

Submission:

Woodheater Consultation Regulation Impact Statement

Submitted via email to:

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Introduction: Our Situation

Our family relocated from medium-density suburban location in Melbourne's north, to semi-rural acreage property within [REDACTED] seeking the health and wellbeing benefits of open space, clearance from neighbouring homes and especially for fresher cleaner air. We purchased the property during the summertime (so were not able to witness the dreadful air quality when considering the purchase) and moved in during the winter.

Our family unit was up until this time healthy, happy and fully involved in life and community

On moving into the Shire we discovered our life and health was about to be burdened with up to 9 months a year with dreadful acrid smoky air from wood heaters in our suburb. Natural gas is not available in our area and wood heaters are the choice of nearly every home in the suburb including those homes built very recently. Throughout the Shire however even areas with natural gas have a large proportion of houses using woodheaters. Now that energy prices have risen, the reliance on wood heaters over other heating options (even in homes with alternate heating installed) is ever more burdensome. An example in the media of people turning to polluting woodfires:

Herald Sun, 7 November 2011

Andrew of Prahran Posted at 6:58 AM Today

I'm turning of my heating next year and using a cheaper form of heating. I am going to start using my open fire again. Its going to be a lot cheaper than other forms of heating, will last longer, yea its bad for the environment but its the only way I'll be able to afford to heat my house.

Despite ourselves paying extraordinarily high prices to run heating via LPG (bottle) gas, we cop the effects of all other wood heaters in our suburb.

Upon moving to the smoky environment, our daughter, aged 5, suddenly had breathing problems which she had never experienced before and was diagnosed with asthma (at a time when many children are growing out of asthma!) which has remained with her to the present day. This, sadly, restricts her participation in sport and leisure activities which

furthermore has a detrimental impact on her health, fitness, wellbeing and inclusion in social situations.

Myself personally, having never had breathing problems, never having had asthma and in good health until the point of moving into a smoky neighbourhood, experience varied adverse reactions to exposure to the smoke not only outdoors where it is often at extreme levels, but as it seeps into our home and destroys our indoor air quality as well. The physical effects of exposure to the smoke immediately makes breathing uncomfortable (nose, throat, lung irritation which can go on to last for days), causes irritation to skin, scalp, eyes and even sores in nasal passage and even results in throat infections, and often also causes headaches. This is frightening enough, especially when it is noticeable almost *every single day* from roughly March to October-November, but when I began to look into the possible long-term effects, especially on my children, that was ***truly horrifying***. The effects on our family's stress levels, emotional wellbeing, and the fact that we cannot participate fully and normally in life in our home or community is an enormous burden. It is deeply concerning to the very core of a parent when daily they are worried about not being able to protect their children from long-term damage and possible disease from something they simply cannot control or have any impact on despite desperately trying to do so.

I began to look into the dangers of such wood smoke pollution and any solutions we could enact for our family and our household. We have spent tens of thousands of dollars trying to deal with the issues, trying to seal doors and windows better (yet trapping the toxins inside our home when there is seldom a pollution-free timeslot to open any windows!), adding a whole-of-house ventilation system which has turned out to be ineffective while smoke can still seep through the tiniest cracks and crevices which are present even in a modern home. We are now about to install an air conditioner we don't otherwise need to filter the air in our main living room. It will be a capital cost to buy and install but also an enormous electricity cost to run it daily on filter for 9 months a year. We are worried, however, it may draw in toxic air from outside and be another failed attempt to reduce the dangerous particulates?

Thus, it has become clear to me that we are not able to escape the pollution even with the abovementioned attempts to restrict it entering inside our home, and also while our children are involved in school and sport within the same community there is absolutely no protection from it there either. It is *chilling* to know:

There is no safe level of PM2.5 pollution, considered responsible for the premature deaths of thousands of Australians every year, many more than the next worst pollutant, ozone. PM2.5 are so tiny they behave like gases and infiltrate houses even when all doors and windows are closed, and infiltrate the deepest recesses of our lungs where they cause inflammation leading to heart and respiratory diseases.

Current PM2.5 pollution causes more health damage than passive smoking.

Our Community looks like this regularly during Autumn, Winter, Spring



(10.27a.m. 5 July 2013)



(7.45 p.m.. 26 November 2012)



(7.55 a.m. 21 November 2012)



(6.07p.m.. 13 November 2012)



(8.59 a.m. 18 Sept 2012)



(9.01 p.m. 11 Sept 2012)



(8.59 a.m. 17 Sept 2011)



(11.12 a.m. 2 August 2011)

The Mounting Evidence that Wood Smoke is too toxic to allow

Since I have been looking at research relating to the dangers of PM2.5 pollution, it seems very clear that all studies find drastic adverse effects on population health due to wood smoke from wood heaters. It is an unacceptable risk and must be eradicated quickly and effectively, not by some small figure like 16% over ten years as is the strongest option presented.

Although traffic pollution is normally blamed for PAH emissions, Australian NPI data show that domestic wood heaters emit 500,000 kg of PAH, compared to 300,000 for all Australia's motor vehicles - <http://woodsmoke.3sc.net/pah>

There is an estimated benefit of \$4.015 billion for an estimated cost just \$36 million over 20 years (equivalent to a net benefit of about \$10 billion for Australia as a whole) by requiring wood heaters to be removed when houses are sold, the costs of a 1 year delay is about half a billion dollars.

woodsmoke.3sc.net/files/AAQG_Sub_Senate_Equiuiry_Air_Polln_Health.pdf

Recent studies have shown that prenatal exposure to air pollution can slow lung development in children and cause respiratory ailments, such as allergies and asthma. These new studies highlight the fact that wood smoke is not only dangerous for those who are already at risk, such as those who suffer from asthma or cardiovascular illness. Wood smoke and other pollutants are also dangerous for developing fetuses and children in ways that are much more profound and long lasting than thought previously.

These studies join the growing body of evidence that wood smoke is a major public health threat that needs to be addressed in order to protect our children's health and well-being.

<http://www.familiesforcleanair.org/childrens-exposure-to-wood-smoke-small-people-big-problems/>

<http://www.dailyrx.com/exposure-pollution-womb-dangerous-children-asthma>

New data published in the journal *Epidemiology* show the importance of fighting to reduce the particle pollution that is generated by wood burning and other activities.

Researchers at the Harvard School of Public Health report that declining air pollution levels continue to improve life expectancy in the U.S. Specifically, data from 545 counties nationwide, both metropolitan and rural, show an average decrease of 1.56 micrograms per cubic meter in particulate pollution from 2000 to 2007 that parallels a life expectancy increase of an average of 0.84 years.

In the winter, wood smoke pollution is the largest source of particle pollution in many communities. Numerous studies have shown associations between acute and chronic exposure to fine particle air pollution such as wood smoke and cardiopulmonary disease and mortality. Studies have also shown that reductions in air pollution are associated with reductions in adverse health effects as well as with improved life expectancy.

“Despite the fact that the U.S. population as a whole is exposed to much lower levels of air pollution than 30 years ago—because of great strides made to reduce people’s exposure—it appears that further reductions in air pollution levels continue to benefit public health,” said lead author Andrew Correia.

Effect of air pollution control on life expectancy in the United States: an analysis of 545 U.S. counties for the period from 2000 to 2007.

[Correia AW](#), [Pope CA 3rd](#), [Dockery DW](#), [Wang Y](#), [Ezzati M](#), [Dominici F](#).

New Study: January 2013: Reducing Wood Smoke Pollution Saves Lives

A new study published in the British Journal of Medicine has found that reducing wood smoke pollution from wood stoves is associated with significantly reduced risk of death. The study, which was conducted in Australia, looked at a community in which wood stove prevalence fell from 66% to 30% after implementation of a series of interventions aimed at reducing wood smoke. This resulted in a 40% reduction in wintertime air pollution and in reduced all-cause, cardiovascular and respiratory mortality during the period of improved air quality.

The researchers note that their findings “highlight the potential for important public health gains from interventions to reduce ambient pollution from biomass smoke”.

Scientists have long known that air pollution contributes to human sickness and death. A study by Cornell professor David Pimentel estimates that air pollution from smoke and various chemicals kills 3 million people a year worldwide, and hundreds of studies document the harmful effects of wood smoke pollution on human health.

Simply put, reducing wood smoke pollution reduces deaths.

<http://www.familiesforcleanair.org/reducing-wood-smoke-pollution-saves-lives/>

<http://www.bmj.com/content/346/bmj.e8446>

Evaluation of interventions to reduce air pollution from biomass smoke on mortality in Launceston, Australia: retrospective analysis of daily mortality, 1994-2007

BMJ 2013; 346 doi: <http://dx.doi.org/10.1136/bmj.e8446> (Published 8 January 2013)

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THE HEALTH EFFECTS OF WOOD SMOKE

(ENVIRONMENT & HUMAN HEALTH, INC)

HEALTH ISSUES

- Although wood smoke conjures up fond memories of sitting by a cozy fire, it is important to know that the components of wood smoke and cigarette smoke are quite similar, and that many components of both are carcinogenic. Wood smoke contains fine particulate matter, carbon monoxide, formaldehyde, sulfur dioxide and various irritant gases such as nitrogen oxides that can scar the lungs. Wood smoke also contains chemicals known or suspected to be carcinogens, such as polycyclic aromatic hydrocarbons (PAHs) and dioxin.¹
- Wood smoke interferes with normal lung development in infants and children. It also increases children's risk of lower respiratory infections such as bronchitis and pneumonia.²
- Wood smoke exposure can depress the immune system and damage the layer of cells in the lungs that protect and cleanse the airways.³
- According to the Environmental Protection Agency (EPA), toxic air pollutants are components of wood smoke. Wood smoke can cause coughs, headaches, eye, and throat irritation in otherwise healthy people.⁴
- For vulnerable populations, such as people with asthma, chronic respiratory disease and those with cardiovascular disease, wood smoke is particularly harmful — even short exposures can prove dangerous.⁵
- The particles of wood smoke are extremely small and therefore are not filtered out by the nose or the upper respiratory system. Instead, these small particles end up deep in the lungs where they remain for months, causing structural damage and chemical changes. Wood smoke's carcinogenic chemicals adhere to these tiny particles, which enter deep into the lungs.⁶
- Recent studies show that fine particles that go deep into the lungs increase the risk of heart attacks and strokes. EPA warns that for people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. If you have heart disease, these tiny particles may cause you to experience chest pain, palpitations, shortness of breath, and fatigue.⁷

EXPOSURE ISSUES

- The particulate matter in wood smoke is so small that windows and doors cannot keep it out— even the newer energy-efficient weather-tight homes cannot keep out wood smoke.⁸

■ The EPA estimates that a single fireplace operating for an hour and burning 10 pounds of wood will generate 4,300 times more PAHs than 30 cigarettes. PAHs are carcinogenic.⁹

■ A study by the University of Washington in Seattle showed that 50 to 70 percent of the outdoor levels of wood smoke were entering homes that were not burning wood. EPA did a similar study in Boise, Idaho, with similar results.¹⁰

¹ Minnesota Pollution Control Agency
<http://www.pca.state.mn.us/air/woodsmoke/healtheffects.html>

² Washington State Department of Ecology; Air Quality Program
<http://www.nwcleanair.org/pdf/aqPrograms/woodHeating/woodSmokeandYourHealth.pdf>

³ American Lung Association – Air Quality
<http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=23354>

⁴ The Lung Association, Nova Scotia
<http://www.ns.lung.ca/news/05-06-03.html>

⁵ The Environmental Protection Agency (EPA) on the health effects of wood smoke.
<http://www.epa.gov/woodstoves/healtheffects.html>

⁶ New Hampshire Department of Environmental Services – Air Resources
<http://www.des.state.nh.us/ard/smoke.htm>

⁷ Environmental Health Perspectives. Vol. 113, No. 4, April 2005.
Weinhold, Bob. "The Heart of Toxicity: Details of Cardiovascular Damage Uncovered."
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1278521>

⁸ Wood Smoke Brochure. Vol. 113, No. 4, April 2005.
<http://www.burningissues.org>

⁹ Sacramento Metropolitan Air Quality Management District –Agenda, page 5.
<http://airquality.org/bod/2005/MarParticulateMatterSB656Briefing.pdf>

¹⁰ New Hampshire Department of Environmental Services – Air Resources
<http://www.des.state.nh.us/ard/smoke.htm>

THE smoky haze from wood fires is Sydney's biggest source of air pollution in winter, and wood smoke will add \$8 billion to the health budget by 2030, says an independent report commissioned by the state government & produced by the environmental consultancy AECOM.

<http://www.smh.com.au/environment/wood-smoke-adds-billions-to-health-bill-says-report-20120127-1qlin.html>

Small particulate matter has been classified as a carcinogen by the World Health Organisation and has been called "the new asbestos."

http://www.asthmafoundation.org.au/NSW/woodsmoke_submission.aspx

What Other Places are Doing

Governments have known for nearly a decade that new wood heaters installed in urban areas have estimated health costs of thousands of dollars per heater per year. NZ tried to address the problem by substantially reducing the emissions limit for all new heaters in 2005. In areas where wood smoke builds up, NZ also legislated sunset clauses for existing heaters in conjunction with subsidies to remove them, and bans on installing new wood heaters in houses that don't have them. Meanwhile, Australia has allowed the problem to get worse.

woodsmoke.3sc.net/files/AAQG_Sub_Senate_Equiuiry_Air_Polln_Health.pdf

Any real action in Australia seems sporadic and limited to specific pet projects? :

Wood heaters will be banned in the new residential suburbs of the Molonglo Valley, with the government fearing the major development may threaten the ACT's air quality. The heaters will be prohibited in Coombs and all future suburbs in Molonglo Valley, but the existing suburb of Wright will be exempt.

The decision follows the release of the annual *Air Quality Report for 2011*, which identifies domestic wood heaters as the biggest source of air pollution in the ACT.

<http://www.canberratimes.com.au/act-news/wood-heaters-banned-in-new-canberra-suburb-20120709-21rk1.html>

A summary of just some of the action from other places – it has been done & can be done here!

- Montreal banned new wood heaters from 28 April 2009
- Christchurch has banned use of all models over 15 year old. In Otago, those rated more than 1.5 g/kg to be removed by 1 Jan 2012
- Launceston - 75% reduction in woodheater use.
- California's Healthy Hearths Program bans all wood burning devices in new buildings and also bans use of all wood burning devices whenever PM2.5 pollution is forecast to exceed the air quality standard
- Dublin banned smoky home heating - 2,000 fewer deaths over 6 years

<http://woodsmoke.3sc.net/policies-elsewhere>

We Need Drastic Action NOW

There is an estimated benefit of \$4.015 billion for an estimated cost just \$36 million over 20 years (equivalent to a net benefit of about \$10 billion for Australia as a whole) by requiring wood heaters to be removed when houses are sold, the costs of a 1 year delay is about half a billion dollars.

woodsmoke.3sc.net/files/AAQG_Sub_Senate_Equairy_Air_Polln_Health.pdf

The evidence clearly shows that there is no safe level of PM2.5, that wood smoke contributes to a range of illnesses and early mortality as well as developmental problems in children.

The action of phasing out or banning wood heaters is being successfully implemented in many countries and territories.

There are major health and financial benefits from phasing out wood heaters.

There are major health and financial costs in delaying the phasing out of wood heaters.

I consider anything less than a large scale phasing out of wood heaters in the very near future a lack of duty of care to my person and that of my family and community.

