

Diesel emissions in NSW - sources and trends

NSW EPA Diesel Emissions Management Workshop

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 Greater metropolitan region including Sydney, Newcastle and Wollongong where 75% of NSW population lives





 Natural and human-made sources like commercial businesses, household activities, EPA-licensed industry, off-road transport and registered vehicles





• Over 1000 substances, including criteria pollutants, organics, metals, PAH, PCDD/PCDF, ammonia and GHG





 Compiled in 1992, 2003 and 2008 to provide sound evidence for improving air quality



Tracking sources of air pollution in NSW communities

Air emissions inventory for the Greater Metropolitan Region of NSW

Why do we need an air emissions inventory?

Air pollution comes from many sources, so to find the best ways to improve air quality we need to know the contribution made by each source. The last air emissions inventory for NSW was completed in 2007 and although that information has served us well until now, emissions have changed, making it necessary for a new inventory.

The major task of developing the new inventory started in 2009 and took over 2 years to complete. The results are now available and are being used to shape the way we improve air quality in NSW.





 Transport a significant source of PM and ozone precursors - 36% NOx, 17% PM2.5 & 35% VOC of total anthropogenic





Formation of PM and ozone precursors

 Ozone is formed from NOx and VOC precursors





Formation of PM and ozone precursors

- PM includes:
 - direct emissions (soot, crustal)
 - secondary organic and inorganic (sulfate and nitrate) aerosols





Diesel transport emissions are significant





Diesel transport emissions are significant





Major diesel transport emission sources





Major diesel transport emission sources





Non-road vs on-road diesel emissions





Emissions vs diesel consumption





Emissions vs diesel consumption





Anthropogenic emissions declining in Sydney





ADRs for on-road diesels getting tighter





Opportunities to reduce ship emissions





Opportunities to reduce ship emissions





Opportunities to reduce ship emissions



FIGURE 16. Incremental Capital and Operating Costs for Different Control Technologies (Entec 2005a, 2005b, 2005c)



US certification and non-road diesel emissions at EPA-licensed premises





US certification and non-road diesel emissions at EPA-licensed premises





US certification and non-road diesel emissions at EPA-licensed premises





Future diesel transport fuel consumption





Future diesel transport emissions





Conclusions

- Non-road diesel a significant source of PM and ozone precursor emissions
- Non-road diesel consumption similar to on-road but likely to increase
- ADRs have been successful at reducing on-road diesel emissions
- US and EU introduced non-road diesel standards in mid to late 1990s and several other countries have adopted these standards in some form
- Technologies and cleaner fuels are available to reduce non-road diesel emissions but cost is likely to be an issue
- A significant health and economic benefit can be achieved by reducing non-road diesel emissions



Questions?