
POLICY IMPACT ASSESSMENT

WASTE MANAGEMENT POLICY (SOLID FUEL HEATING)

MANAGING SOLID FUEL HEATING IN VICTORIA

because this is our home



POLICY IMPACT ASSESSMENT

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Managing Solid Fuel Heating in Victoria

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40 City Road, Southbank
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AUSTRALIA

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FOREWORD

Air pollution is regularly rated by the Victorian community as one of the most important environmental issues. Although industry continues to contribute to air pollution, other activities are becoming more significant sources of air pollution. One such source is solid fuel heating, which produces wood smoke pollution. Wood combustion is an important source of heating for some sectors of the community due to cost and limited availability of other options, however it can seriously affect local air quality, limiting people's ability to breathe clean air and enjoy the outdoors in their local neighbourhood.

Correct use of appropriately designed wood heaters produces very low levels of wood smoke and, subsequently, significantly reduces the level of pollution produced. In recognition of this, the *Waste Management Policy (Solid Fuel Heating)* provides a statutory framework for managing the manufacture and supply of wood heaters. It also provides for research information and education. This Policy Impact Assessment (PIA) provides an explanation of the policy, the rationale for its provisions, the key impacts of adopting the policy and a discussion of the alternatives to the policy. This policy reflects the broad community, industry and government expectations with respect to the role of wood heating in Victoria. It has been developed in response to National Industry Standards and community consultation on Victorian air quality programs and policy.



MICK BOURKE

CHAIRMAN

EXECUTIVE SUMMARY

The quality of the air is important to all Victorians. Wood combustion for heating purposes produces wood smoke pollution, which affects the air quality in Melbourne and other regional centres throughout Victoria in the cooler months. Research has demonstrated that exposure to the pollutants contained in wood smoke, particularly particles (the main component of wood smoke), is associated with adverse health effects such as exacerbation of symptoms of respiratory illness and heart disease. Wood smoke pollution also impacts on people's ability to enjoy the outdoors.

Correctly operating wood heaters that meet the Australian Standard AS/NZS 4013 produce significantly less particles than heaters that do not meet the Australian Standard and open fireplaces. This standard is currently not incorporated into Victorian legislation. The management of emissions from wood heaters is reliant on voluntary compliance with standards and information and education programs for wood heater operators.

A waste management policy has been developed to incorporate this standard into Victorian legislation. The policy requires that all wood heaters manufactured and supplied in Victoria meet the Australian Standard. The policy also outlines a number of measures EPA will develop to minimise emissions resulting from the use and operation of solid fuel heaters. These measures include the provision of information on appropriate use and correct operating practices, and ongoing research and review of developments in management strategies for wood smoke pollution. The policy poses no requirements on individuals with wood heaters already installed in their houses. However, the information on operation will assist these individuals in minimising emissions.

The policy will result in benefits to the community and the wood heating industry. Air quality and in particular, localised neighbourhood air quality will be improved as only wood heaters with emission controls will be manufactured and installed in Victoria. Improved use and operating practices will also reduce emissions and improve air quality, reducing the incidence of health problems related to air pollution from wood heaters. Australian wood heater manufacturers and poor performers not voluntarily complying with national standards will no longer have the advantage of the cheaper production costs.

As most States have introduced the Australian Standard into legislation, compliance costs for industry are minimal.

The option of developing the policy was chosen over the alternatives as it allows for the development of a comprehensive strategy incorporating new legislative requirements for manufacturers and suppliers, and reflects another set of regulatory requirements for the installation of solid fuel heaters, thereby creating a seamless Government approach to the management of wood heaters in Victoria.

GLOSSARY OF TERMS

AHHA	Australian Home Heating Association
ANZECC	Australia and New Zealand Environment and Conservation Council
AQIP	Air Quality Improvement Plan
AS/NZS 2918:1990	Australia/New Zealand Standard - Domestic solid fuel burning appliances – Installation
AS/NZS 4012:1999	Australia/New Zealand Standard - Domestic solid fuel burning appliances – Method for determination of power output and efficiency
AS/NZS 4013:1999	Australia/New Zealand Standard – Domestic solid fuel burning appliances – Method for determination of flue gas emission
AS/NZS 4014:1999	Australia/New Zealand Standard – Domestic solid fuel burning appliances – Test fuels
EPA Victoria	Environment Protection Authority Victoria
WMP (SFH)	Waste Management Policy (Solid Fuel Heating)
NATA	National Association of Testing Authorities
PIA	Policy Impact Assessment
PM ₁₀	Particle matter with aerodynamic diameter of less than 10 micrometres
PM _{2.5}	Particle matter with aerodynamic diameter of less than 2.5 micrometres
SEPP (AQM)	State environment protection policy (Air Quality Management)
SEPP (AAQ)	State environment protection policy (Ambient Air Quality)
Solid fuel heater	Wood heater

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1 INTRODUCTION TO THE WASTE MANAGEMENT POLICY (SOLID FUEL HEATING)

1.1 Fire, smoke, wood heating and air quality – what's the problem?

The quality of the air environment impacts on all Victorians. Clean air is a basic requirement of life for humans and other living organisms and it is an essential component of a healthy physical environment. Air quality is also an important indicator of the 'liveability' of a city, town or region, as air pollution may adversely affect the health and well-being of individuals, the overall welfare of society and the enjoyment of visitors.

Emissions from solid fuel heaters (commonly known as wood heaters) affect air quality in the Port Phillip Region and other regional centres in Victoria. The *Air Emissions Inventory: Port Phillip Region* (EPA Publication 632) concludes that wood combustion during the colder months is the most significant source of airborne particles in the Port Phillip Region. These emissions can affect both local and regional ambient air quality, particularly during calm, stable weather conditions, leading to high concentrations of pollutants and the formation of a visible haze around the city.

Air quality is not only adversely affected in the highly populated areas of the Port Phillip Region but also in regional centres throughout Victoria. Although these towns are relatively small, on cold still nights, wood smoke can be trapped in valleys by the local weather and topographical conditions creating poor local air quality.

The following data from the Port Phillip Emission Inventory indicate that wood heaters and open fires make a significant contribution to the levels of 'common pollutants' and air toxics in the Port Phillip region between April and September.

- 60 per cent of total PM₁₀ (particle matter with aerodynamic diameter of less than 10µm) emissions
- 68 per cent of total PM_{2.5} (particle matter with aerodynamic diameter of less than 2.5µm) emissions
- 35 per cent of total volatile organic compound emissions
- 23 per cent of total carbon monoxide emissions
- 2 per cent of both sulfur dioxide and oxides of nitrogen emissions
- 68 per cent of total polycyclic aromatic hydrocarbon emissions
- 8 per cent of total benzene emissions
- 24 per cent of total formaldehyde emissions.

EPA research, such as the Melbourne Mortality Study and the Hospital Admissions Study, has demonstrated that exposure to these pollutants is associated with adverse health effects. In particular, exposure to fine particles can exacerbate the symptoms of heart and respiratory illness, including asthma, resulting in increased hospital admissions and premature death.

Additionally, research by Environment Australia found correlations between PM₁₀ and PM_{2.5} and adverse human health impacts. It was noted that the hazardous impacts of wood smoke are believed to be less than for vehicle emissions and 'moderate' compared to cigarette smoke.

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The adverse health, environmental and amenity impacts make wood smoke a significant concern to the community. This is best demonstrated by a selection of comments extracted from letters to EPA from the community regarding smoke (box 1). However, wood heaters are a popular form of heating (demonstrated by comments in box 2). They are valued by many in the community for aesthetic reasons and in some regional areas wood heating may be the only feasible source of heating available. Firewood is also seen as an inexpensive fuel.

As demonstrated in figure 1, correctly operated wood heaters compliant to AS/NZS 4013 have markedly lower emission rates than non-compliant wood heaters and open fires. The development of the policy coupled with measures aimed at improving operating practices will reduce the pollutant levels affecting Victoria's air quality and, potentially, the health of all Victorians. This is discussed further in Chapters 3 and 4.

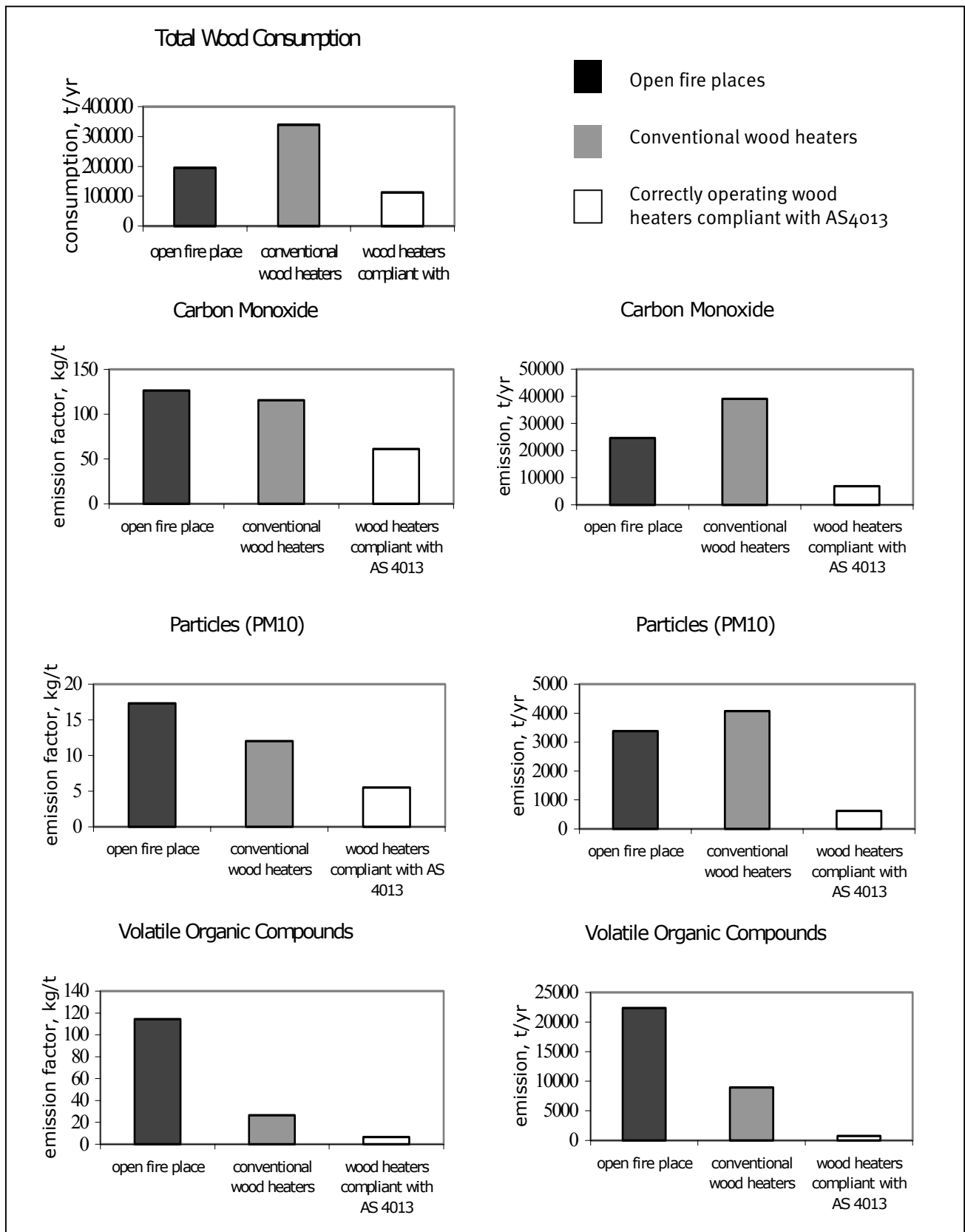
For these reasons, Governments, industry and the community need to work together to ensure that only correctly manufactured wood heaters are installed. However air quality is also adversely affected by the use of solid fuel heating devices – which includes both compliant and non-compliant heaters and open fireplaces – already installed in homes. To achieve immediate and ongoing improvements in air quality, there is a need for EPA to work with other Government agencies, industry and the community to improve the use and operation of solid fuel heating devices.

A WMP allows the Government to set specific requirements for manufacturers and suppliers, reflect other regulations in place for installation, and

outline a broad approach for addressing use and operation of solid fuel heaters through information and education.

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Figure 1: Total consumption by heater type, emission factors and total emissions from domestic wood heating, Air Emissions Inventory Port Phillip Region 1995-96 (EPA Publication 632)



1.2 What is being done to manage wood smoke pollution in Victoria?

In Victoria, strategic solutions to address wood smoke pollution are being developed. The policy is one part of a package of measures needed to achieve maximum reductions in wood smoke emissions. As part of the Government's broader approach to improving air quality, a draft Air Quality Improvement Plan (AQIP) for the Port Phillip Region was released in June 2000 for public consultation and is expected to be finalised later this year. The role of AQIP is to explore and identify actions to improve air quality both now and in the future. In developing the draft AQIP, EPA conducted detailed research into the causes and effects of wood smoke pollution, other jurisdictions' management solutions and potential management options for Victoria. The research established that to achieve maximum reductions in wood smoke emissions there are many issues that need to be addressed, including design, manufacture, installation and operating practices of wood heaters. The policy is a critical step to address the design and manufacture of wood heaters. Extensive research conducted for AQIP indicates that the installation of wood heaters and operation and use of solid fuel heating devices already installed needs to be addressed. While the primary aim of the policy is to address the manufacture and supply of wood heaters, the policy outlines EPA's intentions to provide information on appropriate use and correct operating practices and to work with organisations, other Government agencies and stakeholders to review and conduct research into new methods of reducing wood smoke pollution.

EPA will also continue to support national processes such as the 'National Approach to Firewood Collection and Use in Australia', released in July 2001 by Environment Australia and the Voluntary Code of Practice for Retail Firewood Merchants.

1.3 Why do we need a WMP for solid fuel heating?

1.3.1 Environment protection framework

Victoria's approach to environment protection and its environmental management systems and practices are underpinned by the provisions of the *Environment Protection Act 1970*. This Act establishes the Environment Protection Authority (EPA Victoria) and defines its powers, duties and functions. The Act's provisions include statutory powers, instruments and measures to:

- manage environmental quality;
- establish environmental standards and criteria;
- regulate emissions, discharges and wastes;
- prevent and clean up pollution; and
- impose and enforce environmental requirements.

Some of the most important instruments include State environment protection policies (SEPPs), waste management policies (WMPs), regulations, works approvals, licences and pollution abatement notices.

1.3.2 Waste management policies

Waste management policies are an integral part of environment protection in Victoria and are used to establish consistent goals and directions for managing waste. They provide the basis for managing waste and can cover the generation, use,

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storage, treatment, transport, handling, disposal, recycling, recovery, reclamation, and re-use of waste. Waste is defined in the *Environment Protection Act 1970* and includes 'any matter whether solid, liquid, gaseous or radio-active which is discharged, emitted or deposited in the environment in such volume, consistency or manner as to cause an alteration in the environment'.

These policies are developed through an extensive public process, including an analysis of social, environmental and economic considerations. There are many opportunities for interested stakeholders to influence the policy framework that is adopted by Government. The public process is very powerful in that it is able to engender ownership and commitment by stakeholders to the policy direction agreed during the process.

In line with changes made to the *Environment Protection Act* in June 2002, the name of the policy has been amended from Industrial Waste Management Policy (Solid Fuel Heating) to Waste Management Policy (Solid Fuel Heating). This change enables EPA to put in place statutory waste management policies for a range of wastes not just industrial wastes.

1.3.3 A WMP for solid fuel heating

The air environment in Victoria is currently protected by two SEPPs. These were created in February 1999 by dividing the *State environment protection policy (The Air Environment)* (made in 1981 and subsequently amended several times) into two policies:

- *State environment protection policy (Ambient Air Quality)* or 'SEPP (AAQ)'.

- *State environment protection policy (Air Quality Management)* or 'SEPP (AQM)'.

Both of the current SEPPs identify the following beneficial uses of the air environment:

- life, health and well-being of humans;
- life, health and well-being of other forms of life, including protection of ecosystems and biodiversity;
- local amenity and aesthetic enjoyment;
- useful life and aesthetic appearance of buildings, structures, property and materials; and
- climate systems that are consistent with human development, the life, health and well-being of humans, and the protection of ecosystems and biodiversity.

The SEPP (AAQ) provides indicators, objectives, goals and a monitoring and reporting protocol for ambient air quality, while the management framework and attainment program for protection of the air environment are contained in the SEPP (AQM). This management framework and attainment program addresses not only ambient (or regional) air quality, but also the management of particular sources and local air quality impacts. Because emission reductions and management measures can (and often do) have benefits at both regional and local levels, a single framework and attainment program are prescribed in the SEPP (AQM), rather than a separate program in each SEPP. As such, the provisions of the two policies continue to be closely related.

Wood smoke pollutants have a demonstrated impact on human health, causing exacerbation of

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respiratory illnesses such as asthma. The generation of particle emissions can be reduced through appropriate design and manufacture of wood heaters. The SEPP (AQM) is not the best mechanism for the management of emissions from wood heaters because it cannot set detailed requirements for wood heater manufacturers. A WMP has been developed specifically for wood heaters as the waste produced by their operation can be minimised through setting specific manufacturing requirements.

The objectives of the policy are to:

- improve air quality in Victoria by reducing emissions from solid fuel heaters;
- protect the environment, including human health and amenity, from the hazards that may be posed by the emissions from solid fuel heating; and
- minimise the generation of emissions from solid fuel heaters through the manufacture, installation and operation of solid fuel heaters.

The policy introduces a requirement that all wood heaters supplied and manufactured in Victoria meet AS/NZS 4013, which sets particle emission limits for wood heaters (discussed in more detail in section 2.4.1). The policy also outlines other actions EPA will take to improve the use and operation of all solid fuel heating devices. Such measures include working with industry, Government agencies and other stakeholders, and providing information to industry and the community. The policy also demonstrates the Government's commitment to the promotion of national measures such as codes of practice for the installation of wood heaters.

1.4 What are the alternatives to developing a waste management policy?

In addition to the development of a WMP, two alternatives to meet the aims have been considered and evaluated. These include:

- Do nothing and rely on voluntary compliance with standards; or
- Develop regulations for the supply and installation of wood heaters.

Other potential options to address wood smoke pollution include entry and inspection of individual houses and prohibiting open fires. These types of measures would mean a dramatic improvement in air quality at some times of the year. The public and stakeholder response suggests, however, that the improvements in air quality would be outweighed by the serious disadvantages that would impact on many homeowners, and the disproportionate effects on vulnerable groups in the community. Inspection of individual houses and prohibiting open fires also does not consider the high cultural value placed on wood heating by the Victorian community. As such, EPA has not assessed these measures in detail.

1.4.1 **Alternative 1 - Do nothing and rely on voluntary compliance with Australian Standards**

Under this option, the Government would not introduce any legislative requirements for the manufacture, supply or installation of wood heaters, instead relying on the industry to voluntarily comply with Australian Standards. This option is essentially a 'status quo' approach. Victoria would continue to be one of only two States without any legislation in this area. Once South Australia implements

regulations this could lead to Victoria becoming a 'dumping ground' for non-compliant heaters. This option is not preferred as it fails to meet the objectives of ensuring compliance with Australian standards. It also fails to meet Government commitments aimed at improving air quality.

1.4.2 Alternative 2 - Regulate the supply and installation of wood heaters

This option would only prohibit the supply and installation of wood heaters that are not compliant to AS/NZS 4013. This option is not preferred as it does not provide a mechanism for the Government to develop a comprehensive strategy to address the manufacture, supply, installation, use and operation of solid fuel heating devices, including those already installed in homes. These issues need to be addressed to achieve significant reductions in wood smoke pollution. It would also duplicate legislative requirements for licensed installers.

1.5 Purpose of this policy impact assessment

This PIA provides a discussion of the rationale for, and likely environmental, social and economic impacts of, the policy, and identifies key alternatives considered during its development. It incorporates a description of the policy development process including the public consultation process.

PIAs are required for all new or revised State environment protection policies and waste management policies. This PIA seeks to summarise all the information, including scientific analysis and stakeholder input, used to develop the policy in a

clear and transparent manner for the community and decision makers to consider.

Through this PIA the reader should gain an understanding of:

- Victoria's environment protection system and the policy development process for this policy;
- the background to this policy, including a description of the wood heater industry, the contribution solid fuel heating makes to air pollution, and community opinions on the use of wood heaters;
- the alternatives to making the policy;
- the policy including its objectives, intent and principles, proposed changes to the management of solid fuel heating and the likely implications of key actions which will need to take place in order to achieve the policy's objectives; and
- the potential impacts of introducing the policy and the potential impacts of the alternatives considered.

2 SOLID FUEL HEATING

During the development of the draft AQIP, EPA conducted detailed research into the causes and effects of wood smoke pollution, other jurisdictions' management solutions and potential management options for Victoria. The research confirmed that to achieve maximum reductions in wood smoke emissions many issues, including design, installation and operating practices of wood heaters, needed to be addressed. This PIA summarises and builds on that research, as well as issues raised through consultation conducted on the draft AQIP and draft SEPP (AQM). This is done by examining the views of the stakeholders involved and the management framework already in operation.

2.1 The community – opposing views

The adverse health, environmental and amenity effects from wood smoke make it a significant issue of concern to the community. Local councils, the Department of Human Services (DHS), EPA and the

Minister for Environment receive numerous complaints and letters from community members requesting action to ameliorate the adverse impacts of wood smoke: EPA alone received approximately 125 complaints between April and October 1999.

In response to the advertisement declaring the intention to develop this policy, EPA received 15 submissions from members of the community and industry registering their interest in the policy development process. Further demonstrating the interest in this policy, EPA received 56 submissions on the draft policy. A selection of community comments from the submissions and letters written prior to the initiation of the policy process (box 1) demonstrates the impact of wood smoke on the Victorian community.

Box 1 : Community comments – against solid fuel heating

'We are experiencing ill health as a result of smoke from our neighbour's old wood heater entering our home on a regular basis... Our health is being significantly affected – we are suffering shortness of breath, sinus pain, headaches, sore throats, and exacerbation of asthma.'

'On many occasions there is a thick pall of smoke emanating from the wood heater's chimney (next door). This smoke literally confines the members of my household indoors, as the outside air is asphyxiating.'

'On still nights in winter it is impossible to sleep with the window open because of the smell (of wood smoke).'

'I have two young children who suffer from asthma. Although no one smokes in my home, my neighbour's smoke comes in my windows, and curtains, bedding etc smells like smoke.'

'The Monash City Council is at present being inundated with complaints related to smoke from (wood combustion) heaters causing a nuisance.'

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'Living in the City of Casey has been an absolute nightmare, we were forced out of our new home in Berwick because of our neighbour's constant smoke which permeated throughout our home and garden seven days a week, this move cost us over \$40,000 in blood, sweat and tears.'

'My family was forced to move from a previous address because of the continual emissions of toxic smoke and fumes from our neighbour's slow combustion wood heater.'

'When I go for my morning walk in winter in air that should be fresh but is instead full of smoke I almost feel I need a breathing mask on.'

Despite the adverse impacts of wood smoke, wood heating is a popular form of heating in Victoria for social, economic and environmental reasons (box 2). Recent data collected by the Australian Bureau of Statistics showed that in March 2002, 228,500 Victorian dwellings, or 12 per cent of Victorian dwellings, used wood as their main source of energy for space heating. This has declined from 14 per cent in 1994. It is likely that there are a number of dwellings that use wood heating as a secondary source of heat but ABS does not collect this data. The Sustainable Energy Authority estimates that wood heating costs \$250 per annum, making it one of the cheapest forms of heating, once the wood heater is purchased. In some regional areas wood heating may be the only practical source of heating

as other forms of heating are not feasible or available.

The number of Victorians using wood heating indicates that many people also value the aesthetic atmosphere of a wood heater. EPA acknowledges this, however, given the rising amenity and health impacts, there is a need for a cultural shift from a reliance on wood heating.

Solid fuel heating is also often viewed as a sustainable form of heating in comparison to other forms due to the minimal greenhouse gas emissions and its use of a renewable resource. In this circumstance the potential for significant and immediate health effects from particle pollution are of greater concern than the greenhouse benefits.

Box 2: Community comments – for solid fuel heating

'Over the years the same reasons for wood heater use have been expressed to me as follows: It's the best type of heat; doesn't cause mould like gas does; we have access to wood – free heating; we can dry our clothes at night in front of the heater; nice to look at; runs all night.'

'We have a fire place which we value.'

'[I am] a person who enjoys reading a book by the open fire of a Saturday night.'

'The (country) towns do not have mains gas and people rely on wood i.e. slow combustion stoves, for cooking, heating and hot water.'

2.2 Local Government

Local government is responsible for responding to complaints about pollution from wood heaters already operating in homes as wood smoke is considered a nuisance under section 39A of the *Health Act 1958*. Council officers investigate complaints and liaise with neighbours involved. Solutions such as education and information regarding correct fuels and operating practices and, in some cases, requiring an increase in the height of the flue, often solve the problems. In some cases there appears to be no solution as the design of the wood heater is causing the smoke.

Local councils have indicated support for the policy through consultation on the draft AQIP and draft SEPP (AQM). With correct operating practices, and with installation of only compliant wood heaters in the future, the number of complaints received should be reduced.

2.3 The wood heater industry

The wood heater industry in Australia consists of several major wood heater manufacturers, many small manufacturers, specialist flue manufacturers and manufacturers of hearths and accessories. Limited data exists on the nature of the Victorian wood heater industry, however the Australian Home Heating Association (AHHA) have estimated that there are approximately 20 wood heater manufacturers in Victoria (members and non-members included). On average, each manufacturer produces about five different models, and produces a new design every two years. In 2001, AHHA estimated that about 27,000 wood heaters are manufactured in Victoria per annum with 11,000

imported into Victoria from other States. Wood heaters are sold through specialist wood heater retail outlets, specialist domestic heating outlets (wood, gas, electricity), some hardware stores and some major retail chains. AHHA estimates the sector directly employs about 5,500 full time people and currently has a turnover of approximately \$90 million per year.

AHHA represents the manufacturing, installation, retailing and maintenance, and firewood sectors of the wood heating industry. It coordinates the management and response to issues that affect the industry, represents the industry to the public and Government bodies, and gives the industry a public identity. AHHA issues certificates of compliance to manufacturers of wood heaters if testing has demonstrated compliance with the Standard. AHHA also has members who act as industry 'watchdogs', by alerting AHHA to manufacturers who are not complying with legislation relating to the manufacture and installation of wood heaters.

AHHA has indicated that the wood heater industry is very supportive of the development of the policy. The industry supported the development of AS/NZS 4013 in 1990 and its review in 1999, which resulted in a reduction to the emission limit, as it realised the potential for wood smoke pollution to affect the long term sustainability of the industry if emission standards were not introduced. The industry has also been proactive in encouraging Governments to introduce legislation enforcing the standard thereby providing statutory support to those manufacturers attempting to improve design and lower emission limits.

2.4 Australian Standards, legislation and codes of practice for the wood heater industry

2.4.1 Australian Standards

The relevant Australian Standards relating to wood heaters provide a framework for legislating the design and installation of wood heaters. Australian Standards for wood heaters include:

- installation (AS/NZS 2918);
- determination of power output and efficiency (AS/NZS 4012);
- the method for determining the rate of particle emission from wood heaters (AS/NZS 4013); and
- the method outlining the choice of fuel for performing tests (AS/NZS 4014).

The standard relating to the installation of wood heaters (AS/NZS 2918) is currently recognised under the Australian Building Code and compliance is required under the Victorian *Plumbing Regulations* 1998.

AS/NZS 4013 outlines emission limits for particle emissions from wood heaters. The maximum allowable appliance particle emission factors under this standard are:

Catalytic combustor* fitted	2.25g/kg
No Catalytic combustor fitted	4.0g/kg

The unit 'g/kg' refers to grams of total emissions from a flue per kilogram of dry fuel burnt in a single

* A catalytic combustor is a ceramic or metal honeycomb device that is coated with a noble metal such as platinum or palladium which helps convert the pollutants unburned volatile organic compounds (VOC) and carbon monoxide (CO) in the exhaust gases to less benign compounds (water and carbon dioxide).

burn cycle. The standard also defines labelling requirements.

To ensure the results of the test methods outlined in AS/NZS 4012 and AS/NZS 4013 are comparable, AS/NZS 4014 provides the method that outlines the choice of fuel for performing the tests.

2.4.2 Legislation

Installation of wood heaters is regulated by the Plumbing Industry Commission (PIC). The *Plumbing Regulations* 1998 require wood heaters to be installed by a licensed plumber in accordance with AS/NZS 2918, which sets installation requirements for safety criteria. To ensure that plumbers are acting in accordance with the relevant regulations, 5 per cent of wood heater installations are audited by an independent auditor. Plumbers also supply a certificate of compliance to the householder stating that the installation occurred in accordance with relevant legislation and Australian standards. EPA is working with PIC to incorporate AS/NZS 4013 into the plumbing regulations (discussed further in section 3.3.4).

2.4.3 Codes of Practice and other strategies

AHHA, in consultation with Environment Australia and Standards Australia, have produced a Wood Heating Resource Handbook, which is a guide for the selection, installation, and operation of wood heaters. It will be available to all stakeholders including installers, manufacturers, retailers and local government through AHHA and Standards Australia.

The collection and use of firewood is coming under increasing scrutiny across Australia for reasons

other than air pollution. Firewood collection is seen as threatening important vegetation communities and habitat for threatened species. As a result, the then ANZECC (this issue is now dealt with by the Natural Resource Management Ministerial Council) developed *A National Approach to Firewood Collection and Use*, which was released in 2001. Its aim is to ensure that all firewood collection, including commercial cutting, is ecologically sustainable and not a major cause of the loss or degradation of woodland ecosystems or habitats of threatened species.

Information on initiatives underway in Victoria to reduce the impact of firewood collection can be obtained from the Department of Sustainability and Environment.

3 WHAT IS IN THE POLICY?

This chapter explores the development, content and impact of the policy to enable stakeholders to understand its rationale and intent and its implications. In general, the legislative approach of other jurisdictions has been to adopt the ANZECC model regulations (see Appendix one for more information on the model regulations) and simply prohibit the supply of wood heaters that do not comply with Australian standards. EPA Victoria has developed a policy that not only addresses manufacturing and supply but also addresses installation and the use and operation practices of wood heaters. EPA intends to do this by providing information to the community and industry and working with other organisations to review and conduct research into new methods to reduce the impact of wood smoke pollution, thereby developing a comprehensive policy for wood heaters.

3.1 Policy preamble, title, commencement and application

The preamble describes the overall purpose of the policy. The purpose of the policy is to improve Victoria's air quality by promoting efficient use of resources and reducing the generation of wood smoke pollution caused by solid fuel heating devices. In Victoria, all sources of air pollution are managed within the framework of the SEPP (Air Quality Management), which aims to protect the beneficial uses of the air environment and meet the environmental quality objectives and goals for air quality established by the SEPP (Ambient Air Quality). The waste management policy outlines

specific objectives and an attainment program for the management of pollution caused by solid fuel heating. In doing so it will contribute to achieving the aims and objectives outlined in the two Air SEPPs.

As the title suggests, the policy addresses solid fuel heating and will come into operation upon publication in the Government Gazette and will apply throughout Victoria.

3.2 Policy objectives, principles and intent

Part I outlines the policy framework, including the objectives, principles and intent.

3.2.1 Policy objectives

The policy objectives are to:

- improve air quality in Victoria by reducing emissions from solid fuel heaters;
- protect the environment, including human health and amenity, from hazards that may be posed by emissions from solid fuel heating; and
- minimise the generation of emissions from solid fuel heaters through the manufacture, installation and operation of solid fuel heaters.

As previously discussed, wood smoke pollution from both solid fuel heaters and other wood heating devices, has the potential to significantly impact community health and amenity. It is, therefore, the objective of the policy to improve air quality and protect the environment, including human health and amenity, by minimising emissions from solid fuel heating devices.

3.2.2 Policy principles

The policy is based on the principles of environmental management in the *Environment Protection Act 1970*, which clearly enunciate sustainability principles specific to environment protection aims. These principles have been drawn from a number of sources, including the *Intergovernmental Agreement on the Environment*, the *National Strategy for Ecologically Sustainable Development*, the *National Packaging Covenant* and Victoria's *Industrial Waste Strategy*. These principles are consistent with the community's expectations.

As such, the policy should reflect these principles of environment protection. The first five principles are consistent with the principles adopted by Federal and State Governments through the *Intergovernmental Agreement on the Environment* (IGAE) in 1992. This agreement between the Commonwealth, States and Territories seeks to facilitate a co-operative national approach to the environment and defines the roles of each level of government. The principles were established in the IGAE to guide the development and implementation of environmental policy and programs by all levels of government, and include:

- the principle of *Integration of economic, social, and environmental considerations*;
- the *Precautionary Principle*;
- the principle of *Intergenerational Equity*;
- the principle of *Conservation of Biological Diversity and Ecological Integrity*, and
- the principle of *Improved valuation, pricing and incentive mechanisms (which includes the 'polluter and user pays' principles)*.

Essentially the principles promote the adoption of sound environmental practices and procedures as a basis for ecologically sustainable development. They promote a 'triple bottom line' approach by integrating the consideration of environmental, social and economic values in planning and decision making processes. These principles also encourage the implementation of measures to prevent environmental degradation, even in situations where there is scientific uncertainty and lack of information. Such measures should be cost-effective and be proportionate to the significance of the environmental problems being addressed. The principles also promote the conservation of social values through the maintenance or enhancement of the environment for future generations.

In addition, the policy reflects other principles of environment protection that are used to guide environmental management as set out in the *Environment Protection Act 1970*. They include:

- the principle of *shared responsibility*;
- the principle of *product stewardship*;
- the principle of *wastes hierarchy*;
- the principle of *enforcement*;
- the principle of *accountability*; and
- the principle of *integrated environmental management*.

These principles promote the use of ecologically sustainable practices for the production, use and disposal of goods, and the planning, operation and delivery of services to ensure sustainable use, and protection of the environment in an integrated manner. These principles are aimed at influencing the attitude and behaviour of producers, consumers

and investors to encourage them to invest in, produce and consume goods and services that do not significantly degrade the environment. Influencing individuals, businesses and industries to undertake ecologically sustainable management should be achieved through creating greater awareness of the state of the environment and environmental pressures. Educational material, including information on activities that degrade the environment and measures adopted to mitigate such impacts, should be sought from those who operate such activities and audited, coordinated and disseminated to the wider community by Government agencies. In situations where education has not motivated individuals and businesses to better protect the environment, enforcement measures may be used to ensure that those who implement sound environmental practices are not disadvantaged by those who do not.

This policy has been built upon these principles. In particular these principles were applied to ensure that the objectives of the policy are 'practicable' in that they can, with careful planning and management, be met in a cost effective manner.

3.2.3 Policy intent

The policy intent is in some respects the most important part of a policy. It seeks to broadly describe why this policy has been developed, the outcomes it is seeking to achieve and the way we should go about protecting the community from wood smoke pollution. In this respect, it builds on the policy objectives and principles.

A key intent of the policy is to establish a framework that minimises the generation of wood smoke

pollution while recognising that solid fuel heating is important to the community as a cost-effective form of heating and for its cultural value. The policy intent summarises actions that need to be taken by EPA, the community, other Government agencies and industry to minimise the generation of emissions. These include manufacturers and suppliers meeting national standards for particle emission limits, installation of only compliant heaters by plumbers and improved operating practices by individuals as a result of information and education provided by EPA and other organisations where appropriate.

3.3 Attainment program

Part II of the policy sets the attainment program provisions. An explanation of the attainment program and its implications for industry, Government bodies and the community is outlined in this chapter. The overall impacts of the policy are outlined in chapter 4.

3.3.1 Implementation of the policy

Clause 8 outlines how EPA intends to implement the policy. A range of instruments (Clause 8 (1)) may be employed to achieve the objectives and intent of the policy. These instruments may include:

- working with industry, Government agencies, local government and the community;
- consultation with communities and stakeholders;
- provision of information and community education;
- assessing the value of economic instruments such as incentives;

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- the development of neighbourhood environment improvement plans;
- auditing of solid fuel heaters on sale; and
- enforcement including requiring information and investigation of complaints regarding manufacturers and suppliers.

Clause 8 (2) enables the Authority to authorise a body to issue certificates of compliance for solid fuel heaters. The solid fuel heaters must be tested in accordance with the test procedure specified in AS/NZS 4013 by a laboratory certified by National Association of Testing Authorities. Furthermore, the solid fuel heater tested must not have a particulate emission factor greater than the maximum allowable particulate emission factor specified in AS/NZS 4013.

In implementing this policy, EPA will not be targeting private homes with solid fuel heaters. The cost of ensuring the policy is implemented will be borne by EPA. There are no costs to other Government agencies as a result of the policy.

The *Environment Protection Act 1970* provides for a range of enforcement tools. The adoption of these tools is determined on a priority basis, depending on the significance and severity of the environmental problem and the most efficient and effective option to achieve a positive environmental outcome, in line with EPA's published Enforcement Policy (EPA Publication 384). EPA will use the most appropriate tools to ensure compliance with this policy. For example, one measure to be used by EPA is auditing. Under this measure, EPA will participate in a national wood heater audit program that will obtain twelve heaters from retailers, and have the emissions from these appliances tested, regardless

of the labelling on the wood heater. At least two of the twelve wood heater models audited will be manufactured and on sale in Victoria. In addition, the twelve models plus thirty-five others will be audited for compliance with their engineering design specifications. This program is estimated to cost \$100,000 of which EPA will contribute \$15,000. AHHA has indicated to EPA that this approach will have an effect by discouraging manufacturers from selling heaters that do not match heaters provided for compliance testing.

3.3.2 Manufacture of solid fuel heaters

To reduce emissions from solid fuel heaters there is a need to ensure wood heaters are being designed and manufactured with appropriate emission controls. Clause 9 requires manufacturers to produce and label solid fuel heaters in accordance with AS/NZS 4013, which sets particle emission limits and labelling requirements. Manufacturers must have each model line tested in accordance with the standard and obtain a certificate of compliance.

If the Australian Standard is reviewed and amended in the future, the updated version would apply under the policy. There is a two-year transitional period built into the current version of the standard. This transitional period is reflected in the policy. As such, manufacturers and installers may continue to manufacture and install new heaters certified under a version of AS/NZS 4013 which has been superseded, for a period of two years from the publication date of the revised version of the standard.

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The certificate of compliance is EPA's main method of assessing compliance with the standard.

Manufacturers are required to obtain a certificate of compliance from a body, authorised by the Authority for each make and model line of wood heater produced. Currently AHHA issues a certificate of compliance upon receiving the emissions test and wood heater design from manufacturers. If EPA has reason to believe a wood heater is not being manufactured in compliance with the standard, and/or the manufacturer is unable to produce a certificate of compliance, the Authority may serve a statutory notice under the *Environment Protection Act 1970*, requiring the person to comply with the requirements of this policy and only manufacture heaters that are compliant to AS/NZS 4013. The manufacturer would then have a specified period of time to comply with the notice.

Consultation with industry has indicated the cost of achieving compliance with the policy is estimated at approximately \$8000 per wood heater model. This includes \$6000 for the emissions test and allowances for freight, research and development costs associated with emissions performance and some retesting. Currently it costs \$200 to obtain a national certificate of compliance for a model line.

There will be two different costs associated with the policy:

- the one-off cost associated with non-certified models already on the market achieving certification to the Australian Standard; and
- the ongoing costs for new models designed to achieve certification to the Australian Standard.

AHHA has estimated that less than 10 per cent of the 100 model lines manufactured in Victoria are not

certified to the Australian Standard. The cost to industry for these models to become certified is estimated at \$80,000 (\$8,000 per model line). However, to sell these wood heaters throughout Australia, as most manufacturers do (the small manufacturer interviewed – Case Study B – distribute wood heaters throughout Australia), manufacturers need to achieve certification due to existing legislation in other Australian States requiring compliance with the Australian standard. Therefore, national manufacturers should not incur any costs from the requirement to manufacture to the Australian Standard. In addition, Victorian manufacturers that are not currently manufacturing models certified to the Australian Standard may receive a benefit from the opening up of additional markets nationally thereby potentially off-setting the costs of achieving certification.

New model lines designed will also have to be tested and achieve certification to comply with the policy. AHHA estimate that one new model line is designed and produced every two years by each manufacturer (20 manufacturers in Victoria). Compliance will only be an additional cost for the 10 per cent of manufacturers that currently do not achieve certification for all model lines as other manufacturers are already incurring this cost.

The introduction of clause 9 provides a high degree of certainty regarding legislative requirements for industry, and consistent requirements nationally. Prohibiting the manufacture of non-compliant wood heaters is an essential element for preventing emissions and the most effective point of enforcement for EPA.

There are no requirements enabling EPA to check compliance with the policy once a heater has been installed in a private home. Therefore, introducing statutory requirements for manufacturers will not affect householders.

3.3.3 Labelling and certificates of compliance

Clause 9 requires manufacturers to label wood heaters with information regarding compliance to Australian Standards and to obtain a certificate of compliance.

Labelling will have the impact of providing both industry (manufacturers, retailers and installers) and the community with proof that the wood heater is compliant with the standards. Labelling of wood heaters is important as it provides information not only regarding compliance with standards, but also the average heat output and correct fuel type for use in the heater.

Labelling alone is not sufficient proof of compliance as the manufacturer themselves produce the labels. A requirement for manufacturers to obtain a 'national certificate of compliance' has been included in the policy as the key method for manufacturers to demonstrate compliance to AS/NZS 4013 and the policy. To obtain a certificate of compliance, a wood heater manufacturer must submit a copy of test results and the wood heater design to the authorised body under the policy. AHHA currently performs this duty. Once AHHA is satisfied that appropriate tests have been performed, a certificate will be issued. A copy of this certificate will then need to be issued to retailers with the wood heaters.

Requiring manufacturers to obtain the national certificate of compliance reduces the legislative burden and complexity for manufacturers as the national certificate of compliance is recognised in most other jurisdictions. Those jurisdictions that do not currently rely on the national certificate of compliance are looking at reviewing their legislation to utilise the national certificate of compliance as the method to demonstrate compliance.

3.3.4 Supply of solid fuel heaters

While addressing the design and manufacture of wood heaters it is also important to place similar requirements on suppliers of wood heaters, particularly to ensure that wood heaters imported into Victoria are compliant with the standard. Clause 10 outlines the actions the Authority may take if it is of the opinion that a person is supplying a wood heater not compliant to AS/NZS 4013.

Suppliers must obtain a copy of the certificate of compliance from manufacturers to demonstrate that wood heaters on sale are compliant to the standard. If the Authority is of the opinion that a person is supplying a non-compliant heater, and/or that person is unable to produce a certificate of compliance, the Authority may serve a statutory notice under the *Environment Protection Act 1970*, requiring the person to only supply heaters that are compliant to AS/NZS 4013.

3.3.5 Installation of solid fuel heaters

Controls at the point of installation will add rigour into the system for ensuring only compliant wood heaters are installed in Victorian homes. Installation of solid fuel heaters is currently regulated by PIC.

Licensed installers are required under the *Plumbing Regulations 1998* to install solid fuel heaters in accordance with AS/NZS 2918, which is a safety and mechanical based standard. EPA is currently working with PIC to incorporate AS/NZS 4013 into the *Plumbing Regulations 1998*, which are currently being reviewed. It is intended that the revised regulations will require plumbers to install only solid fuel heaters that are certified as compliant with AS/NZS 4013. Clause 11 references compliance by plumbers with any requirements established by PIC under Part 12A of the *Building Act 1993*.

As outlined above, AS/NZS 4013 is currently not incorporated into the *Plumbing Regulations 1998*. Therefore, there are no impacts arising directly from this clause in the policy. The impacts of including a regulation that requires plumbers to install only solid fuel heaters certified as compliant with AS/NZS 4013 would be assessed during the regulatory impact statement for revised plumbing regulations.

EPA will continue to work with PIC as introducing such a requirement in the plumbing regulations would assist in achieving the objectives of the policy. Prohibiting the installation of wood heaters not certified as compliant to AS/NZS 4013 (in addition to manufacture) provides a secondary point of enforcement particularly for second hand wood heaters. This approach makes use of the established compliance system enforced by PIC resulting in a seamless government approach to the control of installation of wood heaters. Work carried out by plumbers is already audited, with 5 per cent of all procedures inspected for compliance to any requirements under the *Building Act 1993*. This

could include the requirement to only install wood heaters certified as compliant with AS/NZS 4013

3.3.6 Research, information and education

As discussed in chapter 2, there is both strong support for and resistance to restrictions on the use of solid fuel heating devices. While EPA needs to play an active role in the consideration of such actions in the future, it also needs to work with other organisations that have a role in the management of wood heating, for example, AHHA, the Building Control Commission, health research organisations, other States and Territories and local councils. To this end, clause 12 commits EPA to work with other organisations and the community to review, monitor and coordinate research into wood smoke pollution, developments in technologies and practices and, where appropriate, implement new approaches to reducing wood smoke pollution.

Ensuring appropriate use and correct operating practices has the greatest potential to reduce wood smoke pollution. Clause 13 outlines EPA's commitment to providing the relevant information to the community so that it can make informed decisions and is aware of the potential impacts of actions taken.

Clause 13(1) requires EPA raise awareness about AS/NZS:4013 and to provide information to the community on appropriate and correct operating practices, selection of fuels, the potential health impacts of wood smoke pollution and alternative forms of heating and their environmental impacts. Through the provision of information, EPA will encourage the replacement of non-compliant wood heaters with alternative forms of heating that are

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energy efficient and solid fuel heaters that meet the requirements of this policy and are energy efficient, clause 13(2).

As indicated by sub-clause 3, EPA will encourage solid fuel heater retailers and local government to provide information about compliant solid fuel heaters to ensure that the community is aware of the benefits of solid fuel heaters meeting AS/NZS 4013, appropriate sources of fuel, correct and efficient operating practices and alternative forms of heating and their environmental impacts. To facilitate this provision of information, EPA has developed a wood smoke brochure for distribution by retailers and local councils.

EPA acknowledges that education alone will not be effective in reducing wood smoke pollution.

To achieve continuous improvement in reducing wood smoke pollution, wood heater industry members need to be encouraged to strive for continuous improvement and to operate in a responsible and consistent manner. Industry codes of practice can provide leadership within an industry sector, illustrating the 'right way to do things'.

As indicated by sub-clause 4, EPA is committed to promoting the development and application of codes of practice so that industry players can stay informed regarding appropriate operating practices and new developments in technologies. Examples of these codes of practice include the *Voluntary Code of Practice for Retail Firewood Merchants* developed by Environment Australia (EA) and the *Wood Heating Resource Handbook: Guide to the selection, installation and operation of wood heaters*

developed by AHHA, EA and Standards Australia.

Adoption of industry codes of practice will improve the performance of solid fuel heaters, improve firewood quality and reduce wood smoke pollution, therefore providing benefits to Victoria's air quality.

The implementation of clauses 12 and 13 by EPA will place no additional costs on industry or the community. Initiatives such as research programs and the distribution of information will be funded through EPA's existing budget.

The measures outlined in clauses 12 and 13 will assist in achieving the objectives of the policy. Ensuring wood heaters are manufactured to Australian Standards will address the potential pollution resulting from wood heaters installed in the future. However the effectiveness of emission controls in wood heaters is reduced if incorrect fuels or poor operating practices are employed.

Increasing the efficiency and using correct operating practices for wood heaters and open fireplaces already installed in homes will increase benefits for air quality (discussed further in section 4.2.2).

The encouragement of alternative forms of heating to wood heaters will also reduce wood smoke pollution.

3.4 Industry case studies

Case studies have been included to illustrate the impact of the policy on four manufacturers. The manufacturers interviewed were chosen randomly, while ensuring there was representative of different sizes of manufacturers in Victoria.

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Case study A

Company A is a small Victorian manufacturer of wood heaters, producing five different models. Despite being a small manufacturer, they have a national distribution with the majority of sales Victorian based. Four out of the five models produced are certified as compliant with AS/NZ 4013. The certified compliant wood heaters are labelled appropriately and a certificate of compliance obtained and provided with each wood heater distributed.

Company A found the cost of demonstrating compliance as not insignificant given their small size, though saw it as a necessary process to provide a level playing field in the industry. Company A would expect, however, that any company not acting in accordance with the standards and legislation would be penalised appropriately.

Company A has found that compliance with standards and regulations is an important selling point to prospective customers. Company A estimated that achieving compliance will cost between \$5000 to \$9000 per model heater, including the cost of testing by a NATA approved laboratory, freight and the application for a certificate of compliance. Testing takes approximately two months and has to be renewed every five years.

Company A indicated that the policy for wood heaters will have a minimal effect on their operation. They indicated that four out of their five models meet the Australian standards and therefore already comply. The demand for the fifth model is relatively small and has not been tested as yet. This model may require refinement to achieve compliance.

Case study B

Company B is a Victorian manufacturer and retailer of wood heaters, producing 10 different models for a total of 1300 units per year. Despite being a small manufacturer, they distribute to all states in Australia. All models produced are certified as compliant with AS/NZ 4013. The certified compliant wood heaters are also labelled appropriately and a certificate of compliance has been obtained and is provided with each wood heater distributed.

Company B found the cost of demonstrating compliance as not insignificant given their small size. Company B estimates that achieving compliance for a new model costs approximately \$8000. Despite the cost, which they have been incurring voluntarily, Company B supports the policy. It sees environmental improvement, and the reduction of non-compliant wood heaters available, as important. Also the company believes the community needs to be more informed about the operation of wood heaters.

The policy for wood heaters, which brings Victoria into line with the regulatory approach in the rest of Australia, will have no effect on Company B. All of their models meet the Australian standards and therefore comply with the policy.

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Case study C

Company C is a large manufacturer of wood heaters, producing 10 different models, for three different brands of wood heater. They distribute to all states in Australia as well as New Zealand. All models produced are certified as compliant with AS/NZ 4013. The certified compliant wood heaters are also labelled appropriately and a certificate of compliance has been obtained and is provided with each wood heater distributed.

Company C found the cost of demonstrating compliance to be not insignificant. They estimated the cost of achieving compliance for a new model at approximately \$10,000. The emission test by a NATA approved laboratory costs \$2000 to \$3000. The testing sometimes takes up to two months to be done and has to be renewed every five years. Despite the cost and time associated with testing, Company C has concerns about non-compliant wood heaters being on the market and therefore supports the policy. Another key issue revolves around the method of ensuring compliance. Company C mentioned that some manufactures get one of their heaters tested for AS/NZ 4013 compliance and then adhere the plate to all their models. This demonstrates the need for a certificate of compliance to be obtained for each model line.

The policy for wood heaters, which brings Victoria into line with the regulatory approach in the rest of Australia, will have no effect on Company C. All of their models meet the Australian standards and therefore comply with the policy.

Case study D

Company D is a large manufacturer of wood heaters, producing 16 different models, for two different brands. They distribute to all states in Australia. All models produced are certified as compliant with AS/NZ 4013. The certified compliant wood heaters are also labelled appropriately and a certificate of compliance has been obtained and is provided with each wood heater distributed.

Company D found the cost of demonstrating compliance to be not insignificant. Company D estimated the cost of achieving compliance for a new model is \$7,000. The testing sometimes takes up to two months to be done and has to be renewed every five years. Company D estimated the cost of redesigning a non-compliant wood heater at approximately \$40,000. Company D was of the opinion that because of compliance costs, smaller manufacturers have closed down, with the industry now having five or six major manufacturers.

Company D supports the policy as the introduction of legislation in other States has reduced the number of “cowboys” in the industry who have been supplying non-compliant wood heaters. Also Company D believes the new emission standards are good for the environment but because of the life span of wood heaters there are still many non-compliant wood heaters in operation.

The policy for wood heaters, which brings Victoria into line with the regulatory approach in the rest of Australia, will have minimal, if any, effect on Company D. All of their models meet the Australian standards and therefore comply with the policy.

4 SUMMARY OF IMPACTS OF THE WMP

The groups affected by the policy are as follows:

- the wood heater industry;
- the community; and
- government.

4.1 Costs resulting from the policy

4.1.1 Industry

AHHA has indicated that as most Victorian manufacturers distribute wood heaters nationally and legislation is in force in most States, the majority of manufacturers are already supplying heaters that are certified as meeting AS/NZS 4013. This assessment has been confirmed through targeted consultation with a selection of wood heater manufacturers. As this policy seeks to ensure that wood heaters are manufactured to the Australian Standard, costs to the majority of manufacturers of this policy will be negligible.

However, it is likely that there will be a small number of model lines that are not certified as meeting the Australian Standard. These will need to be redesigned with appropriate emission controls or removed from the market. Costs of the specific elements of the policy are outlined in Section 3.3.2. Overall costs for individual manufacturers who are currently not manufacturing models certified to the Australian Standard are estimated at \$8,000 (per line model); to come into compliance and minor ongoing costs per year for new model lines produced. These costs will only apply to a small percentage of manufacturers who are not already having their models certified to meet the standard.

4.1.2 Government

Given the small number of non-certified wood heaters on the market, a rigorous enforcement program would not be cost-effective. Instead, EPA intends to inform manufacturers of the introduction of the policy. The method for ensuring manufacturers are complying with the policy would rely mainly on audits, information from industry representatives, AHHA, installers, local council officers or consumers regarding the manufacture of non-compliant heaters. The industry is highly self-regulated and has an active industry association, AHHA, which advocates compliance to the Australian standards.

Local government investigates complaints made by the community regarding wood smoke. It is anticipated that during these investigations, councils may come across wood heaters that have been installed incorrectly or are non-compliant and pass this information through to EPA for action. If EPA is given reason to suspect that a wood heater is not compliant to the policy, it may investigate the manufacturer, and request that the manufacturer present a certificate of compliance. A more rigorous enforcement program may be developed should the need arise.

The enforcement costs will be borne by EPA on an as needed basis in order for EPA to achieve its purpose of enabling the safe, clean and sustainable environment that Victorians seek.

As the policy places no additional requirements on local government, there are no additional costs to local government. As the number of wood smoke complaints should not increase, the policy may lead

to a reduction in resource requirements for local government.

4.2 Benefits of the policy

The minor costs arising from the introduction of this policy are more than off-set by the benefits arising from its development and implementation. These benefits flow to industry by providing a level playing field for manufacture of wood heaters and to the community through improved air quality and the protection of human health. Moreover, this policy is timely, given that most wood heaters currently installed will require replacement during the next 7 years, due to their working life of between 15 –20 years.

4.2.1 Industry

With the introduction of this policy the majority of States will have developed legislation incorporating AS/NZS 4013. Most wood heater manufacturers in Victoria sell wood heaters nationally. A consistent legislative approach is beneficial for manufacturers and retailers in Victoria and other States, as it provides consistent legal requirements throughout Australia. By modelling the compliance system already in operation nationally, the policy achieves a seamless regulatory environment thereby avoiding further administrative costs.

The policy provides industry with a high degree of certainty that all manufacturers in Victoria and Australia are operating to the same standards. The development of AS/NZS 4013 in 1990 was supported by industry to ensure the sustainability of the wood heater industry. The small number of manufacturers that are designing and

manufacturing wood heaters that are not certified as compliant with the standard have had a cost advantage over manufacturers who have been acting responsibly, by meeting standards for the good of the community, environment and the industry and demonstrating this through national compliance. The policy removes the cost advantage for poor performers, as it is no longer possible for manufacturers to disregard industry standards. A 'level playing field' has been created in the industry as the poor performers are now required to achieve the same level of emission controls and achieve certification.

4.2.2 Air Quality

As discussed in Section 1.1, wood heating has a significant impact on the quality of the air environment in Victoria in the cooler months. AS/NZS 4013 compliant wood heaters generate significantly lower emissions than non-compliant wood heaters, provided they are operated correctly.

Research conducted by Environment Australia has found that there is scope for emission reduction through implementing the Australian Standard. Their testing found very high ultrafine particle number concentrations, however, the report stated that AS 4013 should control the emissions of most toxics tested. They concluded that existing Australian standards and procedures are relevant tools for reducing exposure to toxic components in wood smoke.

While wood heating is not the only source of air pollution, the development of the policy will contribute to reducing particles and improving air quality in built up areas throughout Victoria. More

specifically, the incidence of localised neighbourhood nuisance smoke issues from wood heaters installed after the policy comes into force will decrease.

Alternative forms of heating will be encouraged, and where wood heaters are installed, these will be compliant to emission standards. Improved operational practices by the community will also be encouraged. Projections developed for the draft AQIP indicated that the concentrations of particles in the air environment in the cooler months as a result of wood heating will be reduced resulting in improved air quality.

4.2.3 Impact of air pollution on health and amenity

Air pollution can impact on community health and amenity, as demonstrated by the comments in Box 1. Recent EPA studies have shown that current air pollution levels in Melbourne are associated with increases in daily mortality and hospital admissions for respiratory and cardiovascular disease.

Approximately 1000 admissions to Melbourne hospitals for respiratory and cardiovascular disease can be attributed to air pollution. Reducing the level of wood smoke pollution will help protect community health and amenity. It will also reduce costs to the health system and to individuals for air pollution related illnesses.

Visibility is an important indicator of air pollution. The introduction of the policy assists in improving Victoria's air quality, on both a local and regional scale. This provides amenity benefits to the community who value clean air highly.

4.2.4 Government

All levels of government play a role in the management of the wood heater industry, environment protection and community health and amenity.

The SEPP (Air Quality Management) identifies the beneficial uses of the air environment and sets the management framework for their protection. The introduction of this policy contributes to protecting beneficial uses and assist EPA in the delivery of its commitment to the Victorian community.

There are also beneficial impacts for local government as a result of the policy. Complaints about wood smoke are a significant burden on local government resources. They are sometimes difficult to resolve and council officers spend many hours mediating disagreements between neighbours. In some cases wood smoke cannot be reduced below a certain level because of poor wood heater design. The policy ensures that poorly designed wood heaters are not manufactured or installed in Victoria. This in turn should lead to a reduction, over time, in the number of incidents of wood smoke pollution and a decrease in the resulting resource burden on councils. Information and education programs conducted by EPA may also reduce complaints as a result of improved operating practices.

4.3 Mutual recognition and competition policy impacts

The introduction of the policy is not considered to impact on any obligations under the *Mutual Recognition Act (Victoria) 1998*.

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The policy has undergone a competition policy review and it was concluded that the policy does not:

- allow only one company or person to supply a good or service;
- require producers to sell to a single company or person;
- limit the number of producers of goods and services to less than four;
- limit the output of an industry or individual producers; or
- limit the number of people engaged in an occupation.

There are no competition issues arising from the introduction of this policy as all requirements relating to manufacture, supply and installation of wood heaters apply equally to all market entrants.

The policy brings Victoria into line with the majority of States and Territories by introducing requirements that manufacturers of wood heaters meet the Australian standard. In doing so, the policy addresses a minor competition policy issue within the Victorian market. Without the presence of the policy, those manufacturers who only manufacture in Victoria are subject to a slight competition advantage over manufacturers who supply to national markets. This is because all other States and Territories (barring South Australia) require compliance with the Australian Standard. The absence of such requirements in Victoria has enabled Victorian manufacturers that do not supply interstate to obtain a competitive advantage over those who manufacture for Victorian and national markets.

The policy addresses this issue by subjecting all market entrants to the same manufacturing requirements thereby removing the advantage manufacturers only supplying in Victoria have had over national manufacturers.

5 IMPACTS OF THE ALTERNATIVES TO DEVELOPING AN WMP

This chapter seeks to assess the impacts of the policy against the two alternatives outlined in Chapter 1.

5.1 Alternative one - Do nothing and rely on voluntary compliance with standards

Under this option, EPA would not introduce any legislative requirements for the manufacture or installation of wood heaters, instead relying on the industry to voluntarily comply with Australian standards.

This option is essentially a 'status quo' approach and has significant costs and minimal benefits. Victoria would continue to be one of only two States without effective legislation in this area. Once South Australia develops legislation Victoria could become a 'dumping ground' for all non-compliant heaters in Australia. There would also continue to be market distortion with a cost advantage to poor performers, at the expense of good performers. There would also be greater costs associated with reduced air quality.

There are some minor benefits of this option. There are no costs to EPA associated with the management of wood heaters. Also there would be no additional costs to industry. In particular, manufacturers that are currently not voluntarily complying with standards would not be required to comply and, therefore, would bear no additional costs of achieving compliance.

5.2 Alternative two - Regulate the supply and installation of wood heaters

This option involves EPA developing regulations prohibiting the supply and installation of wood heaters that are not compliant to AS/NZS 4013 instead of a comprehensive policy.

This option would result in similar benefits achieved by the components of the policy relating to the manufacture of wood heaters. These include an improvement in air quality and the associated benefits to community health and amenity. This option provides benefits for industry as it would remove the cost advantage for poor performers and achieve nationally consistent legislative requirements for the manufacture of wood heaters.

There are some costs associated with this option for industry, the community and government. For manufacturers not certified to AS/NZS 4013, a cost of approximately \$8000 per model produced would be incurred by manufacturers, in addition to the ongoing cost for all manufacturers to have each new model produced tested and certified to comply with the standard.

Incorporating installation in regulations under the *Environment Protection Act 1970* would duplicate a system already in operation for regulating the installation of wood heaters and complicate legislative requirements for licensed installers. The only cost to EPA under this option is the cost of enforcement, which would be significant for the installation component of the regulation.

This option does not address the use and operation of solid fuel heating devices. There is, therefore, a significant ongoing cost to air quality and community health and amenity associated with the

wood smoke pollution resulting from poor operating practices such as burning wet wood.

5.3 The preferred option – a waste management policy for solid fuel heating

As outlined in more detail in Chapters 3 and 4, the preferred option involves the development of a waste management policy. The primary purpose of the policy is to ensure solid fuel heaters are designed and manufactured to Australian Standard requirements so that particle emission controls are installed thereby reducing emissions when the heater is operational. The policy can also reflect installation requirements set out under another set of regulations (administered by the Plumbing Industry Commission). This approach contributes to achieving the objectives of regulating installation without introducing duplicative regulatory regimes. Finally, the policy can outline measures EPA may develop to address the use and operation of solid fuel heating devices.

Of the three options, the development of the policy will result in the greatest benefits to air quality and community health and amenity, industry and government. It will address the design, manufacture, supply, installation, use and operation of solid fuel heating devices, all of which affect the emissions produced from wood heating. The policy provides assurance to industry that all manufacturers are operating to the same standard, removing a cost disadvantage for good performers. It provides national consistency in legislative requirements. It should also reduce the burden on local councils responding to complaints. With only compliant wood heaters installed in the future and improved operating practices through the provision

of information, there should be reduced incidences of wood smoke pollution.

There are some costs associated with this option for industry and the community. For manufacturers not certified to AS/NZS 4013, a cost of approximately \$8000 per model produced will be incurred by manufacturers, in addition to the ongoing cost for all manufacturers to have each new model produced tested and certified to comply with the standard.

The cost to EPA associated with this option is greater than the other options. These include the costs associated with developing information, education and working with other organisations to investigate future actions to reduce wood smoke.

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6 SUMMARY OF IMPACTS OF THE THREE OPTIONS

The detailed assessment of the benefits and costs of the preferred option is provided in Chapter 4, with

an assessment of the preferred option against the two alternatives provided in Chapter 5. This chapter is intended to provide a concise summary of the benefits and costs of the preferred option and each of the alternatives.

6.1 Waste management policy

BENEFITS	COSTS
<p>A high level of assurance that non-compliant heaters will not be manufactured or supplied in Victoria</p> <p>Removes cost disadvantages for good performers and cost advantages for poor performers</p> <p>Increased certainty for industry in relation to legal requirements</p> <p>Introduces a comprehensive statutory framework consistent with other jurisdictions' legislation streamlining requirements for manufacturers</p> <p>Customer assurance from labelling regarding purchase of compliant wood heaters</p> <p>Reflects requirements under another set of regulations contributing to achieving the objectives of this policy</p> <p>Improved air quality</p> <p>Reduced impacts on community health</p> <p>Reduces burden on local government in responding to complaints about smoky wood heaters</p> <p>Meets specific Government commitments to legislate the manufacture of solid fuel heaters</p> <p>Removes the potential for Victoria to be a dumping ground in Australia for non-compliant heaters.</p> <p>Includes measures to address use and operation of solid fuel heating devices already installed</p> <p>Requires EPA to work with other organisations to</p>	<p>Cost associated with certification for minimal number of Victorian manufacturers estimated at approximately \$80,000</p> <p>Ongoing costs of certification for new models designed for manufacturers not already incurring these costs (approximately 10 per cent of manufacturers)</p> <p>Cost of enforcement and provision of information for EPA</p>

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<p>encourage, coordinate and monitor developments in the management and reduction of wood smoke pollution and, where appropriate, implement and promote new approaches to reduce wood smoke pollution.</p>	
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6.2 Alternative 1 – Do nothing

BENEFITS	COSTS
<p>No government resourcing required to develop and implement regulations</p> <p>Manufacturers of non-compliant heaters not required to ensure that their heaters are compliant to the Australian Standard</p>	<p>Environmental and health costs resulting from air quality pollution</p> <p>Victoria could be a dumping ground for non-compliant heaters</p> <p>Provides a cost advantage to poor performers and a cost disadvantage to good performers</p> <p>Does not meet Government commitments</p>

6.3 Alternative 2 – Develop regulations for supply and installation of wood heaters

BENEFITS	COSTS
<p>A high level of assurance that non-compliant heaters will not be sold or installed in Victoria</p> <p>Meets specific Government commitments to legislate the manufacture of solid fuel heaters</p> <p>Removes cost disadvantages for good performers and cost advantages for poor performers</p> <p>Introduces a regulatory system consistent with other jurisdiction streamlining requirements for manufacturers</p> <p>Increased certainty in relation to legal requirements for industry</p>	<p>Cost associated with certification for minimal number of Victorian manufacturers.</p> <p>Duplication of legislative requirements for wood heater installers</p> <p>Cost of enforcement to EPA</p> <p>No improvement in use and operation of solid fuel heating devices already installed in homes, limiting improvements in air quality</p> <p>No provisions for the consideration of future instruments to address wood smoke pollution</p>

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<p>industry</p> <p>Improved air quality</p> <p>Reduced impacts on community health</p> <p>Reduces burden on local government in responding to complaints about smoky wood heaters</p> <p>Removes the potential for Victoria to be a dumping ground in Australia for non-compliant heaters.</p> <p>Provides customer assurance from labelling regarding purchase of compliant wood heaters</p>	
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APPENDIX ONE: OTHER JURISDICTIONS APPROACHES

ANZECC Model Regulation

In 1992, ANZECC agreed on a national model regulatory scheme for solid fuel heaters.

The model regulation, *Solid Particulate Emission Standard and Sale of Domestic Solid Fuel Burning Appliances*, was designed in partnership with the AHHA (then named Australian Solid Fuel and Wood Heater Association), to promote consistent environmental regulation in all States and Territories and to ensure a 'level playing field' between retailers. The working group that developed this regulation stated: '*the regulation drafted is the minimum required to achieve concise, clear guidance on a national level for pollution control.*'

The ANZECC model regulation only relates to the sale of newly manufactured wood heaters – it does not affect the use of wood heaters that have already been installed.

The model regulation requires all heater models to have been issued a formal certificate of compliance from an accredited body, currently issued by AHHA. This certificate must show compliance with AS/NZS 4012 and AS/NZS 4013, and the fuel used in testing must be compliant with AS/NZS 4014. When changes are made to a model line, a new compliance certificate is required. Certificates of compliance can be cancelled if the combustion process in a heater is altered without reapplying for a certificate. Exemptions from certification can be applied for if the maximum carbon dioxide output from the combustion chamber is less than 5 per cent of the volume of the appliance or volumetric flow

rate through the chamber is too high for total smoke capture. Certification is valid for five years.

The ANZECC model regulation, through the certification process, provides an enforceable framework for the control of newly manufactured and imported wood heaters available for sale. It does not control wood heaters currently installed into houses or the sale of second hand heaters. It also does not control installation and operating practices associated with wood heater usage.

Australian Capital Territory

The ACT has included provisions to control the sale of slow combustion heaters through the *Environment Protection Act 1997* to require compliance with AS/NZS 4013 for all wood heaters. Modification of heaters by installers is illegal.

New South Wales

The new *Protection of the Environment Operations (Clean Air) Regulation 2002* replaces the *Clean Air (Domestic Solid Fuel Heaters) Regulation 1997* and the *Clean Air (Motor Vehicles and Motor Vehicle Fuels) Regulation 1997*.

The Regulation requires that wood heaters sold (wholesale or retail) in New South Wales meet the emission limits specified in Australian Standard. Each model must have a certificate of compliance from an accredited laboratory and be marked accordingly. The Regulations also prohibit a person from tampering with heaters or marking a heater if there is no relevant certificate of compliance in force.

The NSW EPA is working with several local councils to run a wood smoke reduction program including;

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cash incentives, community education about the impacts and efficient operation of wood heaters combined with smoke patrols and enforcement measures.

Queensland

Queensland has regulated the sale of slow combustion heaters through the *Environment Protection (Air) Policy 1997* and the development of an air quality management plan (AQMP) for south east Queensland. The AQMP promotes the development of mechanisms to control the design, installation and operation of domestic solid fuel burning appliances. The *Environment Protection (Air) Policy 1997* requires compliance with AS/NZS 4013. One strength of this regulation is that modifications to certified heaters are illegal, however, it does not enforce the same tight controls on heaters fitted with catalytic combustors that the ANZECC model suggests.

South Australia

Domestic solid fuel heaters are also a significant source of air pollution in South Australia. Although heavily involved in the drafting of the ANZECC model regulation, the South Australian Environment Protection Agency is yet to legislate to control the sale of wood heaters.

Instead, Councils rely on environmental nuisance provisions in the *Environment Protection Act 1993* to deal with wood heater complaints, which involves an authorised officer making a visual and/or odour assessment. Enforcement measures range from a warning to an environment protection order (EPO) issued by the SA EPA.

Tasmania

Domestic solid fuel heaters and open fires are a significant source of fine particle pollution in Tasmania, especially in Launceston. For this reason, Tasmania was the first state to regulate the sale of wood heaters through their *Environment Protection (Domestic Solid Fuel Burning Appliances) Regulations 1993*. These regulations also prohibit the sale of wood heaters not compliant to AS/NZS 4013. The regulations do not regulate the sale of second hand heaters. The modification to heaters, once installed, is also not regulated. These requirements have recently been reviewed. The new requirements have been incorporated into the Environment Protection Policy for Air Quality. The new policy includes a definition of what level of wood smoke is a nuisance.

Western Australia

The *Environmental Protection (Domestic Solid Fuel Appliances and Firewood Supply) Regulations 1998* requires heaters sold to comply with AS/NZS 4013 and regulates wood moisture content. The *Western Australian regulations* are less prescriptive than the ANZECC model regulation as they do not require certification of heaters by the Department of Environmental Protection (DEP) or national body. Once sold however, modification to heaters is not restricted. This regulation does not enforce the same tight controls on heaters fitted with catalytic combustors that the ANZECC model suggests.

The control of sale of wood in Perth and surrounds is also covered in this regulation. The regulation places the responsibility for the sale of compliant firewood (moisture content of less than 20 per cent)

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on the vendor. This means that a visible enforcement presence must be created to ensure all firewood sales are compliant. DEP inspectors use simple 'moisture meters' to check moisture content of wood for sale. All wood for sale must be labelled as meeting the standard and if inspection indicates that the standard is not met, the wood must be labelled as not being available for sale.

Direct collection of wood from state forests has been restricted to pensioners and other low-income earners. DEP worked cooperatively with AHHA and the wood merchant industry to develop the regulation.

APPENDIX TWO: CONSULTATION

During the development of the policy, EPA Victoria has sought input from a range of key stakeholders. These include:

- AHHA
- Community members
- Local Government officers
- Building Control Commission
- Plumbing Industry Commission.
- A select number of wood heater manufacturers
- A select number of wood heater retailers
- Standards Australia
- Department of Human Services.

In particular, EPA has been liaising with other jurisdictions to learn from their experiences with the development of legislation, industry and community reactions, and any changes. This has allowed EPA to develop a comprehensive policy learning from other jurisdictions experiences.

This consultation was designed to build on the consultation undertaken for the draft AQIP released in June 2000 and draft SEPP released in December 2000 and finalised in December 2001. Many written submissions raised concerns about wood smoke pollution. A significant number of community meetings were held during the four-month consultation period for the two policy documents. During these meetings, community expectations and views for the management of wood heating in Victoria were sought.

The final stage in the public consultation process involved the public release of the draft policy and

draft policy impact assessment for public comment. EPA invited comment from a wide range of stakeholders including environment groups, the community, industry bodies and other government agencies. During this public comment phase, EPA staff involved in the review made themselves available for discussions with stakeholders about the policy and/or any issues arising from this PIA.

After the public comment period, EPA provided a formal written response to public submissions before final recommendations were made to Governor-in-Council.

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APPENDIX THREE: INDUSTRY QUESTIONNAIRE

To gain an understanding of the impact of this policy on industry, a number of manufacturers were contacted and asked the following questions. The case studies were generated from discussions with manufacturers.

1. Brief Description of the history of the Company.
 - Time in Operation?
 - What do you manufacture?
 - How many models of wood heaters do you manufacture?
 - Who and where do you distribute?
2. Do all your model lines comply with AS4013? Are your wood heaters tested by a NATA approved laboratory in accordance with AS4013?
3. How much does it cost to get the test done and how long does it take?
4. Have you obtained a certificate of compliance for wood heaters that comply with AS 4013? If yes, why did you do so?
5. Are you supportive of the requirement to obtain a certificate?
6. For models that comply with AS 4013, will there be anything additional you will have to do to comply with the policy?
7. If yes, how much will this cost you to comply with the policy?
 - Test
 - Certificate
 - Labelling
8. If you have a wood heater that does not currently comply with AS4013, what actions will achieving compliance involve?
9. How much will it cost to achieve compliance?
 - Test
 - Certificate
 - Labelling
10. Do you support the Standards for emission limits? Explain your answer.
11. Is it possible to alter your wood heaters during installation (ie remove emission controls)?

APPENDIX FOUR: LIST OF REFERENCES

1. ANZECC 1992 *Solid Particulate Emission Standard and Sale of Domestic Solid Fuel Burning Appliances*
2. Australian Bureau of Statistics, *Environmental Issues: People's Views and Practices*, 4602.0, March 2002
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4. *Environment Australia 2002 Technical Report No. 4: Review of Literature on Residential Firewood Use, Wood-Smoke and Air Toxics*
4. *Environment Australia 2002 Technical Report No. 5: Emissions from Domestic Solid Fuel Burning Appliances*
5. Environmental Protection Agency New South Wales <http://www.epa.nsw.gov.au/woodsmoke/poeoca.htm>
6. Environmental Protection Agency Queensland 1998 *Draft Strategy for Managing Air Quality in South-East Queensland*
7. Environmental Protection Agency South Australia pers. comm
8. EPA Victoria 2000 *Draft Air Quality Improvement Plan* EPA Publication 707
9. EPA Victoria 1998 *Air Emissions Inventory: Port Phillip Region* EPA Publication 632
10. EPA Victoria 1993 *Enforcement Policy* EPA Publication 384
11. EPA Victoria 2000 *Melbourne Mortality Study, Effects of Ambient Air Pollution on Daily Mortality in Melbourne 1991-1996* EPA Publication 709
12. EPA Victoria 2002 *Ambient Air Pollution and Daily hospital Admissions in Melbourne 1994-1997* EPA Publication 789
13. Sustainable Energy Authority 2001 *Choosing a heating system* www.seav.vic.gov.au
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