15 July 2013

Air Thematic Oversight Group Standing Council on Environment and Water Secretariat GPO Box 787, Canberra, ACT 2601 (*Transmission via email to: secretariat@environment.gov.au*)

Dear Sir/Maam

RE: SUBMISSION TO THE CONSULTATION REGARDING THE REGULATION IMPACT STATEMENT FOR REDUCING EMISSIONS FROM WOOD HEATERS

INTRODUCTION

Thank you for the opportunity to contribute to this important consultation. I had complied a more detailed draft submission with considerable substantiation, but unfortunately I suffered a major computer failure only a couple of days ago, which will and has diminished my contribution to this important consultation substantially I feel. In any case, I hope you will accept this rather reduced submission drawing upon past correspondence to the ACT Government and the Australian Senate as a reasonable alternative.

At the outset, I must declare that I am of the firm belief that the efficient and responsible burning of biomass fuels, including wood, is a sustainable and necessary ingredient in reducing Australian generated green house gas emissions. Indeed, I am not alone in this thinking because the European Union itself, let alone other international juristictions, have generally embraced biomass fuel as a cost effective and alternative means to heat constituent homes.

The information presented in the following pages concentrates on statistics pertaining mainly to the ACT, but I feel the commentary extends equally to many other Australian precincts also. Whilst I recognise that this consultation's Terms of Reference (ToR) is focused on the regulatory issues associated with wood heaters alone, I hope that the following information might give the Consultation Group reason to pause and reflect upon the research presented so as to draw a firm conclusion that there needs to be a more balanced approach to the issue of air quality than just singling out one emission point source in isolation alone.

With the foregoing in mind, I have divided my submission into 2 discrete sections. The first section is general research and the second section is my specific responses to the various consultation questions.

SECTION 1 – GENERAL RESEARCH

I suspect there will be many respondents to this consultation who will voice opinions about the adverse affects of wood heaters. Unfortunately, experience has taught me that a mythology has developed in certain special interest quarters; a mythology that has unfortunately permeated into the thinking of policy makers and their advisors.

Indeed, from an ACT perspective, here are some of the the official statements have been made:

'Smoke from domestic wood heaters is the largest source of air pollution in Canberra' AND 'Canberra ... does experience elevated particle pollution during winter because of emissions from domestic wood heaters'

AND 'The reason the ACT Government is targeting the replacement of wood heaters with other forms of heating at present, is because of their emissions and associated health impacts.'¹

AND

'70% of particulate matter pollution in Canberra comes from wood heaters – which is linked to lung disease, heart disease and other serious health problems.' AND 'Particulate matter levels in winter are 3 times higher than the warmer months, and increase to a degree significant enough to cause short and long term health problems for the population.'²

So What Does Some Of The Official Research Actually State?

In their current publically available '*<u>Review of literature on residential firewood use, wood-smoke</u> <u>and air toxics</u>', the Australian Federal Department of Environment states, and I quote from Section 2.8:*

'There have been no studies of the direct impact of wood-smoke on human health in Australia. However, there have been epidemiological studies establishing correlations between human health and PM10. There have also been useful reviews by Australian researchers of international literature on the possible impacts of wood-smoke and PM10 on human health (Gras 1996, Robinson and Campbell 1998).'

Whilst some more recent international research alludes to health impacts stemming directly from wood smoke, the great body of research seems to still be 20-30 years old, and as such, the research becomes less relevant as wood heater standards improve; particularly since Australia adopted newer emission and efficiency standards with the introduction of AS/NZS 4012/ 4013 in 1999.

However, whilst there might be some inkling from international research, the Australian research cited in Section 2.8 tells a somewhat different story when disease and mortality rates are analysed; particularly so given the time of year. Again, Section 2.8 states, and I quote:

'Morgan et al. (1998b) have also examined the link between air pollution and hospital admissions for Sydney. They found a statistically significant link between chronic obstructive pulmonary disease (COPD) in the elderly (over 65 years) and particulates (as measured by nephelometer) with a 3% increase when the one-hour particulate concentration increased from the 10th to the 90th percentile (23 to 142 inverse megametre). Correlations with asthma and heart disease were not found to be significant.'

'The Melbourne Mortality Study (EPA Vic 2000d) examined links between air pollution and mortality between 1991 and 1996. The study (based on light scattering coefficient determined using nephelometers) suggested a 1.4% increase in mortality for a 10 μ g/m³ increase in PM2.5. The study found significant correlations in summer months but not in winter months. The report noted the difficulty in controlling for confounding factors.'

(Simpson et al. (1997) report similar links between mortality and particulate material

¹ Statements made in a letter received by the author from the ACT Chief Minister, dated 25 March 2013.

² Statements made by former ACT MLA Amanda Bresnan in her draft exposure legislation <u>'Addressing Wood HeaterPollution in the ACT'</u> (page 3-4 refers).

(measured using nephelometer -derived scattering coefficient data) for Brisbane. Their results suggest an increase in mortality of 0.9 to 1.8% for each μ g/m³ increase in PM10 (the range is a function of the conversion factor used to convert from scattering coefficient to PM10). <u>The effect was greatest in summer</u> months and for people over 65 years.'

'The stronger association between particulates in summer months compared to winter months suggests that sources other than woodheaters are significant, although it does not eliminate woodheaters as a potential problem.'

'A study of preschool children in South Australia found a significant reduction in the prevalence of dry cough and wheeze in households with woodheaters compared to other forms of heating (Volkmer et al. 1995). The study identified increased dry cough and wheeze in households with unflued gas heaters.' (Underlined emphases added)

Furthermore, in their summary on '<u>Wood heater particle emissions and operating efficiencystandards</u>' the department once again states, and I quote:

'We consulted many relevant studies that make assessments of the impact of PM10 both on air quality and human health and found that often they, as we did, had difficulties in matching population, health statistics and data years to PM10 airshed emissions.' (last para Exec Summary, page 3 refers)

<u>So What Could be the Major Culprit To Poor Air Quality Within The ACT And By Extension Other</u> Jurisdictions Within Australia ?

Whilst it would be foolish to suggest that wood heaters will not have an impact on air quality, it must be clearly stated that wood heaters alone are not the sole source of particulate matter or indeed the sole source of adverse health effects as cited by some policy makers and their advisors.

To substantiate this, in their 30 June 2012 report <u>'State of the Environment 2011'</u>, the Federal Environment Department again stated, and I quote:

Among diffuse sources of air pollution, <u>motor vehicles are the most pervasive and have the largest</u> <u>impact on urban air quality and human health</u>. In our capital cities, they are the dominant source of NO_x (a generic term for nitric oxide and nitrogen dioxide) and VOCs—the precursors of photochemical smog. <u>Although the combined emissions from industry, electricity generation and wood</u> <u>heating are a larger source of PM₁₀ than motor vehicles</u>, because of their ubiquitous presence in our cities, motor vehicles tend to be a more important source of human exposure. (underline emphasis added)

.... AND THAT

'In addition, very fine particles (<1 micrometre) form a major part of vehicle particulate emissions. <u>It</u> <u>is these, together with particles in the range 1</u> micrometre to less than 2.5 micrometres, that are the focus of increasing concern in relation to <u>cardiovascular and respiratory disease</u>, with which they are <u>strongly correlated</u>.¹⁵⁸ <u>The Australian Bureau of Transport and Regional Economics estimates that, in</u>

2000, motor vehicle pollution was responsible for 900–4500 cases of respiratory and cardiovascular disease and bronchitis, and as many as 2000 premature deaths.³ (underline emphasis added)

With the foregoing in mind, and according to the ABS, the ACT had 267,164 registered motor vehicles as at 31 Jan 2012, which is the total number of vehicles arising out of an average annual increase of 3.2% over the last 10 years (Page 4 of this reference refers). This compares with further <u>ABS statistical figures</u> that state that as at 2011 the ACT had approximately 82,000 natural gas fired heater systems as opposed to just 3,100 wood heaters (<u>Table 12 of the data cube refers</u>). Also, Table 13 of this last reference suggests that the total number of wood heaters has remained relatively stable over the period of March 2005 – March 2011.

With the number of vehicles cited as a backdrop, most of the research reviewed by myself clearly suggests that the cold start and running of a motor vehicle during winter months could add substantially to the particulate matter generated in the first 15-20 min of running before the vehicle reaches its optimal operating temperature. The research suggests that even modern vehicles fitted with catalysts or diesel particulate filters require maximum operating temperatures before the filters burn off excess particulates efficiently and effectively. "Poisoned Catalysts" and real world driving habits together with the re-suspension of dust and other particles that naturally occur from the movement of vehicular traffic operating within and around the ACT, could be more of a major contributing factor to increased air quality problems during cold temperature inversion layer events than wood heaters alone.

Perhaps the best research in this regards is from Dr. Mark Deluchii, who is an environmental scientist from the Institute of Transport Studies at the University of California. In a co-authored Research Paper, Dr. Deluchii provides considerable detail about the extent to which vehicle emission tests and their underlying standards typically underestimate actual observed emissions (with regard to USA EPA tests). Deluchii cites a number of more recent researchers who have provided varying examples of recorded emissions from motor vehicles, but I found his comments about the research undertaken by Williams (who is an Australian) to be the most compelling in the Australian context. Deluchii states on page 29,with respect to Light Duty Gasoline Vehicles (LDGV) and Light Duty Diesel Vehicles (LDDV) that:

'Williams et al. (1989a, 1989b) measured PM emissions from "in-use" gasoline and diesel vehicles in Australia. The light-duty gasoline and diesel vehicles were tested over an urban cycle equivalent to the U. S. FTP. (The tests on HDDVs are discussed below.) Most of the vehicles were model years from the late 1970s to the mid 1980s. PM emissions from LDGVs ranged from 50 to 290 mg/mi (average 113 mg/mi), and PM emissions from LDDVs ranged from 290 mg/mi to 1,400 mg/mi (average of 595 mg/mi). PM emissions from LDGVs were correlated with NMHC emissions, and PM emissions from diesel vehicles were correlated with NMHC and CO emissions were higher in the cold-start portion of the drive cycle.'

... he continues on page 33 with respect to Heavy Duty Diesel Vehicles (HDDV)

'Williams et al. (1989b) tested 12 HDDVs, model years 1974-1985, over a multi- model steady-state drive cycle on chassis dynamometer, in Australia. PM emissions ranged from 1.3 g/mi to 11.5 g/mi, with an average of 3.4 mg/mi, or 2.6 g/mi without the highest emitter.'

³ However, it is somewhat confounding but the Executive Summary of the <u>NSW EPA's 2008 Report</u> (Domestic-Commercial Emissions) suggests, on page vii, that emissions from domestic solid fuel combustion significantly overshadows other point sources. This report seems to be at considerable odds to other research and particularly that of the Federal EPA so I feel further investigation into the NSW EPA's methods and conclusions is needed.

That's right, vehicle emissions that could be contributing anywhere up to 11.5 grams per mile or 1.6Km travelled!! According to the <u>wood heater certification list</u> of the US EPA, new standards based wood heaters can have emissions as low as 0.45 grams / hr with an efficiency of 80.1% as measured against the US Standard. This wood burning stove (the Cape Cod by Travis Industries) is seconded by the Large Hybrid Fyre fireplace insert, which is rated at 0.58 grams / hr with an efficiency of 80.3% again as measured against the US standard. The latter appliance is already available in Australia⁴.

Such improvements in emissions and efficiency of wood heaters contrast starkly to the "super emitter" motor vehicles that are invariably present within our environment. Indeed, Deluchii provides further insights into why current US vehicle emission tests fail because they typically don't:

'include accelerations hard enough to induce "command enrichment," it underestimates the number of cold starts, and it generally is performed with the air conditioning off.'

In addition, perhaps the most critical observation by Dr. Deluchii in my mind, is the fact that older less well maintained vehicles and/or particularly smoking vehicles were "super emitters" that raised the average emissions of the vehicle fleet significantly. He estimated that "super emitters" could represent anywhere up to 10% of the entire fleet in general.

So What Does the ACT Environment Protection Authority Have To Say ?

In their June 2012 report (i.e. the '<u>ACT Air Quality Report 2011</u>'), the ACT Environment Protection Authority states, and I quote:

'PM10 levels are below the AAQ NEPM standard. The highest PM10 level recorded during 2011 was 40.0µg/m3 on 14 November 2011. This is 80% of the AAQ NEPM standard.' (page 17 refers)

... THEY THEN GO ON TO SAY (and interestingly, with only the Monash Testing Station test results tabulated and cited) ...

'The 24-hour advisory reporting standard for PM2.5 was exceeded four times at Monash. The exceedences happened during late May to early July 2011 <u>because of particle emissions from wood</u> <u>heaters during winter</u>.' (Underlined emphasis added, page 17 refers)

With this last statement clearly in mind, I would draw your attention back to the statements made by the Federal Environment Department where they imply that emissions from wood smoke are predominately concentrated within the PM10 emissions range. Given all the evidence that is available (or not available as it may be), it is unclear why the ACT EPA would make such an unsubstantiated claim about the contributing factors of PM2.5 and that wood smoke alone would have been the major contributing factor affecting air quality in the ACT at that time.

The reason? Because in discussions with the Director of the Air Quality at the Federal Environment Department (dated 8 May 2013), she confirmed with me that current collection methodologies within Australia are unable to specifically differentiate the point sources of particulate emissions from the volumes of air collected. As such, it would appear that the statement pertaining to PM2.5 emissions made by the ACT Environment Protection Authority is unfounded. Hopefully the statement was not progressed on the basis of departmental bias.

⁴ You can find the listings of these two appliances on Pg 14 of the link provided.

Irrespective of this, Dr. Deluchii provides further insights into this issue where <u>his research</u> (table 16.19 (pages 170-179)) provides an inkling of the relative contribution rates from various emission sources within a given volume of collected air. Whilst these reference points are with respect to the American experience and might deviate somewhat from the Australian context, his research nevertheless illustrates that it is indeed Light Duty Gasoline and/or Diesel Vehicles which appears to be the highest contributing factor to air quality problems. This research validates the assertions made by our own Federal Environment Department.

Given that most vehicles within the ACT would not typically travel for more than about 15-20 mins on a single commute, and given that they would typically have the air-conditioning running in order to help defog windows in cold weather, then one could reasonably argue and conclude that it is indeed vehicular derived PM2.5 that is the largest single contributing factor to poor air quality in the ACT as compared to that of wood heaters alone (this assertion garners considerable plausibility when you consider the tens of thousands of vehicles that navigate up and over the steep hill of Yamba / Erindale drive. The proximity of the Monash testing station to this steep hill and the fall out of these emissions adds considerable weight to my argument I feel.

Ironically, strident proponents for the outright abolition of wood heaters in the ACT and/or other commentators who have had a propensity to voice adverse opinion about wood heaters in general, may find that they are in fact bigger contributors to poor air quality than wood heater owners alone if they drive and operate older and/or poorly maintained motor vehicles.

What Other Hard Evidence Is There That Shows The Air Quality Experience In The ACT ?

With the information above about wood heating and PM10 particulates as a backdrop, the following annotated graphs below have been extracted from Figures 3.26 and 3.27 of the Federal Environment Departments <u>'State of the Environment 2011'</u> report, which has mapped the level of PM10 & PM2.5 particulates over the period analysed.



Source: Adapted from Fig 3.26 <u>'State of the Environment 2011'</u> – PM 10 Emissions



Source: Adapted from Fig 3.27 <u>'State of the Environment 2011'</u> – PM 2.5 Emissions

As can be seen in Figure 3.26, there has been an ever decreasing trend in PM10 emissions since

1999, with a particular emphasis from 1999 to 2004. Arguably, the trend reduction for the ACT could be attributable to many things including, but not limited to: the completion of substantial green field building sites within and around the Territory; significantly improved emission standards and controls applied to the uptake of newer vehicles; the introduction of mains gas supply in the early 1980s, substantially replacing old oil fired heaters, and last but not least, the introduction of the 1999 AS/NZS 4012/4013 standard that mandated improved and stricter emissions and efficiency standards for wood heating appliances.

As I have annotated on both graphs above, the start of the ACT's Wood Heater Replacement Program was initiated in 2004, and according to the Program Manager in a phone conversation on the 16 April 2013, the program has only been responsible for the replacement of 1,008 wood heaters as at 31 December 2012. As can be seen in these graphs, the supposed air quality benefits from the uptake of this replacement program does not seem to have translated noticeably in the results tabulated and graphically represented.



Is Natural Gas Really A Panacea For The ACT Or Australia's Air Quality?

Source: http://www.domgas.com.au/pdf/Alliance reports/DomGas%20Report%202012.pdf

As per my previous correspondence, I believe the ACT Government could be instrumental in forging new initiatives in the wood heating area, but the Government needs to first recognise and accept that wood heating is a cost effective source of heating for many ACT homes and that constituent attitudes to wood heating are not likely to change given the previous information I have tended (i.e. as illustrated in the graph above, the continued and projected increase in natural gas prices over the next 3-4 years will surely be a barrier to entry for many ACT constituents from here on in). In addition, the Natural Gas industry itself claims and threatens that gas prices will increase if Government intervention occurs regarding any reduction in coal seam gas extraction.

But why is Natural Gas so expensive in Australia when we are one of the world's largest producers ? The reason I ask this burning question is because the US Energy Information Agency (EIA) provides US citizens with data pertaining to the projected energy prices that consumers are likely to pay over the forthcoming period. Here's a snapshot of that advice:

What is the outlook for home heating fuel prices this	s winter?
According to EIA's Short Term Energy Outlook released on May 7, 2013, the projections for U.S. resi prices ¹ for the winter of 2013-2014 (October 2013 to March 2014) are:	dential heating fuel
Natural Gas: \$11.53 per 1,000 cubic feet, about \$1.13 per therm ²	
Heating Oil: \$3.70 per gallon	
Electricity: 11.98 cents per kilowatthour	
¹ Retail prices includes taxes.	
² There are 1,022 Btu per cubic foot, and a them = 100,000 Btu.	

Source: http://www.eia.gov/tools/faqs/faq.cfm?id=5&t=8

As can be seen, the information contained within the orange highlighted area, clearly shows

that the EIA expects that the retail price of natural gas to cost approximately \$1.13 per Therm inclusive of taxes. If you are not aware, one Thermal unit of gas is equivalent to 105.5056MJ (you can check this out <u>here</u>). Therefore, according to the EIA, US residents in general are expected to pay approximately 1.07cents per MJ including tax. Looking at my current bill from natural gas supplier, the price quoted is 2.294cents per MJ excluding tax double the price paid in the US and Australian gas prices are projected to double again over the next 4 years. There is also a significant but lesser comparative differential regarding electricity prices.

THIS BEGS THE QUESTION: WHY ARE AUSTRALIANS BEING PRICE GOUGED BY HIGH ENERGY COSTS?? SURELY THIS IS NOT JUST THE CARBON TAX AT PLAY??

The foregoing information and question poses some fertile ground upon which policy makers and regulators should take particular interest. There is no doubt in my mind that some of the campaigning and the considerable swing against the ACT Government at the last state election was a key indicator of the a real concerns that constituents have about cost of living pressures. If I am any reflection of this general concern, then there is no doubt that gas and electricity prices are central to a desire to seek cost effective energy independence. Contrary to some assertions about the cost of fire wood, efficient wood heating will provide a cost effective pathway and assurance of this constituent desire.

In addition to the foregoing, there is now added and wide spread concern about the true nature of how clean natural gas really is (i.e. the extraction process of coal seam gas, which has been shown to release significant

amounts of methane into the environment). Community awareness about the environmental impacts of CSG extraction methods are centre stage and I believe that the information delivered in a recent <u>ABC 4 Corners</u> <u>Program</u> on this issue is rather compelling.

Finally, and to refocus my commentary back to specific air quality concerns as it pertains to individuals, then you might find a <u>recent study</u> undertaken by the University of Sheffield where they found that pollutants and indoor air quality was significantly degraded by the outputs of gas cook tops. Given the research presented, the exposure of building occupants to poorly vented gas cooktops presents a real risk, but perhaps as equally important, gas cook tops that are properly flued will surely only transfer those emissions into the outside airshed environment. Given the installed base of gas heaters as cited above (i.e. 87,000 gas heaters within the ACT), one can only assume that a directly proportional number of installed gas cooktops are equally contributing to and affecting our air quality.

SECTION 2 – RESPONSE TO THE CONSULTATION REGULATION IMPACT STATEMENT ANALYSIS (CRIS)

With the foregoing research in mind, I offer the following comments to the specific areas of the Consultation Regulatory Impact Statement (CRIS).

Question 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.

Whilst I have had limited exposure to the Wood Heating industry itself in general, I believe the industry generally continues to offer constituents with a broad range of cost effective solutions and products. Such offerings help to maintain an open and efficient market because to not have this industry within the market place would only tend to create a broad duopoly only comprising that of commercial gas and electricity companies; both of which contribute to greenhouse gas emissions.

Also, I believe the wood heating industry provides constituents with an alternative means to be energy independent for space and / or water heating and central heating, if they so desire. Some wood heaters with water jackets provide a boost and/or a primary function that helps to supplement solar water heaters during winter months, again reducing green house gases. Some wood heaters have even been fitted with Stirling engine type devices to produce and generate modest amounts of electricity.

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

Yes. The European Union has generally embraced biomass as a viable means of green house gas reductions, and as such, they have provided resources to enhance this older technology whilst achieving better air quality and carbon footprint outcomes. I believe Australia should equally embrace biomass and wood heating in the same manner.

Given the assistance rendered to overseas companies and constituents alike, I believe Australian policy makers need to provide commensurate if not superior financial assistance in the form of research grants to Australian industry so that they can respond in a timely fashion to new standards initiatives and community expectations. Direct research grants together with a broad national Wood Heater Replacement Program (i.e. old for new or new alternative technology) would help to facilitate and achieve desired outcomes relative to the perceived impact that wood heaters may have on air quality.

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

Yes and No. As my research above shows, I believe it is important to take a measured and balanced approach in assessing the totality of air quality and the various point sources that impact upon it. The research would suggest that wood heaters generally are not the sole or pre-dominate source of excessive air pollution as is claimed by some commentators. However, I accept that there will be possible exceptions to this where there is a higher than average or concentration of wood heating appliances (e.g. Launceston).

In addition, I believe it is important to mention here that some research that I consulted (but I am not able to provide reference to at the moment) suggested that larger particles within an emission flow actually provides a bonding substrate to smaller particles thereby reducing small particle dispersion into the atmosphere (i.e. the research suggested that PM10 particles can act as a bonding agent to smaller particles in the stream itself thereby reducing the totality of <=PM2.5 particles entering and remaining suspended in the air shed).

Therefore, I believe further detailed research does need to be undertaken in this area to conclude and insure that any emission abatement does not give rise to an increase in small particle dispersion because particle bonding no longer exists. Clearly, the potential net effect of this circumstance may present adverse outcomes in terms of increased human exposure to small particle emissions and associated health costs.

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

Yes. As I have stated above, it appears that currently there is no technical ability by air monitoring authorities to be able to differentiate with accuracy the point sources of various emissions given a volume of air collected (i.e. air monitoring authorities are unable to determine within a volume of air collected if (for example) a soot particle originated from either a diesel engine or a wood heater).

Whilst I am no specialist in this area, it seems to me that some form of carbon dating (perhaps) might be a means in order to lead to some form of point source identification (e.g. the carbon dating of a fossil fuel derived emission of many millions of years as opposed to that of a 50 year old tree). If such technology was possible then I believe such an outcome would help to reduce false assumptions and help facilitate more robust policy formation.

Finally, whilst I may have missed some commentary within the CRIS, I believe it is deficient because it does not adequately consider or analyse the costs of competing heating technologies to balance the hip pocket perspective of constituents ... particularly constituents who are of lower means who rely on wood heating as a viable and cost effective means to not only heat their homes but perhaps also provide hot water services also. Such a deficiency in the cost analysis undermines the social cost that may return as a tangible and recurrent cost as more constituents seek Government welfare supplementation in order to make ends meet.

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

No. There is no clear evidence that current standards have not been effective in contributing to the reduction of emissions and thereby improving air quality. I would direct you attend to the graphs on pages 6 & 7 and my associated commentary to qualify this point.

In fact, the official graphs lay waste to ambit claims that the ACT (as an example) has an air quality problem. Whilst some cold weather inversion layer events will occur from time to time, I believe I have reasonably

demonstrated that increased air quality problems can materialise from various point sources; point sources that are a lot more prevalent and evasive in terms of harmful emissions than that of wood heaters.

In addition to the foregoing, and dealing with Section 4.3 of the RIS itself, I believe the assertion made about 'market failure' are misguided and are in places inaccurate.

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

I believe all options of the CRIS are now redundant because, as I understand, the Australian Standards Committee has convened and concluded a meeting with industry representatives in April 2013 to ratify and adopt long standing but new emissions and efficiency standards as suggested and proposed by the Wood Heating Industry.

As I understand, emissions for all newly installed wood heaters will need to comply with a new initial emission standard of 2.5g/Kg (down from 4g/Kg), with a minimum starting efficiency of 55%. This is a first step in a suggested 5 year rolling program to incrementally reduce these initial standards to a subsequent and resultant measure of 1.5g/Kg in emissions with a minimum efficiency of 60% by 2018. This initiative is aimed at trying to provide further air quality improvements whilst allowing a research and development pathway for Australian industry to improve appliances on a schedule that would not put them out of business.

I believe that it is important that the industry is provided with financial assistance to facilitate a robust and comprehensive R&D program. If the financial benefits from reduced health costs are accurate, then modest research grants should be a no brainer and the required funding should be facilitated forthwith.

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

As stated above, I believe the proposed abatement measures seem somewhat redundant now in the first instance given the recent progress of the Standards Committee. I believe COAG needs to let the Standards process proceed unencumbered.

In addition to the Research grants suggested in the foregoing, I believe that policy should extend to and facilitate new Wood Heater Replacement Programs to enable generous incentives that allow constituents to replace old wood heating appliances with new standards based wood heaters or other technologies of their choice.

However, unfortunately some current Government programs have effectively ostracized wood heater owners to only provide replacement programs for certain heating technologies (e.g. the ACT Government's program that replaces wood heater only with natural gas appliances). Such actions undermine a competitive market and form the basis of a market manipulating collusion between Government and commercial gas companies or their commercial affiliates. This only tends to further the financial interests of those commercial operators; an untenable policy position that continues to be at the direct expense of constituents and non-aligned but affected businesses, both in financial and environmental terms.

As suggested above, I believe regulators should accept the relevance of wood heating as a viable and cost effective means of heating by initiating and/or extending Wood Heater Replacement Programs to those constituents who would genuinely like to contribute to better air quality whilst protecting their rights to make their own informed decisions about the standard of living / cost of living choices that are generally available to them. Such a measure is consistent with many international jurisdictions who have implemented generous

financial assistance replacement schemes; thereby acknowledging the benefits of wood heating for constituents whilst actively putting in place the policy frameworks to improve air quality.

Question 9 – Do you believe that "nudge" programs will be helpful in reducing wood heater emissions?

Due to time constraints I have not fully researched the concept of "nudge" programs as cited in the CRIS.

However, I believe that any prospective Wood Heater Replacement Program subsidy should be conditional upon a wood heater owner being able to demonstrate to an approving authority that they have a dry air wood seasoning and/or undercover storage facility for the storage of seasoned fire wood. It should also be mandated that owners who seek a subsidy of wood heating appliances should also be required to own a functioning moisture meter to ensure that they test and burn only dry seasoned fire wood (i.e. with a moisture content of less than 20%). Such measures would assist approving authorities in the engagement and education process and allow for any subsequent enforcement of regulations where, in the unlikely event, excessive smoke from a residence is continually observed.

I firmly believe that such measures would help to significantly reduce the perceived impact of wood smoke generally within the community and it would perceivably help to also put in place enforcement measures to reign in any recalcitrant individuals who do not burn wood responsibly.

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

Yes. I believe that wood heater standards should be amended to also incorporate two additional test outputs. One test is for softwood so that international comparisons between fuel types can be easily made and assimilated.

The second test output sought is 'grams/hr' of fuel burnt. The US EPA provides statistics along these lines and my reasoning for this test output is because such a measure would help to provide better comparisons between point sources for research and policy considerations (i.e. we know that motor vehicles will emit a number of grams / mile (km) travelled so wood heater emissions measured in grams/hr would help provide a more transparent and easily calculable comparison of emissions).

Finally, I believe Governments should consider the establishment of firewood growth forests for the purposes of protecting environmentally sensitive native habitats and facilitating the harvesting of renewable and cost effective sources of sustainable biomass fuel to heat Australian homes.

PETER THORNTON

About the Author:

Peter Thornton is a retired member of the Defence Force and Commonwealth who has been a long time resident of the Tuggeranong Valley in the ACT. As a wood heater owner himself, Peter is keen to advance the interests of affected wood heater owners to ensure that Government policy is fair and equitable. Peter is tertiary qualified in economics, engineering and management.