Clean air FACT SHEET

Air pollution sources, impacts and trends

This fact sheet summarises the key health impacts from various pollutants, and their current and anticipated future (2030) sources.

Air pollution comprises a variety of pollutants, emitted by various sources and causing a range of impacts on human health and amenity.

The key drivers of future air pollution are expected to be population growth and a warming and drying climate. Hence, air emissions linked to domestic and business activities, temperature and drier conditions will be key future pollutants of concern. Particulate matter and ozone will be of particular concern. Conversely, carbon monoxide, nitrogen dioxide and air toxic levels are expected to decrease in the future.

Within these broad trends, the composition of air pollutants will also change over time, primarily due to expected changes in industrial and commercial activities and vehicle technology, as well as population and climate. In summary, some key drivers are:

- Climate change – a warming and drying climate will likely result in greater contributions to air pollution from bushfires and dust storms, and cause more summer smog (ozone) as temperatures increase
- Continual improvements in vehicle exhaust emissions through, for instance, increases in the uptake of electric and other lower emission vehicles, will mean that transport emissions such as volatile organic compounds and nitrogen dioxide will decline. By 2030, total exhaust pollution from cars and trucks is expected to reduce, despite a growth in traffic volumes. However, road dust and brake and tyre wear are likely to increase.
- Population and economic growth will see the relative contribution of emissions from domestic and smaller industrial and business sources increase, and a greater number of people be exposed to air pollution. For example, there is an expected 45 per cent growth in the population of Melbourne and Geelong between 2006 and 2030. Victoria's population is expected to reach 10.1 million by 2051, with 8 million in greater Melbourne.[1]
- Population growth and a warming climate will see a growth in fine particulate matter (such as smoke). The main sources of this include motor vehicles, wood heating, bushfires and fuel reduction burns.

Comprehensive information is available in EPA Victoria's **Future air quality in Victoria – Final report**

https://www.epa.vic.gov.au/our-work/publications/publication/2013/july/1535

[1] https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future-2016

PHOTOGRAPH: CRAIG MOODIE

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Summary of air pollution sources, impacts and trends

Pollutant	Main sources – current	Future trends	Key health impacts
Particles – PM_{10}	Motor vehicles Industry Dust[2]	Steady Decrease Increase	Decreased lung function Increased respiratory symptoms Exacerbation of cardiac conditions and respiratory conditions (e.g. asthma) Premature mortality Lung cancer
Particles – $PM_{2.5}$	Motor vehicles Wood heaters Bushfires (localised impacts) Fuel reduction burns (localised impacts)	Decrease Steady Increase Steady	
Ozone	Motor vehicles Industry Bushfires	Decrease Decrease Increase	Decreased lung function Increased respiratory symptoms Exacerbation of asthma and other respiratory diseases
Nitrogen dioxide	Motor vehicles Industry	Decrease Decrease	Increased respiratory symptoms Exacerbation of asthma and other respiratory disease
Sulfur dioxide	Industry Shipping	Decrease Increase	Increased respiratory symptoms Exacerbation of respiratory disease
Carbon monoxide	Motor vehicles Industry Wood heating	Decrease Decrease Steady	Exacerbation of ischaemic heart disease [3] Decreased exercise capacity
Air Toxics[4]	Motor vehicles Industry	Decrease Decrease	Vary by pollutant but can include cancer or effects on the central nervous system

[2] Sources include rural land, industrial sites and unsealed roads

[3] Caused by reduced blood flow

[4] Diverse range of air pollutants that are usually found in very low concentrations but can be hazardous due their characteristics (such as high toxicity or persistence in the environment). Examples are volatile organic compounds (such as benzene) and heavy metals.

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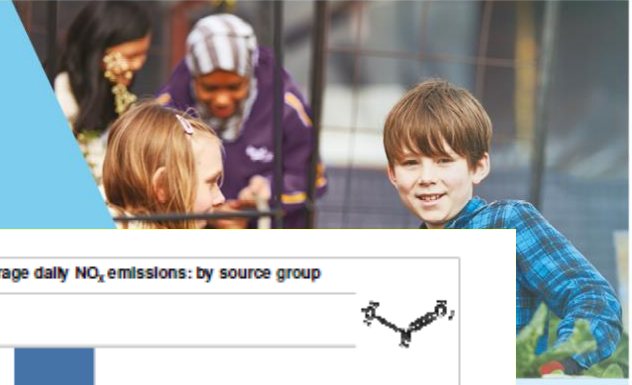

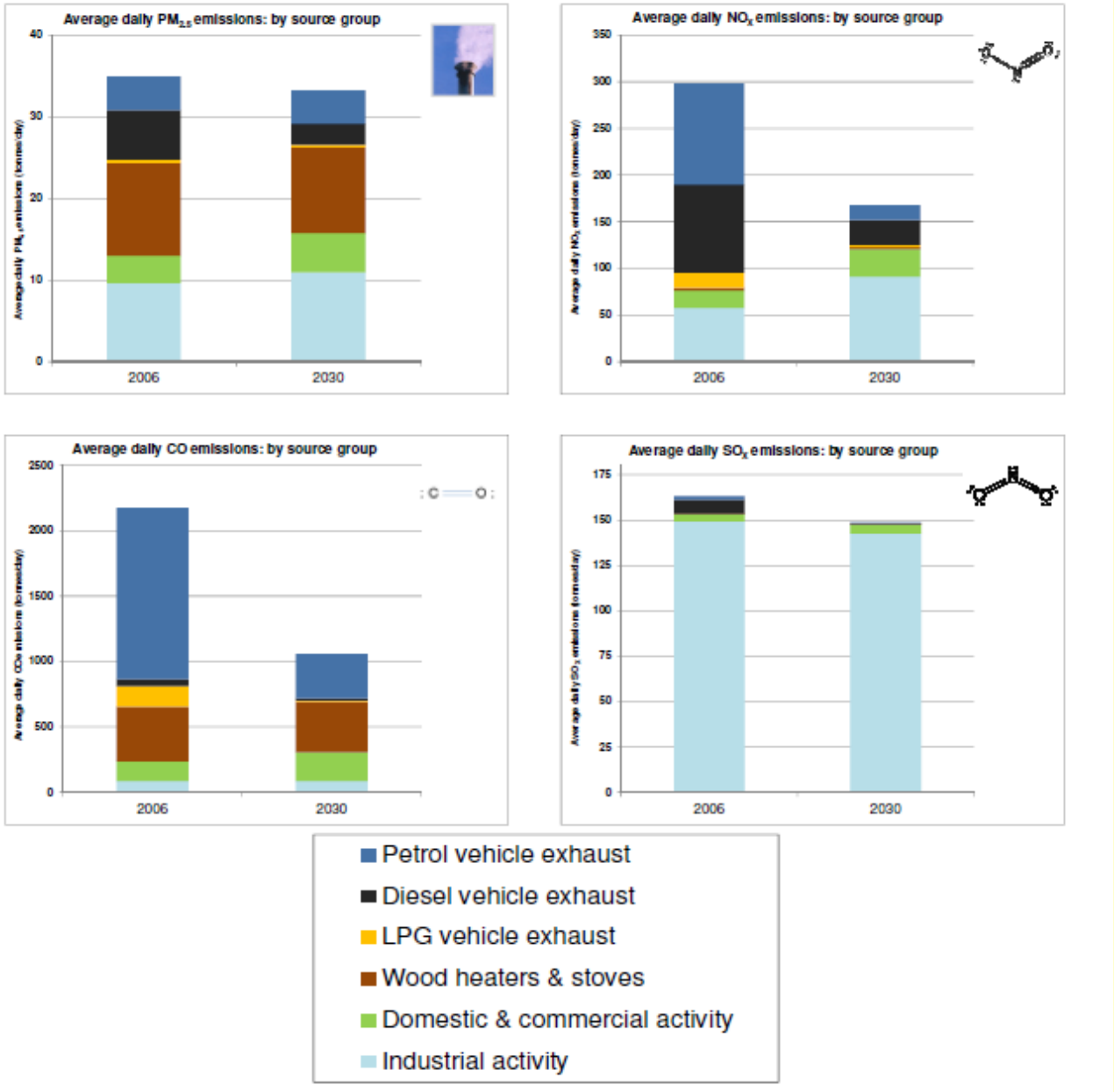

Further information:

Future air quality in Victoria – Final report (EPA Victoria)

https://www.epa.vic.gov.au/our-work/publications/publication/2013/july/1535

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