



Smoke – Sources & interventions



The purpose of this fact sheet is to outline major sources of smoke emissions in Victoria, and how some of its impacts can be addressed.

Smoke from burning wood or other forms of biomass¹ can be a major source of localised air pollution, with consequent impacts on communities' health and amenity. Smoke impacts can be exacerbated by weather conditions such as still, cold days when wood heaters are in use, and during bushfires and fuel reduction burns. Biomass smoke consists of a complex mixture of particles and gases, including particulate matter, carbon monoxide, nitrogen oxides and volatile organic compounds. These pollutants and their impacts are described in more detail in the Fact Sheet *Air pollution sources, impacts and trends*. On a population level, the major health impacts from smoke come from particulate matter.

Smoke is also an irritant for many people, causing symptoms such as itchy eyes, sore throats and coughing. It affects our ability to enjoy our homes and gardens, local communities and the outdoors.

Sources of smoke pollution

There are multiple smoke sources of smoke in Victoria, including:

- domestic wood heaters
- Forest Fire Management Victoria (FFMVic) burns on public land to reduce fuels, maintain health of plants and animals, and regenerate timber harvesting coupes
- local councils – Country Fire Authority (CFA) burns on council land and roadsides to reduce fuel and control pest plants
- farmers burning stubble in autumn, and to reduce fuel loads in spring

- plantation companies burning leftover woody material after timber harvesting / before re-planting
- rail, water and other authorities burns along railway lines and other land
- interstate fires – from New South Wales, South Australian or even Tasmanian events

Domestic wood burning is the main statewide source of wood smoke. It has a localised or even neighbourhood impact, but this can be severe, especially in still weather.

Fuel reduction burns are conducted by FFMVic and the CFA to reduce fuel loads (shrubs, bark, leaf litter) that fuel bushfires - and hence their spread and intensity. Fuel reduction burns make fire suppression activities more achievable and safer. They are dependent on weather and conditions, such as fuel moisture levels, which leaves small windows of opportunity to undertake them. They protect communities from potentially greater smoke impacts from bushfires.

These can create smoke at any time of year, but mostly in autumn (when burning conditions tend to be most suitable, and smoke tends to have limited distribution in stiller conditions) and spring (when conditions suit smaller strategic burns, and smoke tends to clear more quickly).

Regeneration burns are undertaken by trained staff to regenerate logged coupes following timber harvesting. By mimicking the natural regeneration processes after bushfire, regeneration burns provide the most effective way to successfully regrow forests after harvesting.

¹ Any plant material – smoke can occur from the burning of wood and other vegetation including native vegetation and agricultural waste.





Reducing wood smoke and its impacts

Minimising emissions from smoke will be a focus of the Air Quality Strategy.

It is not possible to eliminate wood smoke as, for example:

- wood is a critical source of economical heating for many Victorians, especially in areas without natural gas
- fuel reduction burns are necessary to minimise bushfire risk and are a preventive measure to reduce even larger emissions resulting from bushfires²
- burns following forestry operations are necessary to provide conditions suitable for seed germination and forest regrowth.

However, there are a range of ways to minimise the amount of smoke created and its impacts on Victorians. Some potential opportunities for domestic wood heaters include:

Some opportunities to minimise impacts from domestic wood heaters

Operational practice	Monitoring and information	Statutory requirements	Incentives
Burning dry, untreated wood Not allowing overnight smouldering Avoiding use for aesthetic purposes Cleaning chimneys annually	Localised air quality monitoring to assess level of emissions Education on best practice burning from heater retailers/ firewood suppliers	Emission and efficiency standards Restrictions on installation in defined areas	Support to upgrade to more efficient models or alternative fuels (gas, electricity) Support to replace open fireplaces with slow combustion heaters

² The Department of Environment, Land, Water and Planning works with the Department of Health and Human Services, VicRoads, Victoria Police and the Environment Protection Authority to minimise the impacts of smoke on people and regional economies.

