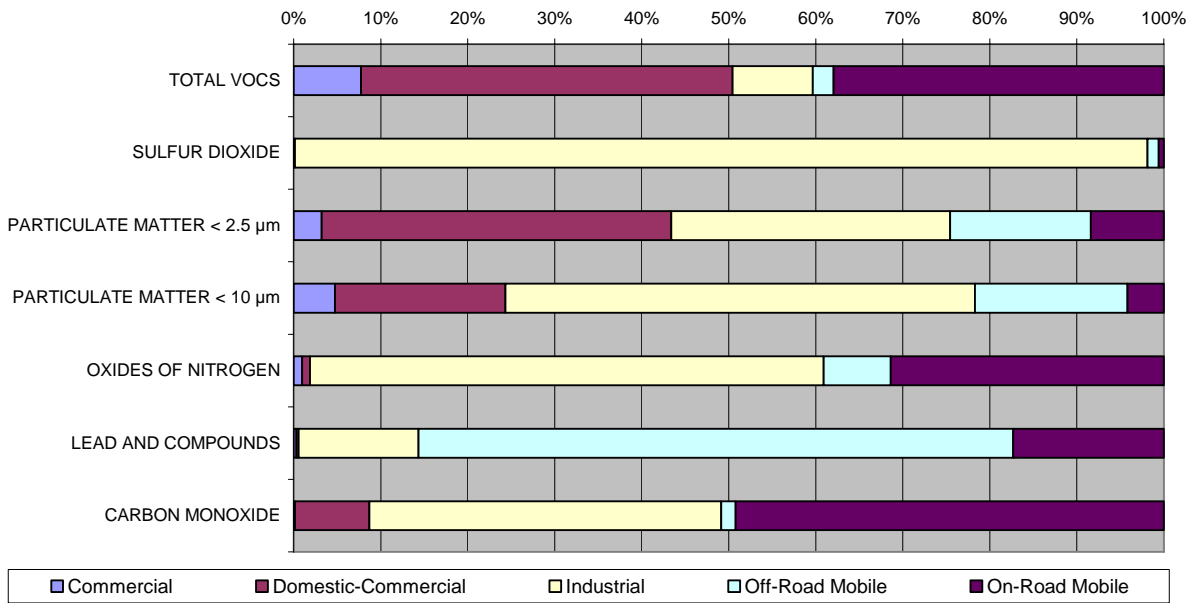


Figure 4.28 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for typical July weekday

Figure 4.29 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Sydney region for a typical July weekday.

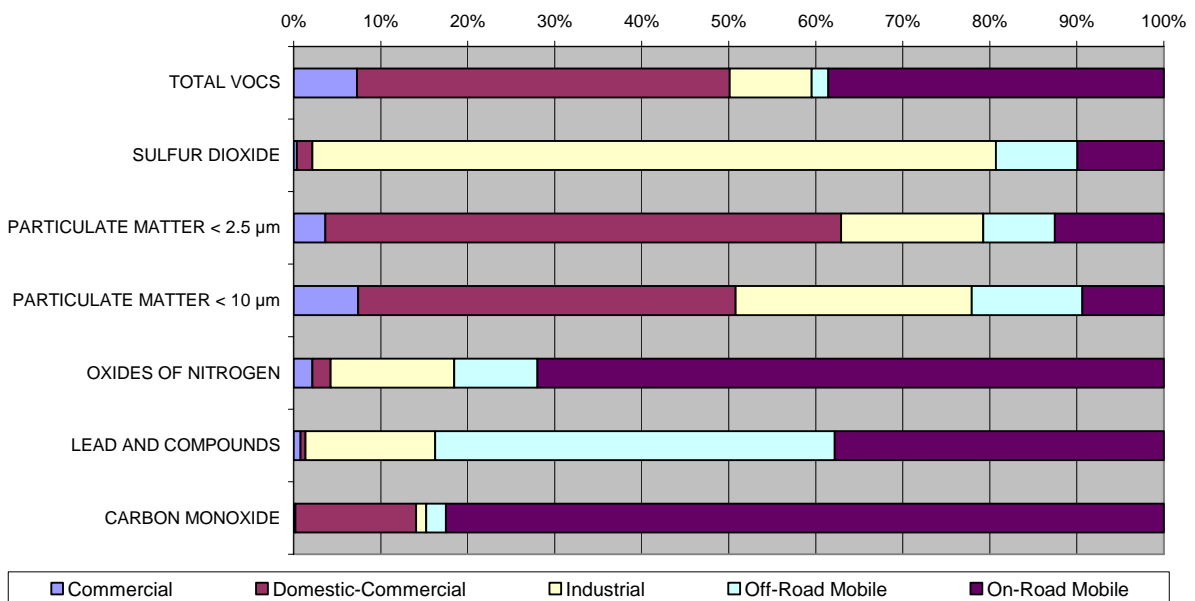


Figure 4.29 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Sydney region for typical July weekday

Figure 4.30 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Newcastle region for a typical July weekday.

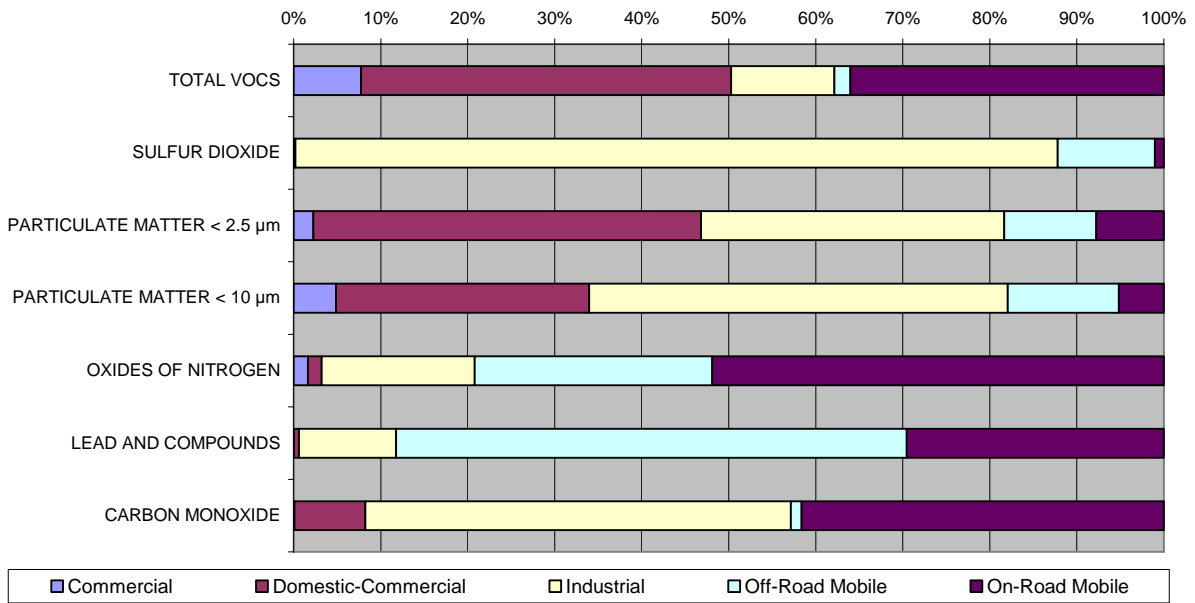


Figure 4.30 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Newcastle region for typical July weekday

Figure 4.31 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Wollongong region for a typical July weekday.

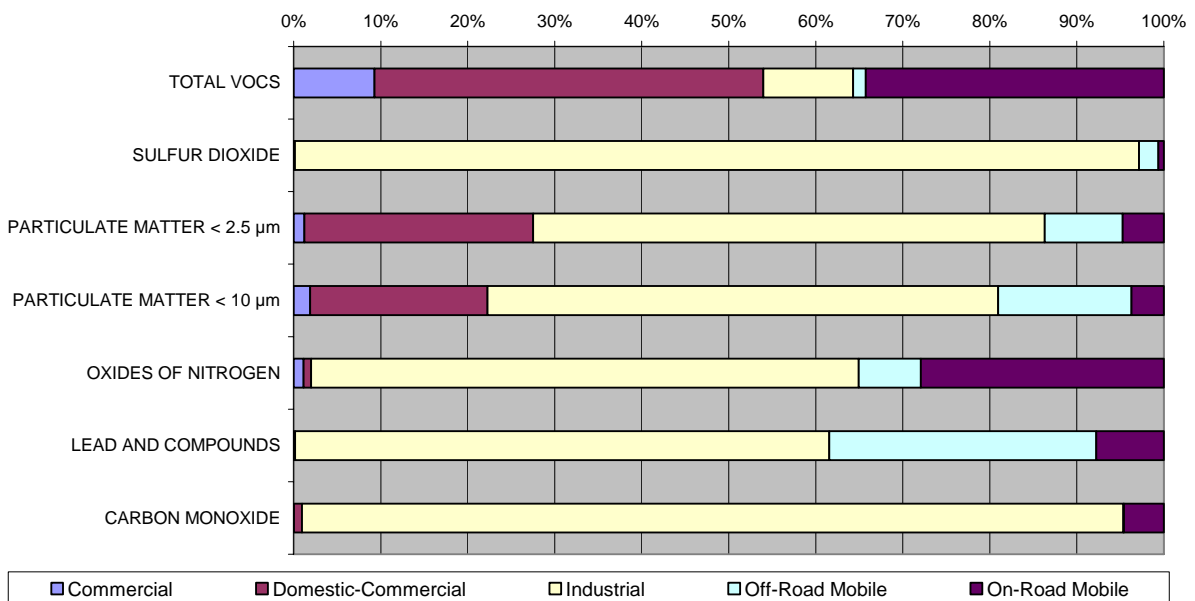


Figure 4.31 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Wollongong region for typical July weekday

Figure 4.32 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Non-Urban region for a typical July weekday.

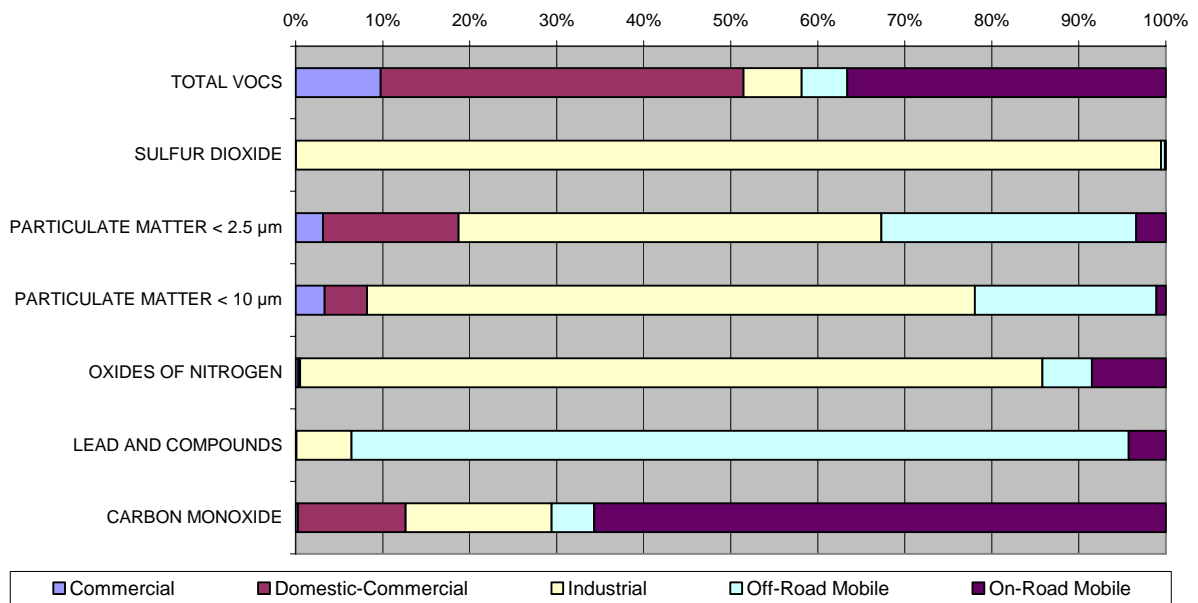


Figure 4.32 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Non-Urban region for typical July weekday

4.3.4 July Weekend Day

Table 4.24 shows total estimated daily emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

Table 4.24 Total estimated daily biogenic and anthropogenic emissions in each region for typical July weekend day

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
July Weekend Day Emissions (tonnes/day)					
CARBON MONOXIDE	0.072	0	3.251	2.069	5.392
LEAD AND COMPOUNDS	8.70×10^{-4}	1.44×10^{-4}	5.51×10^{-5}	2.97×10^{-3}	4.03×10^{-3}
OXIDES OF NITROGEN	1.512	0.173	0.151	12.121	13.957
PARTICULATE MATTER < 10 µm	0.502	0.087	0.350	1.891	2.830
PARTICULATE MATTER < 2.5 µm	0.199	0.034	0.320	0.853	1.406
SULFUR DIOXIDE	1.31×10^{-4}	0	5.81×10^{-3}	3.69×10^{-3}	9.63×10^{-3}
TOTAL VOCS	12.964	1.638	1.842	48.891	65.335
Anthropogenic Total					
July Weekend Day Emissions (tonnes/day)					
CARBON MONOXIDE	1,896	264	1,491	426	4,077
LEAD AND COMPOUNDS	0.072	5.67×10^{-3}	0.017	0.100	0.194
OXIDES OF NITROGEN	244	25.630	32.818	485	787
PARTICULATE MATTER < 10 µm	98.256	10.623	10.377	129	248
PARTICULATE MATTER < 2.5 µm	77.110	7.803	8.188	42.060	135
SULFUR DIOXIDE	37.672	28.578	28.564	744	839
TOTAL VOCS	441	33.155	22.427	81.204	578
Biogenic and Anthropogenic Total					
July Weekend Day Emissions (tonnes/day)					
CARBON MONOXIDE	1,896	264	1,494	428	4,083
LEAD AND COMPOUNDS	0.073	5.82×10^{-3}	0.017	0.103	0.198
OXIDES OF NITROGEN	246	25.803	32.969	497	801
PARTICULATE MATTER < 10 µm	98.758	10.710	10.727	131	251
PARTICULATE MATTER < 2.5 µm	77.309	7.837	8.508	42.913	137
SULFUR DIOXIDE	37.672	28.578	28.570	744	839
TOTAL VOCS	454	34.793	24.268	130	644

Table 4.25 shows the proportion of total estimated daily biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

Table 4.25 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical July weekend day

Substance	Region				
	Sydney	Newcastle	Wollongong	Non-Urban	GMR
Biogenic Total					
Proportion of July Weekend Day Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	3.82×10^{-3}	0	0.22	0.48	0.13
LEAD AND COMPOUNDS	1.20	2.47	0.33	2.89	2.04
OXIDES OF NITROGEN	0.62	0.67	0.46	2.44	1.74
PARTICULATE MATTER < 10 µm	0.51	0.82	3.26	1.45	1.13
PARTICULATE MATTER < 2.5 µm	0.26	0.43	3.76	1.99	1.03
SULFUR DIOXIDE	3.49×10^{-4}	0	0.02	4.96×10^{-4}	1.15×10^{-3}
TOTAL VOCS	2.85	4.71	7.59	37.6	10.2
Anthropogenic Total					
Proportion of July Weekend Day Biogenic and Anthropogenic Emissions (%)					
CARBON MONOXIDE	100.0	100.0	99.8	99.5	99.9
LEAD AND COMPOUNDS	98.8	97.5	99.7	97.1	98.0
OXIDES OF NITROGEN	99.4	99.3	99.5	97.6	98.3
PARTICULATE MATTER < 10 µm	99.5	99.2	96.7	98.6	98.9
PARTICULATE MATTER < 2.5 µm	99.7	99.6	96.2	98.0	99.0
SULFUR DIOXIDE	100.0	100.0	100.0	100.0	100.0
TOTAL VOCS	97.1	95.3	92.4	62.4	89.8

Figure 4.33 shows the proportion of total estimated daily GMR biogenic emissions from all biogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

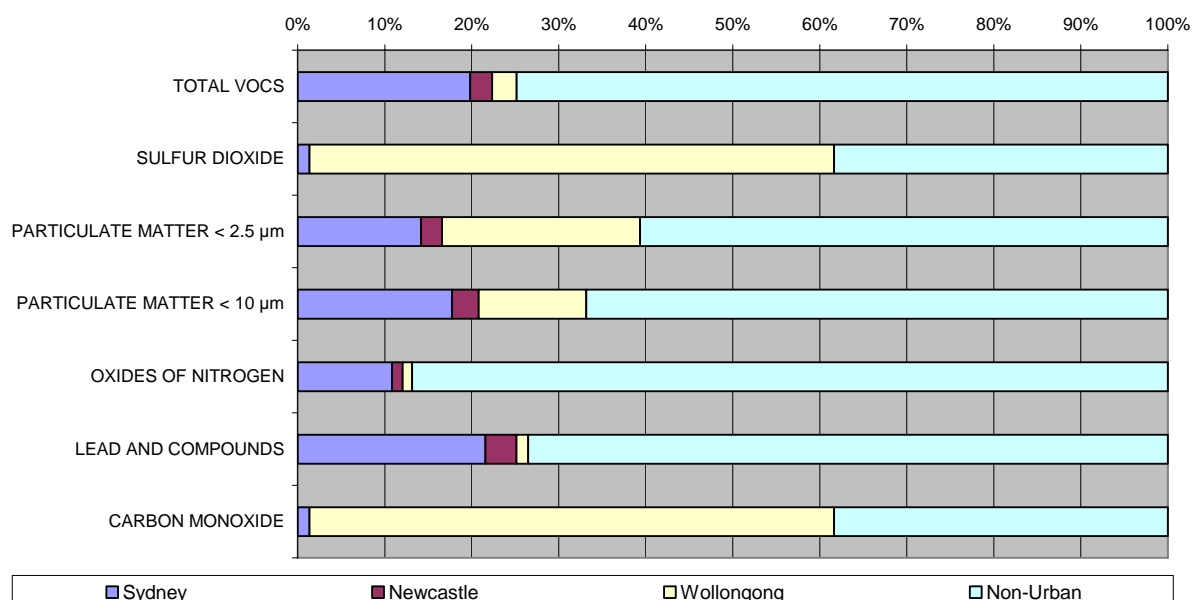


Figure 4.33 Proportion of total estimated daily emissions from biogenic sources in each region for typical July weekend day

Figure 4.34 shows the proportion of total estimated daily GMR anthropogenic emissions from all anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

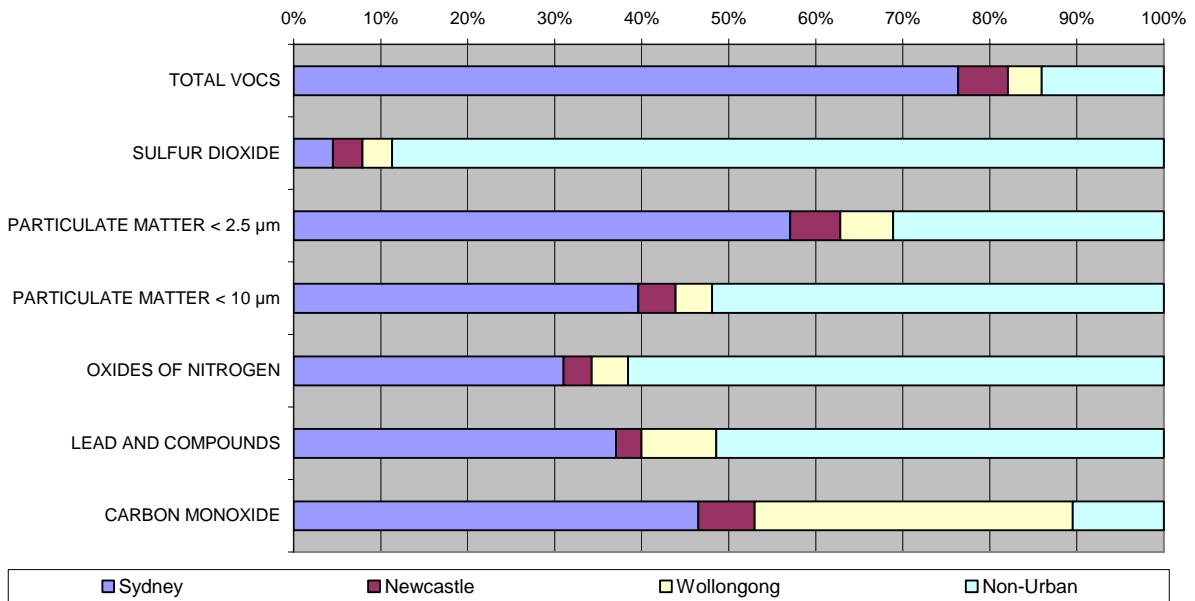


Figure 4.34 Proportion of total estimated daily emissions from anthropogenic sources in each region for typical July weekend day

Figure 4.35 shows the proportion of total estimated daily GMR biogenic and anthropogenic emissions from all biogenic and anthropogenic sources in the Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

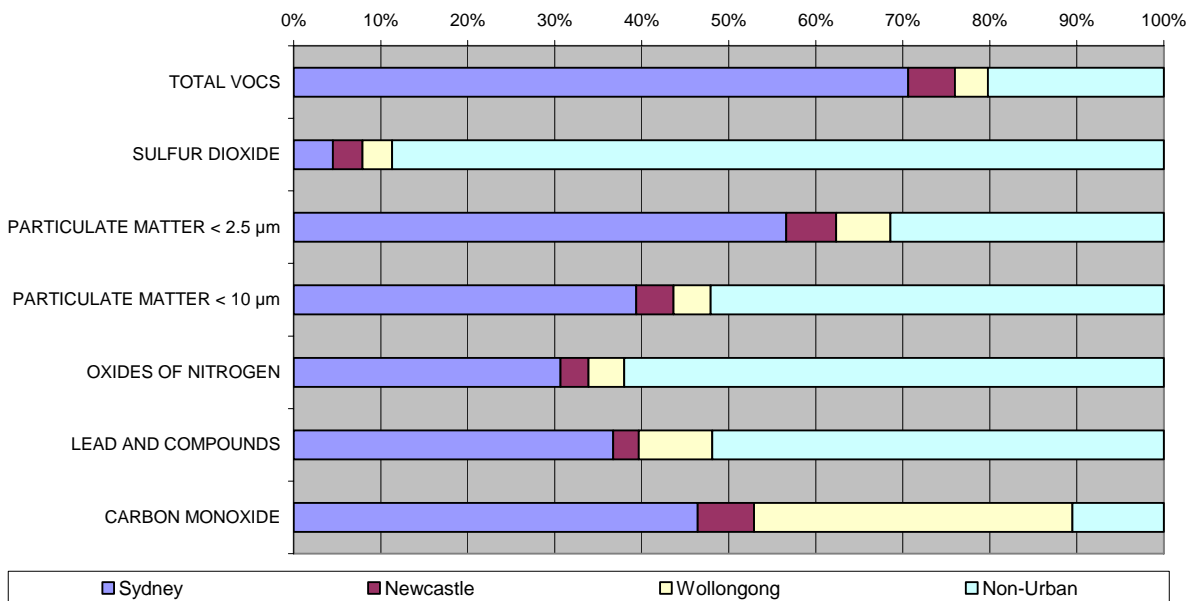


Figure 4.35 Proportion of total estimated daily emissions from biogenic and anthropogenic sources in each region for typical July weekend day

Table 4.26 shows total estimated daily emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

Table 4.27 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR, Sydney, Newcastle, Wollongong and Non-Urban regions for a typical July weekend day.

Table 4.26 Total estimated daily anthropogenic emissions by source type in each region for typical July weekend day

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
July Weekend Day Emissions (tonnes/day) - GMR						
CARBON MONOXIDE	5.159	634	1,614	93.168	1,731	4,077
LEAD AND COMPOUNDS	1.42×10^{-4}	1.13×10^{-3}	0.031	0.127	0.036	0.194
OXIDES OF NITROGEN	7.795	9.838	482	62.376	225	787
PARTICULATE MATTER < 10 µm	10.037	77.120	118	34.161	8.695	248
PARTICULATE MATTER < 2.5 µm	3.140	74.725	33.503	15.515	8.277	135
SULFUR DIOXIDE	0.182	1.388	822	11.521	4.310	839
TOTAL VOCS	21.848	310	40.986	22.163	183	578
July Weekend Day Emissions (tonnes/day) - Sydney						
CARBON MONOXIDE	3.657	477	20.954	59.056	1,335	1,896
LEAD AND COMPOUNDS	1.30×10^{-4}	8.52×10^{-4}	0.012	0.031	0.028	0.072
OXIDES OF NITROGEN	5.633	7.508	37.278	25.896	168	244
PARTICULATE MATTER < 10 µm	5.345	58.014	19.261	9.010	6.626	98.256
PARTICULATE MATTER < 2.5 µm	1.799	56.212	8.379	4.421	6.299	77.110
SULFUR DIOXIDE	0.132	1.049	29.390	3.846	3.255	37.672
TOTAL VOCS	15.923	238	32.474	13.421	142	441
July Weekend Day Emissions (tonnes/day) - Newcastle						
CARBON MONOXIDE	0.194	40.329	121	4.111	98.060	264
LEAD AND COMPOUNDS	1.81×10^{-6}	7.12×10^{-5}	3.66×10^{-4}	3.40×10^{-3}	1.84×10^{-3}	5.67×10^{-3}
OXIDES OF NITROGEN	0.324	0.589	4.113	8.028	12.576	25.630
PARTICULATE MATTER < 10 µm	0.411	4.902	3.697	1.152	0.461	10.623
PARTICULATE MATTER < 2.5 µm	0.113	4.750	1.859	0.641	0.439	7.803
SULFUR DIOXIDE	2.38×10^{-3}	0.087	24.790	3.445	0.255	28.578
TOTAL VOCS	1.216	18.367	2.580	0.935	10.058	33.155

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Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
July Weekend Day Emissions (tonnes/day) - Wollongong						
CARBON MONOXIDE	0.291	26.308	1,403	2.438	59.355	1,491
LEAD AND COMPOUNDS	1.99×10^{-6}	4.67×10^{-5}	0.011	4.30×10^{-3}	1.23×10^{-3}	0.017
OXIDES OF NITROGEN	0.384	0.396	21.311	2.451	8.275	32.818
PARTICULATE MATTER < 10 µm	0.162	3.198	5.527	1.181	0.309	10.377
PARTICULATE MATTER < 2.5 µm	0.080	3.098	4.172	0.543	0.295	8.188
SULFUR DIOXIDE	3.39×10^{-3}	0.057	27.662	0.688	0.154	28.564
TOTAL VOCS	0.931	12.445	2.087	0.743	6.220	22.427
July Weekend Day Emissions (tonnes/day) - Non-Urban						
CARBON MONOXIDE	1.017	90.552	69.121	27.563	238	426
LEAD AND COMPOUNDS	8.08×10^{-6}	1.60×10^{-4}	7.45×10^{-3}	0.087	4.69×10^{-3}	0.100
OXIDES OF NITROGEN	1.454	1.345	419	26.000	36.630	485
PARTICULATE MATTER < 10 µm	4.119	11.007	89.561	22.817	1.300	129
PARTICULATE MATTER < 2.5 µm	1.149	10.665	19.092	9.910	1.245	42.060
SULFUR DIOXIDE	0.045	0.196	740	3.543	0.645	744
TOTAL VOCS	3.778	42.156	3.845	7.064	24.362	81.204

Table 4.27 Proportion of total estimated daily anthropogenic emissions by source type in each region for typical July weekend day

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of July Weekend Day Anthropogenic Emissions (%) - GMR						
CARBON MONOXIDE	0.13	15.6	39.6	2.28	42.4	100.0
LEAD AND COMPOUNDS	0.07	0.58	15.8	65.2	18.3	100.0
OXIDES OF NITROGEN	0.99	1.25	61.2	7.92	28.6	100.0
PARTICULATE MATTER < 10 µm	4.05	31.1	47.6	13.8	3.51	100.0
PARTICULATE MATTER < 2.5 µm	2.32	55.3	24.8	11.5	6.12	100.0
SULFUR DIOXIDE	0.02	0.17	97.9	1.37	0.51	100.0
TOTAL VOCS	3.78	53.7	7.09	3.83	31.6	100.0
Proportion of July Weekend Day Anthropogenic Emissions (%) - Sydney						
CARBON MONOXIDE	0.19	25.2	1.11	3.11	70.4	100.0
LEAD AND COMPOUNDS	0.18	1.19	16.3	43.7	38.7	100.0
OXIDES OF NITROGEN	2.31	3.08	15.3	10.6	68.7	100.0
PARTICULATE MATTER < 10 µm	5.44	59.0	19.6	9.17	6.74	100.0
PARTICULATE MATTER < 2.5 µm	2.33	72.9	10.9	5.73	8.17	100.0
SULFUR DIOXIDE	0.35	2.78	78.0	10.2	8.64	100.0
TOTAL VOCS	3.61	53.8	7.36	3.04	32.2	100.0
Proportion of July Weekend Day Anthropogenic Emissions (%) - Newcastle						
CARBON MONOXIDE	0.07	15.3	45.9	1.56	37.2	100.0
LEAD AND COMPOUNDS	0.03	1.26	6.45	59.9	32.4	100.0
OXIDES OF NITROGEN	1.26	2.30	16.0	31.3	49.1	100.0
PARTICULATE MATTER < 10 µm	3.87	46.1	34.8	10.8	4.34	100.0
PARTICULATE MATTER < 2.5 µm	1.45	60.9	23.8	8.22	5.62	100.0
SULFUR DIOXIDE	8.33 × 10 ⁻³	0.30	86.7	12.1	0.89	100.0
TOTAL VOCS	3.67	55.4	7.78	2.82	30.3	100.0

Air Emissions Inventory for the Greater Metropolitan Region in New South Wales
4. Emissions Summary

Substance	Anthropogenic Source Type					Anthropogenic Total
	Commercial	Domestic-Commercial	Industrial	Off-Road Mobile	On-Road Mobile	
Proportion of July Weekend Day Anthropogenic Emissions (%) - Wollongong						
CARBON MONOXIDE	0.02	1.76	94.1	0.16	3.98	100.0
LEAD AND COMPOUNDS	0.01	0.28	66.6	25.8	7.36	100.0
OXIDES OF NITROGEN	1.17	1.21	64.9	7.47	25.2	100.0
PARTICULATE MATTER < 10 µm	1.56	30.8	53.3	11.4	2.98	100.0
PARTICULATE MATTER < 2.5 µm	0.97	37.8	51.0	6.63	3.60	100.0
SULFUR DIOXIDE	0.01	0.20	96.8	2.41	0.54	100.0
TOTAL VOCS	4.15	55.5	9.31	3.31	27.7	100.0
Proportion of July Weekend Day Anthropogenic Emissions (%) - Non-Urban						
CARBON MONOXIDE	0.24	21.2	16.2	6.46	55.9	100.0
LEAD AND COMPOUNDS	8.10×10^{-3}	0.16	7.47	87.7	4.70	100.0
OXIDES OF NITROGEN	0.30	0.28	86.5	5.36	7.56	100.0
PARTICULATE MATTER < 10 µm	3.20	8.55	69.5	17.7	1.01	100.0
PARTICULATE MATTER < 2.5 µm	2.73	25.4	45.4	23.6	2.96	100.0
SULFUR DIOXIDE	5.99×10^{-3}	0.03	99.4	0.48	0.09	100.0
TOTAL VOCS	4.65	51.9	4.73	8.70	30.0	100.0

Figure 4.36 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for a typical July weekend day.

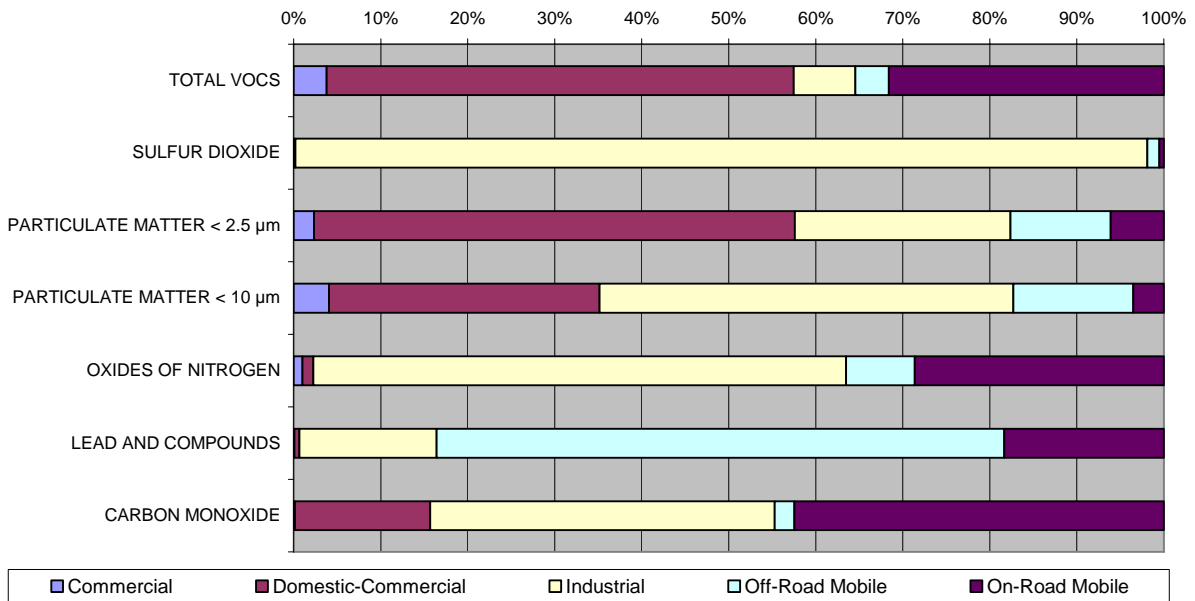


Figure 4.36 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the GMR for typical July weekend day

Figure 4.37 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Sydney region for a typical July weekend day.

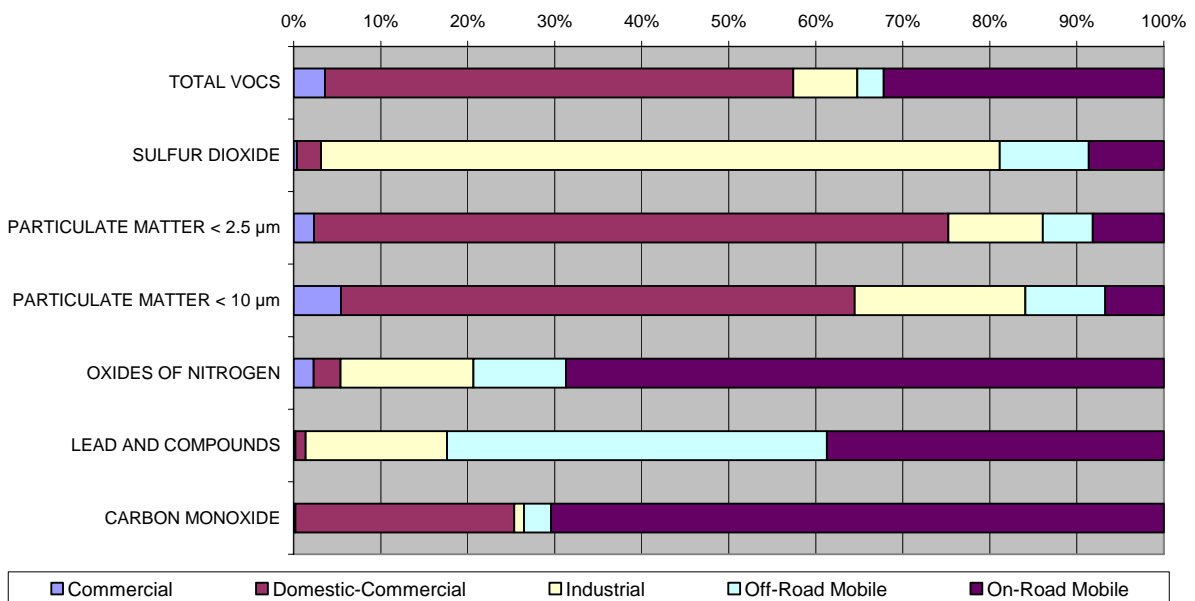


Figure 4.37 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Sydney region for typical July weekend day

Figure 4.38 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Newcastle region for a typical July weekend day.

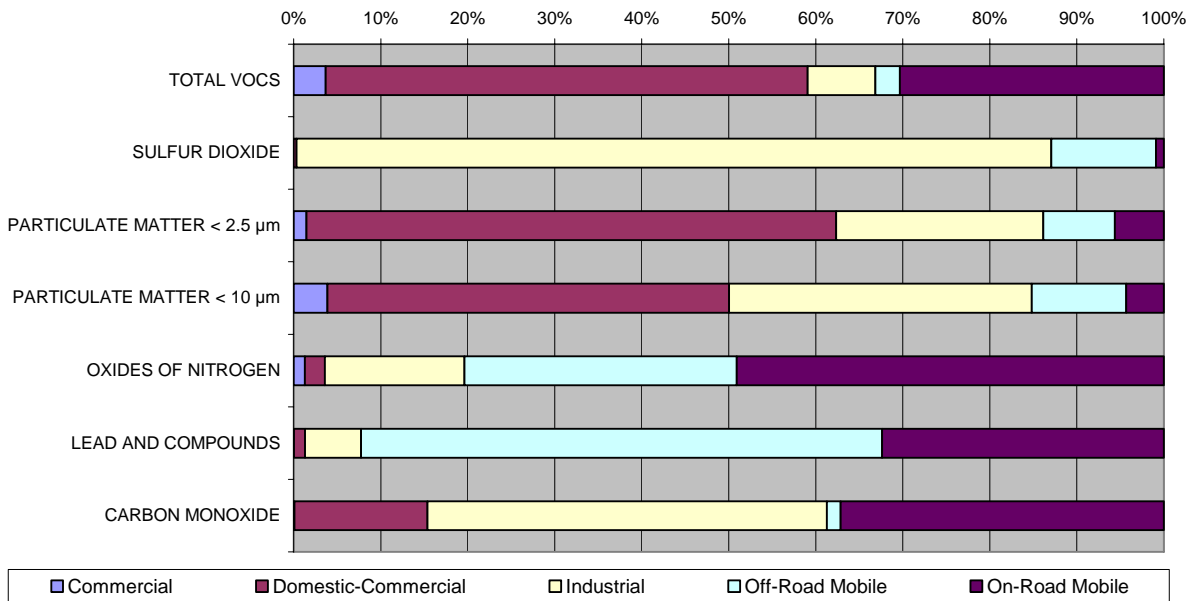


Figure 4.38 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Newcastle region for typical July weekend day

Figure 4.39 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Wollongong region for a typical July weekend day.

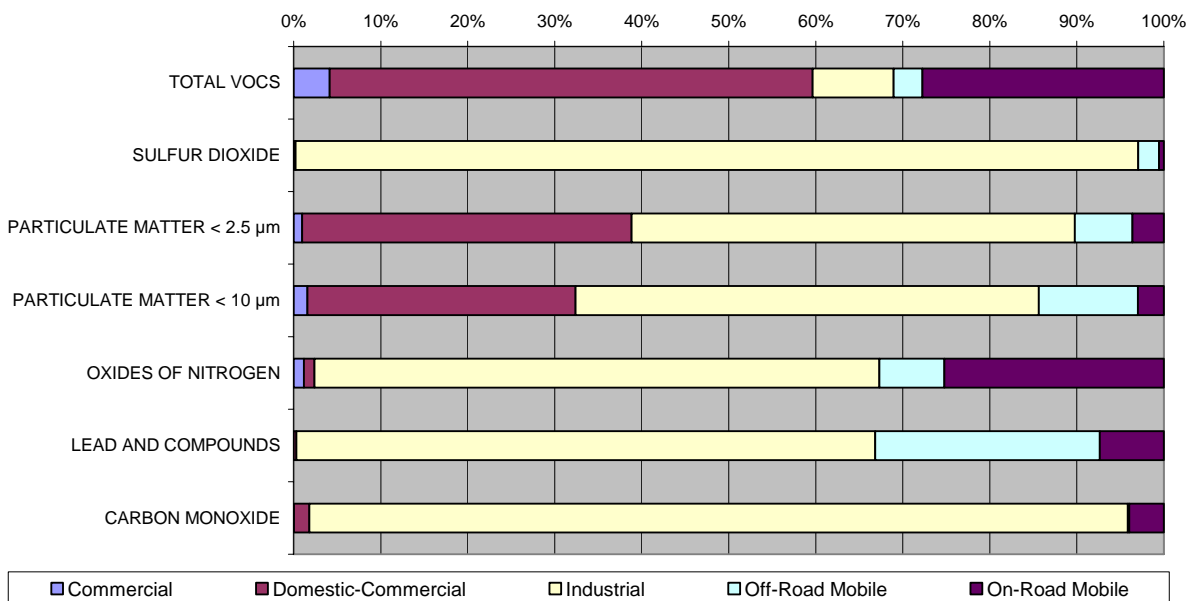


Figure 4.39 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Wollongong region for typical July weekend day

Figure 4.40 shows the proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in the Non-Urban region for a typical July weekend day.

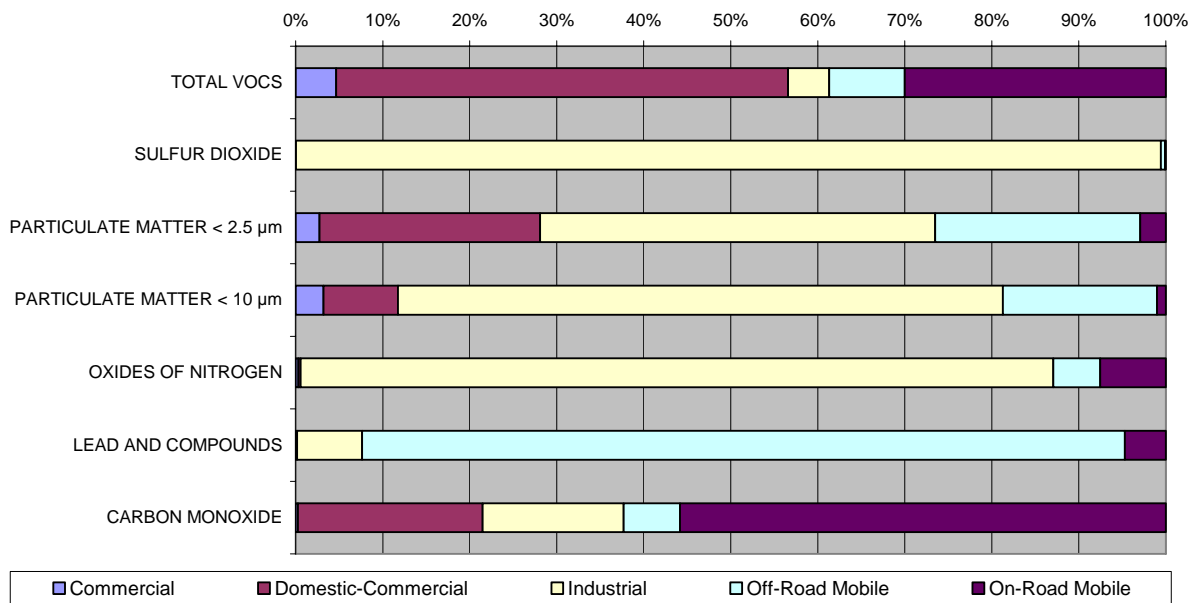


Figure 4.40 Proportion of total estimated daily anthropogenic emissions from each anthropogenic source type in Non-Urban region for typical July weekend day

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