Clean Air for NSW Consultation, January 2017

This submission is concerned with emissions from woodburning, which the consultation paper acknowledges is a major source of particle pollution, both on a wide scale and a small scale affecting neighbours.

"An economic analysis by AECOM estimated the costs to health of wood smoke emissions across urban, regional and rural areas of NSW, without new government action, at $8.1 billion over 20 years (AECOM 2011).

In Sydney, wood smoke contributes 47% of annual PM2.5 particle pollution and up to 75% of particle emissions in July each year. According to an Air Pollution Inventory forecast, 5835 tonnes of wood smoke was emitted in Sydney in 2015 and over 5770 tonnes will be emitted in 2026 if no action is taken.

The health effects of PM2.5 are well researched and documented; pollutants found in wood smoke can cause breathing difficulties, respiratory disease and cardiac problems. Air pollution from wood heaters mostly affects young children, older people and people with existing respiratory conditions, such as asthma sufferers, however it also has impacts on healthy adults."

It is therefore important that more effective action is taken to reduce woodsmoke in NSW.

Current legislation does not satisfy public expectations of protection from harm

Following the example set by legislation exposure to other people’s cigarette smoke, most people believe that governments have a duty to protect them from serious harm. It is natural to assume that a heater complying with Australian Standards will be safe and free from harmful pollution.

Yet the NSW Chief Medical Officer Kerry Chant said wood heaters are so detrimental to health she supports banning and phasing them out in built-up urban areas.

The AECOM report ‘Economic Appraisal of Wood Smoke Control Measures’ shows that the average new heater in Sydney (satisfying the ‘standards’ to apply until September 2019) will have real-life emissions of 15.6 kg per year and expected health costs of $3,700 per year. This does not represent a ‘safe’ or healthy level of pollution.

Given the above, many people will be confused by statement in the Clean Air Consultation document: "It is proposed that changes to the wood heater regulatory framework will adopt the updated Australian/New Zealand Standards for new wood heaters, which set more stringent emission limits and new efficiency limits." This statement leads people to believe there is a joint standard applicable in both Australia and New Zealand. Responses to the Clean Air Consultation might have been different, if it had been made clear that the majority of heaters satisfying this ‘standard’ are so polluting it would be illegal to install them in any urban area of New Zealand and that it would also be illegal to use them in most NZ cities and towns that suffer from woodsmoke pollution.

Emission limits based on a test that does not reflect real-life pollution are ineffective. In Christchurch, NZ, a total of five heaters with average lab test emissions of 0.82 g/kg were tested after installation in people’s homes. Real-life emissions averaged 9.7 g/kg – even worse than the average of 9.4 g/kg for real-life emissions of heaters in Launceston in 2006 and 2007. The AS4013 lab test has been abandoned in Christchurch because of its failure to reflect real-life emissions. Policies in NSW should not rely on a test that has been shown to be ineffective in NZ.

Current legislation weakens the credibility of health information about woodsmoke

The credibility of health information messages in woodsmoke-reduction programs is weakened when people see new wood heaters emitting large plumes of smoke. Many residents seem to conclude that wood smoke could not possibly be dangerous because smoky wood heaters continue to be installed, instead of affordable, non-polluting alternatives. The photo left shows real-life emissions from heaters with emissions ratings below 2.5 g/kg (the requirement in NSW until September 2019). This level of emissions in the photos is totally unsatisfactory.

PM2.5 pollution is the most health-hazardous air pollutant (responsible for more premature deaths than any other pollutant in our air). Fine particles less than 2.5 millionth of a meter penetrate the deepest recesses of our lungs where they can enter the bloodstream and
transport toxins to every organ of the body including the brain. PM2.5 pollution increases the risk of heart attacks, strokes, lung diseases, cancers, cot deaths, Alzheimer’s and autism.

A peer-reviewed paper published in Air Quality and Climate Change (August/November 2016) found little or no benefits from recent woodsmoke-reduction programs that attempted to persuade people to operate heaters correctly. These programs often involve substantial costs, e.g. Armidale Dumaresq Council’s submission to the wood heater CRIS in 2013 states that “Council has taken an active role for over 20 years seeking to bring about an improvement in local air quality” and “has committed more than $300,000 (excluding wages) in the past 10 years on wood smoke abatement measures.” As in Launceston, initial efforts concentrated on replacing wood heaters with non-polluting heating. However, the main focus in the past 10 years has been on persuading residents to operate heaters correctly. Measurements show that Armidale’s woodsmoke pollution is now worse than in 1999. The photos of the amount of woodsmoke and emissions in Armidale in August 2016 indicate that appeals to operate heaters correctly seem to have little effect.

Although areas where woodsmoke builds up (such as Armidale) suffer the greatest health problems, anyone living near a house with wood heating has increased health risks from additional PM2.5 exposure. If NSW residents knew and understood the enormous health costs of wood smoke, a large majority would support the advice of the Chief Medical Officer of NSW. This was demonstrated by the success of Launceston’s woodsmoke reduction program (which reduced wintertime deaths from respiratory disease by 28% and cardiovascular disease deaths by 20%).

The reductions were achieved by reductions in the proportion of households using wood heaters. The vast majority of households using wood heaters switched to non-polluting heating. A large proportion of households did so entirely at their own expense. These results demonstrate that the vast majority of residents in informed communities support the recommendations of the NSW Chief Medical Officer.

**Current wood heater regulatory framework is broken and should be fixed as soon as possible**

The current wood heater regulatory framework is broken. It should be fixed as soon as possible to comply with public expectations that the installation of unsafe wood heaters will not be permitted, and that efforts will be made to remove unsafe wood heaters, e.g. requiring their removal when houses are sold, with a sunset clause of 7 years. State-wide legislation is required because this is a state-wide problem that cannot be solved by local councils, most of which have no expertise in the health effects of air pollution nor adequate resources to deal with this problem.

Modern, efficient heat pumps have superseded wood stoves and natural gas as the most cost-effective heating. They can deliver 5 or 6 times as much heat to the home as they use in electric power and are effective at low temperatures, providing 3 to 4.5 times as much heat even when the temperature outside 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.

Given the widespread availability of affordable, non-polluting alternatives, the most equitable and cost-effective policy is not to permit new wood heaters. As well as preventing additional unhealthy pollution, this policy helps wood heater users realize that the health effects of woodsmoke pollution are serious and that every effort should be made to operate heaters correctly. Residents whose health or lifestyle is affected by other people’s woodsmoke also need assistance. Funding could be raised by a small “polluter-pays” levy on wood heater use, which, according to AECOM’s economic analysis, would reduce the health costs of woodsmoke and save NSW another $1.28 billion.
Legislation should be supported by effective education and projects to demonstrate the benefits of affordable, non-polluting alternatives

One of the most cost-effective ways to gain public support for such measures is to demonstrate that non-polluting heating is more affordable than a wood heater and has lower running costs. In Armidale, Starfish Initiatives (a registered charity that aims to promote sustainability) has a proposal for a program using traditional and social media to encourage expressions of interest for assistance to replace wood heaters with affordable, non-polluting, climate-friendly heating, with the help of energy audits, pollution measurements and a dedicated website to provide information on the project’s progress and the health effects of woodsmoke. Armidale would be an ideal location for such a demonstration project. If this idea becomes a reality, it will be of tremendous benefit both to the local community and the millions of NSW residents experiencing increased risk of health problems from woodsmoke.

The Clean Air for NSW Consultation paper has many useful strategies – replacing 2-stroke garden equipment, encouraging cycling and walking (and ideally encouraging lighter vehicles in preference to SUV in urban areas), tackling off-road diesel emissions, reducing the health impacts of hazard-reduction and other open burning, minimizing emissions from coal-fired power stations and strengthening the mine rehabilitation framework.

This submission concentrates on wood heating because of its massive, disproportionate contribution to PM2.5 emissions and consequent damage to public health. Wood heater regulation is the most blatant example of failed policy. Families who buy new wood stoves have no idea that the current ‘standard’ of 2.5 g/kg is so lax that the average new wood heater emits more pollution per year than 300 diesel SUV and has estimated health costs of $3,700 per year in Sydney. Implementing the chief medical officer's recommendation is the quickest and most cost-effective way to clean up our air and prevent hundreds of premature deaths every year.

Effective measurement of woodsmoke

Woodsmoke from residential heating can be concentrated in local areas. In some places, it might affect only one or a few neighbours; elsewhere it might accumulate over much wider areas, particularly under inversions, producing a more widespread effect. This makes it difficult to come with an average value, and also question whether the average is useful from the point of view of a neighbour affected by the smoke. Portable air quality sensors could be used to build a better picture of the air pollution. The graphs below show measurements from a Dylos 1700 device during the 2016 winter in Armidale. The first graph is of several overnight indoor measurements (with windows and doors closed), showing the extent of pollution caused by one or two neighbouring woodheaters. The other two graphs are of outdoor measurements, one recorded over a drive through town, and the second over a short walk around the block. Again they show the excessive level of particle pollution from woodheaters, and the spatial variability. Fixed monitors should not be considered the only method to measure air quality; mobile monitoring is also important and needs to be included in the NSW EPA monitoring program.

Other wood-burning sources

The increasing pollution from fire pits, chimineas and outdoor pizza ovens, made popular on TV lifestyle shows, is also a worry, and can adversely affect neighbours’ health as well as enjoyment of their property. Better regulations are required; at least notices at the point of sale regarding their adverse affects.

Open burning – need to impose more restrictions on open burning in fringe areas near towns, since people are living closer than in open rural areas, and encourage removal of waste material to Council recycling centres instead.

Air quality is a very important health and environmental issue. I would like to be kept informed via email and participate in future air quality initiatives.
Indoor PM2.5 using Dylos 1700 over several nights

12 Aug (drive around town)

16 Aug (walk around block)