

### Gaseous parameters

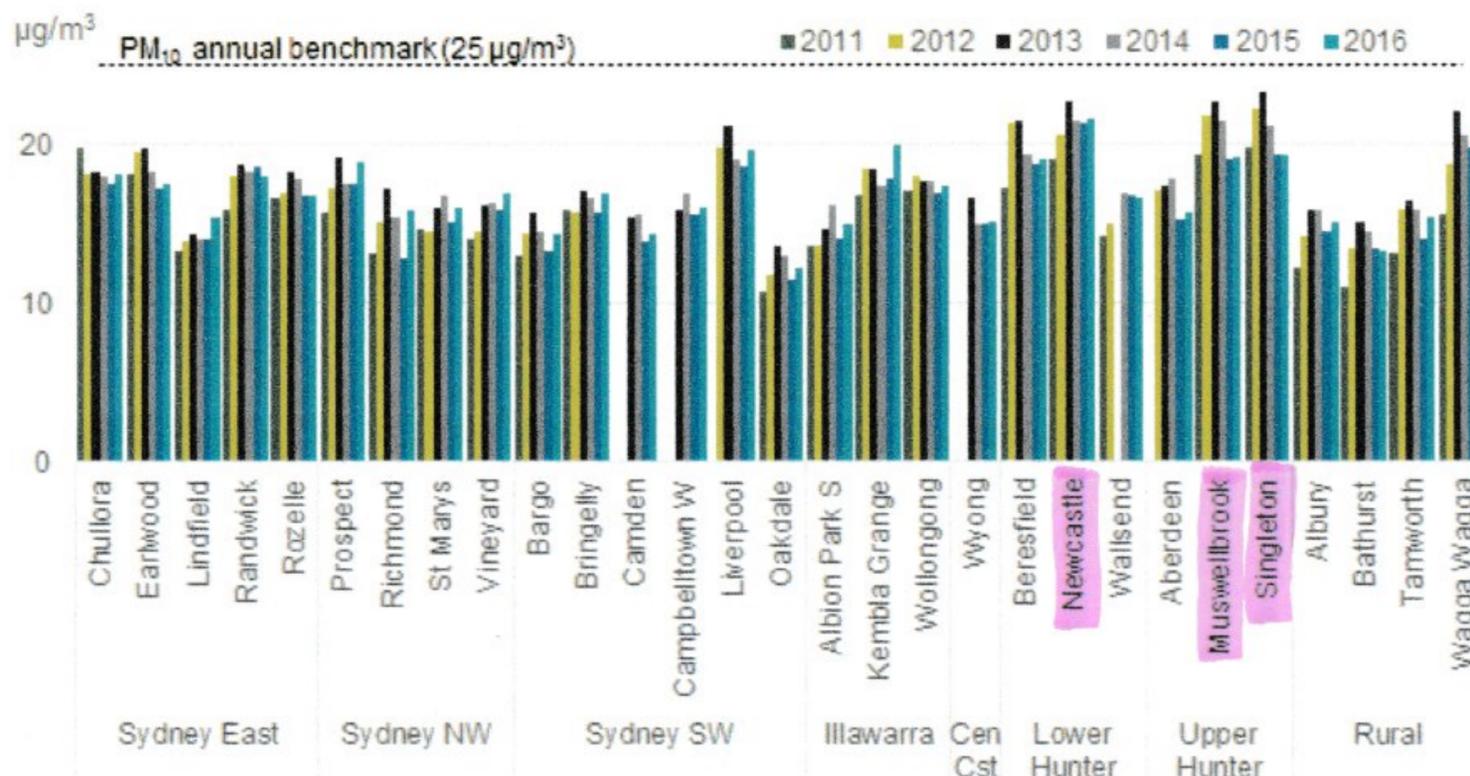
Concentrations of NO<sub>2</sub> and SO<sub>2</sub> measured at Muswellbrook and Singleton have remained below the relevant national benchmarks, except for one-hour SO<sub>2</sub> briefly over the benchmark at Muswellbrook on 23 December 2016. This is the first occasion when hourly SO<sub>2</sub> levels have exceeded the benchmark in the NSW network since 1994.

OEH is currently undertaking dispersion modelling to better understand the meteorological processes leading to this elevated level of SO<sub>2</sub> on 23 December 2016. This modelling will also include days on other occasions when SO<sub>2</sub> levels reached close to the national benchmark. Outcomes of this analysis will be provided to the UHAQAC once available.

### 2.2.2 Comparison with air quality in other regions in New South Wales

Figure 4 shows the annual average levels of PM<sub>10</sub> at the Upper Hunter major population centres of Aberdeen, Muswellbrook and Singleton compared with other NSW regions. None of these stations recorded PM<sub>10</sub> levels over the annual benchmark from 2011 to 2016.

The annual PM<sub>10</sub> concentrations in the Upper Hunter are observed to be amongst the highest throughout New South Wales. For 2016, many sites from other regions recorded amongst the highest PM<sub>10</sub> annual average levels compared to earlier years. This was not the case for the Upper Hunter region, where the PM<sub>10</sub> annual averages for 2016 were amongst the lowest since the establishment of the Network.



**Figure 4 PM<sub>10</sub> annual averages by station for all NSW regions from 2011 to 2016**

Cen Cst: Central Coast

Figure 5 shows that the highest annual number of days over the PM<sub>10</sub> daily benchmark from 2011 to 2016 occurred at Wagga Wagga, where air quality is affected by stubble burning. Singleton recorded the second highest number of days over the PM<sub>10</sub> benchmark in 2013. For the remaining years, the Upper Hunter sites had a similar number of days over the PM<sub>10</sub> benchmark compared to other regions.

As for the annual averages, many sites in western Sydney recorded amongst their highest number of days over the PM<sub>10</sub> daily benchmark in 2016. This was due mainly to extensive hazard reduction burning operations during autumn. However, this was not the case for the Upper Hunter, with the number of days over the PM<sub>10</sub> benchmark in 2016 amongst the lowest recorded since the establishment of the Network (Figure 5).

### Upper Hunter PM10

