Regulatory impact and compliance cost statement: National Environmental Standard for Air Quality

[Note that a more detailed analysis of costs and benefits is contained within the National Environmental Standards for Air Quality - Section 32 - Analysis of Costs and Benefits. This analysis has been undertaken to meet the section 32 requirements of the Resource Management Act (1991).]

Statement of the nature and magnitude of the problem and the need for government action

Resource Management Act 1991 (RMA)

National policy mechanisms have been advocated by industry, councils and others to provide a level playing field across regions, provide certainty in decision-making under the RMA and set environmental bottom-lines for air quality.

Over the past 10 years the Ministry for the Environment (MfE) has provided guidance to local government on managing air quality through a series of guidelines. The current system of guideline values **[The guideline values set the minimum requirements that outdoor air quality should meet in order to protect human health and the environment. The existing guidelines state that where air pollution levels breach these values, emission reduction strategies should be implemented to improve air quality.]** has created a range of requirements within plans, monitoring programmes and discharge permits where industries and communities may face different rules in different regions. It has also created an environment where litigation of the same issues occurs region by region. This causes an uncertainty that can confuse industries and communities and potentially results in delays in consent processing and plan development.

Where a company has factories or manufacturing plants in two different regions, it must then understand the requirements of two different sets of policies and plans when applying for resource consents.

Health impacts

Air pollution in New Zealand's towns and cities is causing serious adverse effects on people's health and wellbeing. Concentrations of fine particles are high in most urban areas and are creating adverse health impacts that affect both society's quality of life and the economy as a whole. Monitoring results indicate that the existing guideline

value for fine particles of 50 micrograms per cubic metre (µg/m^3) has been exceeded at 36 locations within New Zealand. It is estimated that five centres (Alexandra, Christchurch, Nelson, Richmond and Timaru) are likely to exceed fine particle guideline values more than 50 times per year. The main source of particle emissions is from domestic heating (the exception to this is Auckland where particle emissions arise primarily from motor vehicle emissions), and it has been estimated from census data that around 40% of all households in New Zealand use wood burners to heat their homes.

Industry is not significant in the national inventory of air discharges. The exception to this is sulphur dioxide (SO_2) for which industry (e.g. coal fired power stations and fertiliser manufacturing plants) is the primary source.

There are currently some activities occurring in New Zealand that result in unacceptable localised pollution and place communities at risk from chemicals such as dioxins and other toxics **[Dioxins are highly toxic chemicals that are known, from studies with animals, to cause serious health effects such as cancer, birth defects, and reproductive and developmental problems. There is no safe level for dioxins.]**. These activities include the open burning of plastic, rubber, bitumen, oil, and the incineration of some hazardous wastes.

The health effects of poor air quality in New Zealand have been estimated by MfE to result in:

- approximately 800 premature deaths each year related to respiratory problems;
- hundreds of hospital admissions every year for respiratory diseases, asthma attacks, and secondary health problems triggered though breathing problems; and
- over two million lost productive days every year when people suffer reduced immunity, asthma attacks, coughs and wheezing.

These health impacts affect New Zealanders ability to work and play, hasten their deaths and burden the health system, yet the majority of New Zealanders are not aware of the pollution in their city and how this can affect their health.

Air quality management varies across New Zealand. These differing approaches to air quality mean that New Zealanders are being exposed to different amounts of air pollution. As people respond in the same way to this pollution, people in some areas of the country are more at risk from health problems than others.

Statement of Public Policy Objectives

The public policy objectives are:

1. to ensure national consistency in policy and legislation in relation to ambient air quality;
2. to ensure that regional councils are addressing air quality issues in planning and consent processes;
3. to ensure equal treatment for all New Zealanders regarding emissions of fine particles, dioxins and other toxics;
4. to provide greater certainty in resource consent decision making; and
5. to ensure that the public is aware of poor air quality that may affect their health.

Statement of feasible options (regulatory and/or non-regulatory) that may constitute viable means for achieving the desired objective(s)

Status Quo

Currently regional councils and unitary authorities **[A unitary authority is a council with both territorial authority and regional responsibilities. There are 4 unitary authorities in New Zealand.]** are responsible for management of air quality in their regions. Under the RMA, regions can develop regional air plans, or have air sections in their regional plans, but this is not compulsory. MfE has issued a series of guidance documents on air quality management (in particular the Ambient Air Quality Guidelines, 1994 and 2002), these documents recommend the best way to monitor and plan for air quality, and provide recommended guideline values for different pollutants. At present only some councils report quality publicly (e.g. Environment Canterbury), and not all councils ban activities that cause high levels of localised pollution. There is limited further national guidance that MfE could supply to councils.

Existing guidelines assist regional plans and resource consents decisions, but do not provide a national approach or national baseline. It is no longer appropriate to maintain the status quo as it does not meet the public policy objectives.

Non-regulatory options

Education and information. Under this option MfE would conduct an education campaign(s) in conjunction with Regional Councils. The education schemes would link to specific issues, for example an education campaign could be aimed at people with wood burners, this programme could show the impact of wood burner pollution and show users how to operate their burners more efficiently. This kind of campaign could be useful, but would definitely be much more so if the behavioural change was also required by law. This option is not appropriate on its own as its outcomes are highly uncertain, however education will be an important part of any national policy measure.

Voluntary agreements are agreements that would be between MfE and individuals or industry groups. The agreement would be about how the group or individual would decrease the amount of pollution they emit. MfE would have the advantage of some emissions being reduced and the industry or individual would have improved environmental performance and possibly experience reductions in costs. Individual negotiations may mean that emission levels (and reductions in emissions) will vary across the country.

To address domestic heating with voluntary agreements the government would have to have an agreement with every consumer in New Zealand who owned a wood burner, which is unfeasible. There is also no guarantee that voluntary agreements will occur. This option does not meet the stated objectives and is not an appropriate option.

Tradable Permits involve setting an overall limit or cap on the emissions or pollutants that are allowed to be emitted. A system is then set up for allocating the amount that a site is allowed to emit in the form of a permit. If an emitter is not polluting up to its given level then the extra emission units can be sold to another site/industry who wishes to pollute over and above its allocation. This kind of option is suitable for large industrial discharges, but would be very difficult to use to help reduce small emissions such as home heating. As small emissions are the main problem in New Zealand and the stated objectives are not met, this option is not appropriate to improve air quality.

Regulatory options - National Environmental Standards (NES) [preferred option]

National environmental standards are prepared under sections 43 and 44 of the Resource Management Act. The proposed standards are compiled as a package covering ambient air quality standards, emission standards for new wood burners, and a range of banned (prohibited) activities. The aim is for the proposed standards to take effect in September 2004, with transitional compliance dates for some aspects. It should be noted that regional councils/unitary authorities have the ability to impose controls stricter than any national environmental standard.

Ambient standards set the amount of a pollutant that is allowed to be present in the outdoor air. The pollutants covered by this standard are fine particles (PM_{10}), sulphur dioxide (SO_2), nitrogen dioxide (NO_2) carbon monoxide (CO), and ozone (O_3). The compliance point is where people gather to work, play or live over the relevant averaging period. For each of these standards the regional council will monitor compliance with the standard (for the ambient air standard councils will have discretion on where they monitor), publicly report any exceedances and use the standard as the basis for regional air planning. In areas where the fine particles limit is exceeded, the standard will require:

- No resource consent will be granted where that consent is the primary source of exceedances for fine particles. All resource consent decisions must take into account the net result of all activities and decisions taken towards improvement of air quality in their region. This allows for regional councils to consider future reductions expected as a result of other initiatives (e.g. replacement of open fires and inefficient wood burners) when considering a particle discharge from new industry.
- Councils with non-complying air quality will be expected to meet a 'deemed plan' for improvement, where they will show a linear path to compliance with no more than one exceedances of 50µg/m^3 by 2013. Only where they meet that linear path are they able to approve significant emissions of fine particles. Councils may construct their own plan for a trajectory better than that linear path.
- After 2013, Councils will not be able to grant new discharge consents for emissions of fine particles into non-complying areas.

Table 1 provides details of the proposed limits, monitoring periods, and number of exceedances per year.

Table 1 - Proposed ambient air quality standards

Pollutant	Limit	Units and monitoring period	Allowable exceedances/yr
Fine particles (PM_{10})	50	µg/m³, 24-hr	1
Nitrogen dioxide (NO_2)	200	µg/m³, 1-hr	9
Ozone (O_3)	150	µg/m³, 1-hr	0
Sulphur dioxide (SO_2)	350 570	µg/m³, 1-hr µg/m³, 1-hr	9 0
Carbon monoxide (CO)	10	mg/m³, 8-hr	1

The proposed emission design standard applies to new domestic wood burners being installed in urban areas (the definition of wood burner in the proposed standard does not include open fires, cooking ranges, and coal burners **[At present there are no coal burners that can meet the proposed design standard of 1.5g/kg. MfE are considering funding research into developing a coal burner that can meet this limit. Due to high emissions from open fires, there is potential for a ban on open fires to be placed in the medium to long-term. A number of Regional Councils have banned open fires in regional plans. There is unlikely to be an emission standard placed on cooking ranges.]**). The standard will mean that only low emission wood burners will be able to be installed in urban areas. The emission limit for all new wood burners will be 1.5g of particulate matter per kilogram of fuel burned (averaged over high, low and medium burn rates). The proposed standard will apply to any new wood burner appliance with a maximum heat output of 40 kW used in a domestic dwelling. A thermal efficiency **[Efficiency is the ratio of useable heat energy output to heat energy input, expressed as a percentage.]** standard of 65% will also apply to the energy efficiency of installed wood burners. If a wood burner does not comply with the standard the potential installer will not be able to receive a building consent to install the appliance in their home if they live in an urban area. This part of the standard will be effective from 1 September 2005. This allows for a years grace to work through existing stock.

Mfe is currently working with the Energy Efficiency and Conservation Authority on designing a possible subsidy and assistance scheme for low income families. The costs of the assistance package would be shared between local and central government, and all funding will be additional.

The proposed air quality package includes bans on a range of activities that adversely affect local air quality, particularly through the release of dioxins and other toxics. Bans are proposed for the following activities:

- open burning of plastic coated wire;
- deliberate landfill fires;
- open burning of tyres;
- burning of bitumen (for road maintenance);
- open burning of oil;

- all new hazardous waste incinerators;
- new waste incinerators in schools and hospitals (or incinerators that dispose of healthcare wastes) that do not have resource consent by 1 September 2006;
- after 1 September 2006, all existing waste incinerators in schools and hospitals (or incinerators that dispose of healthcare wastes) that do not have a resource consent.

Implementation of all the proposed standards will be the responsibility of local government (i.e. regional councils, unitary authorities and territorial authorities) through existing mechanisms such as regional plans and decisions on resource consents. Under the proposed standard councils will not be able to grant resource consent, or have a rule in a regional plan, that allows any of the above banned activities.

MfE will undertake an education programme that will consist of fact sheets and workshops about what the standards are and how they will affect different people. Some of this may be carried out in conjunction with regional councils.

Statement of the net benefit of the proposal, including the total regulatory costs (administrative, compliance and economic costs) and benefits (including non-quantifiable benefits) of the proposal, and other feasible options

Central Government

MfE will incur costs through administration, capacity building, education and development of implementation guides. These have been estimated at $100,000 per annum, which will be covered through existing baseline funding.

There may also be costs associated with subsidy and assistance schemes for low income families for home heating; these costs are estimated to be between $500 - $2,000 per family for a new burner or alternative heating. MfE is currently working with the Energy Efficiency and Conservation Authority on designing a suitable package. The costs of the assistance package would be shared between local and central government, and all funding would be additional.

There will be a cost to Transit New Zealand caused by the ban on bitumen burning. This will mean that in the few regions that still allow the burning of excess bitumen, new equipment will need to be purchased, as alternatives such as water blasting will need to be adopted. The cost will be ongoing, estimated by Transit to be $1,000,000 per annum.

Public hospitals and public schools with incinerators will incur costs through applying for a resource consent for their incinerators. The cost of each resource application is estimated at $2,000. Note that it is expected that many urban schools will not apply

for resource consents, as they will use locally provided street collection or recycling services.

Local Government

Through a regional council survey and continued dialogue it has been found that regional councils are unlikely to face any significant additional costs as a result of the proposed standard, as the proposed concentration limits and implementation methods are similar to existing guidelines.

The proposed standard does not automatically require a regional plan change, though regional councils may choose to review existing plans after introduction of the proposed standard. Regional councils will be required to publicly notify exceedances of the proposed ambient standards, although some regional councils already do this.

Regional councils will face costs associated with increased monitoring of ambient air quality, particularly the purchasing of additional monitoring equipment. Regional councils with non-complying air quality will need to develop an "air-action" plan to demonstrate how their air quality will comply by 2013 **[Note that the proposed standard will provide flexibility on the process used to by regional councils to develop "air-action" plans. The standard will not require these to be developed through the regional plan process. They could be developed through existing procedures such as Long Term Community Consultation Plans or Council endorsed policy.]** (some regional councils have developed regional air plans that achieve this).

Regional council costs are estimated at an average of around $200,000 per council per annum, the majority of these cost associated with increased monitoring **[A cost of $50,000 per new monitoring site per annum has been taken into account in the total for each regional council.]**. Larger councils costs may be significantly higher and small councils significantly lower. Costs will also be dependent on the amount of air pollution in the area.

A number of regional councils already operate subsidy schemes to provide incentives for the installation of low-emission wood burners. Some councils (either regional or territorial authorities) may choose to alter existing incentive schemes, or introduce new schemes, in response to introduction of the standard. However, the magnitude of any costs is currently too uncertain to estimate. It is likely that central Government will take the lead role for these costs in the short- to medium-term.

District councils will incur costs through planning for, implementation, and monitoring of the wood burner standard. These costs are estimated to be around $50,000 per council per annum for one full time equivalent employee.

Councils will have the benefit of a reduced need to seek legal recourse during the consenting process as the regulations will be national. There will be cost savings for both the applicant and consenting authority in this respect. Major consent hearings have been known to last for months and stretch to over tens of thousands of dollars.

Industry

In general, industry is not a major contributor to air quality problems in New Zealand. It is therefore highly unlikely that industry will incur large costs as a result of the ambient standards as they are unlikely to be required to make any major upgrades.

This also reflects that the proposed standard solidifies existing guideline values and approaches to air quality management. There is not one particular industry type that will be required to upgrade more than others.

The costs associated with the proposed banned activities are expected to be minimal, as the majority of these activities are currently prohibited and deemed unacceptable by regional councils. With this in mind, many of the proposed bans will cause zero or minimal cost.

Impacts on retailers and manufacturers of wood burners will be reduced by allowing for a 12 month transitional period. There are already 45 products on the market that can meet the standard.

Industry will benefit from aspects such as certainty, providing a level playing field, and achieving national consistency. National consistency and certainty will mean that industry is less likely to be involved in appeals on consents and litigation. Industry will also be able to be certain of the regulations over the whole country instead of having to spend time understanding different regulations in different regions.

Proposed Wood Burner Standard - Trans Tasman Mutual Recognition Agreement

The proposed New Zealand standard was considered in terms of New Zealand's obligations under the Trans-Tasman Mutual Recognition Arrangement (TTMRA). The key objective of the TTMRA is to facilitate Trans-Tasman trade by removing barriers to the movement of goods and service providers.

The proposed national design emission standard of 1.5 g/kg differs to the existing joint Australian/New Zealand Standard (AS/NZS 4013:1999) emission limit of 4 g/kg. AS/NZS 4013:1999 is currently being reviewed; MfE submission seeks that the emission limit be aligned with the proposed New Zealand standard. MfE officials attended the last meeting of the Australian Environmental Protection and Heritage Council (EPHC). After reviewing the cost/benefit information presented by MfE officials, the EPHC are advocating that the AS/NZS emission limit be aligned with the proposed New Zealand standard of 1.5 g/kg. However it is not know when this review will be completed, or the outcome.

To ensure there is a co-ordinated approach with review of AS/NZS 4013:1999, it is proposed that the New Zealand standard should initially apply to urban areas only and its wider application will be reconsidered once the review is finalised.

The intention of introducing standards for wood burners in urban areas is to address air pollution in the worst affected areas without unnecessarily restricting trade. It will not prohibit the sale and subsequent use of non-compliant wood burners throughout the rest of the country. Therefore it is of less concern in terms of maintaining integrity of the TTMRA. Environment Canterbury list 45 models that currently comply with the proposed standard of 1.5 g/kg, however it is not known how many models currently sold do not comply.

Obtaining information on the source of wood burners available, and sold, in New Zealand in terms of domestic manufacture and overseas imports is difficult. Anecdotal evidence indicates that the majority of wood burners sold in New Zealand

are manufactured in this country. There are imports from Australia, Norway, Denmark, Sweden, Belgium and America; however the evidence suggests that most of these models are at the high end of the market and have low emissions. Therefore the standard is not expected to have a large effect on Australian or any other overseas manufacturers.

Society

Society will receive most of the benefits of the proposed standards. These benefits are:

- it is estimated that premature mortality falls from 838 in 2004 to 635 in 2020. This is a saving of 625 lives over the analysis period;
- hospitalisations would fall by over 570 and restricted activity days would be reduced by over 1,000,000 days over the same time period;
- these health benefits will result in over $9m being added to the economy (through a reduction working days lost) and the avoided premature mortality is valued at $420m **[In this instance a value has been place on a premature death, based on an assumed value of a statistical life taking account of age. When dealing with air pollution the at risk population tends to be the elderly and, to a lesser extent, the very young. We believe that it is inappropriate to include a full value of a statistical life given that research shows that an individual's willingness to pay for risk reduction for premature mortality falls as they get older. The use of a full value of a statistical life may over-estimate benefits.].**

The overall benefit cost ratio of this proposal is 3.87 to 1.

Consumers may also face slightly higher costs for new wood burners. The cost of an efficient complying burner is approximately $200 higher than an inefficient one of the same model; this will be about a 10% increase in price.

Private hospitals and private/state integrated schools

As mentioned above schools and hospitals with incinerators will face costs associated with applying for a resource consent for their incinerators. Private hospitals and private/state integrated schools with will incur costs estimated at $2,000 per resource consent application.

Statement of the consultative programme undertaken

The following consultation has been undertaken:

- A process was undertaken with regional councils to scope out the policy program needed to support a national approach.
- In May 2003, MfE presented the concept for national environmental standards to Regional Council representatives. Feedback was positive.
- In August 2003, Cabinet gave approval for MfE to consult on a range of proposed standards, including this proposed air quality package.

- In September/October 2003 over 100 people attended 3 technical workshops on the proposed air quality standards;

In October 2003 the Minister for the Environment publicly notified the proposed standards. Submissions were invited over a 6-week period from 25 October to 5 December 2003. During this time MfE undertook a comprehensive road show across New Zealand, holding over 30 meetings in 16 regions, and talking to over 1,000 people. Due to the high-level of interest, submissions were accepted until 24 December 2003.

A total of 1,426 submissions were received. Many of the submissions (1,203 or 84%) were proforma submissions from Greenpeace members. The majority of submitters support the proposed standards in principle, though many submissions expressed concern or reservations over some aspects of the proposals. Key themes raised in submissions focussed on specific detail of the proposals, implementation, enforcement, potential cost impacts, and the standard development process. Further guidance and clarity was sought on some aspects of the proposals.

Many of the main concerns raised in submissions have led to slight changes in the proposed standards. The proposed ambient standards have been altered slightly to ensure consistency with the Ambient Air Quality Guidelines 2002, focus of the standards has moved to regional air management, the implementation date for the PM_{10} ambient standard has been extended from 2008 to 2013, an efficiency component has been added to the wood burner standard, and the date for compliance with the incinerator ban has been brought forward.

Since the close of submissions MfE officials have held discussions with the following stakeholders: Christchurch City Council, Nelson City Council, Environment Canterbury, Meridian Energy, Ministry of Agriculture and Forestry, Greater Wellington, Auckland Regional Council, Holcim (New Zealand) Ltd, Fletcher Building, Waste Resources, Ministry of Transport, Transit New Zealand, Home Heating Association, Greenpeace, Regional Council General Managers and air quality technical staff. A further 20 government departments were consulted during drafting of the Cabinet paper.

Of the government departments listed above, the Ministry of Agriculture and Forestry initially expressed concern over the proposed ban on high temperature incinerators. This concern has been addressed, by clarifying that MAF will be excluded from the ban during biosecurity events. Local Government New Zealand have not been consulted directly, but are aware of the proposed standards through feedback from local government representatives.

Business compliance costs statement

One source of compliance cost is the time taken to read and understand a new regulation (in this case, a new national environmental standard). The Ministry has taken steps to reduce these costs through having information about the proposed standard published on its website and talking with the industry at meetings and workshops.

A "plain English" guide outlining the content and implementation of the proposed standard will be produced prior to the regulations being introduced.

Business compliance costs are estimated in Table 2. The costs have been estimated in terms of hours it will take to carry out a task.

A MfE industry survey has found that a one-off cost of up to, but not exceeding, $100,000 is likely if an industry is required to upgrade. On this basis, $1 million per annum is calculated by assuming 10 different sites per annum upgrading on a rolling basis. It was stated by most industry respondents that the standards are unlikely to limit future development options for existing industries.

Compliance costs with the ambient air quality standards have been reduced by specifying that the point of compliance is effects based, i.e. is where people gather to work, play or live over the relevant averaging period. It does not apply at low-risk locations where people are unlikely to be present. This approach provides more flexibility than the approach taken by some countries, which specify a compliance concentration at the point of emission, or at the site boundary. This does not mean that industries in remote areas can avoid compliance; rather it means that industry on remote areas will have a larger "buffer-zone" between their discharge and where people are exposed, (say 1-2 kms), as opposed to an industry in a semi-urban environment which may only have a 300 - 400 metre buffer.

Transitional periods have been used in the proposed standards to help affected parties plan for the standards. For example schools and hospital will have until September 2005 to obtain resource consent for existing incinerators.

Table 2 - Estimated costs to business

Source of Compliance Cost	**Party affected**	**Estimated Time/Cost**
Incinerator operators applying for a resource consent.	Private hospitals and private/state integrated schools	$2,000 per application
Understanding of the standard	Industry with resource consents that regulate emissions of PM_{10}, NO_2, CO, O_3 and SO_2. Wood burner manufacturers, importers and retailers.	6 hours per party
Carrying out monitoring activities	Industry with resource consents that regulate emissions of PM_{10}, NO_2, CO, O_3 and SO_2	Not expected to vary from existing costs.