

NSW Government Submission to the Ministerial Forum on Vehicle Emissions

Vehicle emissions standards for cleaner air Draft Regulation Impact Statement

Summary

The NSW Government supports the adoption of mandatory Euro 6 standards for light vehicles and Euro VI for heavy vehicles at or sooner than the proposed 2019-2020 timeframe for the following reasons:

- The adoption of Euro 6/VI emissions standards (Option 6) aligns with existing NSW and Federal Government policies.
- The adoption of Euro 6/VI emissions standards (Option 6) will deliver health and economic benefits, with limited implications for domestic industry:
 - Motor vehicles are a major source of human-generated air pollution in the Sydney Greater Metropolitan Region (i.e. Sydney, Central Coast, Newcastle, Hunter Valley, Wollongong and the Blue Mountains).
 - There are a range of negative health impacts resulting from vehicle emissions.
 - The adoption of Euro 6/VI standards will significantly reduce motor vehicle emissions.
 - The reductions in motor vehicle emissions resulting from adoption of Euro 6/VI standards are expected to have significant economic benefits.
 - The adoption of Euro 6/VI standards will not pose major economic or social risks.
- The adoption of Euro 6/VI emissions standards (Option 6) is required to achieve compliance with National Air Quality Standards.

The adoption of Euro 6/VI standards (Option 6) aligns with existing NSW and Federal Government policies

Reducing transport, engine and fuel emissions has been identified as a priority area in the NSW Government *Clean Air for NSW Discussion Paper*.

The Federal Government has a policy of harmonising the national standards for road vehicles with international regulations adopted by the United Nations (UN) World Forum for the Harmonization of Vehicle Regulations. The current UN regulations for noxious emissions for light and heavy vehicles are based on the 'Euro' standards adopted in the European Union.

The adoption of Euro 6/VI emissions standards (Option 6) will deliver health and economic benefits, with limited implications for domestic industry

Motor vehicles are a major source of human generated air pollution in Sydney Greater Metropolitan Region

In the Sydney Greater Metropolitan Region (i.e. Sydney, Central Coast, Newcastle, Hunter Valley, Wollongong and the Blue Mountains) motor vehicles account for 62 per cent of oxides of nitrogen (NO_x) emissions, 24 per cent of hydrocarbon emissions as Volatile Organic Compounds (VOCs) and 14 per cent of emissions of fine particulate matter (PM_{2.5})¹. NO_x and hydrocarbon emissions contribute to the formation of secondary PM_{2.5}² and ground level ozone.

There are a range of negative health impacts resulting from vehicle emissions

Exposure to motor vehicle pollution is linked to several adverse health outcomes, ranging from irritation of the airways to early mortality.

Outdoor air pollution and diesel engine exhaust are known human carcinogens

The International Agency for Research on Cancer (IARC) has classified both outdoor air pollution and diesel engine exhaust as carcinogenic to humans (IARC Group 1). Motor vehicle emissions are a major source of outdoor air pollution and diesel exhaust in NSW urban areas.

There is very good evidence that exposure to PM_{2.5} causes cardiovascular disease, respiratory disease and early mortality

Although the ambient levels of particulate matter in urban NSW are low by world standards, current levels of particulate matter in NSW will have adverse impacts on health, particularly in vulnerable people such as individuals with chronic respiratory and cardiovascular diseases, the elderly and children.

Exposure to motor vehicle emissions increases with proximity to busy roads. Due to the continued growth in the size and density of urban areas near road transport corridors in NSW, reducing motor vehicle emissions, and mitigating the associated health risks, is of ongoing importance.

¹EPA (2012). 2008 Calendar Year Air Emissions Inventory for the Greater Metropolitan Region in NSW. Retrieved from <http://www.environment.nsw.gov.au/air/airinventory2008.htm>

² Primary particle emissions can come directly from natural sources such as bushfires and dust storms, and also from human activities such as wood burning, quarrying and mining, motor vehicle use and industrial processes.

Primary particle emissions typically contribute only 50% of the measured PM_{2.5} levels in the Greater Sydney Region. The other 50% comprises secondary particles that are produced or altered by chemical reactions between gases, or between gases and other particles in the air. NO_x and VOCs are important precursor chemicals for secondary particle formation.

The adoption of Euro 6/VI standards will significantly reduce motor vehicle emissions

NSW Environment Protection Authority emissions inventory calculations estimate significant reductions in emissions due to adoption of the Euro 6/VI emission standards with the:

- Euro VI emissions standards reducing total motor vehicle PM_{2.5} emissions in NSW by 28 per cent in 2036 (this is entirely due to the adoption of Euro VI for heavy duty diesel vehicles)
- Euro 6 emissions standards reducing total motor vehicle NO_x emissions by 57 per cent in 2036 (this is mainly due to adoption of tighter emission standards for diesel engine light vehicles).

Reductions in motor vehicle emissions would have significant economic benefits

Analysis by the Bureau of Transport and Resource Economics estimated annual health costs of \$2.7 billion (in year 2000 dollars) due to road transport PM₁₀ emissions across Australia. For NSW, costs were estimated at \$706 million to \$1,682 million³. As the population of Sydney increases, the monetised health benefits of reducing air pollution exposure increase.

The Regulatory Impact Statement calculates that adoption of mandatory Euro 6/VI standards for light and heavy vehicles (Option 6) will deliver \$4,222 million in benefits over the period 2016-2040, Australia-wide. This is the largest net benefit of all the options considered.

It is possible that the health benefits may have been significantly under-estimated. As noted in the Regulation Impact Statement, the United Kingdom has recently used damage costs estimates significantly higher than were used in the Regulation Impact Statement. If these higher damage costs were used the benefit cost ratio for Option 6 would increase from 1.19 to around 8.

The adoption of Euro 6/VI standards will not pose major economic or social risks

Euro 6 emission standards for light vehicles have been mandatory in Europe since September 2014. Euro VI emission standards for heavy vehicles have been mandatory in Europe since 2012. Canada, Japan, South Korea and the US have similar standards in place. There have been no major economic or social impacts due to the adoption of the tighter emissions standards in these jurisdictions.

The expense to Australian automotive manufacturing of compliance with vehicle emissions standards has historically been cited as a reason not to impose more stringent standards. However, the closure of Toyota and General Motors plants this year will mark the cessation of all major automotive manufacturing in Australia. This will result in the importation of essentially all vehicles into Australia. As the global vehicle manufacturing industry is successfully building Euro 6/VI compliant vehicles for Europe, US, Canada, Japan and South Korea, adoption of Euro 6/VI would not place significant practical restrictions or cost pressures on the importation of vehicles to Australia.

The impact on the domestic refining industry

The *Better fuel for cleaner air* discussion paper notes the importance of determining whether it is feasible for the Australian refining industry to produce fuel with sufficiently low sulphur content to realise the full benefits of Euro 6 emissions standards. Sulphur content higher than 10ppm will result in higher in-service emissions by decreasing catalyst efficiency and shortening in-service catalyst life.

³ *Health Impacts of Transport Emissions in Australia: Economic Costs*, BTRE Working Paper 63, Bureau of Transport and Regional Economics, Canberra, ACT www.bitre.gov.au/publications/2005/files/wp_063.pdf

If the Euro 6/VI emissions standards are adopted, there could be a reasonable community and stakeholder expectation that the fuel standards will be brought into line with international standards to realise the full benefits of the new emission standards. Many of the world's major vehicle markets have already introduced fuel sulphur standards of 10 ppm or less. By 2017, the US, EU, Japan and Korea will each have a maximum 10 ppm sulphur level. Additional markets throughout Latin America, the Middle East, Eastern Europe, the former Soviet Union and Asia will implement the 10ppm standard from 2017-2021.⁴

The expense to Australian fuel refiners has historically been cited as a reason not to impose more stringent standards. However, there are only four refineries currently operating in Australia, with none in NSW. According to the Australian Institute of Petroleum:

- Australian refinery closures have not affected supply reliability and security
- self-sufficiency in transport fuels is not necessary for supply security
- integration into the Asian market is the key to Australia's supply security
- Australia does not need to subsidise local refineries.

It could be argued that by having a less stringent fuel quality standard than equivalent countries, the Australian refining industry is being subsidised by approximately \$110 million per year (being the health costs to the Australian community of less stringent fuel standards).

The adoption of Euro 6/VI standards (Option 6) is required to achieve compliance with National Air Quality Standards

PM_{2.5}

In December 2015, national environment ministers adopted new health based air quality standards for particulate matter including long-term health based standards for PM_{2.5}.⁶ This is identified in the National Clean Air Agreement and is reflected in amendments to the *National Environment Protection (Ambient Air Quality) Measure* which took effect in February 2016.⁷

Continued reductions in emissions of both primary PM_{2.5} particles and secondary particle precursors from all significant sources will be required for NSW to achieve compliance with the national PM_{2.5} standard.

Adopting Euro 6/VI standards will reduce emissions of primary particles and secondary particle precursors from the transport sector, and is one of many measures required if NSW is to comply with the national PM_{2.5} standards.

Ozone and nitrogen dioxide

The adoption of Euro 6/VI standards (Option 6) will support NSW in achieving compliance with existing National Air Quality Standards for ozone and nitrogen dioxide.

A National Environment Protection Council review of health based standards for ozone and nitrogen dioxide pollution is expected to be finalised in 2018. If the review results in the tightening of these standards, the adoption of Euro 6/VI standards will support NSW in achieving any tighter standards.

⁴ <https://stratasadvisors.com/Insights/Top-100-Sulfur-Gasoline>

⁵ http://www.aip.com.au/pdf/Facts%20about%20the%20Australian%20Transport%20Fuels%20Market_2015.pdf, p. 1

⁶ AGREED STATEMENT 15 December 2015 Meeting of Environment Ministers <http://www.environment.gov.au/system/files/pages/4f59b654-53aa-43df-b9d1-b21f9caa500c/files/mem-meeting4-statement.pdf>

⁷ Variation to the National Environment Protection (Ambient Air Quality) Measure <https://www.legislation.gov.au/Details/F2016L00084>