

Regulatory Impact Statement

Proposed Protection of the Environment Operations (Clean Air—Domestic Solid Fuel Heaters) Regulation 2002



ENVIRONMENT PROTECTION AUTHORITY

Submissions

The Environment Protection Authority invites you to make written submissions on this Regulatory Impact Statement and on the review of the Clean Air (Domestic Solid Fuel Heaters) Regulation 1997.

Submissions should be made in writing and sent to:

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Submissions will be accepted up until the close of business on Wednesday 7 August 2002.

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Summary

Surveys of community attitudes have found that air quality continues to be one of the NSW community's top environmental concerns.

Emissions from domestic solid fuel heaters contain a number of potentially harmful substances, including carbon monoxide, oxides of nitrogen and polycyclic aromatic hydrocarbons (PAHs). However, the main pollutant of concern is fine particulate matter that is small enough to be inhaled deep into the respiratory system. Epidemiological studies worldwide have shown that increases in particle pollution are associated with adverse health outcomes, including increases in daily mortality and respiratory- and cardiovascular-related hospital admissions.

In Sydney, solid fuel heaters are a major source of particle emissions, responsible for approximately 35% of air particle pollution during winter weeks and 50% on winter weekends. Contributions in regional centres can be much higher, with Environment Protection Authority (EPA) monitoring showing a clear need to reduce emissions.

This Regulatory Impact Statement (RIS) presents a range of options for remaking the Regulation to deal with woodsmoke. These are seen against the background of other current programs to reduce levels of woodsmoke. The possible elements to be included in the Regulation are measures to:

- improve appliances
- improve heater operation
- improve fuel quality
- restrict heater use.

In order to ensure that all new heaters perform as well as existing technology allows, the proposed Regulation requires that new appliances on sale meet the prevailing Australian Standard. The proposed Regulation would eliminate a now largely duplicated NSW certification system, in favour of the national certification system, which is linked to the Standard.

Analysis of all the measures above concludes that the most useful role for the current Regulation is to continue to improve appliance performance. Regulatory mechanisms to improve fuel quality or restrict heater use are not proposed at this time. The EPA will, however, begin to explore additional options for improving heater operation for consideration by the community before winter 2003.

As part of this consultation the EPA is seeking early input from the community on the potential to create a new offence to be enforced by councils. This provision would streamline the current mechanisms for taking enforcement action in the case of persistently poor heater or fireplace operation. It could take the form of a modest 'on-the-spot' fine for excessive smoke in cases where education, instruction and warnings had proved insufficient to correct poor practice.

Feedback to date from council officers and industry representatives who have been working with the EPA to reduce woodsmoke is that such a mechanism would be a useful addition to those already in use. While these enforcement measures impose larger penalties, they are unwieldy. In deciding whether to introduce this measure, the EPA will also seek wide input from councils, industry and the community. Your views on this idea and the options canvassed in this RIS are welcomed, and should be sent to the EPA at the address shown at the front of this document.

1. Introduction

The Clean Air (Domestic Solid Fuel Heaters) Regulation 1997 is the EPA's principal regulatory tool for controlling woodsmoke from domestic heating. The current Regulation requires every new solid fuel heater sold in NSW to comply with the Australian Standard on emissions, and allows the EPA to issue certificates of compliance for specific heater models. The Regulation commenced on 1 August 1997 and will be repealed on 1 September 2002.

The *Subordinate Legislation Act 1989* provides for the making and periodic remaking of statutory rules and requires a Regulatory Impact Statement (RIS) to be prepared when reviewing an existing Regulation. The RIS must assess the economic, social and environmental costs and benefits of new Regulations and their alternatives. The purpose of each RIS is to ensure that the proposed Regulation provides the greatest net benefit or the least net cost to the community.

This RIS has been prepared for stakeholders that have an interest in solid fuel heaters, including councils, producers, retailers and users. The RIS provides stakeholders with an opportunity for direct input into regulatory development. The EPA invites stakeholders to submit submissions on the proposed Regulation.

This document is structured as follows:

- Section 2 provides an overview of domestic solid fuel heaters in NSW and the emissions from these heaters.
- Section 3 outlines the policy context surrounding domestic solid fuel heaters.
- Section 4 identifies the issues to be considered and lists feasible options in reviewing the Regulation.
- Section 5 assesses these feasible options, including the proposed changes to the Regulation.
- Section 6 is the conclusion.

The proposed Regulation itself is also included.

2. The problem with smoke

Solid fuel is the main form of heating for 19% of NSW households, of which 94% use wood as their main source of fuel. Other types of solid fuel are coal and coke. The use of solid fuel heaters differs from urban to rural areas, with 13% of metropolitan households and 31% of country households using this form of heating (Keys Young 1995).

Smoke from solid fuel heaters is a major source of air pollution.¹ It contains a number of noxious gases and fine particles, which can be inhaled deep into human airways and lungs and cause significant health problems. On a winter weekend, domestic solid fuel heaters can be responsible for two to three times as much particle pollution as cars in urban areas, and even more in regional centres.

This section provides an overview of issues related to the use of domestic solid fuel heaters. It discusses the contribution of emissions from solid fuel heaters to air pollution, the operational issues of solid fuel heaters, and the health problems associated with excessive solid fuel heater emissions.

2.1 Contribution of domestic solid fuel heater emissions to air pollution

The major emissions from solid fuel heaters are carbon monoxide, organic gases (gaseous compounds such as polycyclic aromatic hydrocarbons), oxides of nitrogen and particulate matter. Particulate matter (or particle pollution) refers to minute pieces of matter produced by combustion, along with dust and other small particles and liquid matter suspended in the air.

In Sydney in winter, domestic woodsmoke contributes more particle pollution than any other single source, and is a frequent cause of complaints to local councils across NSW. Figure 1 shows that in Sydney, solid fuel heaters contribute 35% of particle pollution during a winter week and 50% on a winter weekend. In regional centres with colder climates, the contribution of woodsmoke to air pollution can be even higher.

The NSW EPA (2002) recently released a report on the results of air quality monitoring from 1996 to 2001. This study found elevated polycyclic aromatic hydrocarbon (PAH) concentrations in winter in Armidale, Cooma, Lithgow, Orange and Tumut, and concluded that the most likely source of these emissions was solid fuel heaters that used wood or coal. (PAHs are a mixture of organic compounds released into the atmosphere as gases or particles during incomplete combustion of organic material. The US EPA has identified 16 priority PAHs on the basis of concerns that they do or might cause cancer in animals and humans.)

2.2 Health impacts

Domestic solid fuel heaters emit several potentially harmful substances, including carbon monoxide, oxides of nitrogen and PAHs.² However, the main pollutant of concern is particulate matter, especially fine particles.

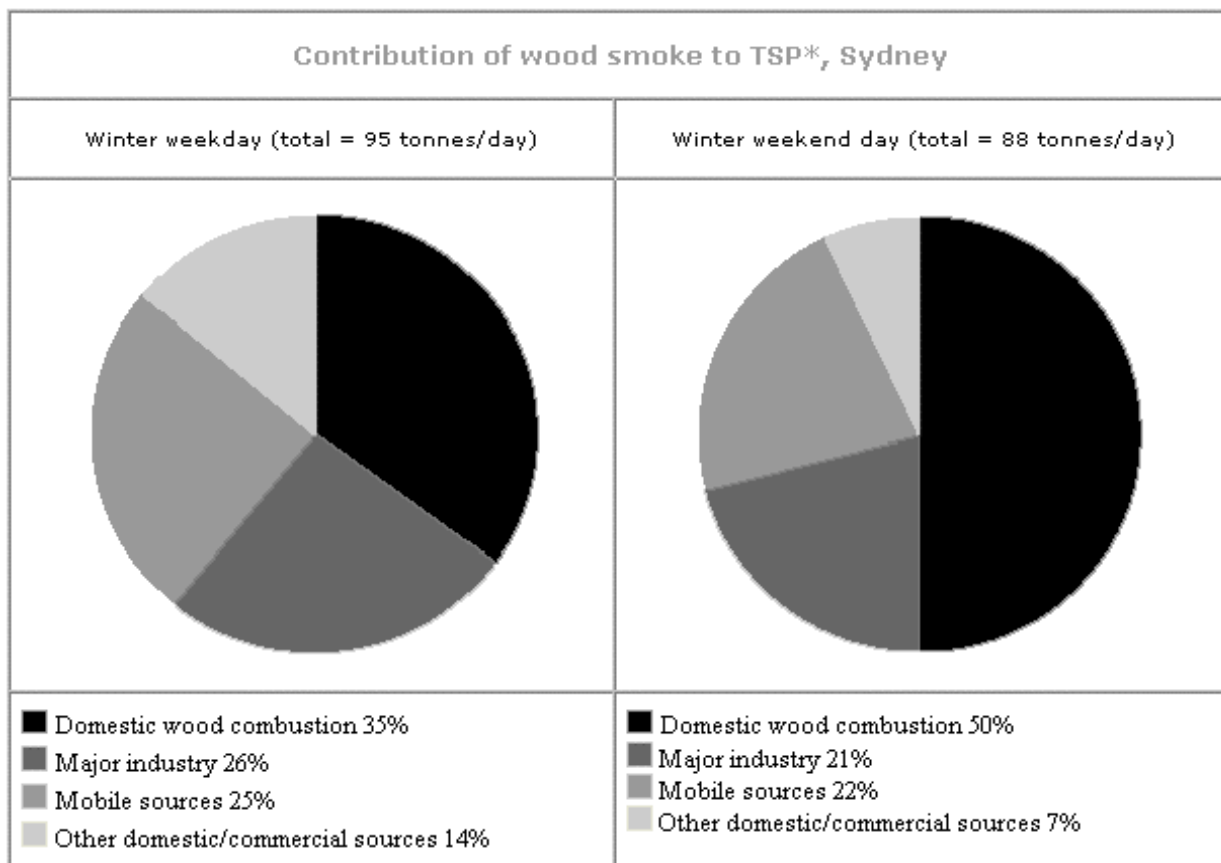
Particles with a diameter of 10 microns (μm) or less (PM_{10}) can be inhaled into the respiratory system, but those with a diameter of 2.5 μm or less ($\text{PM}_{2.5}$) are small enough to penetrate deep into the lungs, causing

¹ Note that in this RIS, 'smoke' or 'woodsmoke' refers to smoke produced by domestic solid fuel heaters, including those heaters that use solid fuels other than wood (such as coal).

² According to the Washington State Department of Ecology (1997, page 7), the major emissions from domestic solid fuel heaters are 'carbon monoxide, organic gases (containing carbon or derived from living organisms), particulate matter, and nitrogen oxides. Woodsmoke contains many organic compounds known to cause cancer (such as benzopyrenes, dibenzanthracenes, and dibenzocarbazoles), and other toxic compounds (such as aldehydes, phenols, or cresols). The particulate fraction is composed of solid or liquid organic compounds, carbon char (elemental soot carbon – similar to carbon), and inorganic ash.'

irritation and structural damage. They may also transport toxic and carcinogenic compounds into the lungs (as these compounds can be attached to the particles).

Figure 1: Sources of particle pollution in winter



* TSP (total suspended particulates) generally includes particles up to 50 µm in diameter and represents the range of particulate matter usually found in the urban atmosphere.

Source: Carnovale et al. 1997

Epidemiological studies worldwide have shown that increases in particle pollution are associated with adverse health outcomes, including increases in daily mortality, hospital admissions and emergency room attendances (particularly in relation to respiratory and cardiovascular disease), and exacerbation of respiratory symptoms and asthma. For example, a review of North American studies found that each 10 µg/m³ increase in the 24-hour average for PM₁₀ was associated with a 0.7–1.6% increase in daily mortality (all causes), a 1.5–3.7% increase in respiratory mortality, and a 0.8–1.8% increase in cardiac mortality, depending upon the study area in question (Vedal 1995).

Epidemiological studies conducted in Australia include the following:

- for Sydney, Morgan et al. (1998a) showed that a 25µg/m³ increase in PM₁₀ was associated with a 2.6% increase in daily mortality
- in Brisbane, an increase in PM₁₀ of 10 µg/m³ was associated with an increase in daily mortality of between 1.2% and 1.3% (Simpson et al. 1997)
- in Melbourne, Rennick and Jarman (1992) found a statistically significant association between asthma attendances and days with high levels of particles
- in Sydney, increases of 3% for chronic obstructive pulmonary disease and 2.5% for heart disease have been found for an increase in PM₁₀ of approximately 25 µg/m³ (Morgan et al. 1998b).

People shown to be susceptible to the effects of particle pollution include the elderly; those with existing respiratory disease, such as asthma and bronchitis; people with cardiovascular disease; people with infections such as pneumonia; and children.

There are no safe threshold concentrations for either PM₁₀ or PM_{2.5} (NEPC 1998): even low levels may adversely affect human health.

Most epidemiological studies have concentrated on the short-term, or acute, health effects arising from exposure to particulate matter (for example, short-term respiratory problems and asthma attacks). Several studies have found an association between long-term exposure to particulate matter and adverse health effects, although this is still an area of much uncertainty. In studying six cities in the US, Dockery et al. (1993) found strong associations between long-term exposure to fine particle levels (PM_{2.5}) and death from lung cancer and cardiopulmonary disease.

As monitoring data for PM_{2.5} has been limited, epidemiological studies have mainly been conducted on the basis of PM₁₀ measurements. However, the results of some studies conducted with PM_{2.5} have indicated that this fraction may be more important than total PM₁₀ in explaining the health effects attributed to exposure to particles (NEPC 2001). Notably, particles generated from combustion processes, such as domestic solid fuel heating, are mostly PM_{2.5}. According to the NEPC (2001), the main contributors to PM_{2.5} mass in Sydney, Newcastle and Wollongong have been found to be motor vehicles and woodsmoke. Woodsmoke is comprised almost entirely of PM_{2.5} which are particles with a diameter of 2.5 µm or less (Larson & Koenig 1994).

Results from epidemiological studies are qualified by the possibility of ‘confounding effects’, such as the influence of environmental agents/characteristics (for example, other pollutants and meteorological conditions). However, as Vedal (1995) notes, because studies have been conducted in a variety of settings with different air pollutants and under many climatic conditions, ‘it seems reasonable to conclude that exposure to particles in the air can cause many ill effects on health.’ Furthermore, plausible pathways for the health effects observed in epidemiological studies have been identified.

2.3 The cost of woodsmoke pollution

The avoided health costs per tonne reduction in PM₁₀ emissions have been valued at approximately \$33,300 (NSW EPA 1999a, as amended).³ This includes estimates of the costs of mortality, morbidity and health treatment. Notably, it does not include the cost of chronic effects nor the cost of pain and suffering to victims and their families, which according to the US EPA (2000) can be many times the cost of treatment.

The estimate above also does not include the visual effects of pollution, such as haze, that can affect households. Visibility effects have been estimated at \$7,400 per tonne of PM₁₀ (NSW EPA 1998)⁴.

Therefore, the total cost arising from fine particulate discharges is estimated to be at least **\$40,700** (\$33,300 + \$7,400) per tonne. It should be noted that this estimate has been derived for the Sydney metropolitan region. The visibility component of this figure is not relevant to regional areas.

Nevertheless, this estimate is conservative. As well as pain and suffering and chronic health effects, it does not take into account the effect the Regulation would have on reducing oxides of nitrogen (NO_x), ozone and other pollutants, which have their own significant health effects.⁵

³ In its 1999 document, the EPA valued the health costs of PM₁₀ at \$39,045 per tonne. Following external review, this estimate was revised to approximately \$30,000 per tonne (in 1999 dollars).

⁴ Valued at approximately \$6,600 in 1998 dollars.

⁵ Avoided public health costs per tonne reduction of NO_x have been valued at \$1,385 (Economic Associates Pty Ltd 2001).

3. Policy context

There are a number of programs in place to address the issue of emissions from domestic solid fuel heaters in NSW. The Clean Air (Domestic Solid Fuel Heaters) Regulation 1997 is consistent with the Australian Standards on emissions from solid fuel heaters and is supported by other EPA programs. The current policy package on domestic solid fuel heaters in NSW is described below.

3.1 Australian Standards

In 1992, the Australian and New Zealand Environment and Conservation Council (ANZECC) endorsed a strategy on solid fuel heaters, which called for the development of relevant standards, community education programs and regulations requiring compliance with emission standards. Three new standards for solid fuel heaters were introduced in 1992:

- AS/NZS 4012 *Domestic Solid Fuel Burning Appliances—Method for determination of power output and efficiency* (AS/NZS 1999a)
- AS/NZS 4013 *Domestic Solid Fuel Burning Appliances—Method for determination of particle emission factors* (AS/NZS 1999b)
- AS/NZS 4014 *Domestic Solid Fuel Burning Appliances—Method for preparation of test fuels* (AS/NZS 1999c).

Manufacturers of solid fuel heaters can apply for a national certificate that indicates compliance with the Australian Standards. To get the certificate, manufacturers submit a sample model of the heater for testing at a laboratory accredited by the National Association of Testing Authorities (NATA) to perform the tests specified in the relevant Standards. AS/NZS 4012 and AS/NZS 4013 tests are conducted simultaneously, using fuel prepared according to AS/NZS 4014 to ensure uniformity of operating conditions. Once the NATA-accredited laboratory has performed the tests, it is required under the Standard to prepare a test report.

The test report is scrutinised by the Australian Home Heating Association (AHHA)—the primary industry association for solid fuel heaters—for compliance with the Standards. If the heater complies, the AHHA issues a National Certificate of Compliance. The details of the certification are placed on a national register kept by the AHHA.

Under the current NSW regime (see Section 3.2), most, if not all, operators who apply for a Certificate of Compliance have already applied for and been granted a National Certificate of Compliance.

AS/NZS 4013 originally included a particle emission limit of 5.5 grams per kilogram of fuel burnt for non-catalytic heaters and 3.0 g per kg of fuel burnt for catalytic heaters.

Following recommendations from an inquiry into Urban Air Pollution in Australia (Australian Academy of Technological Sciences and Engineering 1997), the above standards were remade in 1999 with lower emission levels (AS/NZS 1999a, 1999b, 1999c). New solid fuel heaters must emit no more than 4.0 g of particles per kg of fuel for non-catalytic heaters and 2.25 g per kg of fuel for heaters with a catalytic combustor. This was a 25% reduction on the previous standard. Note, however, that actual emission levels in service may be considerably higher than in the laboratory, as a result of poor operating practice.

3.2 The NSW Regulation

The Clean Air (Domestic Solid Fuel Heaters) Regulation was made in 1997. Its primary purpose was to protect human health, environmental amenity and the ecosystem from excessive air pollution. It replaced a previous Regulation, which contained the Australian Standard emission limits for solid fuel heaters.

The Regulation ensures that new domestic solid fuel heaters sold in NSW are capable of being operated in a manner that minimises emissions of fine particles into the atmosphere. This is achieved by requiring each model to have a Certificate of Compliance issued by the NSW EPA when it is satisfied that:

- at least one heater in the model line has been tested by an accredited testing laboratory in accordance with Standard 4013, and
- the testing results indicate that the heaters in the model line do not have emission rates higher than the rate specified in the Regulation,⁶ and
- the structural components of heaters in the model line are not likely to cause the heater to exceed the applicable emission rate, and
- the following information will be marked on the outside of heaters in the model line in a permanent and legible manner:
 - the name or trade mark of the manufacturer or distributor of the heater
 - the serial number of the heater and the description of the model line
 - the words ‘complies with Standard 4013’, and
 - specification of the correct fuel types in accordance with Standard 4014.

When making an application for a Certificate of Compliance, the applicant must provide the NSW EPA with:

- a copy of a test report (at least one heater in the model line must be tested by an accredited testing laboratory in accordance with AS/NZS 4013), or
- a national certificate of compliance for solid fuel heaters issued for the model line by an approved organisation.

In terms of the latter point, the NSW EPA recognises the ‘National Certificate of Compliance’ issued by the AHHA (see Section 3.1).⁷

The application fee for a Certificate of Compliance is \$200 if a copy of a test report is provided, or \$100 if the AHHA National Certificate of Compliance is provided.

The current Regulation has penalties for a number of offences associated with the certification process and the sale of heaters, including providing false or misleading statements and interfering with heater equipment.

3.3 Other NSW Government policies, programs and legislation

In addition to the Regulation, the NSW Government has the following programs in place to reduce pollution from domestic solid fuel heaters.

⁶ Under the current Regulation, a person could not sell a heater before 5 July 2001 unless:

- for a heater that had a catalytic combustor, the heater had an average particulate emission factor of not more than 3.0 grams for each kilogram of oven-dry fuel mass, or
- for a heater that did not have a catalytic combustor, the heater had an average particulate emission factor of not more than 5.5 grams for each kilogram of oven-dry fuel mass.

From 5 July 2001, a person could not sell a heater unless:

- for a heater that has a catalytic combustor, the heater has an average particulate emission factor of not more than 2.25 grams for each kilogram of oven-dry fuel mass, or
- for a heater that does not have a catalytic combustor, the heater has an average particulate emission factor of not more than 4.0 grams for each kilogram of oven-dry fuel mass.

Note that these emissions standards are the same as required under AS/NZS 4013.

⁷ Previously issued by the South Australian Energy Information Centre.

Controls on heater installation

Councils in NSW are required to issue an approval for the installation of a solid fuel heater under Section 76A of the *Environmental Planning and Assessment Act 1979*. Councils may, however, list this activity in their Local Environmental Plans (LEPs) as either a ‘complying’ development (that is, may be certified by an accredited certifier as complying with the council’s pre-determined standards) or ‘exempt’ development (that is, does not require consent provided council’s pre-determined standards are met).

The legislation also allows councils to set restrictions on the installation of new heaters in their areas. For example, councils in the Blue Mountains, Wollongong, Eurobodalla and Rockdale have published local approval policies, which clearly specify their approval requirements for installing heaters. Waverley and Pittwater councils have amended their Development Control Plans and LEPs to restrict or ban the installation of solid fuel heaters.

Controls on heater operation

Councils have powers to control the use of domestic solid fuel heaters under the *Local Government Act 1993* (Section 125) and the *Protection of the Environment Operations Act 1997* (POEO Act).

Those in the POEO Act (Section 96) enable council officers to issue prevention notices to households that use solid fuel heaters ‘in an environmentally unsatisfactory manner’. Prevention Notices attract an administration fee of \$320, and if an individual fails to comply, they can be issued with a penalty of \$750. A prevention notice may, for example, direct a householder to:

- not use a particular solid fuel heater
- turn up a particular solid fuel heater if it causes smoke when turned down
- burn only dry wood
- operate a solid fuel heater only between stated hours.

This provision, however, does not appear to have been used by councils because of the high penalties and the two-step process, which is more suited to commercial/industrial premises.

The EPA will explore options with local government and interested stakeholders to improve the applicability of a regulatory tool. This could include an option for a Penalty Infringement Notice (on-the-spot fine) for excessive smoke from chimneys. The EPA would recommend the use of such a provision only as a last resort, following extensive education programs and advice to householders on the most effective ways to operate their heaters to minimise smoke.

Economic incentives

The NSW Environmental Trust provided \$1 million in 2001–02 for the EPA to run a pilot program to encourage households currently using old solid fuel heaters to convert to cleaner forms of heating. Eligible households are being offered up to \$700 to switch their heating equipment, which is expected to lead to direct improvements in air quality. The program is focused on six regional areas: Armidale, the Blue Mountains, Cooma, Lithgow, Orange and Tumut.

An important second part of the program are smoke patrols and the follow-up of smoky chimney complaints by council officers. This involves individual instruction on correct heater operating practice, with the potential for enforcement action in accordance with each council’s policies.

Education

The EPA has actively promoted better use of solid fuel heaters through education campaigns. These include:

- publication of the guideline *Selecting, Installing and Operating Domestic Solid Fuel Heaters* (NSW EPA 1999b)
- ‘Don’t Light Tonight’ alerts in the Sydney metropolitan region
- television advertisements and seasonal announcements on better operation of heaters in regional areas
- a comprehensive website on woodsmoke, providing resources for councils and the community
- publication and promotion of research showing that woodsmoke is a significant issue in some regional centres.

Some councils also actively promote better operation of heaters through community awareness programs.

3.4 Commonwealth programs

Through its ‘Breathe the Benefits’ campaign, the Commonwealth has also been active in raising awareness of woodsmoke as an air pollutant of concern and encouraging the adoption of best practice in the design and operation of solid fuel heaters. This campaign has involved television campaigns, newspaper advertisements and brochures in areas of Australia that experience problems with woodsmoke pollution.

In June 2001, ANZECC published *A National Approach to Firewood Collection and Use in Australia*. A number of NSW Government agencies are jointly developing an action plan to give effect to the strategies in the National Approach.

4. Options

The first part of this section outlines general methods to control smoke from domestic solid fuel heaters, other than those covered in the existing Regulation. The second part describes the alternatives that were considered, including the proposed changes to the Regulation.

4.1 Issues

There are four main ways to address the issue of woodsmoke. These include:

- improve appliances
- improve heater operation
- improve fuel quality
- restrict heater use.

These main issues are described in more detail below.

Improve appliances

The main issues relating to appliances in the review of the Regulation are mandatory design emission limits, the NSW certification system, controlling the sale of second-hand heaters and using economic incentives to upgrade the current stock of heaters.

Emission limits

The current Regulation follows the Australian Standard in placing stringent limits on particulate emissions to be achieved in test conditions (see Sections 3.1 and 3.2).

There is scope to introduce additional limits into the Regulation, for example on emissions of certain air toxics. It is generally acknowledged, however, that measures to reduce particle emissions will assist in reducing emissions of other pollutants. It is not considered realistic, therefore, to increase the number of regulated pollutants, as this would require expensive additional testing, with little gain for the environment and human health.

Stricter particle emission limits could be implemented in NSW, but in the small Australian market, and given improvements achieved in recent years via the Australian Standards, this is not considered cost-effective at this point.

State-based certification

Under the current Regulation, the NSW EPA recognises the National Certificate of Compliance issued by the AHHA and issues separate State-based certification. This system caters especially for manufacturers wishing to sell their heaters only in NSW and gives the EPA the power to revoke certificates. It also gives NSW the flexibility to adopt more stringent emission standards if local conditions require stronger air quality controls.

The NSW certification framework could be allowed to lapse so that the national certificate of compliance provides the only evidence that the requirements of AS/NZS 4013 have been met. Experience has shown that manufacturers prefer to apply for a national certificate to access the total local market, and thus the certificates issued by the EPA are essentially a 'rubber stamp' of the national certificate. A single certification system would be consistent with the approach of other States and Territories in Australia and would not diminish the effectiveness of the Regulation.

Sale of second-hand heaters

The AHHA has recently indicated a desire for the NSW Government to regulate emission standards of second-hand domestic solid fuel heaters.

A precedent exists for certification requirements for second-hand heaters in Western Australia, Queensland and the Australian Capital Territory. Inquiries indicate, however, that these jurisdictions have no program of enforcement in place to ensure that either new or second-hand heaters meet the requirements.

The recently released Tasmanian Draft Environment Protection Plan (Air Quality) (Tasmanian DPWIE 2001) requires second-hand heaters to meet the certification requirements applicable at the time of manufacture of the appliance. It indicates that resources will be allocated to monitor retail outlets and installers as a means of ensuring that the requirements are met. Another feature of the Tasmanian Draft EPP is that the certification requirements will apply to the installation, as well as the sale, of new and second-hand heaters. This gives local councils powers to ensure that only certified heaters are installed, regardless of the source of the heater or whether money has changed hands.

The NSW EPA considers that regulating the sale of second-hand domestic solid fuel heaters is unlikely to be a cost-effective means of reducing woodsmoke at this time. Although there is no ready means of measuring the size of the second-hand market to assess potential benefits, it is believed to be relatively small. This suggests that the environmental benefits would not warrant the costs associated with enforcing such a requirement.

Economic incentives for cleaner forms of heating

Section 3.3 describes the EPA's economic incentive program, which is being trialled in six regional areas across NSW. The program offers incentives for households to switch from old solid fuel heaters to cleaner forms of heating.

It would be possible to expand this scheme more broadly across NSW. However, as this would involve considerable cost, no decision to do so will be considered until the results of the 2002 pilot program are reviewed. In any case, such incentives can only ever be part of an adequate policy response, as they cannot achieve the proper operation of the remaining domestic solid fuel heaters.

Improve heater operation

Poor operation of solid fuel heaters is one of the major contributors to air pollution. Excessive woodsmoke can be reduced with education programs—which has been the approach adopted in NSW in the past—and by regulating and issuing penalties for misuse.

Improved education programs on better operation of solid fuel heaters

As outlined above, the EPA will continue to run education programs to provide people with information to improve the operation of their home heaters. These programs may be undertaken in partnership with local councils.

Council powers to regulate poor heater performance

Some council staff have advised that existing powers to regulate poor heater performance are not focused on woodheater operation issues. In particular, they have advised that:

- powers under the Local Government Act relate primarily to safe and healthy premises or public nuisance
- powers under the POEO Act (s. 96) are tailored to industrial or commercial premises. The provisions require a prevention notice (with a substantial administration fee) to be issued before a penalty can be given. These provisions have not been specifically developed for domestic solid fuel heating.

There is scope to explore with councils the introduction of a simpler mechanism to enforce correct heater operation. This could allow councils to undertake more rigorous enforcement programs in areas where woodsmoke continues to be a problem identified by local communities. Such action may assist in ensuring that air pollution from domestic solid fuel heaters is prevented or minimised.

A simpler system could be achieved by introducing a penalty for excessive woodsmoke, for example, when visible smoke is emitted continuously from a chimney for more than a certain period of time, say, 20 minutes.

The EPA wishes to have this discussion with interested parties in order to bring forward any changes before winter 2003. Accordingly, powers such as those that might enable councils to regulate poor operation are not fully contemplated or explored in the current regulatory proposals.

Improve fuel quality

In June 2001, ANZECC published *A National Approach to Firewood Collection and Use in Australia*. A number of NSW Government agencies are jointly developing an action plan to give effect to the strategies in the National Approach.

Included in the National Approach is a recommendation that States consider regulating the moisture content of firewood offered for sale.⁸ The NSW interagency group is still considering the various recommendations in the National Approach. However, NSW has previously expressed doubts about the effectiveness of regulating the sale of firewood, because enforcement would require substantial new resources and only about 40% of firewood users in NSW currently purchase their wood, in contrast to other States such as Western Australia (66%) and Tasmania (61%). This would mean that the Regulation would not apply to most of the wood burnt.

Community education on the use of seasoned wood and the need to protect native habitat by discouraging scavenging is a preferred option. Note that the use of unseasoned or wet wood that results in excessive smoke can still be addressed through the regulatory system.

Restrict use of solid fuel heaters

In parts of the USA, local governments can restrict the use of domestic solid fuel heaters, depending on local meteorological/pollution conditions. For instance, in some areas of Washington State, burn bans are called when woodsmoke pollution is measured at unsafe levels. On 'green days' (low air pollution levels and good dispersion of smoke and particulates) the use of any woodheater type is permitted; on 'yellow days' (rising air pollution levels caused by persistent stagnant weather conditions) only certified heaters may be used; and on 'red days' (unhealthy levels of air pollution, woodsmoke is unable to disperse and conditions are not expected to improve for the next 24 hours) only pellet heaters are permitted (www.ecy.wa.gov).

In the Christchurch urban area in New Zealand, authorities have introduced rules banning the use of open fires from 1 January 2006 and phasing out old solid fuel heaters. (High-emission heaters will need to be replaced 15 years after installation, but not before 1 January 2008.)

There appears to be no regulatory provision, either under NSW EPA- or local government-administered legislation, that would enable councils (or the EPA) to introduce any limitation or prohibition on the operation of woodheaters (as opposed to their installation).

A number of organisations, including the Local Government and Shires Associations, have from time to time called on the State Government to consider statewide bans or limitations on the operation of woodheaters. At this stage, a blanket restriction or prohibition is not considered by the EPA to be justified. It does not take into account the wide range of local circumstances and attitudes to solid fuel heating across NSW.

Accordingly, powers such as those that might enable councils to regulate solid fuel heater use are not explored in the current regulatory proposals.

⁸ Note that in 1998, Western Australia introduced a regulation prohibiting the sale of domestic solid firewood with a moisture content greater than 20% in the Perth metropolitan area. The regulation is enforced through the inspection of wood merchants.

4.2 Options considered in reviewing the Regulation

As described above, policies such as new enforcement provisions, regulating the sale of second-hand heaters and firewood quality, or further education and economic incentive programs are either considered inappropriate at this time or will be dealt with outside the process of remaking this Regulation. They are therefore excluded from further discussion in this document.

The two options that have been considered in reviewing the Regulation are:

1. Allow the existing Regulation to lapse.
2. Amend the Regulation so that new heaters sold in NSW must meet the relevant Australian Standard (AS/NZS 4013), rather than requiring heaters to meet emission limits specifically stated in the Regulation; and allow the NSW certification scheme to lapse (now that an adequate national certification scheme exists). These are the proposed changes to the Regulation.

These options are discussed in more detail in the next section.

5. Assessment of the options

5.1 Option 1: Allow existing Regulation to lapse

This option is the ‘do-nothing’ or base-case approach. If the Regulation lapsed, NSW would potentially permit the sale of solid fuel heaters with emissions exceeding those prescribed in the Australian Standards and Regulations in other States and Territories.⁹

The EPA believes there is a need to maintain a solid fuel heater regulation to provide legislative support to the Government’s Action for Air program and the woodheater industry’s own efforts to improve new product performance. Therefore, allowing the Regulation to lapse is not considered acceptable.

5.2 Option 2: Require new heaters sold to meet the relevant Australian Standard and allow the NSW certification scheme to lapse

Streamlining the NSW certification process

The State-based certification scheme for domestic solid fuel heaters is no longer considered necessary because there is an adequate national certification scheme that serves this purpose. The EPA would no longer issue certificates of compliance or certificates of exemption for solid fuel heaters of a particular model, but would rely on the national certification scheme to carry out these functions.¹⁰ The NSW scheme could be readily reinstated if the national scheme were not to continue satisfactorily.

Removing NSW certification will avoid a duplicate process for manufacturers, as they will need to consult the AHHA only when a new model is developed. This will save resources (over the last two years, the NSW EPA has issued approximately 30 Certificates of Compliance, at a cost of between \$100 and \$200 per Certificate) and result in NSW being more consistent with other States and Territories in relation to certification procedures.

Emissions limits from heaters

The Regulation would not specify numerical limits for particulate emissions from domestic solid fuel heaters, but instead would refer to the Australian Standard (AS/NZS 4013).

The actual emission limits were included in the current Regulation in order to allow NSW to introduce more stringent limits, where it was deemed necessary. It is considered unlikely that more stringent limits than those in the national standard should be applied to new heaters. Rather than changes to emissions limits, gains in air quality are more likely to be made via an emphasis on achieving correct operational practice, and encouraging the retirement of older pre-certification heaters as necessary.

Reference to the Australian Standard rather than specific emission limits will create benefits for the EPA because the Regulation will not need to be amended if the limits of AS/NZS 4013 are changed.

⁹ As most manufacturers sell heaters in other States as well as NSW, it is highly likely that Australian-manufactured heaters would comply with the Australian Standard. However, the potential would still exist for NSW to become a dumping ground for uncertified heaters.

¹⁰ The Regulation would require the EPA to issue an approval to the Australian Home Heating Association (AHHA) as the ‘approved body’ for issuing the relevant Certificates of Compliance. The EPA would include in this approval appropriate conditions in relation to the certification process, including EPA ability to conduct audits, so that buyers of solid fuel heaters could have confidence that heaters purchased meet the requirements of the Australian Standard.

5.3 Comparative assessment

Table 1 summarises the costs and benefits of the above options.

Table 1. The costs and benefits of regulatory options

Option	Costs	Benefits
Option 1: base case (existing Regulation lapses)	Potential dumping of uncertified heaters in NSW Potential decline in air quality	No administration or enforcement costs for EPA or councils
Option 2: Regulation remade with minor amendments	Small additional costs to EPA to remake the Regulation and to industry to continue to sell heaters in compliance with the Australian Standard	More efficient and simpler certification system for new heaters compared with present Contribution to lower air emissions

The proposed Regulation would require all new domestic solid fuel heaters sold in NSW to meet the Australian Standard (AS/NZS 4013). Relative to the base case of allowing the Regulation to lapse, this will result in air quality benefits. As is evident from Table 2, AS/NZS 4013 heaters emit less particulate matter per kilogram of fuel burnt than heaters that do not meet the Standard.

Table 2: Emission estimates of domestic solid fuel heaters¹¹

Category of heater and user behaviour	Emission factor (g/kg)
Old model heaters used thoughtlessly	15
AS/NZS 4013 heater used thoughtlessly	7
Old model heaters used carefully	7
AS/NZS 4013 heaters used carefully	3.5

For every household that purchases a AS/NZS 4013 heater as a result of the proposed Regulation (rather than a heater that does not meet the Standard) a saving of between 0.007 and 0.016 tonnes of particle emissions could be achieved per year, assuming the average household burns approximately 2 tonnes of fuel per year. Given an estimate of 7500 new heaters sold in Sydney each year¹² and applying the figure of \$40,700 per tonne of PM₁₀ emissions (see section 2.3), this translates to a potential benefit of between \$2.1 and \$4.9 million for each year's sales, or a Net Present Value of \$25 million to \$57 million over 5 years.¹³

The actual benefit attributable to the proposed regulation may be lower, since it is based on the assumption that all new domestic solid fuel heaters purchased would comply with AS/NZS 4013 solely as a result of the proposed Regulation (because the proportion of new non-compliant heaters that would be sold in NSW in the absence of the Regulation cannot be determined). It is expected that a large proportion

¹¹ Sourced from Atech Group Pty Ltd (2001, page 88), which in turned sourced data from Todd (1997).

¹² This is based on an estimate by the AHHA (personal communication, June 2002) that approximately 35,000 new domestic solid fuel heaters are sold in Australia each year. Sydney values used because health cost data applies to Sydney only. Benefits outside Sydney would be additional.

¹³ It is assumed that all heaters purchased will remain in service for the five-year life of the Regulation.

of heaters sold in NSW would meet the requirements of AS/NZS 4013, regardless of the proposed Regulation, as most other States and Territories in Australia require all new heaters sold to meet AS/NZS 4013 and the market has adapted to the requirement.¹⁴ However, the Regulation will ensure that NSW avoids becoming a ‘dumping ground’ for uncertified heaters.

¹⁴ In Queensland, Tasmania, Western Australia and the Australian Capital Territory, all new domestic solid fuel heaters sold must comply with AS/NZS 4013.

6. Conclusion

Allowing the current Regulation to lapse is considered unacceptable, as it would potentially result in loss of the environmental benefits of ensuring that new heaters sold meet performance standards that reflect well established technology. The proposed Regulation, as attached, therefore includes this requirement. The means of obtaining the result have been simplified compared with those in the current Regulation, through reference to the national standard and certification system (instead of the currently duplicated NSW system).

The EPA is also interested in getting early community input into the development of a more streamlined enforcement tool for the continued poor operation of heaters. The EPA wishes to use the consultation program for remaking this Regulation to commence a process to seek the views of local government, industry and members of the community on the suitability of an on-the-spot fine, compared with the current more cumbersome enforcement mechanism. The EPA seeks your views on this. Further consultation will occur so progress can be made in the development of these ideas with a view to any changes being brought forward before winter 2003.

Comments to the EPA should be sent to the address shown at the front of this document.

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Protection of the Environment Operations (Clean Air—Domestic Solid Fuel Heaters) Regulation 2002

under the

Protection of the Environment Operations Act 1997

Explanatory note

This Regulation replaces the *Clean Air (Domestic Solid Fuel Heaters) Regulation 1997* which is repealed on 1 September 2002 under section 10 (2) of the *Subordinate Legislation Act 1989*.

The Regulation applies to certain solid fuel burning appliances for domestic use (referred to as *heaters*).

The Regulation:

- (a) prohibits heaters from being sold unless they are marked in accordance with a specified Standard and there is a relevant certificate of compliance in force that has been issued by a body approved by the Environment Protection Authority, and
- (b) prohibits a person from altering certain aspects of a heater of a particular model for which a certificate of compliance is in force, or from marking on a heater that it complies with a specified Standard if there is no relevant certificate of compliance in force, and
- (c) contains certain savings and transitional provisions.

This Regulation is made under the *Protection of the Environment Operations Act 1997*, including section 323 (the general regulation-making power) and clauses 6A and 6B of Schedule 2.

draft

Protection of the Environment Operations (Clean Air-Domestic Solid Fuel Heaters)
Regulation 2002

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Protection of the Environment Operations (Clean Air—Domestic Solid Fuel Heaters) Regulation 2002

Protection of the Environment Operations (Clean Air—Domestic Solid Fuel Heaters) Regulation 2002

1 Name of Regulation

This Regulation is the *Protection of the Environment Operations (Clean Air—Domestic Solid Fuel Heaters) Regulation 2002*.

2 Commencement

This Regulation commences on 1 September 2002.

3 Definitions

In this Regulation:

central heating appliance has the meaning given to it in Standard 4013.

certificate of compliance means a certificate issued by a body approved by the EPA, being a certificate certifying that all heaters of a particular model comply with Standard 4013.

certificate of exemption means a certificate issued by a body approved by the EPA, being a certificate exempting all heaters of a particular model from compliance with Standard 4013.

heater—see clause 4 (1).

model of heater means a particular design of heater made by a particular manufacturer.

sell—see the Dictionary to the Act.

Standard 4013 means the document entitled “AS/NZS 4013 *Domestic solid fuel burning appliances—Method for determination of flue gas emission*”, published by Standards Australia and as in force from time to time.

the Act means the *Protection of the Environment Operations Act 1997*.

4 Application of Regulation

- (1) This Regulation applies to any solid fuel burning appliance that is designed, manufactured or adapted for domestic use (referred to in this Regulation as a *heater*).

- (2) This Regulation applies to the wholesale and retail sale of heaters, other than heaters of the following kind:
- (a) any masonry appliance built on site,
 - (b) any central heating appliance,
 - (c) any cooking stove appliance as defined in Standard 4013,
 - (d) any appliance intended for use solely for heating water,
 - (e) any appliance intended for use solely for distributing heat through ducts.

5 Requirement for certificates of compliance

- (1) A person must not sell a heater to any other person unless:
- (a) the heater is marked in accordance with Standard 4013, and
 - (b) a certificate of compliance is in force in relation to heaters of the same model as that heater, and
 - (c) in the case of a sale to a person whose business includes the wholesale or retail sale of heaters, a copy of the certificate is given to the purchaser.

Maximum penalty: 200 penalty units in the case of a corporation, or 100 penalty units in the case of an individual.

- (2) Subclause (1) (c) does not require a copy of a certificate to be given to a person to whom a copy of the certificate has previously been given.
- (3) This clause does not apply to a heater of a model for which a certificate of exemption is in force.

6 Interference with heaters

- (1) A person must not:
- (a) alter the structure, exhaust system or inlet air system of any heater of a model to which a certificate of compliance or certificate of exemption relates, or
 - (b) mark on a heater that it complies with Standard 4013 if the heater is not of a model that is the subject of a certificate of compliance.

Maximum penalty: 200 penalty units in the case of a corporation, or 100 penalty units in the case of an individual.

- (2) This clause extends to any person who causes or permits the doing of

a thing that is prohibited under this clause.

- (3) Nothing in this clause makes it an offence for a person to carry out any repair work on any heater (including repairs or alterations in accordance with a notice under section 96 of the Act).

7 Savings

- (1) Any act, matter or thing that, immediately before the repeal of the *Clean Air (Domestic Solid Fuel Heaters) Regulation 1997*, had effect under that Regulation continues to have effect under this Regulation.
- (2) Without limiting the operation of subclause (1), a certificate of compliance or certificate of exemption issued under the *Clean Air (Domestic Solid Fuel Heaters) Regulation 1997* and in force immediately before the repeal of that Regulation is taken to be a certificate of compliance or certificate of exemption (as the case requires) for the purposes of this Regulation until 1 September 2003.