

Clean Air Summit

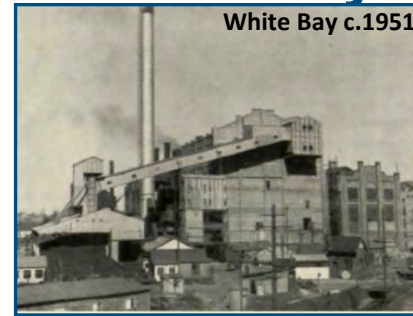
**An industry perspective on best
practice: Delta Electricity**

Bryan Beudeker

Manager Environment, Delta Electricity

The Beginning

‘Energy crisis’ sees the NSW Electricity Commission formed in 1950 to provide an integrated reliable electricity supply network

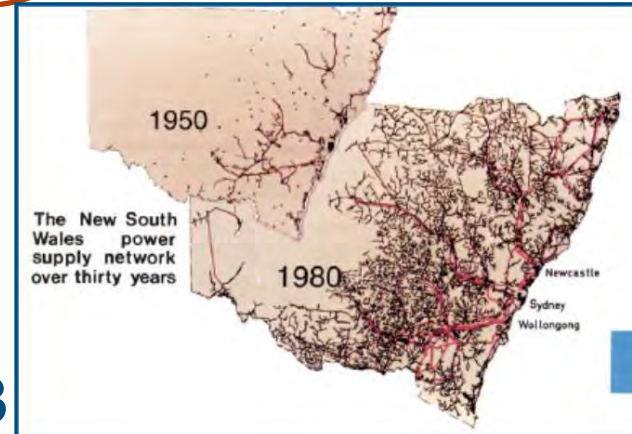
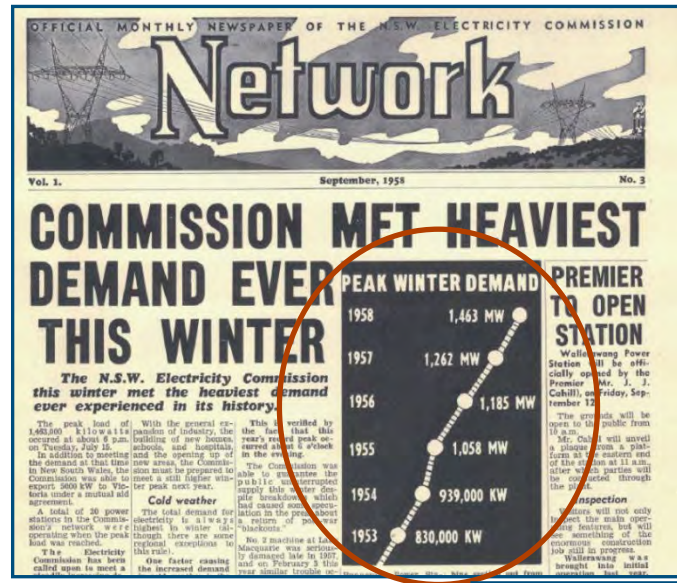


- Five coal-fired power stations in Sydney
- Small chimney stacks
- Limited pollution controls & regulation

The Demand

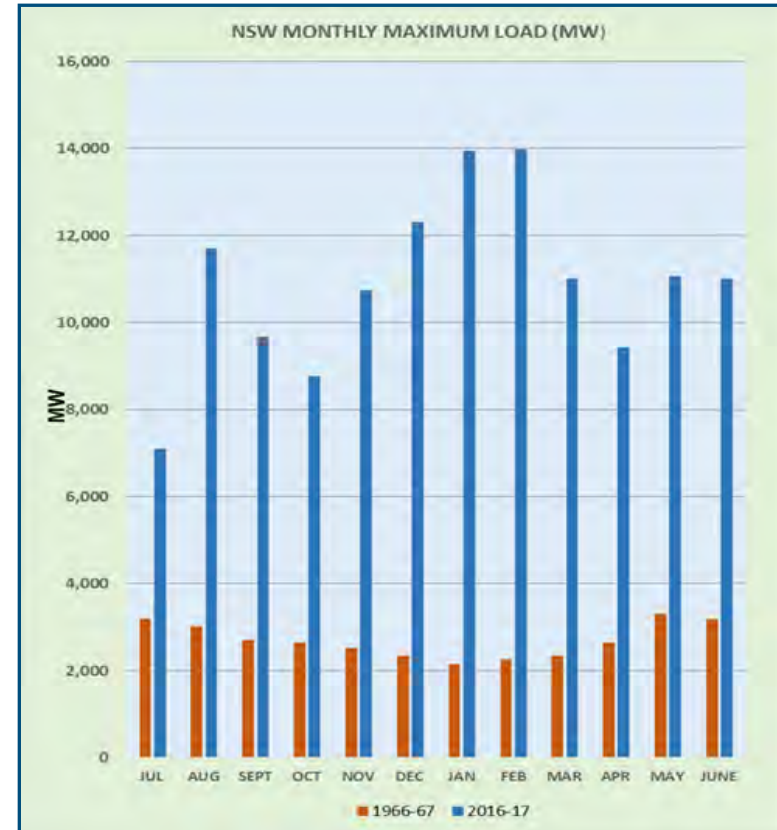
Demand drives planning for next generation of NSW generators:

- large modern coal-fired fleet
- located outside Sydney basin
- close to coal supplies
- NSW supply network also expands
- last Sydney station closes 25 Dec 1983



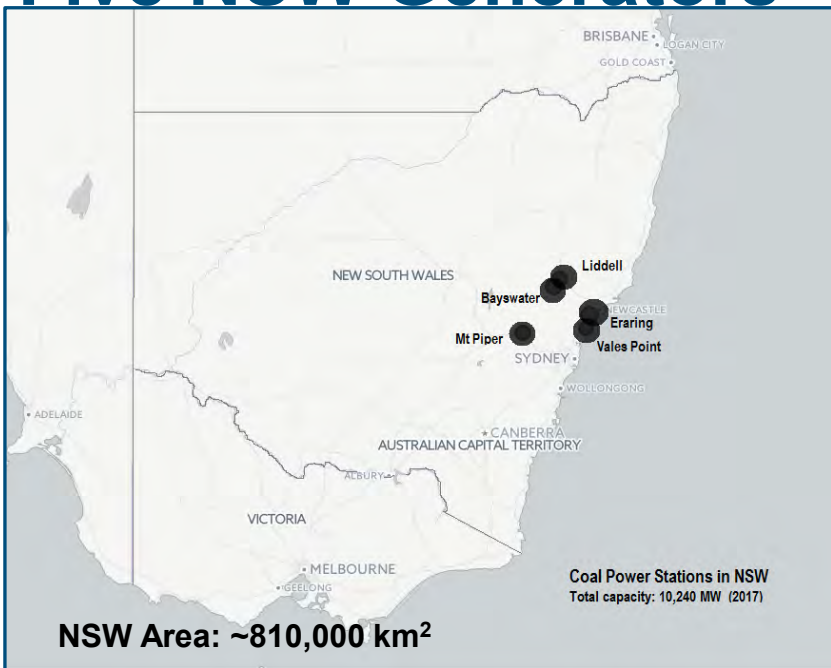
Changes in Demand

- Last 50 years sees peak demand grow nearly 5 fold and with a seasonal shift
- ~3,290 MW in May 1967
 - Peak in winter
- ~14,180 MW in Feb 2017
 - Peak now in summer
 - (14,744 MW in Feb 2011)



The Present

Five NSW Generators



Capacity: 10,240 MW

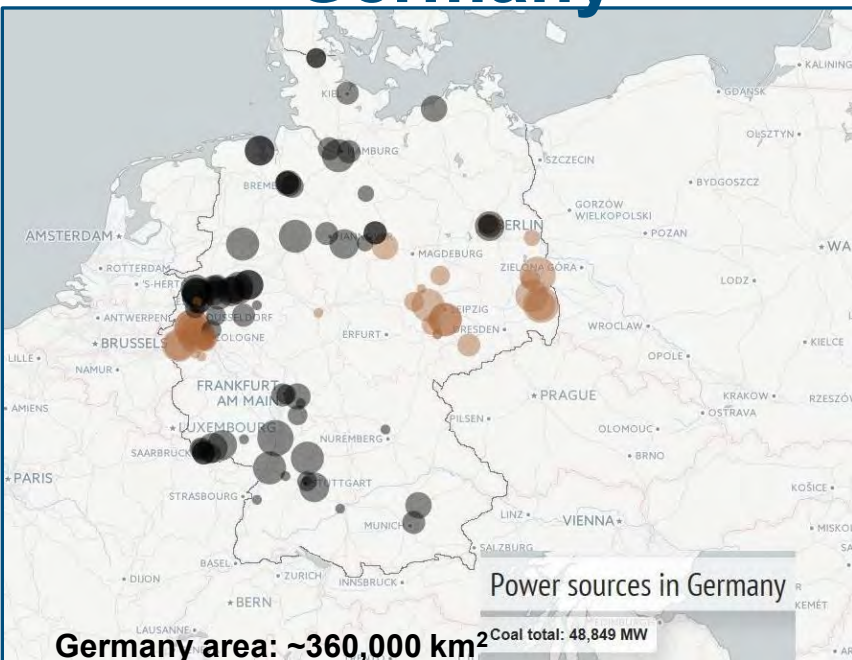
- **Bayswater: 2,640 MW**
- **Liddell: 2,000 MW**
- **Mt Piper: 1,400 MW**
- **Eraring: 2,880 MW**
- **Vales Point: 1,320 MW**

Munmorah (600 MW) - closed 2012

Wallerawang (1,000 MW) - closed 2014

Some perspective

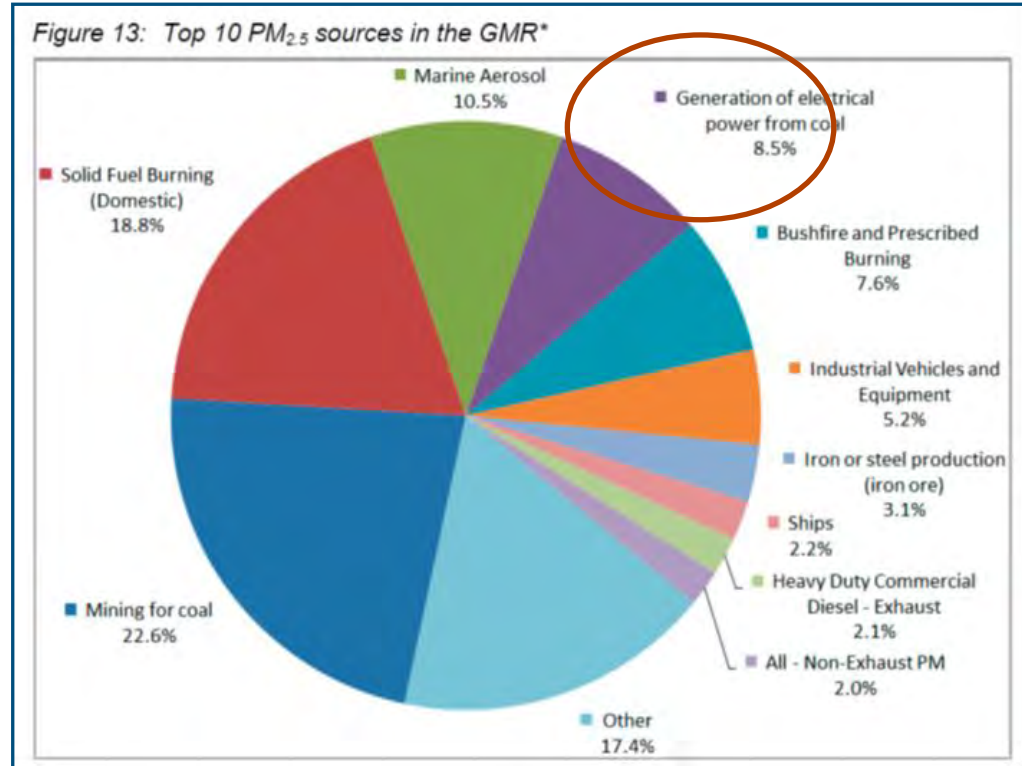
Germany



- 98 coal-fired generators
- Capacity: 48,500 MW
- 6 new stations since 2012
- capacity of ~5,200 MW
- black & brown coal
- sulfur content 1% – 2%

Air Emission Sources in GMR

- EPA 2008 emission inventory
- Power station PM_{2.5} contribution in GMR (Greater Metropolitan Region) ~ 8.5%
- Legislation has been successful in driving down emissions



Source: NSW EPA Report (2013)

Vales Point Power Station

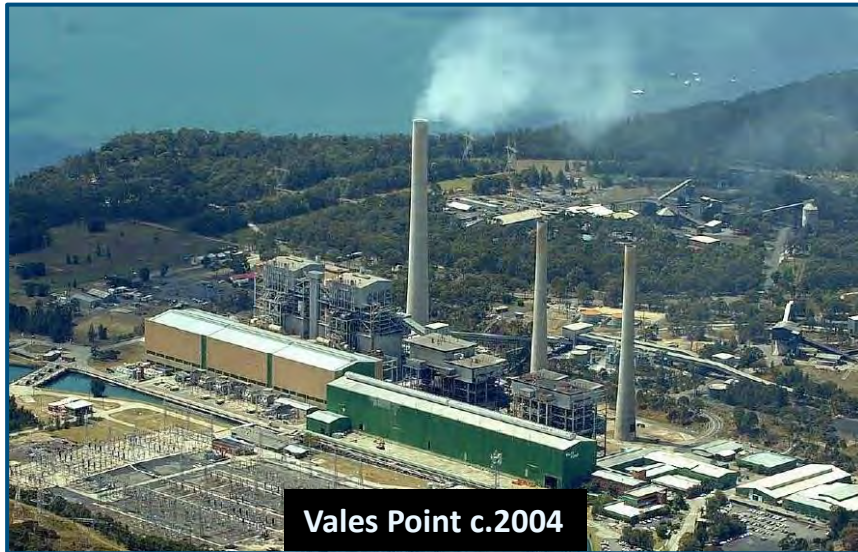


Vales Point B-Station

- commissioned 1978
- 2 x 660 MW Units
- 178 metre stack
- ESP control (99% efficiency)
- CEMS for NO_x, SO₂ and PM
- renewable biomass co-firing

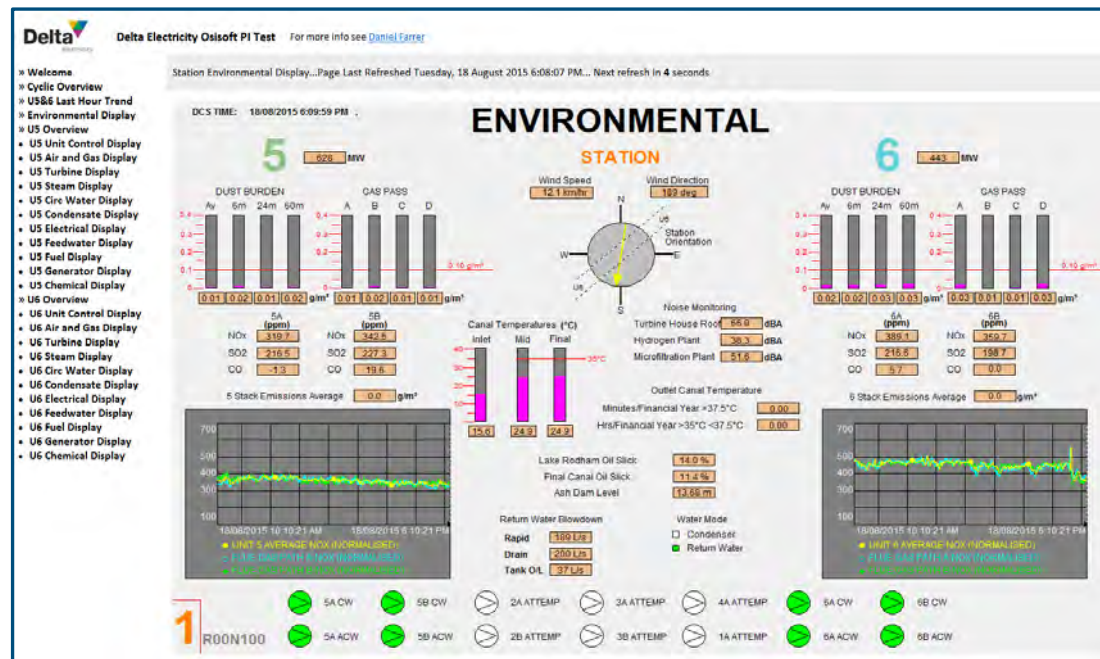
Vales Point Fabric Filters

- **Fabric filter baghouse installed in 2007: cost \$55 million**
- **99.9% efficiency with 10 fold reduction in dust emissions**



Environmental Management

- CEMS real-time data (stack & ambient)
- strong legislation - POEO Act & Regs
- strong Regulator
- environment licence
- Community forum (social licence)

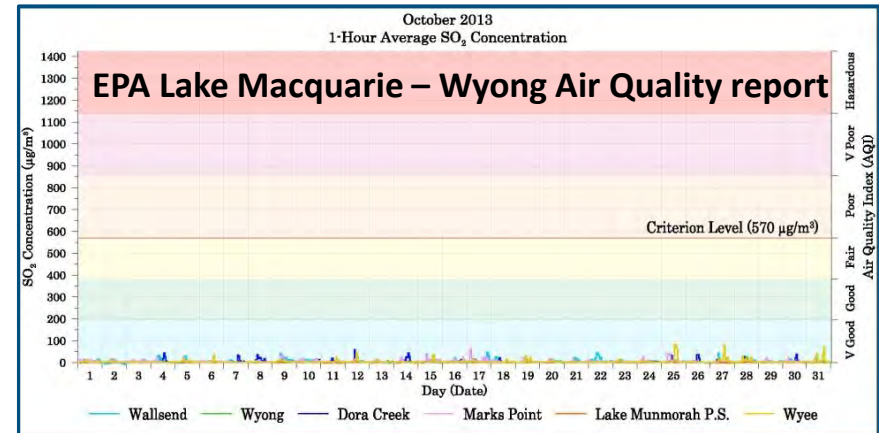
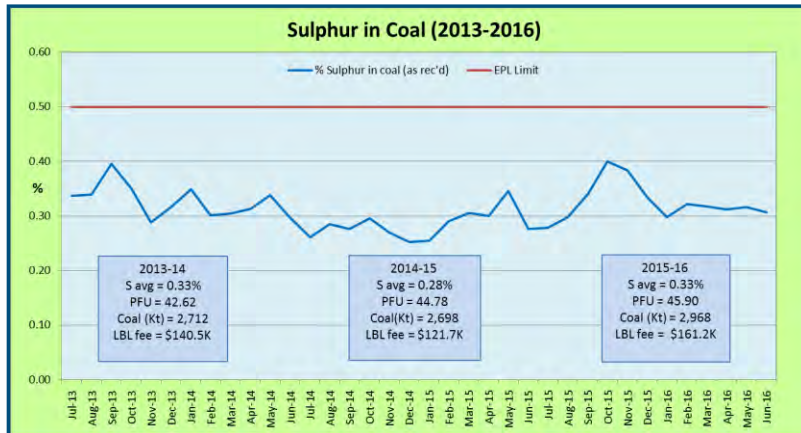


Legislated Reporting Requirements:

- **Monthly publishing of data on web site** ✓
- **Annual EPL report for EPA (plus LBL fees)** ✓
- **Annual report for National Pollutant Inventory** ✓
- **Annual report for NGER** ✓

Fuel & SO₂ Emissions

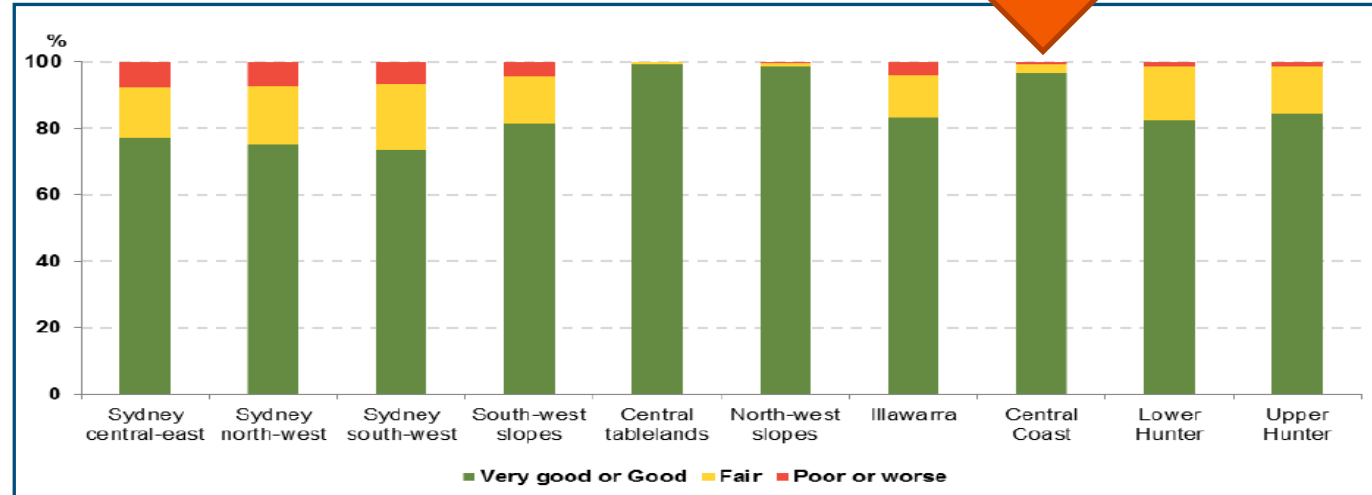
- Vales Point coal has very low sulfur content
- limits on sulfur (0.5%) and SO₂ emissions (600ppm)
- daily coal sampling and CEMS monitoring



Central Coast Air Quality



- Wyee ambient air monitoring station (NO_x , SO_2 and $\text{PM}_{2.5}$)
- Data provided to EPA and community
- Central Coast air quality consistently very good
- Power station impacts negligible



Source: NSW EPA 2016 Air Quality Statement

Continual improvement through innovation

- **NO_x pollution reduction study**
- **NPI & stack emissions review**
- **Biochar co-firing research**
- **Vales Point Ash Dam solar farm**
- **Carbon capture pilot plant**
- **Build on 2002 IRTAPS work**



CSIRO Carbon Capture Pilot Plant



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