

Supplementary Written Submission on Mangoola Coal Continued Operations Project (SSD 8642) to the Independent Planning Commission by Michael White

This written submission addresses the “Additional Material” provided to the Commission:

- the transcript of the Commission’s meeting with EPA, NSW Health and DPIE on 25 March 2021;
- the EPA and DPIE presentation material at the Commission’s meeting on 25 March 2021; and
- the Applicant’s Response to the Commission, dated 30 March 2021.

Deteriorating Air Quality

I have lived in the Upper Hunter for 20 years and can unequivocally state through lived experience that our air quality has deteriorated noticeably over that time.

The recent drought years and the terrible fires of 2019 and 2020 have certainly had significant impacts on regional air quality and should push concerns over climate change and what should be regarded as the new normal to the front of mind.

The air quality data presented to the IPC by DPIE in your meeting of 25th March 2021 clearly does reflect the impact of these events particularly in 2019 and 2020. The DPIE in your meeting appears to be attempting to make the case that the Upper Hunter is not really any different to other NSW regions.

I would ask the Commission to consider some additional 2018 air quality monitoring data from the same NSW Government Air Quality Monitoring database.¹ The 2018 calendar year data avoids the wide spread impacts of the 2019/2020 fires.

The table below forms part of a presentation (slide 4) put together by Dr Ben Ewald in March 2019. I have appended this presentation to this submission. I have validated the accuracy of this data by accessing the DPIE Air Quality database personally. There is one datapoint missing in this 2018 data set which is Stockton (Newcastle) which I understand was deliberately removed because of sea salt.

This 2018 PM 10 and PM 2.5 exceedance data shows the following.

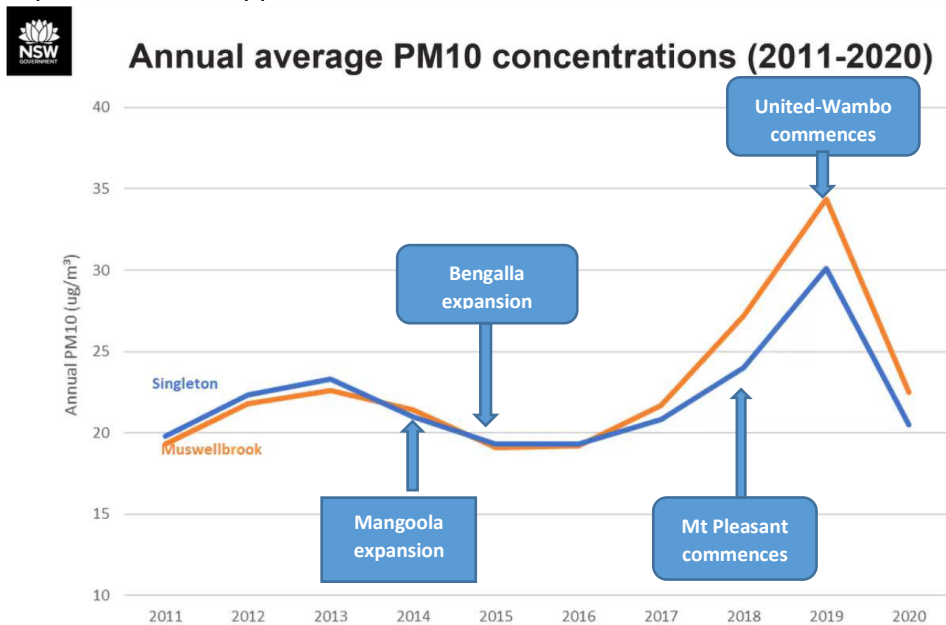
- PM10 – In 2018 in NSW there were nine locations in NSW where the annual average exceeded the NEPM of 25. **Eight of these nine locations are in the Hunter of which six are in the Upper Hunter.**
- PM2.5 – In 2018 in NSW there were 14 locations in NSW where the annual average exceeded the NEPM of 8. Six of these locations are in the Hunter.

¹ [Data download facility | NSW Dept of Planning, Industry and Environment](#)

2018 EXCEEDANCES

Location	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³
Sydney Basin		
Liverpool	10.1	
Chullora	8.6	
Richmond	8.1	
Paramatta North	9.2	
Prospect	8.5	
Campbelltown	8.4	
Lower Hunter		
Carrington	8.2	27.3
Mayfield	8.3	26.9
Beresfield	8.7	
Upper Hunter		
Muswellbrook	9.4	27.2
Singleton	8.1	
Singleton NW		26.9
Camberwell	8.4	31.3
Maison Dieu		27.9
Mt Thorley		29.1
Warkworth		26.4
Rest of NSW		
Wagga Wagga North	8.4	27.4
Tamworth	8.3	

I also refer the Commission to slide 2 of the DPIE presentation showing PM10 Annual concentrations for Muswellbrook and Singleton 2011-2020. I have added timing of mine developments in the Upper Hunter to this slide.



It can be seen that from 2011 to 2014 Muswellbrook PM10 levels were regularly below Singleton levels. From 2016 this has reversed and now Muswellbrook annual PM10 levels are regularly higher than Singleton. This reflects the increase of large-scale open cut mining further up the Hunter Valley.

This should demonstrate to the IPC why the Upper Hunter is being described as the most heavily burdened air-shed in NSW.

Absence of Contemporary Evidence is Not Evidence of Absence

It was acknowledged by DPIE in your meeting of 25th March 2021 that Muswellbrook regularly exceeds the PM2.5 annual NEPM criteria of 8 ug/m3.

The DPI Presentation showed annual PM2.5 levels also exceeding the NEPM at Liverpool in NSW. I do not accept that because Liverpool may also have elevated PM2.5 levels that it is therefore acceptable that this occurs in the Upper Hunter.

The DPIE continues to rely on 2012 data to allocate source PM2.5 contributions as calculated in the Upper Hunter Fine Particle Characterisation Study 2013.²

The DPIE has not presented any trend data for source contributions and continues to rely on this 9-year-old information.

Here are some facts to support the premise that there has been a significant increase in coal mine generated source contributions of PM2.5 and PM10:

- There have been major mine expansions and new mines started since 2012 (new mines: Mt Pleasant 2018 and United-Wambo 2019, at Mangoola Mine there was an increase from 10 to 13.5 Mtpa ROM in 2014, at Bengalla Mine there was an increase from 10.7 Mtpa to 15 Mtpa ROM in 2015). This increased mining intensity has resulted in the introduction of hundreds more off-road diesel engines and vehicle movements per year.
- In August 2015 the EPA published a study *NSW Coal Mining Benchmarking Study Best Practice Measures for Reducing Non-Road Diesel Exhaust Emissions*.³ This study identified off-road diesel emissions as the third biggest primary contributor of PM2.5 in the Hunter and attributed 95% of this to off-road diesel emissions from coal mining. This report was published six years ago.
- The mining industry in the Hunter burns more than 700 million litres per year of diesel and there are still no emission standards mandated by the government or regulators for off-road diesel engines. The US has had off road diesel emission standards since the 1990s.
- There are no Pollution Reduction Program requirements for off-road diesel emissions in any NSW open cut coal mine Environmental Protection License at present.

Some recent Conditions (e.g. United–Wambo 2019) are now including reference to emissions reduction technology referring to “reasonable and feasible” however there is still far too much latitude in these loose references in Mining Consent Conditions.

² [Upper Hunter Fine Particle Characterisation Study | NSW Environment, Energy and Science](#)

³ <https://www.epa.nsw.gov.au/your-environment/air/non-road-diesel-marine-emissions/reducing-diesel-emissions-coal-mines>

In the six years since the 2015 EPA Non-Road Diesel Emissions study was published the progress in implementing the latest emissions technology at open cut coal mines in NSW has occurred at a glacial pace.

Voluntary action on off-road diesel emissions reduction by the coal industry has been minimal and there has been very little action by the DPIE or EPA to accelerate the uptake of existing and proven technology through mandatory condition setting.

There is a solution currently available to reduce PM2.5 emissions from off-road diesel engines and mine operators have not responsibly used it and have not been required to use it by the Department or the EPA.

To reduce PM10 levels we need to limit and reduce the level of PM10 generated by mining activity occurring in the Upper Hunter. The active dust management programs at mines are unable to reduce the PM10 levels to acceptable levels.

As can be seen from the EPA presentation delivered to the IPC on 25 March 2021 "Air Quality in the Upper Hunter" slides 21-23 show the Dust Stop programs will not reduce windblown dust generated from exposed ground in mines. There needs to be a reduction in the level of mining activity that is occurring.

We live here - we expect the government and industry to protect the health and well-being of the community and they have failed us in this regard.

I have this year joined the Upper Hunter Air Quality Advisory Committee as a Community Representative and am doing all I can to promote improved air quality. I respectfully request that the IPC does the same.

Michael White

Air quality in the Hunter Valley

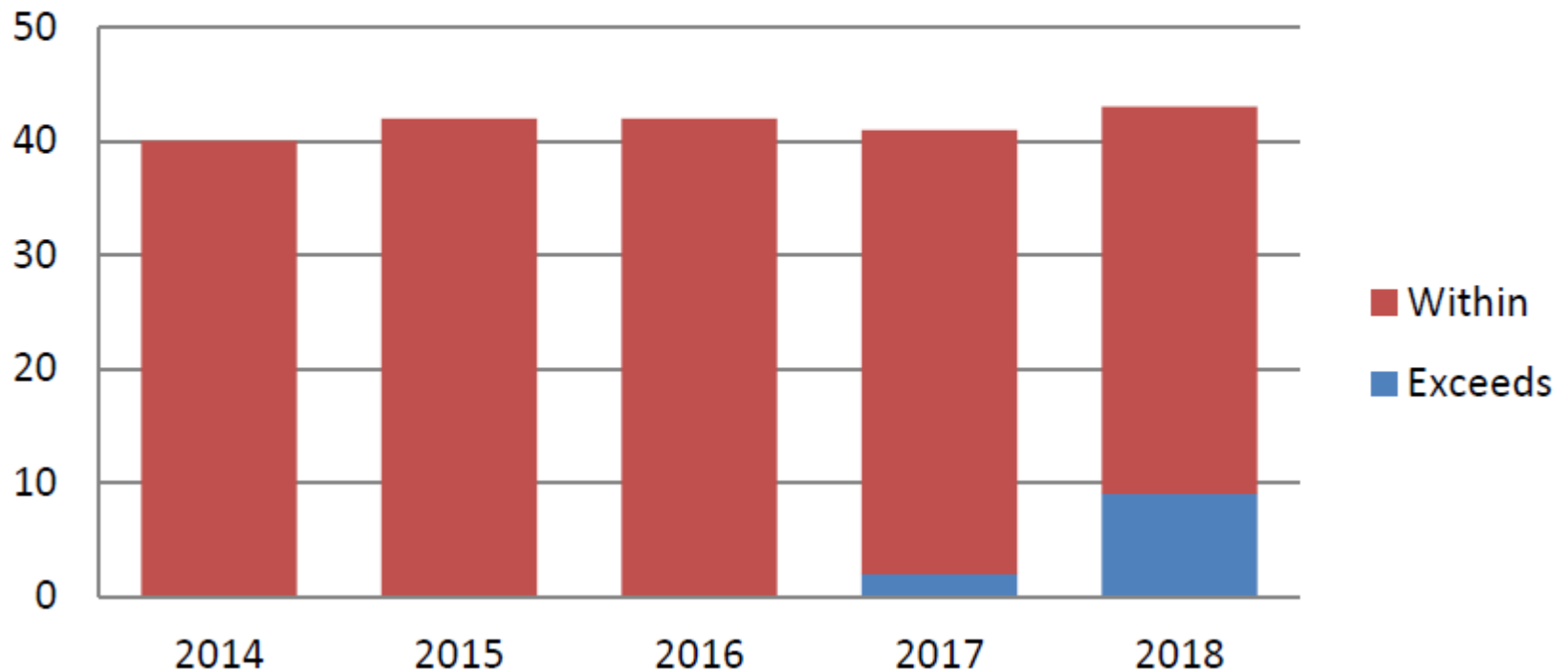
A wide-angle photograph of a massive open-pit coal mine in the Hunter Valley, Australia. The mine's terraced levels and conveyor systems are visible, extending into the distance. In the far background, a power plant with several tall smokestacks is visible against a clear blue sky. The foreground shows a dirt road and some green vegetation on a hillside.

Dr Ben Ewald
Doctors for the Environment
Australia

Coarse particle air pollution, PM10

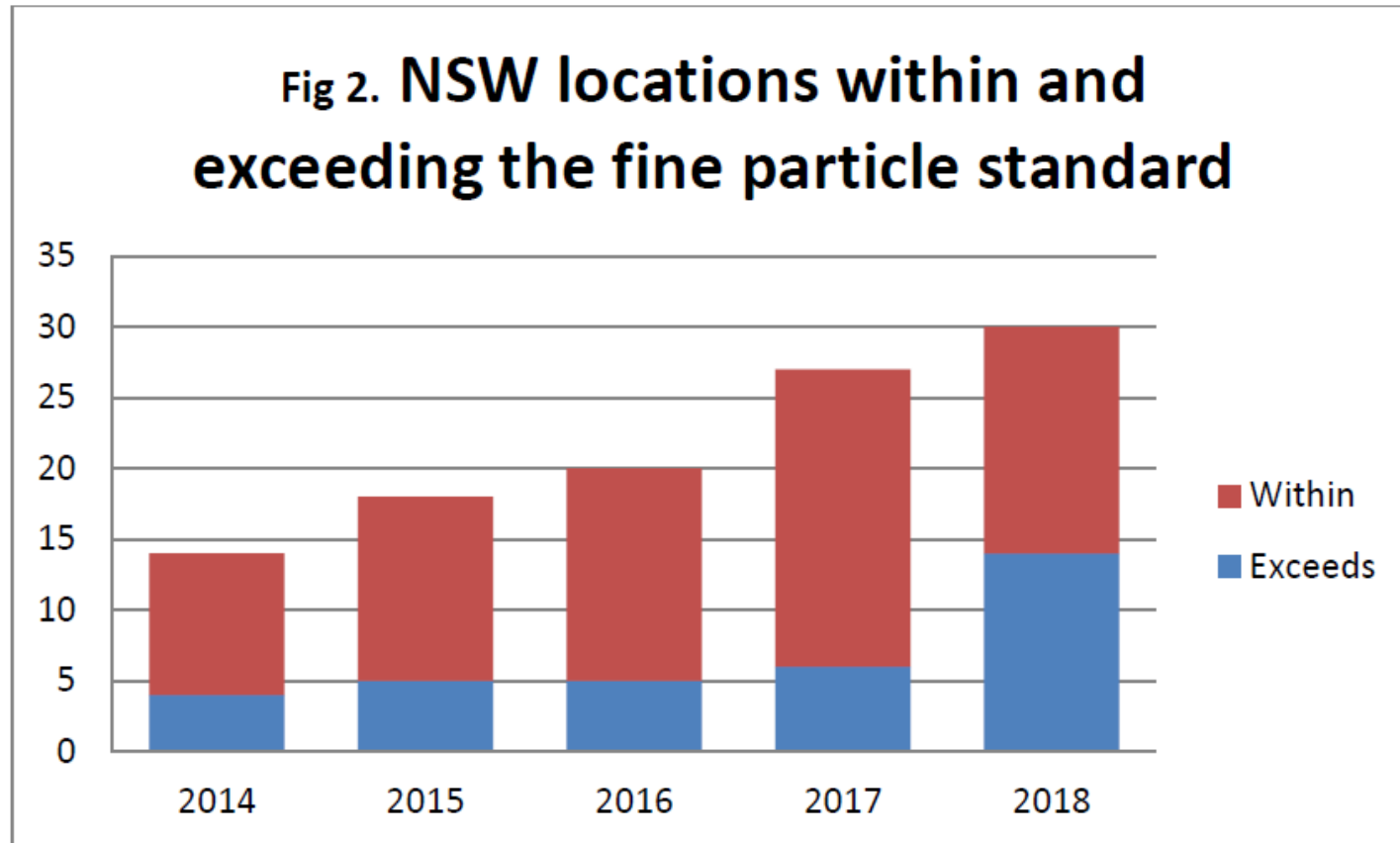
standard: annual average less than 25 ug/m3

Fig 1. NSW locations exceeding the coarse particle standard.



Fine particle air pollution PM2.5

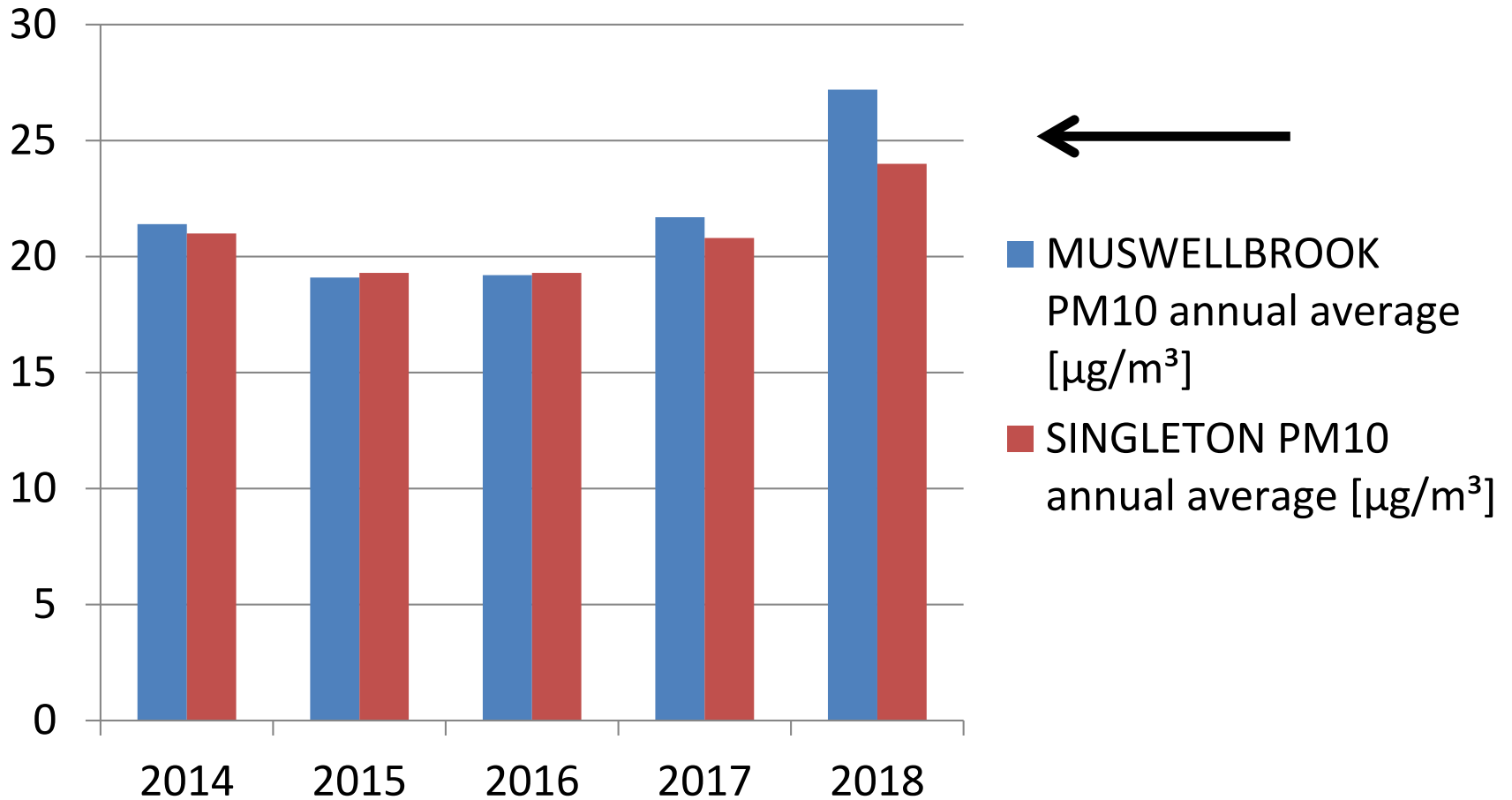
standard; annual average less than 8 μ g/m³
14 locations exceeded the standard,



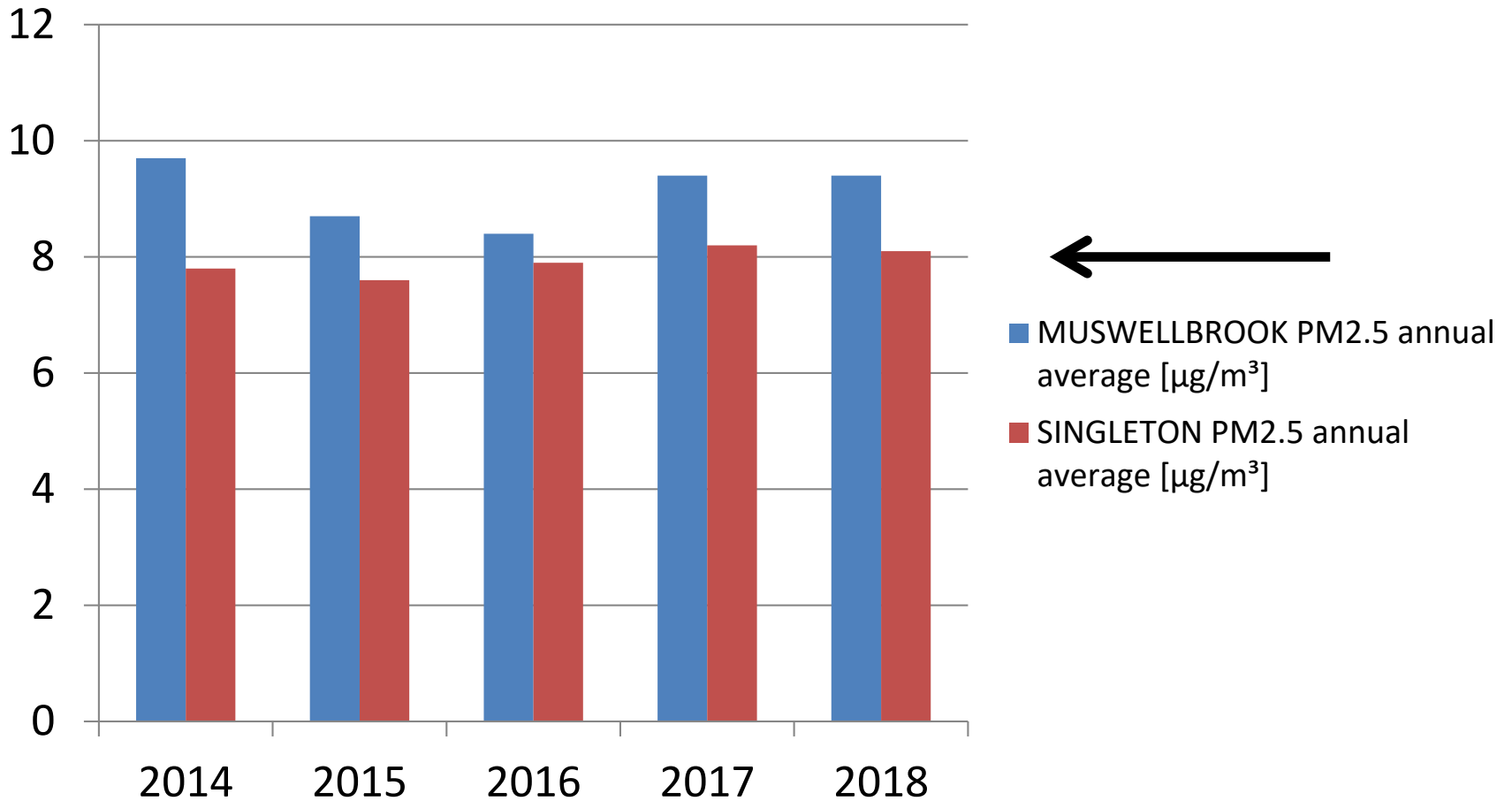
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5 year trend, coarse particles

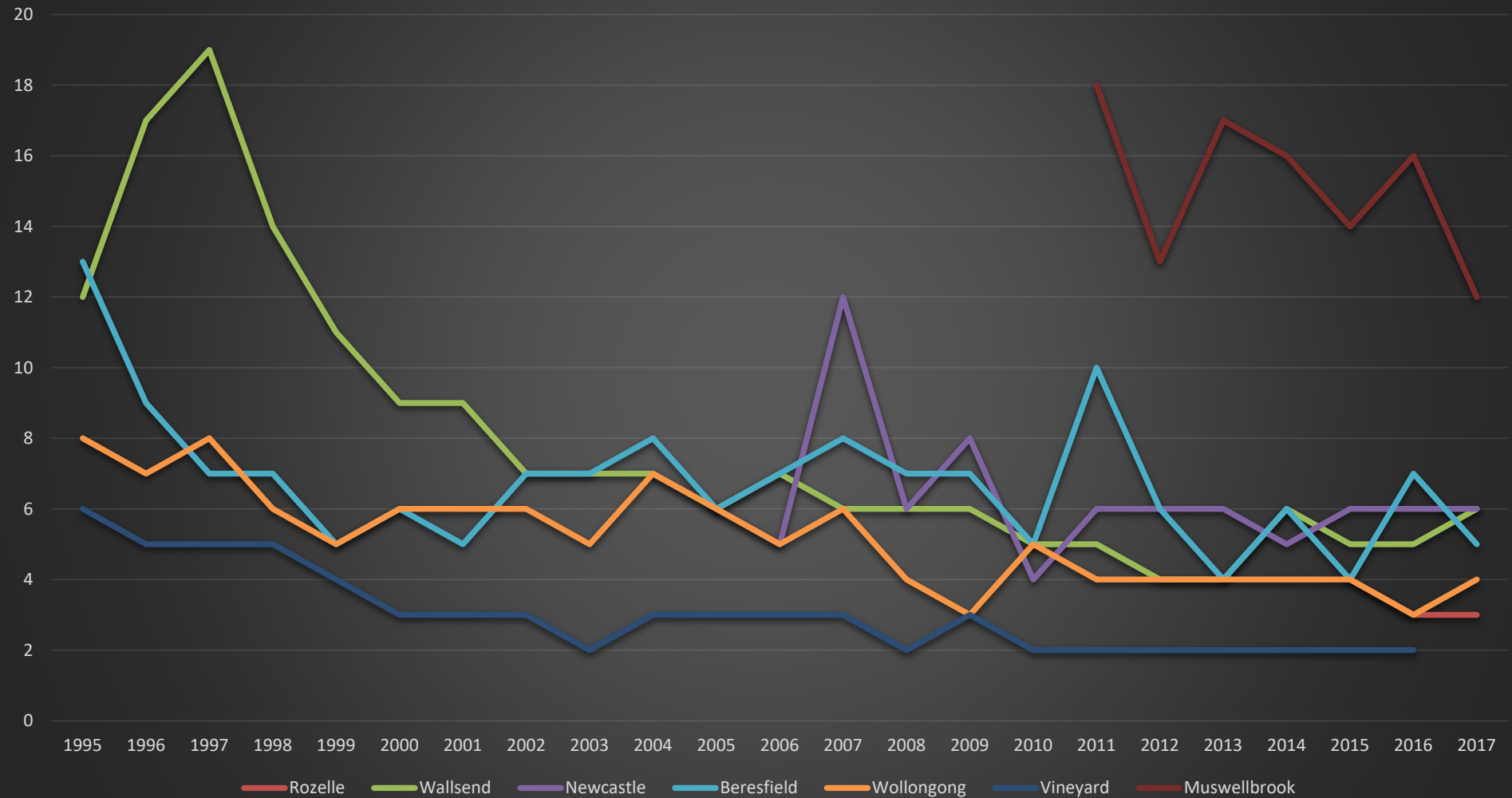


5 year trend, fine particles



Improving fuel standards. Closure of BHP Newcastle coking plant 1999.

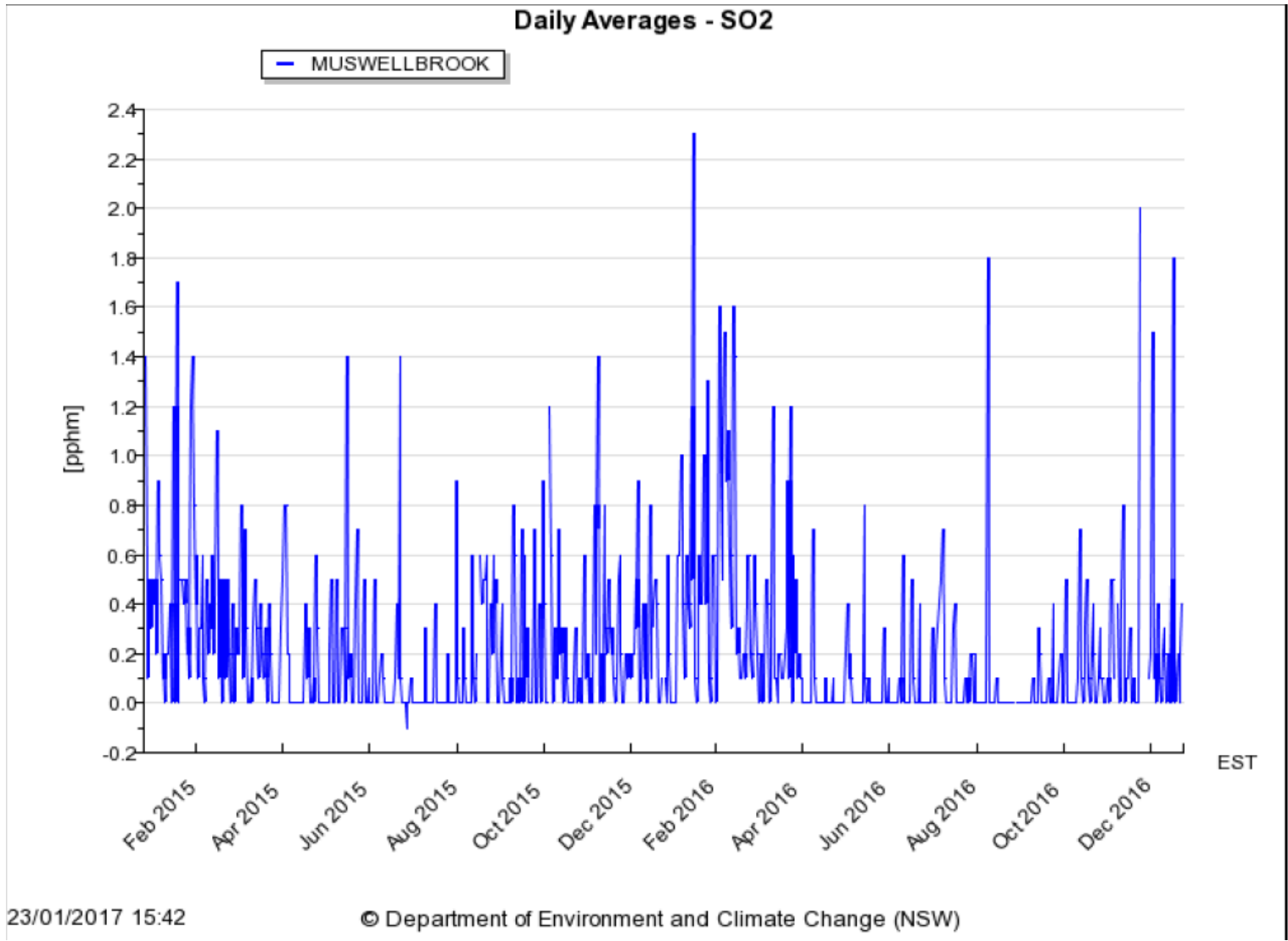
99th centile of daily SO₂ for 6 sites in NSW. ppb.



Time variability

Daily average SO2 in Muswellbrook. Is it the peaks or the average that matter?

Watch out for the units. Ppm, pphm, ppb.



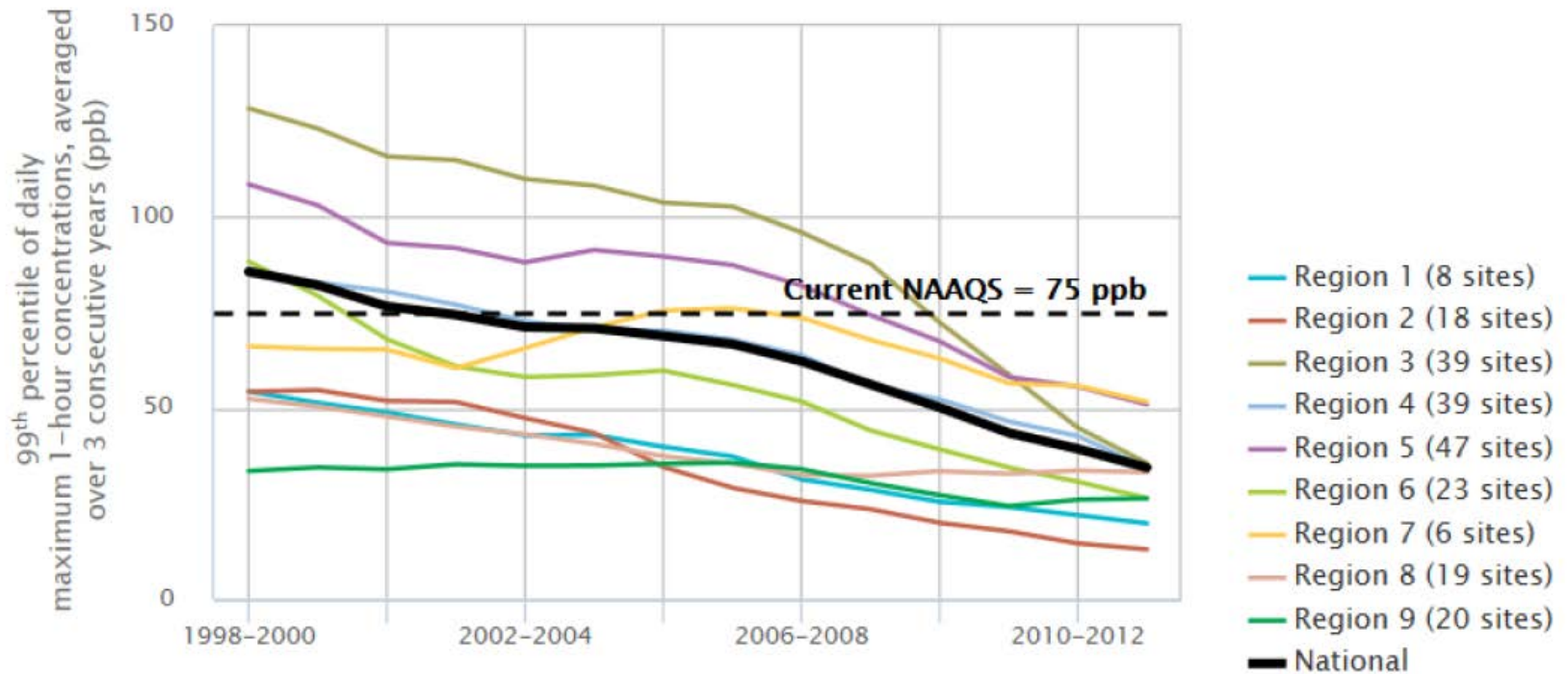
Comparing SO2 standards

SO2	Established	Annual	1 day	8 hour	1 hour
WHO	2005		20ug/m3 (7.6 ppb)		Also 10 minute 500ug/m3 (190.8 ppb)
California	2002		105ug (40ppb)		655ug (250ppb)
EU	2005		125 ug (47.7 ppb)		350ug (133.6 ppb)
Australia	1997	20 ppb	80 ppb		200 ppb
Japan	1973		40ppb		100ppb
China urban	Some 2012, all 2016	60 ug (22.9 ppb)	150 ug (57.3 ppb)		500ug (190.8 ppb)
US NAAQS	2010	revoked	revoked		75ppb (99 th centile)

Strong downward trends in the USA ²⁰¹⁵

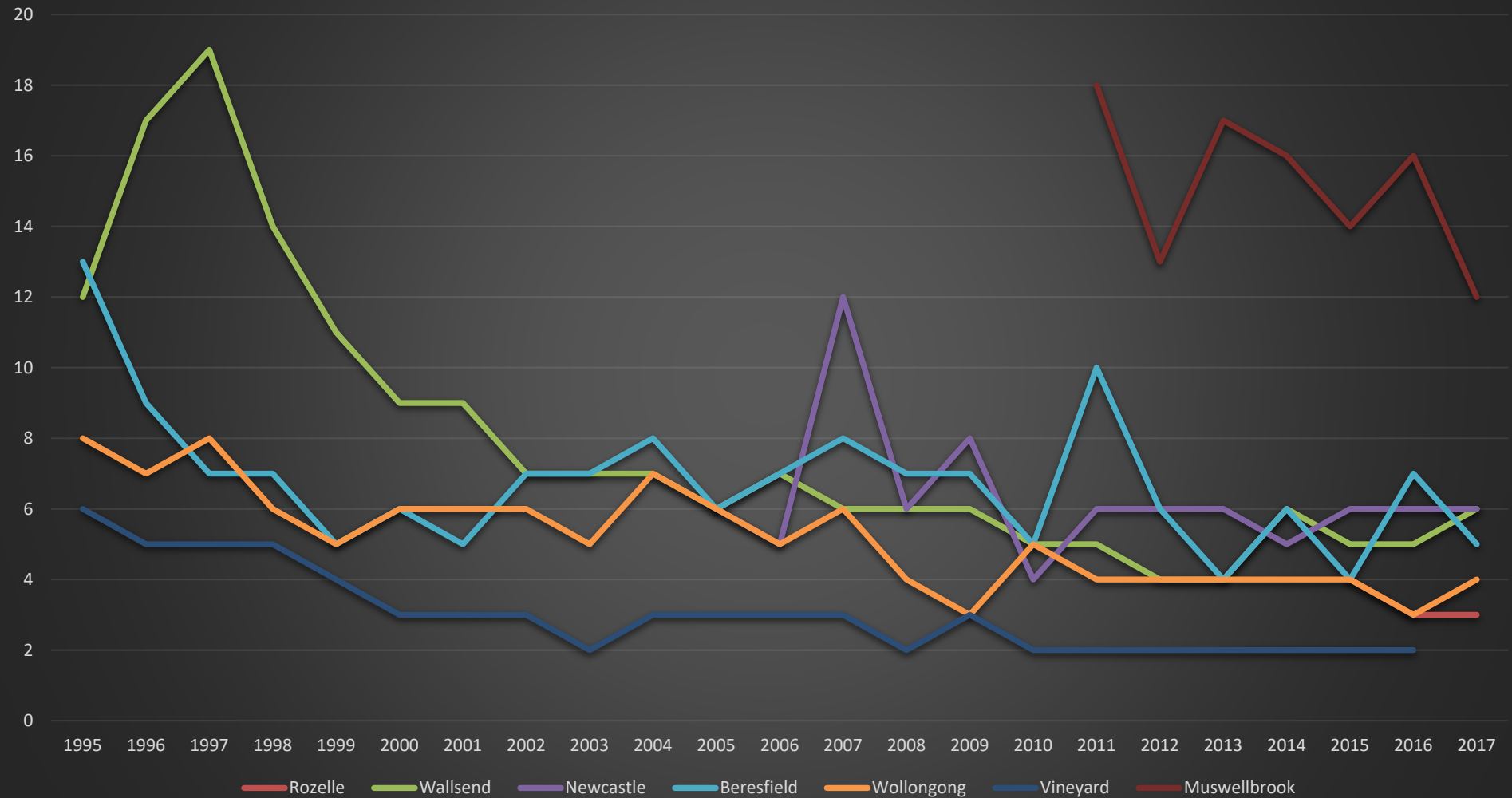
report on the environment, US EPA.

Exhibit 7. Ambient 1-hour SO₂ concentrations in the contiguous U.S. by EPA Region, 1998–2013



Improving fuel standards. Closure of BHP Newcastle coking plant 1999.

99th centile of daily SO₂ for 6 sites in NSW. ppb.



NSW system of load based licensing

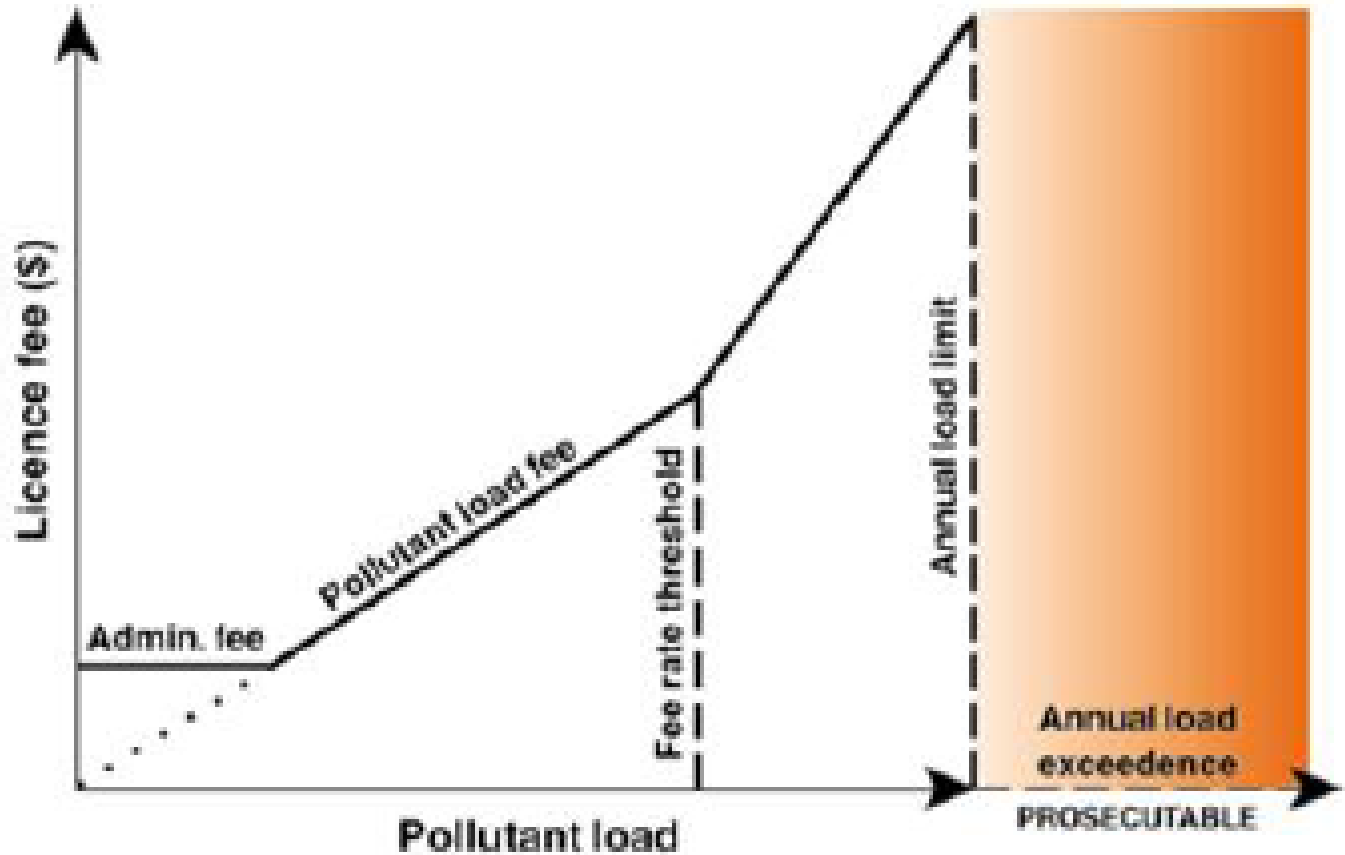


Figure 1: Fees payable under the LBL scheme

Available solutions

- 1) Sulphur dioxide: Insist on modern pollution control measures such as SO₂ scrubbers. Either as a license requirement, or by using the Load Based Licensing mechanism.
- 2) Fine particles: Exhaust standards for off road diesel engines. Restrict wood burning heaters. Exhaust standards for in service road vehicles.
- 3) Coarse particles: Get serious about dust control at open cut mines, and stop approving new mines.

Non solutions

1. Stop having bush fires & hazard reduction burns.
2. Focus on small spark ignition engines.
(Whipper snippers, chain saws, outboard motors)
3. Stop having droughts
4. Remove diesel vehicles from public roads.
5. Electric vehicle policies.

2017 NPI: SO₂, NO_x, and fine particles

National Pollutant Inventory

Power station emissions (tonnes)	NO _x	SO ₂	Primary PM _{2.5}
Bayswater Upper Hunter	32,214	50,271	294
Liddell Upper Hunter	18,627	33,490	183
Eraring Central Coast	18,555	30,533	148
Vales Point Central Coast	21,008	16,000	71
Mount Piper Lithgow	22,021	32,000	59
Total emissions from power stations	112,425	162,294	755
NSW emissions, all sources	280,000	190,000	3,900

Annual health problems from exposure to fine particle pollution from the electricity sector.

Region	Sydney	Central Coast	Lower Hunter	Upper Hunter	Remainder	Total
Population aged 30-99	2,657,209	211,514	350,056	38,649	714,658	3,972,086
Deaths attributable to electricity generation	153	25	51	7	43	279
Years of Life Lost	1,433	234	477	65	402	2,614
Babies born less than 2500g	147	16	37	6	27	233
New cases of diabetes	199	33	63	8	58	361
Certainty for mortality estimate	high	medium-low	medium	medium	low	

Results of the Upper Hunter Particle Characterisation Study

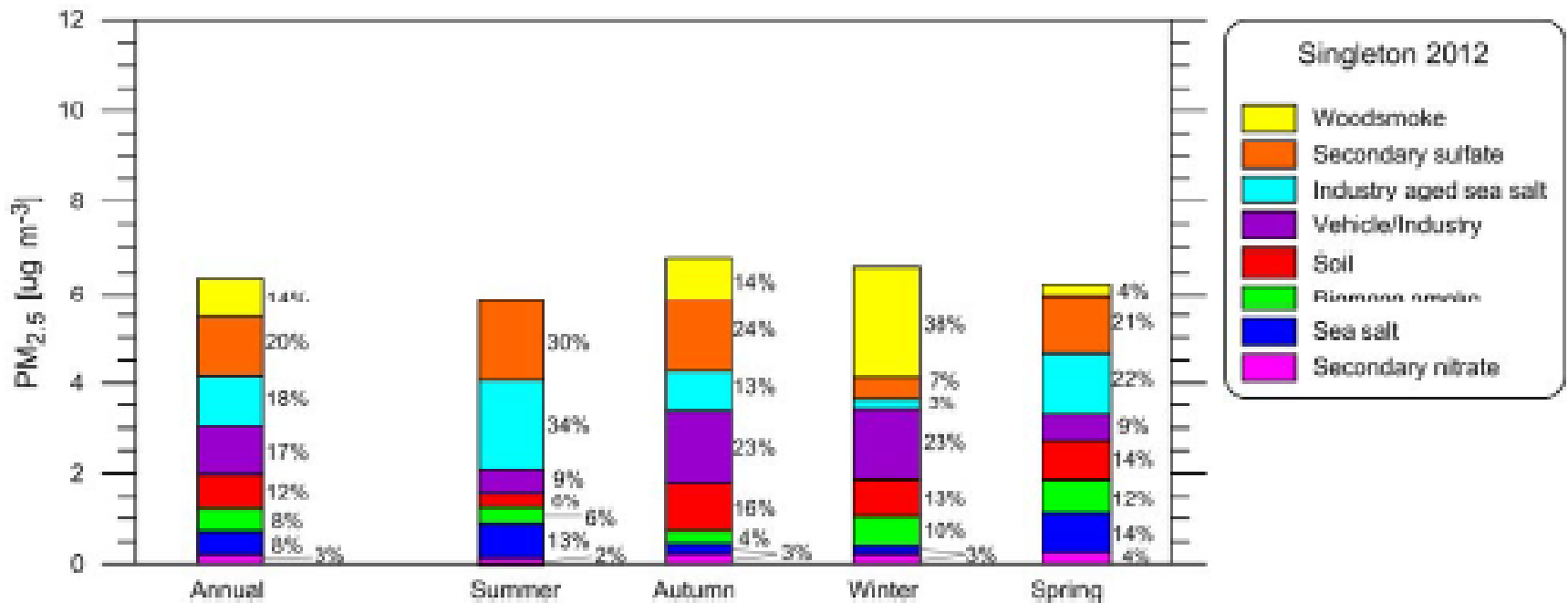


Figure 1 Annual and seasonal contributions of the PMF factors to PM_{2.5} in Singleton



Bowman Park, Lorne St

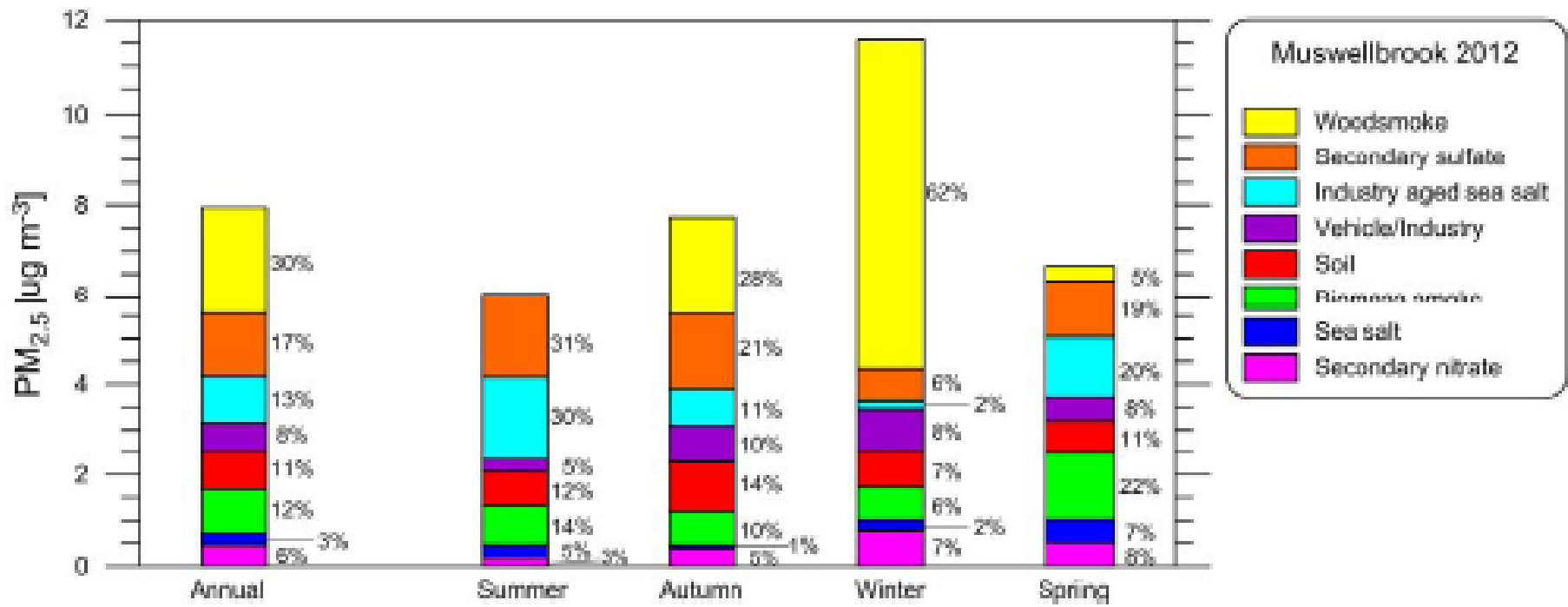


Figure 2 Annual and seasonal contributions of the PMF factors to PM_{2.5} in Muswellbrook