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## **“Clean Air for NSW” 2016 Consultation Paper - Submission**

The Armidale community is passionate about air quality with household-generated woodsmoke in the Armidale city area being the highest concern for Armidale Regional Council. The city's geographical layout, combined with cold climate and low winds result in wood smoke from thousands of homes accumulating in the valley during winter. Wood heaters have been regulated since 2007, however woodsmoke generated by heaters continues to settle in the Armidale basin in an inversion layer creating a major health hazard. Accordingly, improving air quality has been a focus of community concern and Council efforts for many years.

With NSW EPA assistance, Armidale Regional Council (ARC) has been monitoring the level of wood smoke and other fine airborne particles through a DustTrak monitor on the roof of the Civic Administration Building since June 2008. Information is shared with the community via the Council website in a deliberate effort to inform the community and encourage compliant, responsible behaviour.

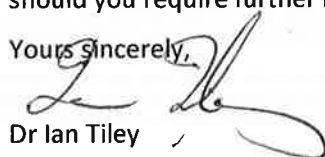
Council is committed to reducing wood smoke pollution in the Armidale urban area in order to meet national fine particle (PM2.5) air quality standards by 2020. Council has called on the community to assist with the following actions: consider replacing your wood heater with an alternate form of heating; if you have a wood heater, make sure it does not produce excessive smoke; contact Council for a free education kit; and contact Council if you see a smoky chimney. Despite Council's best efforts, since monitoring has taken place, there is an annual average of 25 days when particles exceed 2.5ppm.

Council needs a stronger approach but this is only possible through both legislative and financial support at State Government level. There seems to be a reluctance to consider alternative forms of heating such as modern heat pumps within the local community, especially when timber is considered cheap and available. Harvesting wood is unregulated in the district with some residents being able to obtain 'free fuel' from private properties. Many residents are not willing to replace their solid fuel heaters despite regular health warnings and have a poor understanding that wood should not be burned above 25% moisture content.

This submission has been prepared in collaboration with the local Environmental Sustainability Advisory Committee. The submission is comprised of short responses to the four target questions and more detailed responses, organized according to the most relevant section of the Consultation Paper.

Please contact me at Armidale Regional Council at [council@armidale.nsw.gov.au](mailto:council@armidale.nsw.gov.au) or call 1300136833 should you require further information regarding this submission.

Yours sincerely,



Dr Ian Tiley

Administrator, Armidale Regional Council

- i. **Do you have any comments on the proposed actions in the Clean Air for NSW Consultation Paper to improve air quality?** Armidale Regional Council generally supports the goals and potential actions outlined in the EPA Clean Air Consultation Paper. The paper has a large focus on Sydney-based issues and should be broadened to be more inclusive of regional and rural issues. Woodsmoke emissions in the regional city of Armidale during winter are a major health concern<sup>1</sup>. Serious action needs to be taken to reduce woodsmoke emissions at both Local and State Government levels. The proposed Government Actions do not address the need to gradually remove wood heaters from wood smoke pollution zones such as those experienced by regional towns with winter inversion layers.
- ii. **Are there other issues and actions that Clean Air NSW should cover?** Additional issues and actions that should be addressed in this paper relate to: wood heaters, dust control, resources for Local Government sustainability programs and solutions such as education programs, improving cycle networks, supporting environmentally responsible community and small business initiatives, and providing sustainability incentives.
- iii. **How do you want to be informed about and involved in improving air quality?** Armidale Regional Council would like to be informed about and involved in improving air quality via periodic, electronic newsletters and networking opportunities. Council is willing to be a regional location for air quality testing and forecasting, building on our established relationship with the EPA since 2008 via the installation a DustTrak monitor and ongoing monitoring and reporting of airborne particles.
- Consider funding Armidale city for a pilot project to identify and map wood fire exclusion zones based on inversion layer boundaries.
- iv. **Do you have any other comments or ideas on improving air quality in NSW?** The resistance of wood heating households to educational programs is a major factor in unsuccessful reduction programs<sup>2</sup>. The only clear way to reduce woodsmoke pollution in problem areas is to gradually replace wood heaters with non-polluting systems<sup>3</sup>. Legislative and financial support from the NSW Government is required.
- Amend the *Clean Air Act* and the *Local Government Act* to enable Councils experiencing hazardous woodsmoke pollution problems to prohibit solid fuel or open fire places in all or part of a Local Government Area, based on the climatic and topographic circumstances causing inversion layers that reduce air quality, thereby severely impacting community health.
  - NSW Government to provide 50% rebate<sup>4</sup> on a maximum of \$5000 installation cost, linked to educational and compliance programs for residents to replace their wood heaters with a non polluting system.
  - Investigate industry tariffs to generate funds for education and research programs.

<sup>1</sup> The long term risks to health from fine particle pollution have been well known for some time. In her article 'What makes a successful Woodsmoke Reduction Program' published in Air Quality and Climate Change Vol. 50 No.3. Aug. 2016, Dr D L Robinson summarised the effects on health in a woodsmoke polluted zone. Woodsmoke, and the PM2.5 pollution it contains, is linked to reduced ability of the lungs to fight infection, elevated blood pressure, increased risk of heart attacks, strokes, lung diseases, Alzheimer's, smaller brains, cancers (lung, mouth, throat, breast and cervical cancers in adults, blood and brain cancers in children), cot deaths, genetic damage in babies and reduced IQ and behavioural problems when children start school (AAQG 2015). For women over 70, increased exposure of 3.5 g/m3 PM2.5 reduced the volume of white matter in the brain by 6.2 cm3 (Chen et al. 2015). The American Heart Association published a study in their journal, Stroke, showing that, for people over 60, increased PM2.5 exposure of just 2 µg/m3 was associated with a 0.32% smaller total cerebral brain volume and a 46% higher risk of covert brain infarcts, a type of silent stroke (AHA 2015). One in six Australians will be affected by stroke, the nation's leading cause of disability (Fisher 2015). Living downwind of one Australian wood heater (new or old) will often increase annual PM2.5 exposure by more than 2g/m3. Woodsmoke was found to cause 12 to 30 times as many tumours in mice and mutations in bacteria as the same amount of cigarette smoke (Naeher et al. 2007). Breathing cigarette smoke transports chemicals to the bloodstream and directly to smokers' brains. Similarly, the cancer causing chemicals in woodsmoke enter the bloodstream and are carried to every organ in the body, causing similar health problems – heart attacks and strokes as well as lung diseases, cancers and premature aging (Numan et al. 2015). Few people realise that PM2.5 causes more premature deaths than any other air pollutant (WHO 2016), that there is no safe level of PM2.5 pollution, or that the average new Australian wood stove emits more PM2.5 per year than 1,000 passenger cars (AAQG 2011).

<sup>2</sup> Unsuccessful woodsmoke reduction programs were carried out in Tasmania and Muswellbrook. Here the emphasis was on educating the public on the correct burning techniques. Both programs proved to be ineffective in reducing the level of particle emissions. Muswellbrook received grants of \$40,000 in 2013 and 2014 for woodsmoke reduction (UHAQAC 2015). The NSW EPA's 'Stay warm, breathe easy' leaflet, told homeowners that "By making a few simple changes you can enjoy the warmth of your wood heater and reduce wood smoke and its impact on you and other people in your community." The program had very little effect on pollution levels. (Robinson, 2016 p. 25). In a study commissioned into heating methods and attitudes of wood stove users in the Hunter Valley (Databuild 2016). The study found that a considerable majority of households (73%) in Muswellbrook and Singleton do not use wood heating. About half the households with wood heaters (14% of the total) were in town centres or other urban areas, where population exposure to PM2.5 pollution is of greatest concern. Attitudes of wood heater users were determined from a sample of 203 households using wood heating; 77% were in town centres and 23% in villages out of town. Only 28.6% of respondents agreed with the statement that "particles in the smoke coming out of the chimney can be harmful to my family and my neighbours' health." A similar lack of understanding was shown in Armidale Dumaresq Council's consultation on wood heater policy in 2010; only 34% of the 84 respondents thought that woodsmoke was a serious health problem (Robinson, 2016 p.28).

<sup>3</sup> Modern heat pumps have superseded piped natural gas as the most cost-effective heating in Australian cities (Forcey 2015). Efficient heat pumps can deliver 5 or 6 times as much heat to the home as they use in electric power (Wright 2011). They are also effective at low temperatures, providing 3 to 4.5 times as much heat even when the outside temperature is -10°C (10 degrees below freezing). They are affordable (cheaper than buying a wood heater), cause less global warming (zero in households that use green power) and have lower running costs than buying firewood.

<sup>4</sup> A previous subsidy of \$1000 was not very successful as it was too little compared to the installation costs of alternative heating appliances.

Potential Actions Under Development	Comments	Questions/ Suggestions
Household Emissions	<p><b>Woodsmoke Reduction:</b> The major issue is woodsmoke in winter in Armidale. Wood heaters are loved by the people who use them and despised equally by those in the community who suffer poor air quality and personal health as a direct result of their use.</p> <p>As identified by the consultation paper, PM2.5 particles have both short and long- term exposure effects and affect rural regions.</p> <p>Page 34 of the Consultation Paper states that in consultation with stakeholder and the wider community, it is proposed that the EPA will investigate further improvements to the wood heater regulatory framework for consideration by Government, as well as education, training and replacement heaters.</p> <p>Page 35 of the Consultation Paper states the EPA also conducts research and provides assistance to councils to run wood smoke reduction community education programs.</p> <p>ADC was successful in receiving funding assistance in 2013 and 2014 through the Wood Smoke Reduction Program (WSRP). These programs initiated :</p> <ul style="list-style-type: none"> <li>– Rebates up to \$1000 to households for replacing an existing wood heater with an alternative form of heating;</li> <li>– Advertising and interviews, along with a jingle written and recorded by students from St Mary's primary school, bringing awareness of air quality issues and how the householder can make a difference;</li> <li>– Early morning smoke patrols - working with UNE volunteers, we carried out regular patrols (3/week) over winter, and followed up the identification with educational material and ongoing checks during these patrols.</li> </ul> <p>Page 38 states under the heading 'Air Quality Forecasting' that the goal is to expand the scope and enhance the accuracy of air quality forecasting capabilities in NSW and that the Office of EH Air Quality Forecasting Program OEH to continue to develop air quality forecasting tools to deliver accurate, locality-specific short-term forecasts for major population centres on an ongoing basis.</p>	<p>What further improvements to the wood heater regulator framework are being considered by NSW Government?</p> <p>What education, training and replacement programs are being considered? How can they these be accessed by Council?</p> <p>Will the EPA be offering any further wood smoke reduction programs?</p> <p><b>Armidale Air Project –</b> Consider Armidale as an additional/rural location to establish an air quality program similar to the Western Sydney Community Air Project (page 51 of the Consultation Paper).</p> <p>How can Armidale Regional Council assist the EPA to establish an air monitoring station in Armidale?</p> <p><b>Education for those who have a wood heater -</b> Council would like to develop education programs with real estate agents as the target audience, on energy efficiency advice on keeping warm in winter detailing energy efficient tips, wood smoke reduction hints and 'how to' links to lighting a fire. Council acknowledges that people renting properties may be unsure how to effectively warm their homes and operate wood heaters.</p> <ul style="list-style-type: none"> <li>– Fridge magnets with simple tips to reduce wood smoke (always burn small dry pieces of wood, never burn painted/treated wood, cover stored wood, etc).</li> <li>– Using social media and community webpage "Lifestyle2350" for education in real time.</li> </ul>

	<p><b>Small domestic petrol-powered equipment program:</b> Council supports the submission paper's proposed investigation into a program to promote replacement of 2-stroke garden equipment and old fuel cans.</p>	<ul style="list-style-type: none"> <li>– Competitions with appropriate prizes – eg. Smart Burn</li> <li>– Presentations at public forums - i.e. targeting school assemblies, clubs and service associations.</li> </ul>
<b>Reducing Industry Emissions</b>	<p>Most of this section addresses Sydney-based issues. It would be reasonable to expect to see some more regional air quality issues and actions addressed. For example, sustainable agriculture/horticulture, small business development/ engagement, promotion of regional /rural best practices such as: early fuel reduction burns to reduce greenhouse gas emissions; minimum till agriculture to maintain soil cover/ moisture thereby reducing dust; and covered loads during transport.</p>	<p>New Goal: Dust prevention and capture from transport, quarries, large developments, mining and agricultural activities.</p>
<b>Transport Engine and Fuel Emissions</b>	<p>This section addresses mostly Sydney-based issues.</p>	<p>Include rural and regional issues.</p> <p>Action: <b>Support active transport</b> – improve cycle path networks.</p>
<b>Exposure &amp; Impact Reduction</b>	<p>Page 36 of the Consultation Paper details health issues relating to smoke/particle pollution. Council is keen to be involved in any research and education projects.</p> <p>Expanding the scope and enhancing the accuracy of air quality forecasting capabilities in New South Wales over the next five years by the OEH Air Quality Forecasting Program, through collaboration and the development of advanced tools and analysis and using Rural Fire Service smoke plume modelling to forecast the impact of hazard reduction burns or bushfires on communities.</p>	<p>Could Armidale be considered in a NSW Government funded pilot project to establish a satisfactory method of mapping inversion layers over residential areas?</p> <p>Would Armidale be suitable for a NSW Government funded research project into health impacts with the University of New England assisting where appropriate?</p> <p>Could Armidale be considered as a NSW Government funded pilot project for regional air quality forecasting?</p> <p>Could Armidale be considered in a pilot project to establish a carbon credits scheme and incentives for early fuel reduction burns to reduce emissions and wildfires.</p>
<b>Co-benefit Actions</b>	<p>Council has a role in advocacy, responsibility, accountability and reporting.</p>	<p>Support Councils to: become NSW Sustainability Advantage members (annual \$4K plus GST membership); employ dedicated Environmental Sustainability Officers.</p>

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