

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

Please accept the following submission to this consultation. I am happy for my submission to be a public document, but request that my name be kept confidential.

**1. What is your view of the wood heater industry in Australia? Are there specific aspects of the industry that require attention? Please provide details.**

**2. Can you provide evidence of new or different operational or marketing paradigms that would affect the stated view?**

Council of Australian Governments (COAG) identified air quality as a *Priority Issue of National Significance*. This is a key turning point towards addressing the widespread problem of wood smoke pollution that is causing harm to the environment and the community. Wood heater emissions impact public health and air quality and the use of wood as a fuel impacts biodiversity habitat.

This RIS recognises that 1.1 million domestic wood heaters are currently in service and producing 40000 tonnes of particulates each year, double the NPI estimated emissions from this source. This highlights the magnitude of the problem.

### **Page 2 - Policy options considered**

The categories of potential policy measures identified to be implemented to reduce emissions from wood heaters are useful when looking at the operation of wood heaters in isolation. Missing from this list is any consideration given to introducing regulations and standards for the sale or use of wood as fuel for domestic heaters. Wood is a key component that has a critical influence on emissions and must be included in the debate. There are no regulations to prevent other toxic materials being used as fuel.

The sale or use of wood for domestic heaters is not regulated in Tasmania, so there are no controls over whether the wood is from an appropriate source or is dry, seasoned and suitable for clean combustion. No amount of education in wood heater operation or wood heater design improvement will address the problem of unsuitable fuel.

### **Page 7-8 - A national approach for managing wood heater emissions**

A national approach is essential; it appears that a NEPM or mirror legislation will provide the

## COAG Consultation regulation impact statement for reducing emissions from wood heaters

best coverage and ensure consistent regulations are put in place and enforced. The mechanism for ensuring compliance will need to be clearly articulated and consistent across all jurisdictions. A NEPM will provide a consistent starting point for jurisdictions and the best long term outcomes.

### Page 12 – Figure 2.1

The statistics for NSW (38%) and VIC (26%) show that sales of wood heaters are comparable to population figures for these states, 32% and 25% respectively. However, wood heater sales in Tasmania at 10% of total sales are much greater than population figures for Tasmania at 2% (<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0>). A much higher percentage of heaters bought in Tasmania than in other southern states demonstrates that wood heater emissions are a bigger problem for Tasmanian communities. This is reinforced by the significant difference between states in dwellings using wood heaters (Figure 2.3) and duration of wood heater use (Figure 2.4). This trend is likely to increase as people turn to wood heaters with the increase in electricity costs. Figure 2.5 shows in 2008 that 24% of users relied on wood heaters due to energy costs. Since 2008 there has been increases in electricity costs in Tasmania (Office of the Tasmanian Economic Regulator):

#### *Why have prices increased so much since 2009-10?*

*Electricity prices are made up of generation costs (40.4%), distribution charges (31.1%), transmission charges (17.5%) and retail costs (11%) and each of these during this period has significantly increased in cost.*

*The following table shows the average increases in each of the components between 2009 10 and 2010-11. Electricity usage is measured in kilowatt hours (kWh) with prices set as cents per kWh, as shown on your bill each quarter.*

## COAG Consultation regulation impact statement for reducing emissions from wood heaters

*Average component costs and contribution to average price changes (real 2010-11\$), before price smoothing across years*

	2009-10 cents per kWh	2010-11 cents per kWh	Change from 2009-10 to 2010-11	Contribution to total price change
Generation costs, adjusted for losses	6.78	8.26	21.85%	50.01%
Network charges (transmission and distribution costs)	8.84	9.94	12.40%	37.01%
Retail cost to serve and margin	1.44	1.65	14.60%	7.08%
Other retail pass-through costs	0.41	0.59	42.17%	5.86%
<b>Total (real \$)</b>	<b>17.47</b>	<b>20.43</b>	<b>16.95%</b>	<b>100.00%</b>

*All the components of the electricity price have increased, but generation costs and network charges have increased the most.*

(<http://www.energyregulator.tas.gov.au/domino/otter.nsf/8f46477f11c891c7ca256c4b001b41f2/11e8fac1b072a8e3ca2577ca000aff8d?OpenDocument#By%20how%20much%20did%20my%20electricity%20bi>)

As a consequence, more people have turned to wood heaters to stay warm in winter.

According to Figures 2.6 and 2.7, most wood heaters in Australia are currently between 55-65% efficient and emitting below 4g/kg, yet they are still a significant contributor to particulate pollution. Comparing these figures with the target of this RIS, it seems inadequate to be aiming for significant reform that will only increase efficiency of almost 50% of wood heaters by 5% from 65% to 60% and reduce emissions of about 35% of wood heaters from 4g/kg to 3g/kg. This reform is desperately needed, but it needs to be bolder in aiming for much better outcomes for Australia. The population is constantly increasing at a rate of one person every 1 minute 20 seconds

(<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Web+Pages/Population+Clock?opendocument>)

and increases in energy costs are going to continue to result in increased reliance on wood heaters and therefore increases in toxic emissions.

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

The need for better outcomes is further supported by your statement at Page 18 – 2.4

Particulate emissions from in service wood heaters:

*The studies have consistently found that emissions from in-service wood heaters exhibit a large variation in emissions due to heater operation and installation. In addition, in-service emissions have been found to be much higher than that specified in regulatory standards, with 10 g/kg thought to be indicative of average in-service emissions.*

and your reference to the ‘considerable uncertainty’ in these measurements. Application of the precautionary principle is warranted in these circumstances.

**3. Do you consider wood heater emissions to be a significant issue relative to other forms of air pollution?**

**4. Do you agree with the conclusions provided in this section? If not, please provide reasons.**

**5. Are there other variables that have not been considered or not been attributed sufficient weight in the discussion?**

I am very concerned about urban pollution, particularly wood smoke from domestic wood heaters in the suburbs. Wood heater emissions are a significant issue in suburban areas and as electricity prices continue to rise, it is vital that there is a national approach that addresses not only the environmental impact of these emissions, but also the public health implications.

The Lung Foundation of Australia resource **Woodsmoke and your Health: The Burning Issues** (<http://lungfoundation.com.au/lung-information/patient-resources/educational-resources/>)

states that there is “no safe level of exposure to particle pollution” from wood smoke and that long-term exposure can be compared to tobacco smoking in terms of consequences, an obvious parallel. This means that we are being exposed to levels of smoke potentially equivalent to being smokers ourselves, the consequences of which are well known and we have no choice and no way of avoiding the exposure. There needs to be much tighter regulations on the operation of domestic wood fires and they need to be implemented without delay to prevent further risk to public health. There is a question of who is responsible for respiratory disease caused by wood smoke pollution, governments that

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

implement inadequate legislation and policies, or the owners and operators of wood heaters that emit the pollution?

The Australian Medical Association article *Every breathe you take could be hurting you*, <https://ama.com.au/ausmed/node/4673> raises serious public health concerns with air quality in Australia and current monitoring and enforcement mechanisms. Every wood heater is emitting toxic substances whether they are visible or not and with the increasing population and rise in electricity prices, more households will turn to wood heaters as an option.

One of our neighbours burns their fire 24 hours a day throughout winter and has done so for many years. On a daily basis there is considerable visible smoke emitted from their chimney, which is clearly in breach of state regulations, yet penalties have never been applied because it is too hard to measure compliance and enforcement is historically non-existent. This is a result of confusion of responsibilities created by state government regulations that are enforced by local government. Our street is often filled with grey smoke pouring down from the chimney and remaining for some time due to still air. In this kind of situation, wood smoke emissions including particulates are concentrated in a small area and can affect individuals quite profoundly. When wood smoke emissions are considered against the backdrop of other more diffuse anthropogenic sources such as controlled burns, industrial sources and vehicle emissions, the effect is cumulative.

The most serious consequence is the impact of constant exposure to smoke on respiratory health. The Australian Institute of Health and Welfare, the Department of the Environment and the CSIRO estimate that around 3000 people die in Australia each year as a result of urban air pollution. This is more than the number of fatalities caused by road accidents. Our child has a serious and chronic asthma condition for which daily steroid medications are required to keep her alive. During winter, the condition is aggravated by the cold air and the increase in wood smoke and associated particulate matter. Constant wood smoke from neighbouring properties has a direct impact on our child's health. Her education is impacted by missing a significant number of school days during winter due to respiratory problems.

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

Last winter was worse for us from an air quality perspective, and I expect that this winter will be worse again. Last winter we saw more neighbours turn to wood fires for their heating due to the dramatic increase in electricity prices. We now have neighbours on both sides and two neighbours over the back fence using wood fires regularly, in addition to neighbours across the road also turning to wood fires. The occupants have not changed in the homes, just their heating practices, and with further increases in electricity prices this will become more common across the state. People starting to use fires again that have not been used for some years are at risk of house fires if they are using old fires or have not properly cleaned chimneys. In [REDACTED] where I live and in other suburbs around Hobart, the smoke often hangs over houses that are sheltered from winds. For us this means that our street is often filled with grey smoke.

Not only is this a serious and significant public health issue, it is uncomfortable for my family compromising the amenity of our own property. Because of the constant smoke, we cannot enjoy our garden, we cannot use the washing line in winter and we cannot open our windows to enjoy fresh air. Despite keeping all the doors and windows closed in winter we still suffer from wood smoke entering our home through the small spaces around doorways and floorboards.

While domestic wood smoke may not be the biggest contributor to poor air quality across the nation, it is a problem in urban areas, particularly for people living adjacent to a property that is constantly emitting the noxious products of fossil fuel combustion. For this reason, it is important to apply the precautionary principle and aim for significant reduction in emissions and increase in efficiency. The target average of 3g/kg emissions and 60% efficiency proposed may seem like a good overall outcome and may result in the global average emissions being reduced. However this approach will not address specific point source problems where residents are individually exposed to emissions above the average because the heater in question does not meet the global average. This can happen due to a number of variables that are not addressed in the RIS, such as the heater has not been installed correctly, the flue is not appropriate, the heater is not being operated correctly, inappropriate fuel is being

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

burned, or the heater and flue is not regularly cleaned and maintained.

I would like to see these variables addressed as complimentary measures that support a national regulatory approach.

Soot is a particulate well know for causing respiratory problems and soot is a product of wood combustion, which we are encouraged to have cleaned from our chimneys each year to assist more efficient wood heater operation. The soot that is not deposited in the chimney is released into the local environment. Through studies on the effects of smoking and working in industries where exposure to smoke, soot or other particulates, the very harmful effects of smoke emissions on the lungs have been demonstrated.

### **Page 21 – Figure 3.1**

This section shows how significant wood smoke emissions are. I note that the data is covered by caveat:

The NPI notes that *“diffuse data may be from a study completed in 1998-99; however it is the most up-to-date information available at that time.”* This imposes limitations on the accuracy of the data, especially for example, in airsheds such as Launceston where there has been a concerted effort to reduce wood heater emissions.

The Launceston City Council reduced the number of wood heaters in houses through the buy-back program, but more recently with the rise in electricity prices, residents have been moving back to using wood heaters. Whilst new heaters being installed may be a higher standard than the previous heaters removed through the program, they are still increasing emissions, emitting particulates and other toxins and therefore contributing to the problem. It is possible that old second hand heaters removed through the program are being re-installed.

***6. Do you agree that the current policy measures for the abatement of wood heater emissions are not successful in realising the policy objectives? Can you provide other evidence to support this?***

***7. Which policy delivery method do you believe should be adopted by government and why?***

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

The current situation leaves governments open to being responsible for lung disease and damage caused to residents who are exposed to unregulated wood smoke.

Current policy measures are not working. In Tasmania local government is responsible for compliance with state government regulations relating to wood heaters and smoke emissions. This creates confusion of responsibilities and inadequate response when an issue arises. I have been referred to state government by the local council, and to local council by the state government. In discussions with council, it is clear that they do not have the resources or mandate to apply enforcement measures effectively, they seem to have a superficial authority which can be ignored with no consequences. I am currently working closely with council to achieve some improvement in my immediate area, but this has required about ten years of hard work and consistently raising the issue each winter before any action has been taken. The action now being taken is resulting in some improvement, but it has required daily, or weekly interaction and response. At the end of the day, it relies on voluntary changes in behaviour, which are not enduring once the council step back.

The Tasmanian state legislation requires that domestic wood heaters do not emit visible smoke in a continuous stream of a certain length (10m) for a certain period of time (10 min). This is not a useful or quantitative way to measure pollution because it requires an untrained observer to stand in the cold monitoring for the specified period of time and it requires that there is little or no breeze and that the wind does not change direction for the duration so that from a distance the stream can be measured. It also requires good eyesight to see where the stream is being blown to and this can be difficult if it is a thin stream or set against a backdrop of similar coloured clouds or sky. It is very difficult to estimate the length of a smoke plume from a distance, particularly if it changes direction, which can mean having to stay outside in the cold for some time. It is also difficult to measure against a grey sky or at night. Even when the smoke stream is not visible to the naked eye at a distance, the chimney can still be emitting toxic substances. Due to all the variables present, photographic evidence does not work well in demonstrating the problem.



## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

Recently I reported smoke pollution from a chimney that was clearly in breach of the legislation, however the local council reported that they could not see any smoke coming from the chimney in question at all. This demonstrates the level of subjectivity and discretion involved in monitoring compliance under the current legislation. Monitors or gauges that can measure the level of toxic smoke being emitted into the environment would be a better way of monitoring compliance and these could be positioned where problems are reported.

### **Page 29 -4.2 Market failure**

Another aspect of the debate that is not considered here is the use of appropriate fuel in wood fires. The sale or use of wood for domestic heaters is not regulated in Tasmania, so there are no controls over whether the wood is from an appropriate source or is dry, seasoned and suitable for clean combustion. There are no regulations against combustion of other materials as fuel.

Many houses have very old wood heaters that have not been checked for many years and certainly don't comply with recent regulations that cover new wood heaters. The Federal Government's 2004 audit of wood heaters in Australia found that most fail to meet air pollution standards (<http://www.abc.net.au/7.30/content/2004/s1128403.htm>).

Fostering changes in behaviour through social marketing has been effective where other methods of marketing have failed. For example, using statistics of improvements achieved by neighbours on a particular issue can have a greater impact on people's behaviour than simply pointing out the benefits of making changes

([http://www.ted.com/talks/alex\\_laskey\\_how\\_behavioral\\_science\\_can\\_lower\\_your\\_energy\\_bill.html?goback=%2Egmp\\_3794406%2Egde\\_3794406\\_member\\_246828849](http://www.ted.com/talks/alex_laskey_how_behavioral_science_can_lower_your_energy_bill.html?goback=%2Egmp_3794406%2Egde_3794406_member_246828849)). Resources for marketing sustainable

strategies can be found on the Fostering Sustainable Behaviour website:

<http://www.cbsm.com/articles/activities/pollution%20prevention>.

### **Page 29 -4.3 Limitations of current policies**

The Launceston Council launched a wood heater buy back program in 2001

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

(<http://www.launceston.tas.gov.au/lcc/?c=172>) with the specific intention of improving air quality in urban areas. This program was in direct response to the high incidence of respiratory disease in Launceston residents. The program continued in different forms for at least a decade (<http://www.tasgas.com.au/news/wood-heater-buy-back-project-2011/>). While it was successful in reducing the number of wood heaters in place and operational and resulted in good outcomes for respiratory health in the area, recent increases in electricity prices has seen a return to wood heater use lately. At least where new heaters are being installed, they are a better standard than those removed through the buy-back program.

### **Page 33 -4.4.1 A non-regulatory national program**

Non-regulatory mechanisms need to be in conjunction with regulatory reforms. Education and incentives alone will not be enough to change behaviours in the long term. Unless they have frequency, they cannot properly consider changes of residents in houses with wood heaters and or people installing wood heaters for the first time.

***8. Do you agree that the policy measures listed for the abatement of wood heater emissions will be successful in realising the objectives? If not, please provide your reasons including supporting evidence.***

***9. Do you believe that the “nudge” programs will be helpful in reducing wood heater emissions?***

***10. Are there other measures that are not listed in the document that should be considered?***

As discussed above, social marketing can be used as a form of ‘nudge’ program. This can increase the level of awareness of the problem in the community and in specific suburbs where there is a problem. They can be used as complimentary measures to support regulatory reform, but should not be relied upon as the main mechanism. Nudge programs are only effective for the period when the issue is being pursued with the community; the effect doesn’t necessarily endure after the focus is removed.

### **Page 37 – Measures to improve in-service wood heater performance**

In my experience, voluntary measures do not endure unless authorities closely monitor them. Voluntary measures are dependent on other variables and may only be effective if the residents of a property do not change; they have to be revisited each time tenancy changes.

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

### **Page 38 - Table 5.3**

Regulating wood heater design and education programs will have little effect if the fuel used is not suitable for clean combustion. Include measures to regulate the sale and use of wood as fuel and regulate against using other toxic materials for fuel. Compliance and enforcement will be costly, but this is an essential component of the cycle. Using the appropriate fuel reduces the impact of user operation. Costs should clearly reflect the need to address the impact on respiratory health of wood smoke emissions. Costs should be transferred to the user to highlight the significance of the consequent pollution they are responsible for contributing to.

***11. Which of the listed policy combinations do you favour in addressing a reduction in wood heater emissions? Why do you favour these measures?***

***12. Are there policy combinations that you would not support? Please provide reasons.***

The only appropriate option to reduce wood heater emissions is the national regulatory approach that includes development of a comprehensive national policy and an enforceable national regulatory framework, because it is the best option to result in a real and measureable long term reductions to particulate emissions and increases in efficiency. It does not rely on voluntary behaviour changes that may not continue if circumstances change or tenancy changes. It is the only mechanism that can be objectively measured and properly enforced. Complimentary measures such as standards for wood fuel, revised wood fire operational guidelines communicated through education programs and social media, protocols for proper installation and consistent advice about flue caps, chimney cleaning and the use of the 'smart burn' device.

Historically, wood smoke emissions come under state legislation, but are often administered for compliance through local government. This creates confusion for the community and results in no one area having clear accountability for ensuring compliance with the legislation.

***13. Do you believe the base case has been correctly identified, or are there other variables that need to be considered?***

***14. Have all health, environmental, economic and social impacts been identified? If not, please suggest others that need to be included. Has sufficient weight been given to these***

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

*impacts within their relationship to the policy options being proposed?*

**15. Have all key assumptions been correctly identified and included in the analysis? If not, please suggest others that need to be included.**

Respiratory health impacts are considerable and I do not believe that this RIS has placed enough importance on addressing these health implications of wood smoke emissions. Long term exposure to wood smoke emissions has been compared to cigarette smoke by the Lung Foundation of Australia in the publication **Woodsmoke and your Health: The Burning Issues** (<http://lungfoundation.com.au/lung-information/patient-resources/educational-resources/>) which states that there is “no safe level of exposure to particle pollution” from wood smoke.

Wood smoke pollution is not only an environmental issue (toxic emissions to the air shed and impacts to habitat and biodiversity) and a public health concern; it is also a nuisance issue, which impacts amenity. This aspect has not been considered at all. Wood smoke is a nuisance where wood smoke emissions occur but meet compliance measures, where wood smoke cannot be measured effectively or where compliance is not enforced. Residents exposed to unwanted wood smoke have no way of escaping the impacts. Impacts can include smoke entering houses and gardens affecting the amenity and use of a property and making it uncomfortable. This needs to be considered in a similar way to noise pollution that does not exceed noise regulations. For example, there are regulations that require residents to look after their dogs so that they are not barking uncontrollably and causing a nuisance. There are regulations about the level of noise that can be emitted from heaters and fans installed in a house. There are also restrictions on noise from residences at night or early in the morning, for example party noise at night or building/gardening/machinery noise first thing in the morning.

Noise pollution usually comes from a point source so measures can more easily be taken to buffer the impacts of noise, for example, double glazing or shutting windows and curtains or simply moving to another part of the house or garden. While this does not detract from the real impacts, it is slightly more manageable than wood smoke that is impossible to escape.

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

Wood smoke can also affect people walking in the neighbourhood and attending suburban schools and sports facilities. In my suburb it is a significant problem for students using the local sports ground for after school sports training. Between 4-6pm smoke starts to fill the air around the sports field where students and their coaches are exercising and therefore breathing the toxic emissions. There is a primary and a high school in our area which are subject to wood smoke pollution from surrounding houses.

Economic considerations are clearly driving decisions and not enough weight has been given to public health or environmental outcomes. Wood heaters should be considered in a similar way to cigarettes because they have the same health impacts, the difference is that people have no choice in whether they are exposed to the toxic emissions from houses that do not operate their heaters in a responsible way. The cost to users should be increased much like tax on cigarettes to stress the significance of the pollution they cause. A portion of revenue from wood heater sales should make a contribution to public health programs for respiratory health. This should be set up in a similar way to the department's offsets policy for industry and offsets policies for individuals. For example, where a person wants to remove a tree on their own property that may be in an area of habitat for the orange bellied parrot, they have to pay a significant fee to the orange bellied parrot conservation fund so that a replacement tree can be planted elsewhere. If people want to use a wood fire, they should make a contribution to respiratory health programs. Fire wood vendors and suppliers should contribute a portion of their income to biodiversity and habitat protection programs.

***16. Do you agree with the conclusions? If not, please provide reasons.***

***17. Can other conclusions be made based on the outcomes of this analysis?***

I don't think the current wood heater use pattern can be relied upon to accurately predict use to 2030. There has been a significant increase in the reliance on wood heaters in recent years in direct response to the increase in electricity prices. This has counteracted benefits of the increase in more efficient wood heaters being introduced.

The Australian Bureau of Statistics (ABS) has published an update of their "Energy Use and

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

Conservation survey dated March 2011 (ABS Catalogue 40602055001DO002\_ 201103).

Information within this update indicates that there has been a slight increase in wood heater usage compared to previous decreases seen in earlier surveys.

Any wood smoke emissions will contribute to particulates and toxic fumes entering the air shed, regardless of whether they are visible or not or compliant or in breach of regulations. Wood smoke is similar to tobacco smoke, but it is on a much larger scale and rather than affecting individuals as tobacco smoke tends to, wood smoke affects whole neighbourhoods. Under these circumstances the government has an obligation to apply the precautionary principle. This is a significant public health issue that mirrors the tobacco smoke debate. It must be treated in the same way and with the same gravitas.

The only options that can be considered are the national regulatory options 7, 8 and 9. Option 9 has the best public health outcome reducing emissions to 1.5g/kg in the long term and given the probability of wood heater use increasing, it is essential that a precautionary approach be pursued to seek the best outcome in the long term. Twenty years is a long time to wait for the desired outcome to be realized. . I consider that implementing a combination of options 5 and 9 will maximise gains in the short term while still aiming for the long term target. This should be pursued along with complimentary measures such as regulations for wood fuel and the use of other non-wood fuels, revised wood fire operational guidelines including ongoing care and maintenance like cleaning as well as everyday use guidelines that give clear advice on starting a fire and mechanisms to reduce emissions. These should be communicated through community and individually targeted education and 'nudge' programs and social media. Protocols for proper installation of heaters and flues and consistent advice about flue caps, chimney cleaning and the use of the 'smart burn' device also need to be developed. Introducing a raft of complimentary measures as soon as possible will assist to reduce emissions more quickly in the short term and will engage the community and engender support for the introduction of regulatory measures that aim to produce better health and environmental outcomes for everyone.

## **COAG Consultation regulation impact statement for reducing emissions from wood heaters**

I welcome the consultation on the RIS to address the problem of wood smoke emissions on air quality, particularly in the context of domestic wood smoke with the rise electricity prices and the consequent increase in the use of wood heaters in suburban homes.

Public consultation sessions should be held in Hobart, as a high proportion of wood heater use is concentrated in Tasmania. Several initiatives have been introduced in Launceston to address the problem due to particular geography of the city, but Hobart has not had the same attention.