Chapter 3
Air Quality

Wood Burning Appliances

Ozone Depleting Substances

Sustainable Transport

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Air Quality

Objective

To improve local air quality, reduce greenhouse gas emissions and reduce the use of ozone depleting substances.

Targets

- ✓ *To reduce the amount (kg) of carbon dioxide (equivalent) emitted per visitor night.*
- ✓ *To have < 30% of lodges using open fireplaces as their primary source of heating.*

There are many substances in the air which may reduce air quality and impair the health of plants and animals (including humans). Visitors to the Perisher Resorts can have an impact on the local air quality through the burning of wood. However your impact on the earth's atmosphere extends much further. The use of coal generated electricity, the purchase of non eco friendly products and travelling to and from the snowfields all add to the increase in carbon dioxide (CO^2) emissions. CO^2 is one of the main greenhouse gases that occurs naturally in the earth's atmosphere. These gases are essential to maintaining the temperature of the earth by preventing the loss of heat into space. However if there is too much build up of certain greenhouse gases they can also have the adverse effect of not releasing enough heat thus warming up the earths surface.

Wood Burning Appliances

Environmental Risk — *Air pollution from inappropriate use of open fireplaces and wood heaters.*

EMS Requirement — *Develop a replacement program for fireplaces/ wood heaters that are not compliant with the Australian Standard (AS4013).*

If your wood heater was installed prior to 1992 it may not be compliant with Australian Standard AS 4013-1999 Domestic Solid Fuel Burning Appliances – Method for Determination of Flue Gas Emissions (check for a compliance plate or contact the manufacturer if you are unsure or cannot locate the plate). If your heater does not comply you should consider replacing it with a wood heater or fireplace that conforms to the standard or replacing it with electric or gas heating which can be more efficiently controlled.

EMS Requirement — *Consider replacing open fireplaces and wood heaters with thermostatically controlled gas or electric heaters.*

An open fireplace generates 1.7 times more greenhouse gases than an electric fan heater per unit of heat delivered.

EMS Requirement — *Educate staff and guests about efficient fireplace use*

Your lodge education program should consider issues, such as:

- storing firewood in a dry, ventilated area protected from the weather
- limiting use of open fireplaces
- using small logs and provide plenty of air
- preventing the fire from smouldering overnight.

FACTS

- Modern controlled combustion wood heaters are up to 80 per cent more efficient than older wood heaters and open fires (see www.homeheat.com.au for further information).
- Trees naturally help filter the air and act as sinks to excess carbon emissions.

YOU ALSO NEED TO CONSIDER

- Fallen trees, which are a source of firewood provide valuable habitat for native fauna, insects, lizards and other creatures. This is an additional environmental impact of wood burning fireplaces which should be considered when assessing alternatives.

Environmental Risk — *Air pollution from poor chimney/flue management.*

EMS Requirement — *Ensure your chimney and flue are appropriately managed.*

- Inspect your chimney and flue before, after and during the winter season to check for the build up of soot and clean as necessary.
- Ensure your chimney is at least 1 metre taller than surrounding buildings within three metres.
- The top of your chimney should be designed so that smoke travels vertically, giving it a better chance of being dispersed. A concentric shroud, venturi cowl or parallel rain excluder are the best types of chimney stacks.

FACTS

- An open fireplace can emit 15 grams of smoke particles for every kilogram of wood burnt, whereas a properly operated combustion wood heater will only produce around 1.5 grams of smoke for every kilogram of wood burnt.
- Dry firewood produces less air pollution than wet firewood.
- A poorly operated wood heater can produce twice as much smoke than it would if operated correctly.

YOU ALSO NEED TO CONSIDER

- Ash from your fireplace can be disposed of with your solid waste but make sure it is completely cold before putting it in the bin. It can also make a great fertiliser.
- Control the temperature of your lodge to minimise the use of your fireplace. See the 'Natural Resources' chapter.

Ozone Depleting Substances (ODS)

All cooling devices, such as air conditioners and refrigerators use a refrigerant. Some refrigerants use ozone-depleting substances, such as chlorofluorocarbons (CFC's) and hydrochlorofluorocarbons (HCFC's). International and national agreements are in place to phase out the use of these refrigerants.

Environmental Risk — *Reduced air quality from use of ozone depleting substances (ODS).*

EMS Requirement — *Develop a replacement program for appliances that use ODS.*

Once you have identified the equipment in your lodge that use ODS you should then consider phasing out this equipment.

EMS Requirement — *Monitor your use of ODS.*

When you get your refrigerators and air conditioning units serviced, you should ask the technician to record how much refrigerant is consumed; the type of refrigerant and whether the refrigerant could or should be replaced with a more environmentally friendly product.

FACT

- CFC's and HCFC's are very active greenhouse gases with the small amount used in a typical fridge equivalent to around a tonne of carbon dioxide, the most common greenhouse gas.
- In Australia, greenhouse gas emissions from all sources amount to 28 tonnes per person per year. The sustainable level of greenhouse gas emissions has been estimated at 3.5 tonnes per person per year that puts the Australian average at 8 times the sustainable level.

YOU ALSO NEED TO CONSIDER

- If your vehicle was manufactured before 1994 it will probably have a refrigerant in its air conditioning system which is harmful to the ozone layer. It is important to run your air conditioner weekly in winter to keep seals lubricated to reduce the risk of leaks.
- If you have a yellow hand held fire extinguisher (BCF) containing halon it needs to be handed in to the Fire Brigade at Perisher Valley. Halon is hazardous to the user as well as the environment.

Sustainable Transport

Transportation is one of the main sources of greenhouse gas emissions to the atmosphere. The PRREMS encourages all people who visit and work in the area to think about the type of transport they use. Where the option is available consider using a method of transport which has less impact on the environment.

Environmental Risk — *Air pollution from vehicle emissions.*

EMS Requirement — *Educate staff and guests about using sustainable transport.*

Alternative transport methods when travelling to and from the PRR could include:

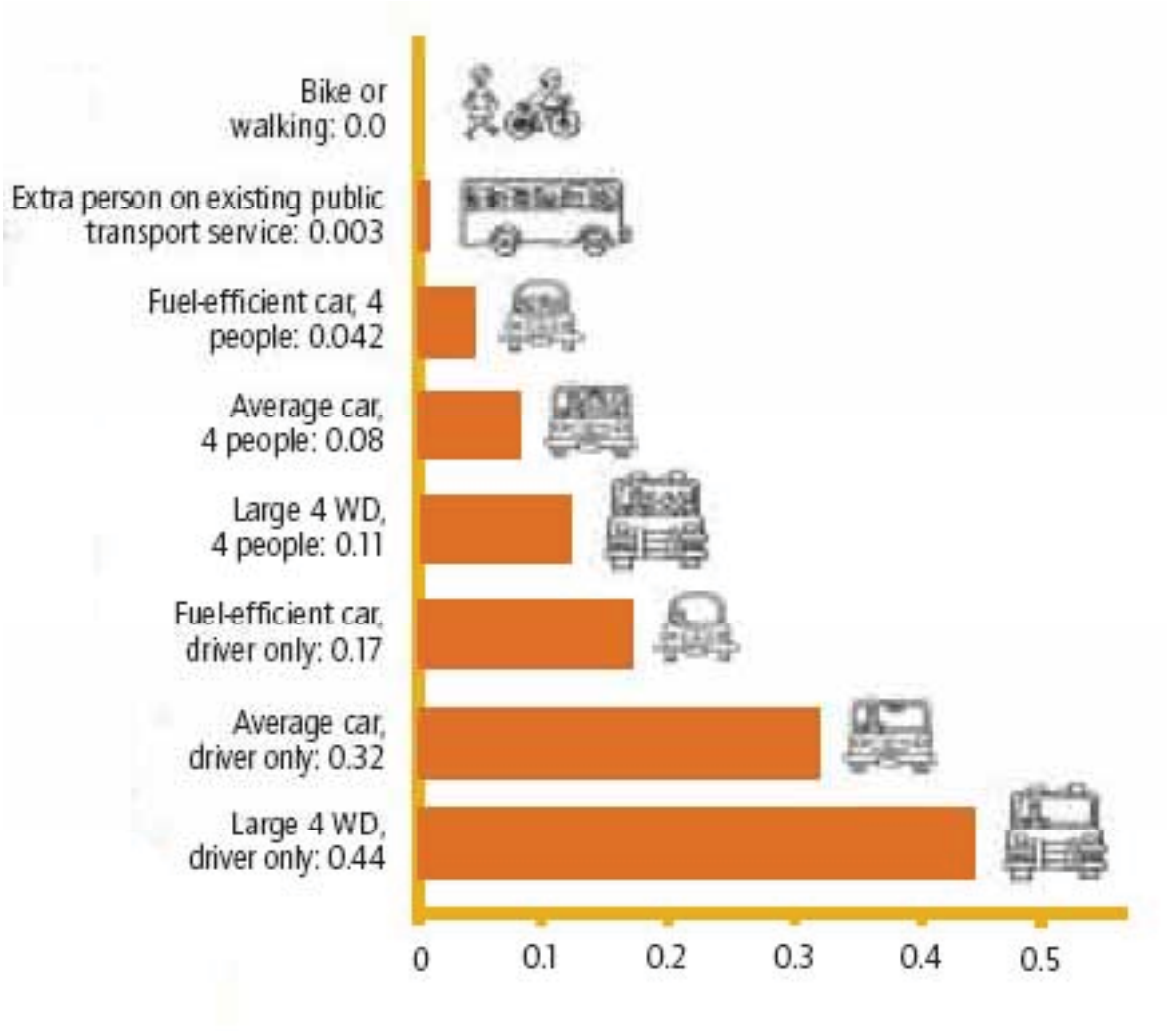
- Car pooling
- Skitube
- Public transport

Consider using alternative fuels including:

- Ethanol
- Biodiesel
- LPG

FACTS

- Over 15% of Australia's greenhouse gas emissions originate from transport activities.
- Transportation accounts for 34% of the greenhouse gases emitted by the average Australian household.
- An average car spews out 4.5 tonnes of greenhouse gas emissions a year.
- A LPG vehicle will emit 60% less greenhouse gases than an equivalent diesel engine.



(Kilograms of greenhouse gas per person per kilometre)

YOU ALSO NEED TO CONSIDER

- In considering greenhouse gas emissions from your vehicles you should not only consider the environmental impacts of lodge vehicles including oversnow transport but also staff and guest vehicles and vehicles used by contractors.
- A vehicle servicing program will ensure that all vehicles are operating as efficiently as possible, reducing vehicle emissions.
- Offsetting your carbon fuel usage by purchasing carbon credits at www.terrapass.com.
- Calculate your greenhouse gas emissions: www.elementree.com.au/calculator.asp

USEFUL WEBSITES

- www.wacollaboration.org.au
- www.myfootprint.org
- www.carbonfootprint.com
- www.powerhousemuseum.com/education/ecologic/bigfoot/mid
- www.greenvehicleguide.com.au – Best fuel economy and reduced CO^2 emission.
- www.greenfleet.com.au – Donations to help buy, plant and care for trees.
- www.greenhouse.gov.au – Calculate your greenhouse gas emissions from your fuel consumption.

Lodge Notes

Use the table below to record what type of **wood burning appliance/s** you have within your lodge.

Wood burning Appliance (Fire place or heater)	Model / Make	Age	Compliant with AS4013 (Yes/No)	Date of replacement

Use the table below to record your use of **Ozone Depleting Substances (ODS)**.

Unit using ODS (Refrigerator, cool room, Air conditioner)	ODS used	Date unit serviced	Amount of gas replaced	Date for unit replacement

Lodge Notes

Use the table below to record when you have **inspected and cleaned your chimney/flues.**

Date of inspection	Result (Good/needs a clean)	Date of cleaning	Date of inspection	Result (Good/needs a clean)	Date of cleaning

Use the table below to record your **use of wood.**

Year (March to Feb)	2009 / 2010 Winter 2009	2010 / 2011 Winter 2010	20011 / 2012 Winter 2011	2012 / 2013 Winter 2012
Amount of wood purchased				
Amount of wood used				