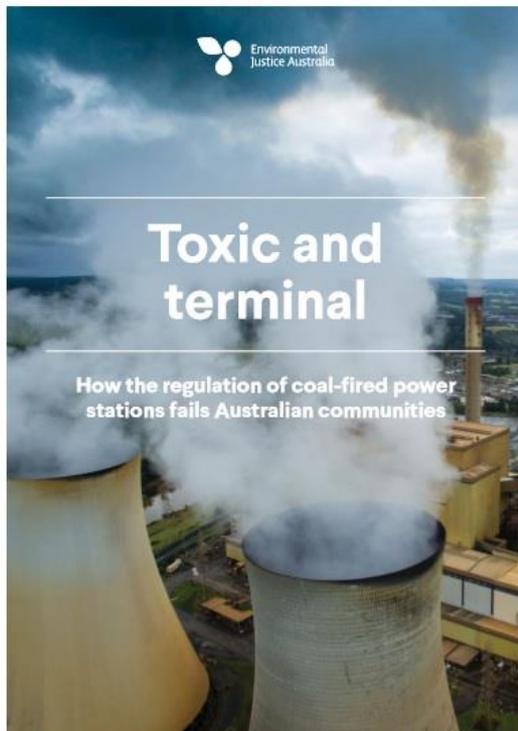


Q&A CVB Progress Association

Delta
electricity



Q1. Could they (Delta) provide information regarding the report from the EJA Air Pollution?



- Report prepared by Environmental Justice Australia (August 2017).
- Focus of the report includes:
 - i. Sulfur oxide (SO_x) emissions from power stations;
 - ii. Nitrogen oxide (NO_x) emissions from power stations;
 - iii. Dust (PM_{2.5}) emissions from power stations; and
 - iv. An alleged lack of regulation of power station activities.

Source: Toxic and Terminal Environmental Justice Australia (August 2017).

Sulfur Oxide (SOx) emissions



- Sulfur oxides are formed by the oxidation of fuel sulfur during coal combustion.
- Australian coals are typically lower in sulfur than world averages and sought after internationally as a consequence.
- SOx is continuously monitored at the station and Wyee weather station under EPL761 conditions which include a maximum SOx discharge limit of 600 ppm and a maximum “as fired” sulfur content in coal of 0.5 %.

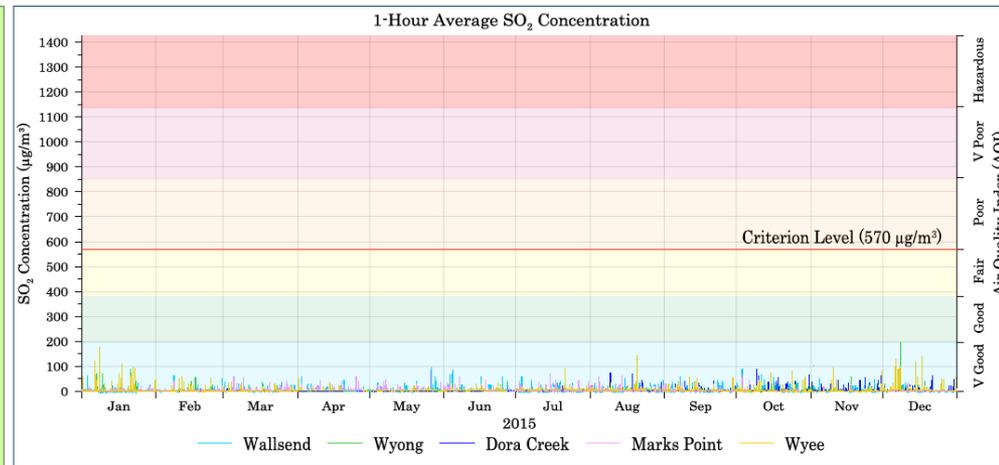
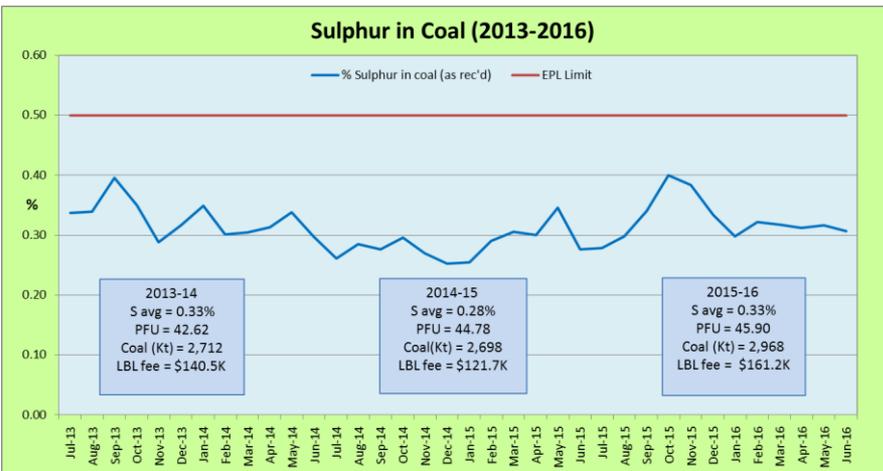


Figure 7-4: Lake Macquarie - Wyong 1-hour average SO₂ levels - 2015

“As fired” sulfur content of coal at VP.

Ambient SOx monitoring (Source: Lake Macquarie-Wyong Review of ambient Air Quality Data 2015 (NSW EPA).

Nitrogen Oxide (NOx) emissions



- Nitrogen oxides (NOx) are mainly formed from atmospheric nitrogen or fuel nitrogen in the furnace.
- NOx emissions are continuously monitored at the stack and ambient weather station (Wyee) with data reported monthly on website and annually for EPL/LBL, NPI and NGERs.
- EPL761 PRP NOx Pollution Reduction Study (June 2017) completed by Jacobs identified that combustion optimisation is considered the only feasible means of reducing NO_x. Implementation of combustion optimisation is ongoing and a key focus area for continuous improvement.

Table 7-1: Maximum and annual average pollutant levels - 2015

Site	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	SO ₂	PM ₁₀	PM _{2.5}	SO ₂	NO ₂
	Maximum 1-hour average (µg/m ³)		Maximum 24-hour average (µg/m ³)		Annual average (µg/m ³)				
	Air Quality Impact Criteria								
	570	246	50	25*	228	30	8*	60	62
Wallsend	96.5	86.2	77.5	24.0	19.4	16.7	7.3	2.6	15.8
Wyong	197.0	66.1	58.6	13.2	26.8	14.9	5.2	1.6	9.3
Dora Creek	87.1	179.0	-	-	11.8	-	-	2.7	14.0
Marks Point	83.0	80.3	-	-	11.6	-	-	4.0	8.6 ¹
Wyee	178.2	70.1	-	26.3	35.2	-	7.1	4.0	11.7
Wakefield HVAS	-	-	35.1	-	-	14.1	-	-	-
Teralba HVAS	-	-	50.0	-	-	14.8	-	-	-

* Advisory reporting standard for PM_{2.5} concentrations (refer to Section 5.1)

¹ 74% data capture in Q4 of 2015

- Not applicable

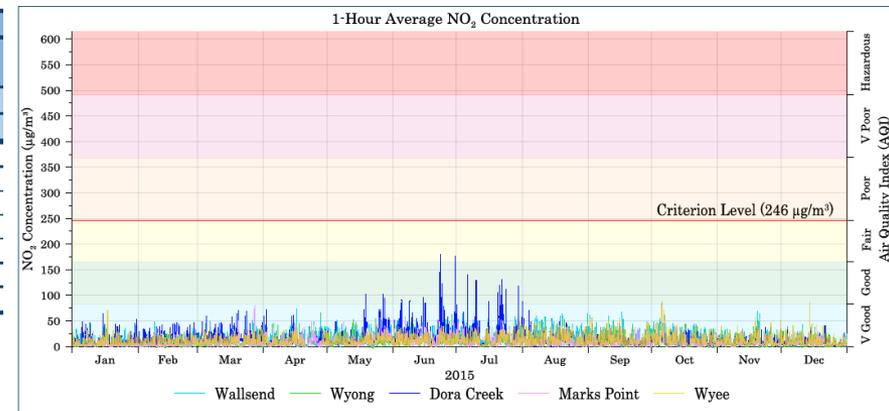
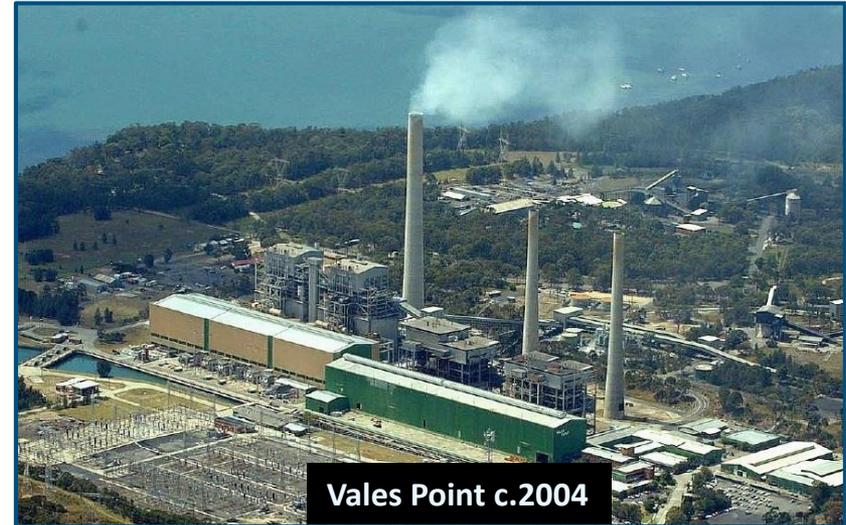


Figure 7-3: Lake Macquarie - Wyong 1-hour average NO₂ levels - 2015

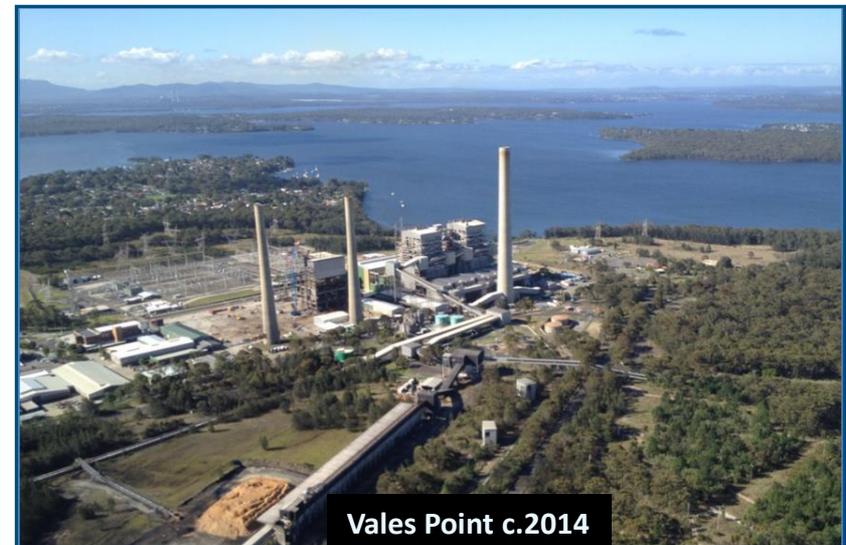
Ambient NOx data (Source: Lake Macquarie-Wyong Review of ambient Air Quality Data 2015 (NSW EPA)).

Dust (PM2.5) emissions

- Continuous dust monitoring at stack and ambient weather station (Wyee).
- Regular maintenance and replacement program for fabric filters.
- Annual stack gas testing and EPL reporting, NPI, NGERs.
- Air NEPM guideline value for 24 hour average is 25 $\mu\text{g}/\text{m}^3$.



Vales Point c.2004



Vales Point c.2014

Wyee	PM2.5 > 25 $\mu\text{g}/\text{m}^3$		Max. PM2.5
	Days	%	$\mu\text{g}/\text{m}^3$
2015-16	1	99.7	26.3
2016-17	0	100.0	-
2017-18	1	-	81.2

The 24hr average of 81.2 $\mu\text{g}/\text{m}^3$ recorded on 27/08/2017 coincides with bushfires/HR burns at Cooranbong on 26.8.2017 and Freemans Waterhole and Wyee on 27.8.2017.

Extensive Regulatory Management



- All NSW power stations must operate under the Protection of the Environment Operations Act (1997) which is the key piece of legislation administered by the NSW Environmental Protection Authority (EPA).
- Vales Point Power Station operates under the conditions of Environmental Protection Licence (EPL) 761.
- Legislated reporting requirements:
 - i. Monthly publishing of monitoring data on website;
<http://www.de.com.au/environment/environmental-licences-and-monitoring>
 - ii. Annual EPL report for EPA (plus load based licencing fees);
<http://app.epa.nsw.gov.au/prpoeoapp/Detail.aspx?id=761&option=licence&range=POEOlicence&searchrange>
 - iii. Annual Report for National Pollution Inventory (NPI); and
<http://www.npi.gov.au/npidata/action/load/individual-facility-detail/criteria/state/NSW/year/2016/jurisdiction-facility/106>
 - iv. Annual Report for National Greenhouse and Energy Report (NGERs).
<http://www.cleanenergyregulator.gov.au/NGER/Pages/Published%20information/Electricity%20sector%20emissions%20and%20generation%20data/2015-16-greenhouse-and-energy-information-for-designated-generation-facilities---Facility-details.aspx?ListId={26B8B82E-472F-41C1-8ECA-ACE839802482}&ItemID=143>

Regulation - Mercury



- Mercury is a rare naturally occurring element found in air, water and soil. Mercury is a trace element found in coal in very small amounts. Australian coals typically have much lower mercury content compared with world averages, particularly US coals.
- Delta monitors for mercury content in the stack gases and while our licence limits are 1 mg/m³, the typical concentration in the stack gas testing is < 0.001 mg/m³ (ie. 1000 times less than the limit). These numbers are reported on our website, in the annual return to the EPA and on the National Pollution Inventory website.

VP5	Hg (mg/m ³)
Avg. 2007-2017	0.00019
Min 2007-2017	0.00001
Max 2007-2017	0.00080

VP6	Hg (mg/m ³)
Avg. 2007-2017	0.00055
Min 2007-2017	0.00003
Max 2007-2017	0.00130

- Australia will likely ratify the Minamata Convention which may result in changes to mercury regulation in the future.

Q2. Could they (Delta) provide information regarding the Torrens University Cancer Cluster Report, of the high incidence of cancer clusters in our area?

The Local Public Health Unit has reviewed this publication, as well as data from the NSW Cancer Registry and air quality data from the Office of Environment and Heritage. Their key findings are:

- i. The Central Coast area has an overall rate of cancer ~6% higher than the state average;
- ii. The increased cancer rate in the Central Coast region is largely due to higher rates of melanoma and lung cancer among the population;
- iii. Being exposed to sunlight is a major risk factor for melanoma. UV light exposure is higher in coastal areas north of Sydney, and increases as you move north. Smoking is the major risk factor for lung cancer. The Central Coast smoking rate is ~30% above the state average;
- iv. Local air pollution monitoring shows that the Central Coast region has lower air pollution levels than surrounding areas; and
- v. The increased rate of cancer within the Central Coast region is more likely as a result of higher levels of risk factors such as sunlight and smoking than air pollution.

Cancer Clusters – Air Quality

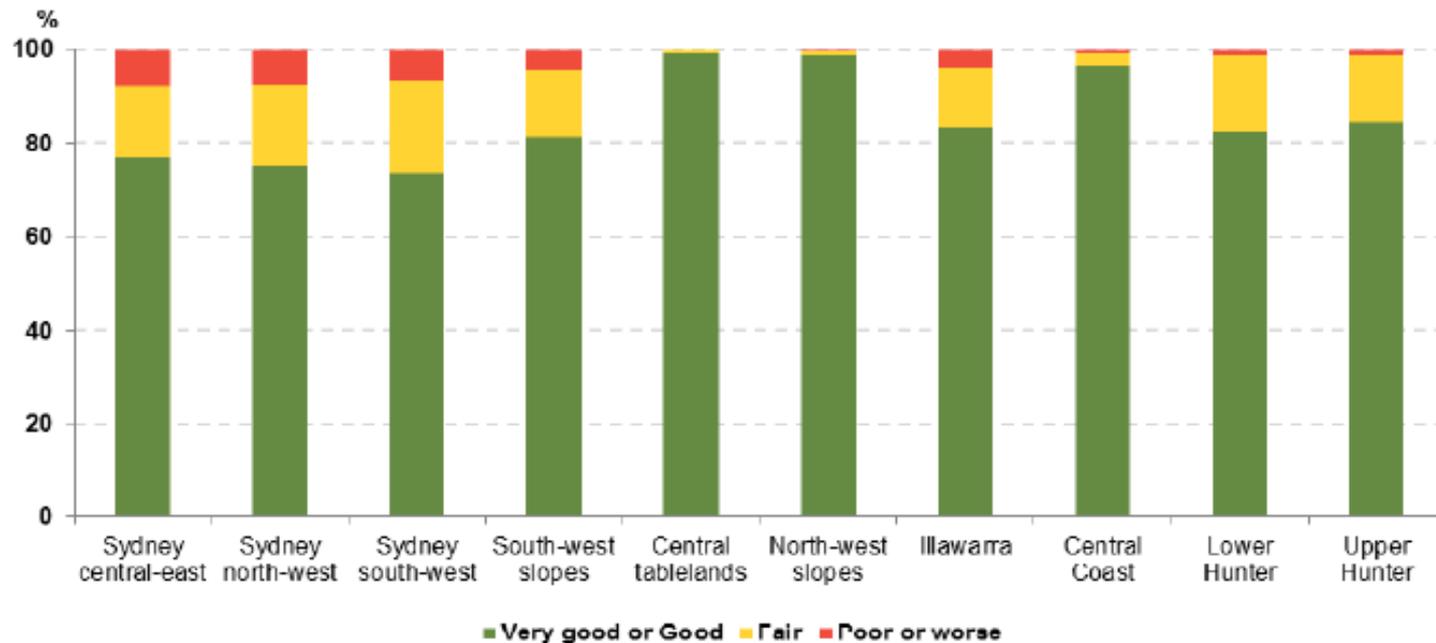


Figure 1: 2016 Air Quality Index categories as a percentage of time in each region

Note: Lower Hunter AQI: Newcastle, Beresfield and Wallsend data. Upper Hunter AQI: Muswellbrook and Singleton data. No data at Bathurst from 16/3/16 to 7/4/16 due to a site upgrade.

Source: NSW Air Quality Statement 2016 (Jan 2017).

Q3. Do they (Delta) have any knowledge of ongoing PFAS issues at Vales Point?

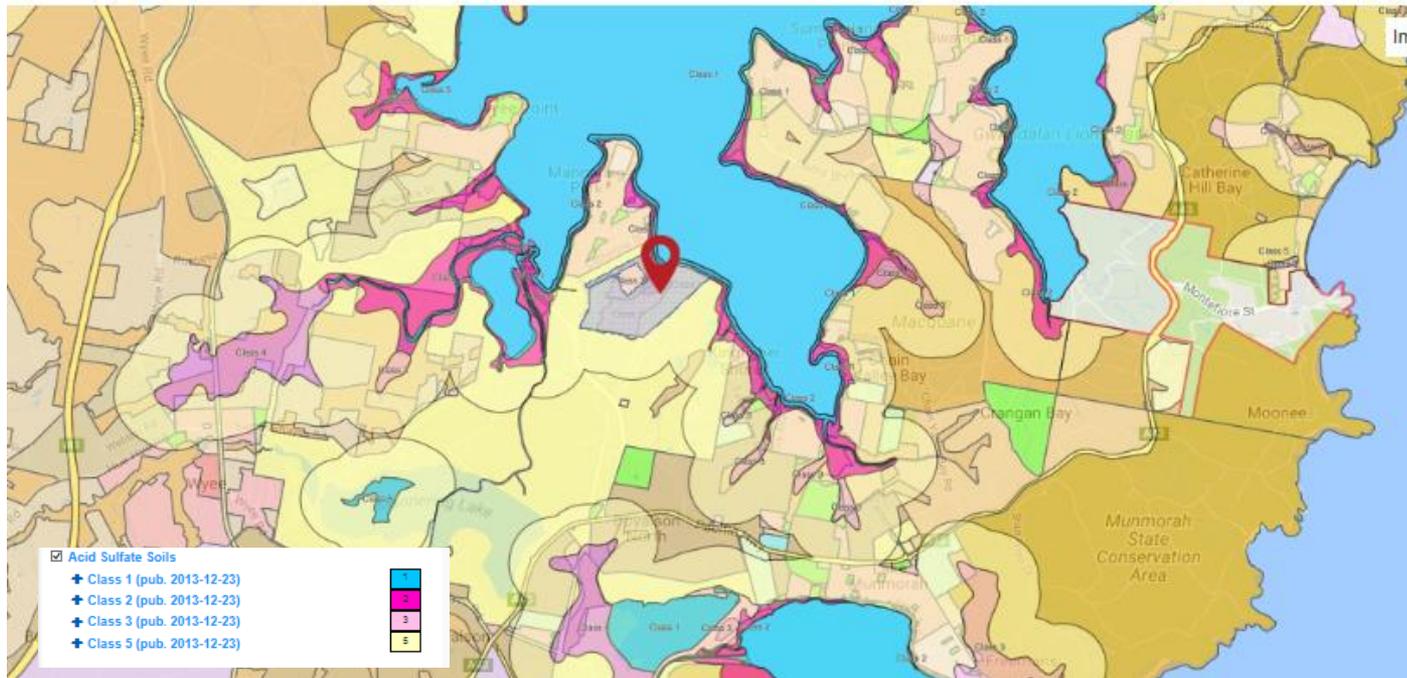
- VP has historically operated with a deluge fire-fighting system using fire fighting chemical foams containing PFAS for fire suppression. An inspection and replacement program was undertaken to remove all 3M AFFF products from the site in April 2008.
- Delta has completed soil testing and groundwater testing on site as well as lake sediment (Wyee Bay, CVB) testing to investigate potential PFAS exposure pathways.
- The findings for the lake sediment samples indicated all eight locations returned analytical results for PFAS substances below the limits of reporting (LOR) for all the PFAS compounds tested.
- PFAS has been found in soil samples located in the vicinity of fire chemical storage and training areas at low concentrations and low exposure risk.
- The results for the groundwater testing found PFOS in one well and PFOA and PFHxS in another with all the results are well below the screening criteria (Aust. Interim Criteria).
- Jacobs are currently preparing a detailed report to be submitted to the EPA in April.

Q4. Do they (Delta) have any knowledge that the filling of some of the ash dams, is causing pressure of the ash leachate, making it go beyond the dams boundary?

- Ash dam seepage and groundwater system is monitored as part of EPL and results reported on Delta website and EPA annual reporting.
- There is no evidence that would indicate that:
 - i. The surface water in the ash dam is strongly influencing groundwater quality in the vicinity of the ash dam; or
 - ii. Water is leaching from the ash dam such that it is affecting groundwater quality.
- Ground water analysis shows some analytes vary significantly between the individual VPAD bores and between the background bores, such that local influences (eg. acid sulfate soils) appear to be affecting groundwater quality results.

Ash Dams – Acid Sulfate Soils

- Acid sulfate soils (ASS) contain high levels of sulfides which when exposed oxygen become acidic and can increase trace metal mobility when wetted.



Local acid sulfate soils (ASS) map showing potentially impacted risk areas.

(Source: NSW Planning Portal https://www.planningportal.nsw.gov.au/find-a-property/3704601_200_Vales_Road_102_Mannering_Park_DP1065718).

**Ash Dams
– Rehabilitation Area
February 2018**



Ash dam rehabilitation area showing good regrowth (Feb 2018).