The most health-hazardous pollutant in our air (responsible for more premature deaths than any other pollutant) is PM2.5 pollution - fine particles less than 2.5 millionth of a meter that 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.

Sydney's PM2.5 pollution is estimated to cause 520 premature deaths every year, resulting in the loss of 6,300 years of life. Although only a small proportion of Sydney households use wood heating, the Clean Air for NSW Consultation paper shows that wood smoke is the largest single source of PM2.5 emissions, contributing 47% of Sydney's annual PM2.5 particle pollution and up to 75% of particle emissions in July each year.

The consultation paper cites AECOM's economic analysis from 2011 that with current business-as-usual policies the health costs of wood smoke in NSW are estimated at $8.1 billion over 20 years. The analysis showed these health costs could be halved by requiring wood heaters to be removed before houses are sold. An additional $2.2 billion could be saved by not allowing new wood heaters, which were estimated to have health costs of thousands of dollars per heater per year.

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. When Launceston residents became aware of the health damage from woodsmoke, the vast majority chose to switch to non-polluting heating.

The success of Launceston’s woodsmoke reduction program (which reduced wintertime deaths from respiratory disease by 28% and cardiovascular disease deaths by 20%) shows that informed communities support the recommendations of the NSW Chief Medical Officer.

The problem is that the vast majority of people in NSW have no idea about the health risks of breathing woodsmoke, or the advice of the NSW Chief Medical Officer. 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.

The Federal Government’s Wood Heater Consultation Regulation Impact Statement (CRIS) considered ways to reduce woodsmoke pollution. The policy options were predicted to reduce PM2.5 emissions by 4% to 20%. These options were considered so derisory that only 37% of submissions expressed a preference for any of them. Instead, 56% of respondents wanted an outright ban or moratorium on new installations until better regulations are implemented and 42% called for the wood heaters to be banned in urban areas. Adverse health effects on families, often requiring increasing medicinal solutions, including steroid use for asthma diagnoses in children, were reported in 39% of submissions. Similar neighbourhood examples were cited in submissions from other stakeholders, such as academic and community groups.

Policies should be based on what an informed public would want. Few would consider it acceptable to allow new heaters with estimated health costs of thousands of dollars per heater per year that emit more PM2.5 (the most health-hazardous air pollutant) per year than 1,000 passenger cars. Typical emissions from brand new heaters satisfying the standard to apply until 2019 in NSW are shown in the photos (above). This represents an unsafe level of pollution.

Legislation is required urgently to prevent any more unsafe wood heaters from being installed in NSW. Although health impacts are particularly bad in areas where woodsmoke builds up (e.g. Armidale), anyone living near to a new wood heater will suffer increased health risks because of the resulting increase in PM2.5 exposure.

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. Appeals to operate heaters correctly appear to have little effect.

Research indicates that the credibility of health information messages is weakened when people sees 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.

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.

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 to use 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. We hope this idea will become a reality for the benefit of both 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.

Air quality is a very important health and environmental issue, so we would like to be kept informed via email and participate in future air quality initiatives.

This submission was written by members of New England Greens Armidale Tamworth (NEGAT) based on an article by Dr Dorothy L. Robinson, “What Makes a Successful Woodsmoke Reduction Program?” published in *Air Quality and Climate Change, Volume 50 No 3 August/November 2016* and submitted by NEGAT Convenor, Elizabeth O’Hara.