

3 April 2013

Your ref: -

Our ref: SG: A06/3146, A10/4809, A02/0261-11

Dr Ian Holland, Committee Secretary
Senate Standing Committees on Community Affairs
PO Box 6100, Parliament House
CANBERRA ACT 2600

For submission online via <https://senate.aph.gov.au/submissions/pages/index.aspx>

Dear Dr Holland

Australian Senate Inquiry - the impacts on health of air quality in Australia

Council has only recently been made aware of your Inquiry and thank your staff for making it possible for Council to contribute to the work of the Standing Committee on this important issue.

Summary of the key points in our submission:

- Poor winter air quality is a significant issue in Armidale;
- Council has funded a range of initiatives over the past decade to address the issue;
- Recognition of health impacts of PM2.5 pollution, particularly to vulnerable groups;
- Support stricter emissions standards throughout Australia;
- Support legislating for the banning of wood heaters in sensitive locations, improved efficiency and emissions standards, phasing out appliances at the point of sale, the introduction of regulation on wood sold as fuel (presently a highly unregulated industry), new taxes and cash incentives;
- Support air quality monitoring stations (AQMS) throughout Australia to determine risks and prioritise investment in pollution reduction programs;
- Support more clarity of the responsibilities of government, and an holistic and evidence-based approach to the development of air quality policy and programs, coordinated across all levels of government;
- Noting that to date our State government has yet to act on the recommendations of the *"Economic Appraisal of Wood Smoke Control Measures"* (AECOM report).

Background

Armidale is a regional community of around 24,000 people, located on the Northern Tablelands of NSW. Our particular interest in public policy for air quality arises from the problems our community experiences during winter months as a result of the use of wood heaters by many residents and businesses in our urban area. It is estimated that about one-third of all Armidale households use wood for heating, with up half of these households sourcing their wood for free. The impacts of these appliances and the fine particles which they emit is exacerbated by our cold winter climate, high pressure meteorological conditions and the valley topography of Armidale, all of which lead to wood smoke being 'trapped' by temperature inversions on many winter mornings.

Given these locational issues and increasing community consciousness about the need for responsible environmental management, improved community health and energy efficiency, our Council has taken an active role for over 20 years seeking to bring about an improvement in local air quality. This has involved educational, financial and regulatory components and a considerable investment of Council staff time and financial resources, as well as grant funding for various projects from the NSW Government. We estimate that Council has committed more than \$300,000 in the past 10 years on wood smoke abatement measures. This has been a significant expenditure for a Council of our size.

In particular, Council has:

- Established a community advisory Committee to Council to assist with appropriate policy direction and implementation;
- Provided significant financial incentives, such as interest free loans and subsidies for insulation and new heating systems/technologies;
- Undertaken a range of public education and related media programs on domestic energy efficiency, including the construction of a display home;
- Monitored air quality in Armidale and regularly reported the results to the community;
- Conducted smoke patrols and issued abatement notices for excessively smoking chimneys; and
- Maintained a dialogue with relevant government agencies and industry groups, including making submissions like this in relation to future actions and initiatives.

Yet in spite of this range of actions, local air quality measurements by Council indicate that in winter 2012, Armidale was still experiencing air pollution instances above national recommended levels for fine air particle (2.5 Microns - PM_{2.5}) concentrations. The relevant details for the past four years are attached to this submission, from which it is apparent that the city is experiencing exceedences of the national standard for approximately 3-4 weeks each year.

This is of concern, but not altogether surprising, as most housing stock in Armidale pre-dates the initiatives listed above, and home heating and other energy systems are only occasionally replaced. Moreover, most of our older housing stock, much of it weatherboard cottages, was developed without regard to passive solar and other energy efficient housing techniques that are now available to home builders.

An emerging factor which appears to be persuading home owners to retain wood heating as their principal form of space heating is the rising cost of electricity. This, together with the and the well publicised concerns about unflued gas heaters (an indoor air quality issue) have maintained a significant market share for wood as a fuel, as it remains relatively affordable.

Inquiry terms of Reference

To address the specific terms of reference of your Inquiry in turn, we advise as follows:

(a) particulate matter, its sources and effects

Wood smoke is of particular concern as it consists of fine particles in the range commonly identified as PM_{2.5}.

NSW Health has advised that *"Wood-burning heaters make a substantial contribution to air pollution in NSW"*¹. State and Commonwealth health agencies² have reported that fine particles

¹ http://www.health.nsw.gov.au/factsheets/environmental/wood_smoke_pub.html accessed at 7 December 2012.

from wood smoke and other toxins can cause various health problems leading to increased mortality. Short-term exposure (over hours or days) to high levels of wood smoke may cause eye and respiratory tract irritation, aggravate asthma or worsen heart disease, while long term exposure to particulate matter can decrease lung function while increasing the risk of developing heart and lung diseases like angina and chronic bronchitis. All these can lead to increased dependency on medication and potential hospitalisation and shorten life expectancy.

Likewise, the Australian Lung Foundation advises that particle pollution from all sources and especially from wood smoke, is harmful to our lungs. The Foundation recommends the use of alternative measures to wood heaters for domestic climate control ³.

Of particular relevance for your Inquiry is a document released last year by the NSW Government on the *"Economic Appraisal of Wood Smoke Control Measures"* (AECOM June 2011). This concluded that there would be substantial net benefit for the community in NSW of greater wood smoke control mechanisms. The document also identified a total health cost for 'business as usual' in NSW alone of over \$8Billion (net present value), before outlining various options for additional regulation, discussed further below.

We would particularly recommend that the Inquiry review this publication, which has a considerable amount of relevant data on wood heating and has been prepared by a major environmental economics consultancy. The document is currently available on line at:

<http://www.environment.nsw.gov.au/resources/air/WoodsmokeControlReport.pdf>

(b) those populations most at risk and the causes that put those populations at risk

Wood smoke pollution is a serious health risk to certain vulnerable groups in the community, such as those prone to respiratory or heart diseases, the elderly and the young.

In terms of our community and our local air shed, as indicated above the problem is most prevalent during winter months when wood heater use is at its height, generally between May and August.

(c) the standards, monitoring and regulation of air quality at all levels of government

Standards and regulation

There are two principal standards currently relevant to the issues discussed in this submission.

In relation to air quality, the Committee would be aware of the *National Environmental Protection Measure for Ambient Air Quality, 2003 as amended*, issued under the jurisdiction of the National Environment Protection Council. The current advisory standards for maximum concentrations of fine particles are 25 µg/m³ averaged over one day and 8 µg/m³ over a year. Council's aim is to achieve compliance with these standards (ie no exceedences) by 2020.

While compliance with the NEPM is not required as the standards are only of an advisory nature and Council has no participating agreement under the National Environment Protection Council Act 1994, we are naturally concerned to achieve compliance if at all possible in the interests of our community. The Inquiry might wish to consider mechanisms whereby compliance with fine

² Ibid, and for example DEH, 2004, *Health Impacts of Ultrafine Particles: Desktop Literature Review and Analysis*, Department of Environment and Heritage, Australian Government.

³ <http://www.lungfoundation.com.au/lung-information/patient-educational-material/fact-sheets/100-health-impacts-of-wood-smoke>, accessed at 7 December 2012.

particle standards might be mandated in future and State and local jurisdictions assisted to improve compliance.

In relation to emissions caused by wood heaters, this is currently the subject of various Australian Standards, in particular *AS/NZS 4013 – Domestic Solid fuel burning appliances - Method of determination of flue gas emission*. This Standard has not been reviewed or republished since 1999 and is based upon research by a Joint Technical Committee, which Council understands, at least in the past, has largely comprised industry/manufacturers of wood heaters. The key standard is a maximum flue gas emission in a controlled test of 4grams of particulate matter per kilogram of fuel burned, with a related burn efficiency factor. Appliances sold on the Australian market must in turn display a compliance plate indicating that the device has met the 4g emissions standard in testing.

However Council has been advised of research suggesting that the ‘real life’ emissions when devices are operated outside laboratory conditions can be considerably higher than the test results⁴.

Mindful of these issues and concerns locally, since 2010 we have introduced a Local Approvals Policy under the NSW Local Government Act 1993 which requires wood heaters installed in new homes in our urban area to have an AS 4013 tested emission rating of 2.5g/kg and 3g/kg for all other homes⁵. We understand that Armidale Dumaresq was the first Council in Australia to have taken this step. We are currently exhibiting an amendment to this Policy which would extend the 2.5g maximum test emissions requirement to all urban wood heater installations.

Notwithstanding these initiatives, our research has indicated that standards applied in some New Zealand jurisdictions are considerably stricter, in some cases as low as 1g/kg.

The immediate future of emissions standards for wood heaters in Australia is understood to be under consideration in two forums. Firstly, we are advised that the Commonwealth Department of Sustainability, Environment, Water, Population and Communities is about to complete a Regulatory Impact Statement on Wood Heater operation and related pollution control in Australia, a project which has been in progress over at least the past three years. Council understands this will be presented shortly to a COAG Ministerial Council on Environment and Water.

Secondly, Council understands that the Australian Home Heating Association is seeking to reconvene the Australian Standards Technical Committee to review AS 4013 and possibly other related standards. It would be encouraging for local government to see these higher level initiatives bear fruit in terms of stricter emissions standards which can be binding on appliance manufacturers throughout Australia.

Further regulatory measures that could be considered have been canvassed in detail in the AECOM 2011 report cited above⁶. These include legislating for the banning of wood heaters in sensitive locations, improved efficiency and emissions standards, phasing out appliances at the point of sale, the introduction of regulation on wood sold as fuel (presently a highly unregulated

⁴ See for example the National Woodheater Audit Program Report, 2004, available at: <http://www.environment.gov.au/atmosphere/airquality/publications/audit-program.html>

⁵ A 3g/kg standard was recommended in a document entitled “Wood heater Particle Emissions and Operating Efficiency Standards Cost Benefit Analysis” prepared for the Commonwealth Department of the Environment and Heritage in 2006.

⁶ AECOM, 2011, op. cit, see control measure options at pp.11-14.

industry), new taxes and cash incentives. To date our State government has yet to act on the recommendations of the AECOM report.

While supporting a stronger basis for local regulation based on measured air quality outcomes, Council is also of the view that major improvements will also be based upon technological improvements in heating options available to consumers (see (d) any other related matters, below).

Monitoring

So far as air quality monitoring is concerned, our Council environmental health officers have for some years monitored the urban air quality in Armidale with the use of fine particle monitoring equipment. This is the source of the data attached to this submission.

This work, which has been done entirely at Council's expense, enables us to ascertain the level of winter pollution and to raise awareness in the community, complement education initiatives, measure the performance of strategies and provide support for further representations to State and Federal governments. Council regularly publishes the results of local air quality monitoring from the beginning of May to the end of September in the local media, on Council's website throughout the year and other appropriate public forums. Council also publishes this information and other material on ambient air quality issues as part of its Annual and State of the Environment Reports.

Unfortunately, the equipment we have been able to afford and our staff capabilities do not currently enable this local monitoring to occur entirely in accordance with the detailed methods and protocols of the National Environmental Protection (Ambient Air Quality) Measure (NEPM).

In NSW and in other States (eg Tasmania), the State Environment Protection Authorities do provide this service for some communities. While we have lobbied for such arrangements to be put in place in Armidale, this has not yet occurred, possibly because it is perceived that our problem, as serious as it may be in winter, does not occur all year round as may be the case in other locations, such as those affected by airborne particulates from mining operations.

(d) any other related matters

Council believes there needs to be more clarity around the responsibilities of the different levels of government to identify the seriousness of poor air quality and to implement measures to improve air quality. For example there is a need to identify new problem areas, and fill gaps in the network of air quality monitoring stations (AQMS) throughout Australia to determine risks and prioritise investment in pollution reduction programs.

Council encourages a holistic and evidence-based approach to the development of air quality policy and programs, coordinated across all levels of government, with the aim of reducing fine particle pollution.

Council believes that at the heart of this problem and its resolution is the ability for communities in cold climate areas such as Armidale to have access to more environmentally sustainable heating media. Not only should the appliances and their fuel be affordable for all households, the systems offered should be capable of operating in a less polluting fashion in relation to both indoor and outdoor air quality, while being based on a sustainable energy source. A joint venture between government and industry to develop prototypes and examine innovations in use internationally would be advantageous.

We support a transition to renewable energy, including increasing renewable energy targets, stimulating investment in new technologies and removing tax-related and other incentives to fossil fuel use which contributes to air pollution.

The use of solar panels to drive electrical systems is not seen as a core option here as these will not operate without expensive storage batteries to provide heating overnight when temperatures are at their lowest. Moreover, without increased subsidy levels, such technology currently appears out of the reach of many lower income households, which are usually the ones with the least ability to retrofit for more energy efficient operations.

Council is aware of a recent study undertaken by researchers based in Armidale, partly funded by Council and published by the Rural Industries Research and Development Corporation in relation to low emission pellet heaters⁷. While that medium sounds promising, in order for it to be effective there needs to be a reliable source of pellet fuel to give consumers confidence to invest in the relevant appliances in the knowledge that they will be able to reliably operate and fuel these appliances.

Among the recommendations of this report is that Councils such as ours could establish pellet buying cooperatives to bulk buy pellets, with members drawn from heater buyers. The cooperative would be wound down as soon as any local business established a pellet supply, but continue to hold an emergency supply sufficient for one winter for cooperative members. Likewise the report also advocates bulk buy schemes for pellet heaters themselves.

Such initiatives require considerable capital and administrative support and are presently not within our realistic budget capacity. Nevertheless, Council would be interested in investigating funding to make such ideas a reality, such as the major funding which was provided to Launceston Council by the Commonwealth to address its winter wood smoke problems.

Finally, in preparing this brief submission, we have had the opportunity to review submissions already made to you, via your web site. Given the topic of your enquiry, we are surprised that there appear to have been no submissions to date from the most relevant Government agencies in NSW, being NSW Health and the Environment Protection Authority. In that regard, could we encourage your team to contact Nadia Kanhoush, the Principal Air Programs Officer at the Environment Protection Authority in Sydney

Meantime, in relation to Council's submission, please contact our Director Sustainable Planning and Living Stephen Gow or our Environmental Sustainability Officer Carol Davies if we can be of further assistance to the Committee in this Inquiry.

Yours sincerely

Shane Burns
General Manager

Copies NSW Environment Protection Authority, Air Programs - Nadia Kanoush (by email)

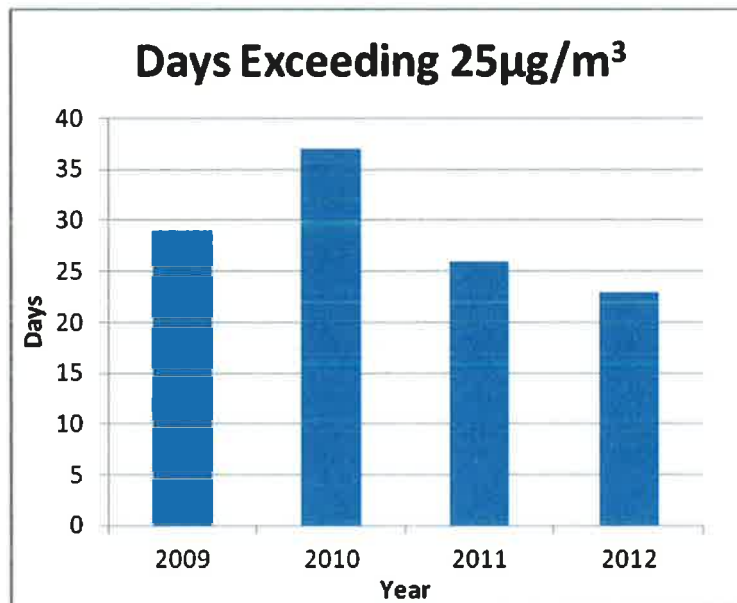
⁷ RIRDC, *Wood Pellet Stoves for Pollution and Greenhouse Gas Reduction* – available at <https://rirdc.infoservices.com.au/items/12-065> accessed at 3 April 2013.

Tony Windsor MP, Federal Member for New England, PO Box 963 TAMWORTH NSW
2340

Commonwealth Department of Sustainability, Environment, Water, Population and
Communities (attn Jane O'Sullivan), GPO Box 787 Canberra ACT 2601

Attachment:

AIR QUALITY ARMIDALE CBD, 2009-2012



Year	No. of days with exceedences	Average exceedence > $25\mu\text{g}/\text{m}^3$	Range of measurements > $25\mu\text{g}/\text{m}^3$
2009	29	7.28 $\mu\text{g}/\text{m}^3$	25.20 - 52.50
2010	37	9.75 $\mu\text{g}/\text{m}^3$	25.62 - 67.62
2011	26	6.34 $\mu\text{g}/\text{m}^3$	25.14 – 49.26
2012	23	11.63 $\mu\text{g}/\text{m}^3$	28.00 - 65.00