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

By email: [community.affairs.sen@aph.gov.au](mailto:community.affairs.sen@aph.gov.au)

Dear Sir/Madam,

**RE: Inquiry into the Impacts on Health of Air Quality in Australia**

Thank you for this opportunity to make a late submission to this important inquiry.

This submission will focus on the main air quality concern for Camden Council – emissions from residential wood heaters and the health effects of these emissions with particular focus on particulate matter of 2.5 microns or less in diameter (PM2.5) and polycyclic aromatic hydrocarbons (PAH).

### **Background**

Camden Council is located in the southwest corner of the Sydney Basin in NSW.

Camden Council is currently undergoing significant population growth as part of the rollout of the South West Growth Centres plan. The population of the Camden local government area (LGA) is predicted to increase from the current level of approximately 56,000 residents to approximately 220,000 residents by the year 2036. This equates to approximately an extra 130-140 persons per week settling in the Camden LGA.

It has been well documented over a number of decades that due to the topography and meteorology of the Sydney Basin, South-West Sydney experiences higher levels of air pollution in comparison to the remainder of the Sydney Basin. The prevailing wind patterns cause pollution from the rest of Sydney to be collected from the eastern parts of the basin and concentrated in the south-west and west.

During winter, the key factors contributing to the concentration of emissions in the south-west are exacerbated by temperature inversions and calm wind conditions. Temperature inversions which trap pollutants close to the ground surface and the calm wind conditions inhibit the dispersal of the pollutants.

Camden has a long history of trying to improve the air quality of the local environment. Part of this history relates to the inclusion of controls that prohibited the installation of wood heater into various Development Control Plans. However



changes to the planning system in NSW have resulted in Council not being able to legally enforce this prohibition.

In response to this inability to control the installation of wood heaters, Council resolved on 24 July 2012 to only allow the installation of wood heaters that have a maximum emissions rate of 1g/kg of fuel burnt and a minimum efficiency rate of 65%. These criteria represent a significantly higher standard than the 4g/kg and no minimum efficiency that is currently in place in NSW. Council is currently in the process of drafting the required policies to give effect to this resolution.

### **Particulate Matter Emission Sources**

Review of the NSW Environment Protection Authorities Air Emissions Inventory (2008) shows that the biggest contributor to PM 2.5 is domestic solid fuel combustion (i.e. use of wood heaters). PM2.5 emissions from wood heaters account for 50.64% of the total PM2.5 emissions for the Sydney Region. This is a significant increase on the 34.3% reported in the 2007 Air Emissions Inventory.

When allowing for the fact that woodheaters are predominantly used during winter, a more accurate picture of the impact of wood heater use can be gained. Examining the NSW EPA Air Emissions Inventory data from 2007, it can be seen that on a typical July weekend day, the use of wood heaters accounts for 71.7% of PM2.5 emissions.

Further evidence of the disproportionate impact that wood heater use has on PM2.5 emissions relates to the number of households that use wood heaters as a source of heating. In the Sydney region it has been estimated that only 4.3% of households use wood heaters as their primary source of heat. An additional few percentage of households use wood heaters as a secondary source.

In view of the above, Council believes that the significant impact that results from the activities of so few, warrants further attention and action by Governments at all levels.

### **Health Effects of Wood Heater Emissions**

Without going into great detail, many studies over a long period of time have shown that exposure to emissions associated with wood heaters (including PM2.5 and PAH) have serious health impacts. PM2.5 is now considered the most dangerous of air pollutants, with no safe level of exposure by the NSW EPA.

Another point of concerns relates to the composition of PM2.5 emitted by wood heaters. Typically the smoke from wood heaters is composed of tiny droplets of organic compounds that have condensed after combustion. These droplets include various types of PAH and have similar characteristics to cigarette smoke.

A significant body of peer reviewed scientific evidence has shown the health impacts associated with exposure to wood smoke include:

- Increased mortality from cardiovascular disease;
- Inflammation of the lungs;



- Increased respiratory illnesses such as asthma and bronchitis;
- Increased use of medication and hospitalization;
- Increased risk of stroke.

In addition there is an emerging body of evidence that is showing health impacts caused by pollutants associated with wood heater emissions including:

- Increased cognitive decline due to PM entering the brain;
- Genetic damage in babies and young children;
- Reduction in children's IQ; and
- Increased risk of ADHD and anxiety.

A useful comparison of the amount of pollution and its associate health impacts can be gained by comparing wood heaters with cigarette smoke. The PAH emissions from the average wood heater in Sydney burning 2 tonnes of wood are equivalent to the PAH from 32 million cigarettes.

### **Existing Regulation**

The regulation of wood heaters and wood smoke in NSW is problematic. The planning system makes the prohibition of wood heaters in an area difficult, and open to legal challenge.

Further, given the nature of the Sydney Basin air-shed, pollution generated in other parts of Sydney will impact on the residents of the Camden LGA, diluting the best efforts of Camden Council to improve air quality.

The current provisions of the Protection of the Environment Operations Act 1997, whilst providing Council officers with some regulatory response for dealing with households that have excessively smoky wood heaters, do not solve the problem of emissions from heaters that are operated in a more satisfactory manner.

With the significant population growth that Camden will experience over the next 15 years, it is imperative that a better system for regulating the installation and use of wood heaters is devised. This system needs to be a government mandated position, rather than something left up to individual councils to respond to.

Should you have any further questions please do not hesitate to contact me

Regards,

**Geoff Green**  
**MANAGER – ENVIRONMENTAL HEALTH**