

Submission

Clean Air Communities: Feedback on the draft Clean Air Regulation 2022



POEO (Clean Air) Regulation 2022

3rd June 2022

Clean Air Communities

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Clean Air Communities

Clean Air Communities is a community advocacy and support group founded in 2020 seeking responsible science-based change to protect communities from air pollution exposure. Our immediate focus is on residential woodsmoke/solid fuel combustion pollution, the greatest source of air pollution in both Sydney and Melbourne and a major source in both states. As it emanates from homes and backyards it impacts where we live and breathe the most, affecting the wood burners, their families and neighbours alike.

We recognise and are concerned about all sources of air pollution addressed in the draft POEO Clean Air Regulation 2022, but due to the lack of community awareness and government inaction on residential woodsmoke, we are called to focus our efforts and this submission on wood-heater smoke pollution.

We are concerned that the regulation does not go far enough to protect health, esp. in an era of Climate Crisis, COVID pandemic and the recent exceedance of the 6th of 9 Planetary Boundariesⁱ for safe limits for humanity. The regulation considers only 2 inadequate options: 1 – business as usual, 2 – no regulation in relation to wood-heaters. Solid fuel heating is an entirely preventable source of pollution – we advocate for the phasing out and elimination of highly polluting discretionary residential solid fuel combustion/wood burning. We now have safer, more affordable, sustainable alternatives.

Impacts of burning wood, the harming of health and wellbeing, environment and climate, are too costly for our community and future generations who will be impacted.

We will be addressing the draft POEO Regulation by addressing the shortcomings, inadequacies and therefore the non-compliance in relation to Better Regulations Principles in the RIS.

We all have a right to breathe clean fresh air, everywhere, all the time.

“Because no matter who we are or where we come from, we're all entitled to the **basic human rights of clean air to breathe, clean water to drink, and healthy land to call home**”

Martin Luther King III

Personal stories of woodsmoke pollution exposure reveal that current draft POEO does not address the woodsmoke plight in residential areas

All the data and evidence of harm of solid fuel heating is not addressed in the current draft POEO as reflected in the personal stories of the distressing and detrimental impacts of woodsmoke pollution. As community advocates, we hear from distressed residents throughout Australia, including NSW – and globally - of the misery caused by inescapable direct woodsmoke emissions from neighbouring wood-heaters. Their pleas for help are not addressed by the local councils, leaving them confined indoors, running an air purifier -if they are fortunate enough to afford a unit. Elderly residents are left considering selling their homes in their twilight years, or contemplating legal action which is financially out of reach for the vast majority.

These are some of the common refrains of stress, medical distress, loss of freedom to enjoy one's property etc. that are repeatedly told to us in private conversations, messages, letters or posts on social media - paraphrased here:

"I can't breathe in my own home"

"I can't enjoy my garden; I'm driven inside because of the smoke"

"I feel like a prisoner in my own home"

"I have to put wet towels under the doors and windows to keep the smoke out"

"I can't hang my washing outside"

"The children can't play in the garden because of the sickening smoke"

"My children are asthmatics, every time we smell smoke, I'm terrified my children will get an asthma attack and end up in hospital, or it might be the day it kills them"

"I can't go for a walk in my neighbourhood, especially in winter because I have to walk through plumes of smoke the whole time"

"I cycle to work to do the right thing for my health and help reduce vehicle pollution, but the whole ride to the city, I'm breathing in thick smoky air – the cycling is like smoking cigarettes"

"I've got a heart condition; I'm frightened what all this smoke is doing to my health"

"My wife has cancer, and it's really upsetting to not be able to make a safe space in our home for her to have the best chance to recover – the smoke makes her feel sicker"

"I'm terrified of complaining to Council, because the neighbours might find out it's me"

"Every time I call the Council to complain about the smoke, they say they can't do anything – no one will help us"

"The neighbours know that the smoke makes me sick, but they won't stop burning"

"I ended up in emergency because the neighbours lit their wood fire again, even though I showed them my medical papers. The triage nurse was so angry she wanted to call the police"

"I don't feel safe in my own home after I made a complaint to Council; not only have I had to buy an air monitor and air purifiers, but I've also had to buy surveillance cameras. This has just gotten worse and worse, but I can't afford to move"

"I feel doomed, I don't know what more to do; if I were renting, I would have moved out by now"

"The neighbour's wood heater was making our whole family sick. We told the neighbours, but they wouldn't stop. We offered to pay to replace the wood heater – they wouldn't accept. Council wouldn't help us. We decided to take the matter to court at great personal expense, and won the case. But we still ended up selling our house as we feared for our life, and now hated our home."

"I can't afford to buy an air monitor and air purifiers; I feel so helpless"

"I am elderly and have been writing to council and ministers for 6 years and nothing has been done about the wood-heater that pollutes my home in the colder months".

"I live in my car because I need to be able to drive to somewhere with clean air...it's very hard to find anywhere where there isn't smoke" ...

And so many, many more....

Current draft POEO Regulation relating to domestic solid fuel heaters does not adequately comply with RIS Better Regulation Principles:

We consider that “domestic solid fuel heaters (Part 2 of the Regulation)” being carried forward in its current format is inadequate and is detrimental to the well-being of NSW residents given the incontrovertible evidence of health and environmental harms of exposure to residential wood-heater smoke pollution. We address the relevant RIS Principles giving reasons for the non-compliance of the Regulation.

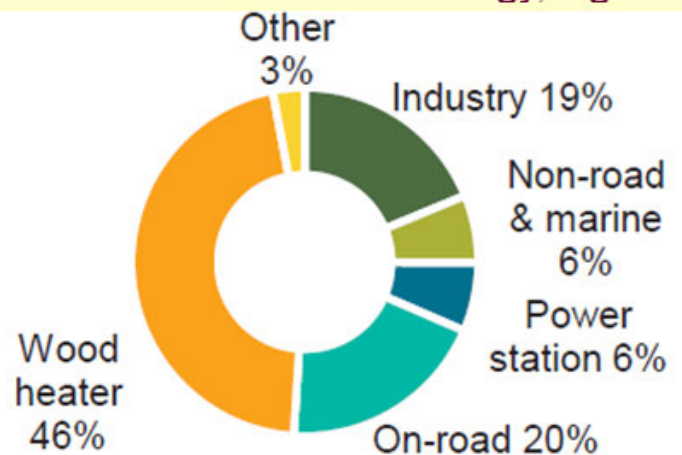
1. Addressing Principle 1: The need for government action should only occur where it is in the public interest, that is where the benefits outweigh the costs - Domestic solid fuel heaters Compliance 2.1.1

The recommendation that the existing Regulation be retained (Option 1), as this delivers a net public benefit from reduced particulate emissions falls way short of the option that is NOT considered: to phase-out all domestic solid fuel heaters. This would by far deliver the greatest benefit to the community in regards to health and environmental outcomes:

1(a) Non-Compliance with Principle 1: Given residential wood-heaters are the highest human source of PM_{2.5} in Sydney requires substantial action not business-as-usual approach for best cost-benefit outcome

The region of Sydney is the area with the greatest population and therefore where the greatest population exposure to pollution will occur. As the city grows, this exposure to pollution will increase. Most Sydney residents will be unaware that the **highest human source of PM_{2.5} pollution is a staggering 46%ⁱⁱ from domestic solid fuel combustion from the ~5% of householdsⁱⁱⁱ** who own a wood heater, according to ABS data on capital cities. This is greater than vehicle emissions at 20% and greater than industry, including coal-fired power stations at 19%.

Weighted-Population Exposure, PM_{2.5} Sydney, Draft NSW Clean Air Strategy, Fig 13



The draft NSW Clean Air Strategy conservatively estimates that this small number of wood-heaters emits a staggering 5,000,000kgs/year of PM2.5^{iv} in Sydney – completely dwarfing other human source emissions. It is unconscionable that so much pollution is emitted where the greatest number of people in NSW live – and it is largely discretionary and non-essential lifestyle recreational use. Most of these homes already have cleaner alternatives for heating.

On the other hand, power generation and vehicle fuel combustion serve many purposes for us to fulfil our lives, to conduct our business, to be productive, as well as some proportion of discretionary use. Solid fuel combustion for domestic purposes can be exchanged for clean electric heating very simply in most cases – and the health and economic benefits would be tremendous. The NSW government position to not phase out wood heaters is a great disservice to its population, given the known cumulative health impacts on everyone.

If 5% of Sydney households that own a wood heater generate 5,000,000kgs/year of PM2.5 toxic air pollution completely out-stripping other sources – the POEO Regulation should include their phase-out

1(b) Non-Compliance with Principle 1: Residential woodsmoke PM2.5 air pollution – the NO SAFE LEVEL principle is not addressed by the Regulation by adoption of Option 1

Summary of Key Facts regarding PM2.5:

*Wood combustion produces tremendous levels of PM2.5 particulate pollution as well as emitting a cocktail of hazardous carcinogenic chemicals & gases^v

*PM2.5 is how air quality is measured and is classified a Class 1 carcinogen (2013 WHO)^{vi}

*PM2.5 are fine particles more than 100 times finer than human hair, behave as a gas, and pass beyond the lungs when breathed in, entering the bloodstream and travelling to every cell in the body, causing inflammation, now causally linked to numerous short- and long-term illnesses, diseases and premature death^{vii}

*WHO (2018) estimates that more than 7 million people die every year^{viii} globally from exposure to fine particles (cf. COVID death toll of ~3 million people globally)

*There is no known safe level for PM2.5 - even short term, low exposure levels have health and mortality impacts^{ix}

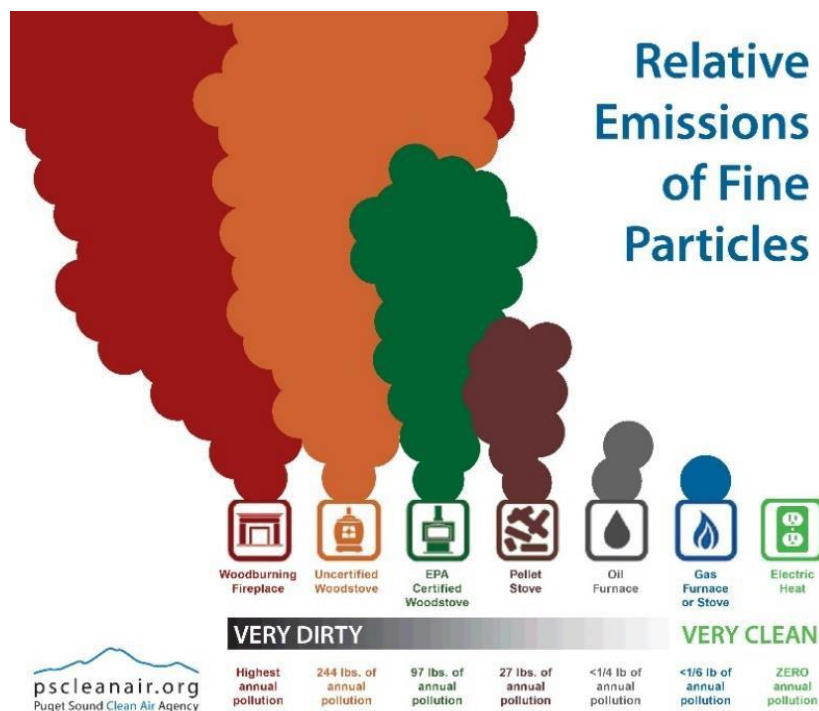
*Wood-heaters cost the NSW community \$3000+ each per year in health costs^x

*Air pollution is estimated to result in \$3.3 billion (2019 AUD) in health costs each year in the NSW GMR^{xi}

*EPA NSW reported that the additional health costs attributable to the impact of wood smoke by 2030 could be up to \$8 billion in NSW alone^{xii}

*Woodsmoke emissions from fireplaces, barbeques, food smokers, fire pits, chimineas etc. are not quantified by NSW - the additional emissions from these less-efficient and more prevalent forms of woodsmoke pollution add to the health burden of domestic solid fuel combustion

So, by simply carrying forward the current Option 1, demonstrates a lack of consideration of the “no safe level” principle. The only option that addresses this principle, giving the greatest cost-benefit to the community is a phase-out of wood-heaters, with replacement of clean electric heat pump technology, removing health costs and delivering cost efficiencies to households. This strategy would remove preventable woodsmoke exposure entirely.



1(c) Non-Compliance with Principle 1: Current POEO Regulation addresses wood-heater pollution only by wood-heater efficiency mechanism which still subjects NSW residents to harmful emissions levels driving health costs upwards

Fundamental to the residential air pollution crisis being experienced in Sydney and NSW, is that the POEO Regulation shows a disregard for the international consensus that for PM2.5 particulate air pollution “there is no evidence of a safe level of exposure or a threshold below which no adverse health effects occur”.^{xiii} EPA NSW’s website page on ‘Woodsmoke Isn’t Good Smoke’^{xiv} commendably describes the health impacts of woodsmoke, but the main message in the absence of strong regulations is a “burn better” approach which still puts residents in harm’s way.

The responsibility of managing woodsmoke is handed to local councils, which will be discussed further below, is a black hole from which no resident can seek remedy.

The POEO Regulation only manages woodsmoke using the highly polluting approach of higher efficiency and emissions standards^{xv}. Wood heaters are so polluting that even halving their emissions would still create high levels of emissions, so an emission standard of 1.5g/kg of wood burned is an extraordinary theoretical emission of 1,500,000ug per kg of wood burned. Older and dirtier wood heaters are still permitted. We would never allow a car on the road that had a fraction of the PM2.5 emissions of a wood heater.

We also know from New Zealand studies that modern low emission wood heaters in real-life emit far more (8 times more for low emission heaters) than the theoretical/laboratory test figures^{xvi}.

A recent study^{xvii} has shown new wood-burning “eco” stoves billed as more environmentally friendly still emit 750 times more tiny particle pollution than a modern HGV truck

The responsibility sits squarely on local councils to address this issue. Councils then refer back to EPA NSW policy on how to “burn better” – leaving no option for remedy for those suffering second-hand woodsmoke impacts to abate pollution on their properties and in their homes.

The benefits of phasing out wood-heaters would far outweigh any costs in implementing such a program in the long run.



Dr Karl
@DoctorKarl

2:28 PM Apr 14, 2020 ...
Twitter

One new-technology wood burning stove, manufactured to the highest Australian standard, puts out more particles in a single 24-hour day, than does a car running for 15,000 km.

Yes, wood fires are very polluting - and damages people's lungs and increases health costs.

2. Addressing Principle 2: The objective of government action should be clear Compliance Domestic solid fuel heaters 1.2 & 2.1.1

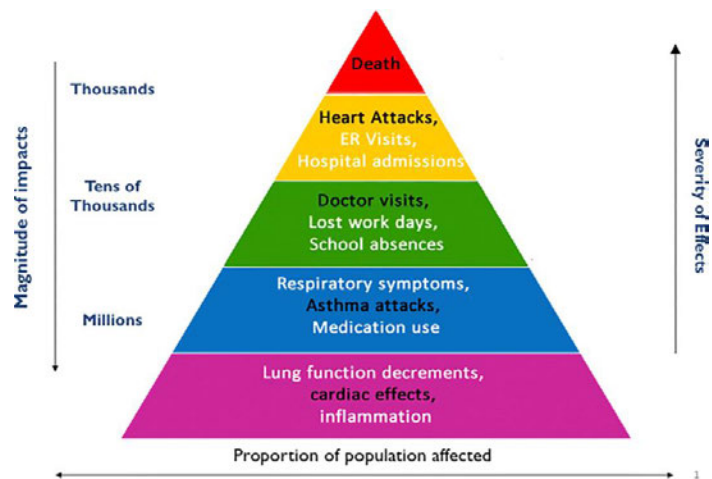
We simply argue on this point, that though the government actions are clear, they are falling well short of the complete protection that can be afforded to NSW residents by considering a phase-out of wood-heaters.

3. Addressing Principle 3: The impact of government action should be properly understood by considering the costs and benefits of a range of options, including non-regulatory options -Compliance Domestic solid fuel heaters 2.2–2.4

3(a) Non-Compliance with Principle 3: Control of the sale of more efficient wood-heaters is the only real action considered, while the phase-out of wood-heaters is ignored including the overwhelming cost-benefits beyond deaths and hospitalisations

Heating with wood is often seen as a cheaper option. But what is the real cost of wood-heating beyond a person's ability to access free firewood.

A single wood heater is estimated to cost the community over \$3,000 per year in health costs. The NSW EPA reported that the additional health costs attributable to the impact of wood smoke by 2030 could be up to \$8 billion in NSW alone. This costing does not address the other far-reaching health and well-being ramifications of woodsmoke pollution exposure on a social, emotional and cognitive level. Nor the productivity implications when these impacts have flow-on effects on employment and effective participation in the economy – the cost impacts on society in the short and long-term could be \$billions more per year^{xviii}.



Cost of woodsmoke pollution - links to short- and long-term illness, disease and premature mortality

Exposure to PM_{2.5} from the dominant source of woodsmoke is now linked to a myriad of short- and long-term illness and disease that is largely unquantified.

Short term illnesses and premature death linked to PM2.5^{xix}

Numerous scientific studies have linked particle pollution exposure to a variety of problems, including:

- premature death in people with heart or lung disease
- non-fatal heart attacks
- irregular heartbeat aggravated asthma
- decreased lung function
- increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing

Examples of long-term illnesses & deaths linked to PM2.5

- significantly associated with an increased hazard of first hospital admission with Parkinson's disease and Alzheimer's disease and related dementias^{xx}
- after twenty years of epidemiological studies, scientists have revealed a significant correlation between fine particle pollutants and respiratory morbidity and mortality^{xxi}
- irreversible vision loss^{xxii}

Premature deaths linked to PM2.5

WHO estimates that in 2016^{xxiii}:

- 58% of outdoor air pollution-related premature deaths were due to ischaemic heart disease and strokes, while
- 18% of deaths were due to chronic obstructive pulmonary disease and acute lower respiratory infections respectively, and
- 6% of deaths were due to lung cancer

The unquantified sources of residential woodsmoke pollution

Of great concern to us also are the sources of residential woodsmoke pollution that emanate from NSW's backyards – unquantified by EPA NSW. This form of wood burning is the least efficient and more polluting for each kilogram burnt. It is emitted at ground level in close proximity to the burner, their family, and frequently neighbours. This woodsmoke blows across neighbourhoods, unrestricted and unregulated. Even in Council areas with open air burning laws, we have found invariably these are not enforced – even with vigorous complaints, no action is taken to abate the fires.

The backyard is unregulated with people burning anything that is accessible, whenever they like and for however long they like. Wood-fired BBQs, long slow wood smokers and cookers, pizza ovens, chimineas, fire pits – there is an endless supply of devices, cheap and accessible and touted as the premium lifestyle choice from any Bunnings or outdoor lifestyle store. If 5% of households with a wood heater generate almost half of the pollution in Sydney, 5,000,000kgs/year – it is easy to

extrapolate how much additional burden these less efficient and more prevalent forms of wood burning must generate in NSW.

It is time for this form of discretionary wood-burning in back yards to be relegated to the same history as the residential incinerator, and replaced with clean efficient, sustainably-sourced electric devices.

***The particulate emissions/minute from 1 fire pit is
equal to that from three average big-rig diesel trucks
or the secondhand smoke from 800 cigarettes
Source: South Coast Air Quality Management District
based on air monitoring in March 2013***

4. Addressing Principle 4: Government action should be effective and proportional Compliance Domestic solid fuel heaters 2.4

4(a) Non-Compliance with Principle 4: Continuing the business-as-usual approach Option 1 is not the most effective outcome that can be achieved for NSW residents who continue to languish under Local Government inability to address residential woodsmoke pollution:

Local Councils – Failing to protect resident health

Local government has been given the responsibility of managing residential solid fuel combustion emissions, yet Councils are unwilling and/or unable to act to protect the health of their residents from woodsmoke. Complainants who contact their Council will be informed wood-heaters and often open-air burning are legally permitted. Council regulation is not science-based. There is no comprehensive air quality monitoring and active management of local air pollution. Woodsmoke can be coming from multiple sources yet Local Councils are only able to deal with individual sources. Councils lack the expertise, resources and capacity to manage residential woodsmoke.

Local Council knowledge of health harms is lacking & they consequently fail to fully inform and educate the community on harms of woodsmoke

The task of educating the community has been given to local councils via the Council Resource Kit. This tool kit if based on science would offer advice to cease use of wood-heaters, but instead misguides by teaching how to “burn better”. Given the prevalence of woodsmoke pollution in Sydney and NSW, this approach can be deemed a failure.

The Australian Home Heating Association reports that wood-heaters continue to sell at an unnerving rate of 40-50,000 units per year^{xxiv}.

A lack of council education campaigns on woodsmoke pollution and open-air burning laws, means residents often have little or no awareness of local laws that exist or the health impacts of woodsmoke on themselves and their neighbours. We have found through community interactions on social media, there is also flagrant disobedience of existing laws, with the common experience being that councils do not enforce such laws. We need the NSW government to step up to protect NSW communities.

Local Councils are not using their powers under the POEO Act to issue abatement orders

Community members have repeatedly informed us of the utter despair they feel that their woodsmoke complaints are not taken seriously by their council, leaving esp. the most vulnerable, who are suffering from chronic health conditions or are elderly, to be forced to move out of their homes to survive. Councils are simply not using their powers to issue abatement notices. The NSW government has not provided data on the number of complaints that have resulted in abatement notices issued. The business-as-usual approach is a failure to protect residents from direct woodsmoke harms.

Local Councils demonstrate a lack of will, resources and expertise to manage residential air pollution – the responsibility should lie with EPA NSW

When the EPA Victoria conducted stakeholder consultations for a variation on their Solid Fuel Heating policy paper (2018) - this included consultation with the Municipal Association of Victoria and local councils. Their response to EPA Victoria was that **“local councils were not best placed to address air quality issues”^{xxv}**.

This would also apply to NSW councils. Solid fuel burning simply cannot be effectively regulated by local councils in our experience. Knowledge, expertise and air monitoring equipment are absent, often not even considered. Enforcement of any existing laws is effectively non-existent - any meaningful action would require a great deal of resources, even if there were a will to act. At a minimum, Councils would need to implement a major health campaign of the scale of Quit Smoking cigarettes to have an impact – not the Council Resource Kit currently used. Ironically, there are "smoke-free" spaces throughout Council public spaces but those same spaces can be engulfed in woodsmoke, which is 1000s times more polluting than a cigarette. Regulations need to have logical and scientific consistency. It would be a disservice to all communities to continue to have this issue ignored. This responsibility is best removed from Local Council where it has languished unaddressed and be managed for *all* NSW residents by the State Government through the EPA NSW, the body with the knowledge and expertise and authority when it comes to Air Quality.

4(b) Non-Compliance with Principle 4: Continuing the business-as-usual approach Option 1 & considering this to be proportional creates tremendous injustice for the poorest and most vulnerable residents in NSW

Failure to protect the poorest and most vulnerable residents of NSW

While we see the trend for wood-fired fire pits and fireplaces rising dramatically amongst our wealthier and aspirational residents, the poorest and most vulnerable in our community (including our indigenous peoples) are seen as an economic reason for permitting wood burning. When Victorian Minister for Health Martin Foley met air pollution protesters on the steps of Parliament House in March 2021 he was asked if he knew how much PM2.5 emissions wood-heaters released in Victoria. He replied that he did not know, and followed with a kind-hearted comment about his concern for the poorer in our community who cannot afford alternative heating.

It is in fact the poorest that need the most help to avoid using wood heating, as it is the lower socio-economic groups who are most likely to already have higher rates of illness, disability and live shorter lives^{xxvii}. This is most tragically and starkly seen in our indigenous population, who have a shorter life expectancy than non-Indigenous Australians and are at least twice as likely to rate their health as fair or poor.

Compared with non-Indigenous Australians, Indigenous Australians are also:

- 2.9 times as likely to have long-term ear or hearing problems among children
- 2.7 times as likely to smoke
- 2.7 times as likely to experience high or very high levels of psychological distress
- 2.1 times as likely to die before their fifth birthday
- 1.9 times as likely to be born with low birthweight
- 1.7 times as likely to have a disability or restrictive long-term health condition^{xxvii}

Our indigenous peoples are culturally more exposed to woodsmoke pollution – do they deserve our care with education awareness campaigns that allow them to make informed choices to improve their health and that of their families and communities?

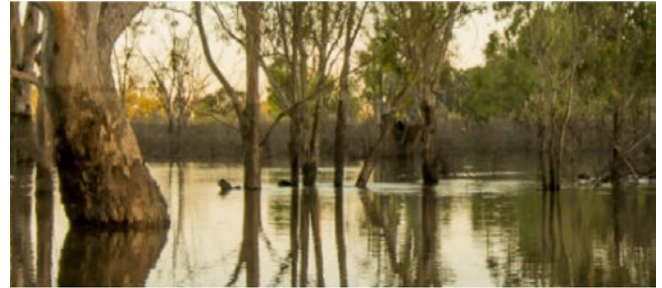
The poorest in NSW are the ones who can least afford to be exposed to their own and others' toxic emissions (studies show homes with wood-heaters exceed WHO air quality guidelines, with household income the strongest predictor of nearly all measures of PM assessed^{xxviii}). The poorest are least likely to access adequate health care in cases of adverse exposure to air pollution and so would suffer the worst outcomes.

The poorest are also least likely to go to their local service station to buy "clean" firewood or drive long distances to collect the free firewood that is permitted to be taken from forests (up to 6 tonnes per household per annum^{xxix}).

Sadly, what is more likely is the use of painted/treated waste construction wood very readily available at any time on social media marketplaces, or nature strip collection of fencing material and green garden wood cuttings.

Wherever we permit burning, people will attempt to access material that is cheapest and most readily available. There is currently a national firewood shortage^{xxx} which makes the likelihood of 'clean' dry wood being used very low.

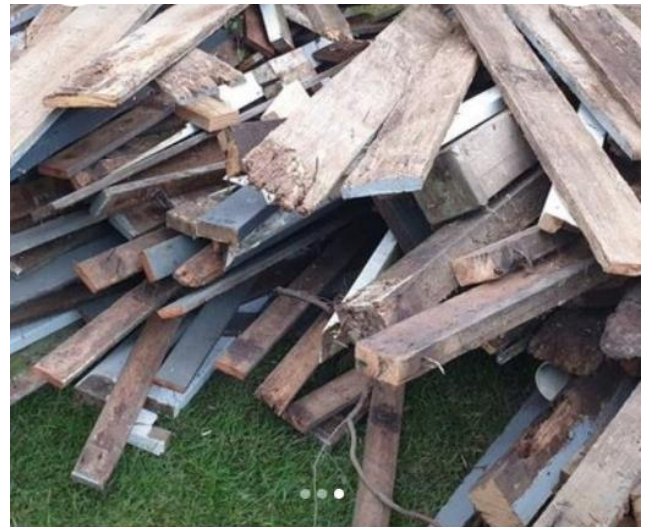
The business-as-usual approach fails to consider any of these real-life situations in its regulation of wood-heaters -in its attempt to be proportional -and is clearly not realistically effective, leaving behind the most vulnerable.



[In this section](#)

Managing the river red gum forests

Domestic firewood collection in river red gum reserves

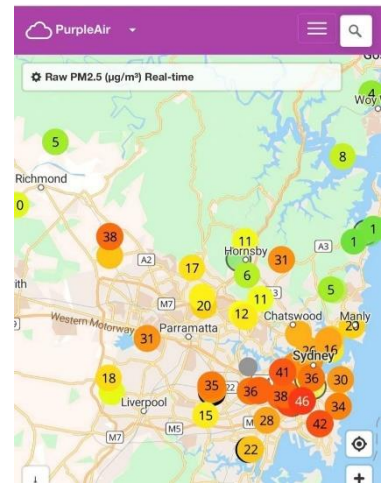


Firewood for FREE

Free · In stock

Housing conditions have a profound and unequal impact on health. The poorest are most likely to be living in poorly constructed and poorly sealed homes. They would not be able to afford the home-sealing and draught-prevention strategies to seal their homes from air pollution. They are also not able to afford the luxury of a good quality air purifier to clean their indoor air, or air monitoring devices to understand their air pollution exposure.

It is for all these reasons that our poorest and most vulnerable need our support to transition from a polluting fuel source to clean electric, efficient heat pump technology, which provides both heating and cooling options. Cooling is becoming a greater priority as climate change warming increases, ensuring our elderly and vulnerable residents can live in comfort in hot summers as well as cold winters. This can be delivered with a *Healthy Homes for All* type program, improving home efficiency, sealing their homes and upgrading heating/cooling, and protecting their indoor air from external pollutants.



Failure to Protect – the youngest and unborn children

PM_{2.5} particles we know are so fine that they pass the lung membrane, enter the bloodstream and can travel to every organ of the body causing inflammation and short- and long-term illness and disease. None are more vulnerable than the youngest, even the unborn^{xxxix}.

Prenatal Impacts on children include:

- Maternal exposure to PM_{2.5} may increase the risk of congenital hypothyroidism in the offspring^{xxxix}
- exposure during pregnancy and infancy and incident asthma^{xxxix}
- maternal exposure to ambient PM $\leq 2.5 \mu\text{m}$ during pregnancy can contribute to the risk of high blood pressure in childhood^{xxxix}
- increased risk of specified infant mortality^{xxxix}

Impacts on young children include:

- Acute effects of ambient PM_{2.5} on lung function among school children^{xxxix}
- Children's respiratory health and oxidative potential^{xxxix}
- linked to higher risk of young children developing asthma^{xxxix}
- PM_{2.5} and its chemical constituents on lifetime-ever pneumonia^{xxxix}
- increased symptoms of psychiatric disorders, like anxiety and suicidality^{xl}

The highest concentrations of PM2.5 will be experienced by pregnant women and young children - in our homes and backyards, where highest exposure to PM2.5 from residential solid fuel combustion occurs. It's time to put our young ones first.

5. Addressing Principle 5: Consultation with business, and the community, should inform regulatory development - Consultation 1.6

5(a) Non-Compliance with Principle 5: If business and community have incomplete and inadequate data, then consultation will be ineffective, as will regulatory development

EPA NSW Monitoring is inadequate for informing of true local community air quality

EPA NSW has failed and continues to fail to protect residents from air pollution through inadequate monitoring of air pollution, and fails to inform the community of the real air pollution levels to which they are being exposed. Comparison monitoring of a citizen/community science network of real-time particulate matter monitors, PurpleAir, consistently reveals that EPA NSW monitoring downplays the real pollution levels. Lack of real-time hyper-local monitoring especially fails to protect those most vulnerable to pollution for whom it is a safety as well as health issue, if they are misled into thinking that air is safe to breathe when it is not. NSW EPA air monitoring stations especially fail to measure local woodsmoke and other pollution which can occur in local "hot spots". This lack of information leads to communities not understanding the hazards of the wood they burn, so effective consultation becomes impossible.

EPA NSW - Lack of data provision of PM2.5 from domestic solid fuel combustion in NPI

EPA NSW does not provide data to the National Pollution Inventory (NPI) on PM2.5 emissions from domestic solid fuel combustion (wood heaters) even though it is the greatest source of emissions in Sydney, and a major source in NSW. This omission is a grave injustice to residents and for those advocating for Clean Air who wish to refer to this data. Environmental and health organisations put out reports on a regular basis that are effectively misinformation due to lack of data, often citing that coal-fired power stations are the greater polluter, when in fact wood-heaters are the real culprit.

****Clean Air Communities commends that there is community consultation for the draft POEO Regulation, but we consider it is essential that all community consultation be evidence-based not opinion-based****

Messaging Matters – Business and community can only change what they are aware of; urgent need for a public health campaign on woodsmoke pollution

NSW residents have a right to know and understand the harmful health impacts of their own discretionary wood-burning activities. They deserve the opportunity to make informed choices. Most, or all, information residents currently receive come from vested interests that have profit motives to sell wood-burning products and promote indoor and outdoor wood-burning activities as aspirational and fashionable lifestyle choices. None of the wood-burning products come with a health warning.

An example of powerful environmental media messaging is that of waste-to-landfill. The impulse now to save items from landfill is commendably powerful, prompting reuse and recycling of household products. However, in the absence of any health messaging on woodsmoke hazards, it is a common sight on social media groups for people to implore for others to save their stockpile of painted and treated wood for re-purposing as firewood:

Wood in Landfill = bad;

Wood burned (&converted into a toxic cocktail of emissions into our air) = good



Our air is just as precious as land and water. Contaminated land and water can be remedied reasonably quickly and effectively, and normality restored. But regarding air, every second we have a biological imperative to breathe; that is happening in real time. If our air is contaminated, we cannot avoid exposure easily or immediately. There is no permanent remedy for contaminated air as long as we treat it as a dumping ground.

NSW residents deserve a public health campaign of the scale of “Quit Smoking” tobacco campaign or “Slip-Slop-Slap” skin cancer campaign –to be fully informed and make healthy choices for themselves, their family and their neighbours and friends.

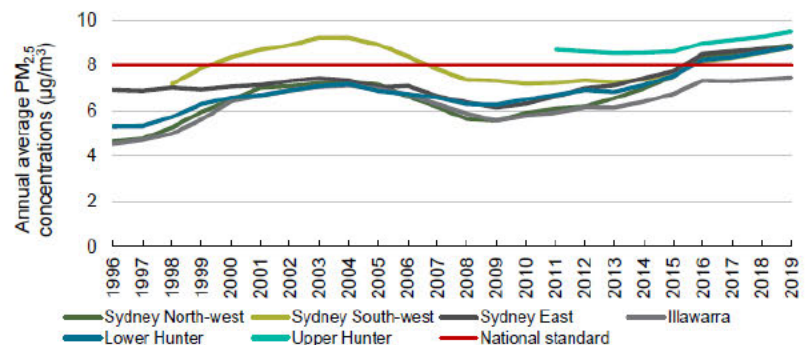
7. Addressing Principle 7: Regulation should be periodically reviewed, and if necessary reformed, to ensure its continued efficiency and effectiveness -This is the purpose of this RIS

7(a) Non-Compliance with Principle 7: The draft POEO Regulation fails to be reviewed in light of recent revision of WHO air quality guidelines 2021

EPA NSW adoption of the National Environment Protection Council (Ambient Air Quality) Measure (NEPM)^{xvii} - annual-average standard of 8 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) and a 24-hour standard of 25 $\mu\text{g}/\text{m}^3$ for PM_{2.5} fine particles has not been revised in line with the latest WHO guidelines for better community health of 5 $\mu\text{g}/\text{m}^3$ annually and 15 $\mu\text{g}/\text{m}^3$ 24-hour average. Current annual PM_{2.5} levels in NSW are increasing revealing that the business-as-usual approach is not protecting health of residents, esp. those that are exposed to highly hazardous levels from solid fuel/wood combustion from neighbouring properties.



NSW Clean Air Strategy 2021–30: Draft for consultation



Current epidemiology and scientific research suggest there is no safe level for PM_{2.5} and that is the standard the POEO Regulation should strive for – a continuous and rapid improvement of air quality through a phase-out strategy. Domestic solid fuel combustion is mostly discretionary and lifestyle recreational, so why continue to take the path of permitting it, adding to the health burden?

By adhering to weaker air quality standards, a proven failed policy to simply address new wood-heater efficiencies, with old wood heaters and fireplaces still permitted to operate, this hope-for-the-best draft POEO Regulation will not alleviate the tremendous burden that wood heaters place on our community.

Failure to take stronger action will lead to costly ongoing health, well-being and productivity impacts for NSW and its economy.

7(b) Non-Compliance with Principle 7: POEO has not been reviewed in light of the now 9-year-old senate inquiry 2013 recommendations for Local Government

The Senate Inquiry (2013) on Impacts on Health of Air Quality in Australia^{xli} was disturbed by findings of the disproportionate contribution that residential wood-burning made to urban air pollution, and recommended "**that local councils continue to manage the use of wood heaters in their own jurisdictions through the use of bans, buy-backs, minimum efficiency standards, and other mechanisms as appropriate to protect the health of their local communities**"^{xlii}.

Yet councils outside the ACT seem unaware of this investigation and its recommendations. The POEO Regulation should be reviewed in light of the findings and recommendations of this inquiry, allowing for the phase-out/buy-back option, not the business-as-usual minimum efficiency standards approach.

7(c) Non-Compliance with Principle 7: POEO has not been reviewed to take into consideration the opinion of health experts including the NSW Chief Medical Officer

It is 8 years since NSW Chief Medical Officer Kerry Chant took a stance on this issue, calling for a ban on harmful wood-heaters, but none of this is reflected in the adoption of Option 1 to simply continue to support the sale and use of wood-heaters with minimum efficiency standards for which there is no safe level of their emissions. Other health experts include AMA Victoria who have called for the implementation of a wood-heater buy/back scheme^{xliii} and the position paper^{xliv} from the Centre for Air Pollution, Energy and Health Research (CAR) August 2021 which includes the introduction of schemes to incentivise the replacement of wood heaters in existing homes and discourage the inclusion of wood heaters in new homes.

This was published 6 years ago

State's top doctor says we should consider banning wood fire heaters

By Heath Gilmore

July 5, 2014 – 9.22pm

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7(d) Non-Compliance with Principle 7: Option 1 fails to consider and review the POEO Regulation for domestic wood-heaters in light of the Climate Crisis

Climate Emergency – residential solid fuel combustion global warming impacts

Thirty-six of 128 Local Government jurisdictions in NSW have declared a climate emergency^{xlv}. This is the highest number of climate emergencies declared of any state, but there is inaction on wood-heaters in a global warming context.

Global warming facts about wood burning

Woodsmoke is a global warming accelerant. Wood burning releases CO₂ and direct and indirect global warming emissions including, black carbon, methane, ozone, NO_x and SO_x, which are multiple times more impactful than CO₂:

The Global Warming Potential of CO₂ is 1 – the following 20-year GWPs of components of woodsmoke are:

Black carbon = 4,470

Methane = 56

Ozone = 69

There are no strategies or action plans to inform our community of this harm from a global warming perspective, and to take actions to mitigate global warming impacts as part of a climate emergency action plan. The impacts of wood felling and wood collection also have massive impacts on biodiversity.

According to recent modelling, for 55 different commodity sectors, the costs to Australia from not meeting the Paris Accord target from now to 2050, is \$1.19 trillion dollars. Much of this is due to infrastructure damage (\$611 billion from lost property values) and agricultural and labour productivity losses (\$211 billion), but losses in biodiversity and human health also add considerably to the total (\$368 billion). Total cumulative losses of nearly \$2.7 trillion from climate change. That's a number that is hard to comprehend (noting that current GDP is roughly \$1.9 trillion and total wealth \$10.9 trillion in Australia)^{xlvi}.

Given the tremendous cost impacts on our future economy, we cannot ignore the cost of wood burning contributions to global warming:

Australian households are burning between 4.5 and 5.5 million tonnes of wood every year, over half of which is consumed in New South Wales and Victoria^{xlvii}

Given that **wood heating could be considered to cause more than 10 times as much global warming as gas or reverse cycle air-conditioning^{xlviii}**, can we afford to continue to permit discretionary wood-burning and not meet our climate responsibilities?

“Wood Burning is Carbon Neutral”– It’s a Myth

Wood burning is seen by many as a carbon-neutral activity. As a result, many well-meaning residents have converted from coal-based electricity to wood burning for heat. This strategy is recognised now by scientists as a myth and an accounting error. A tree that is burned in one evening possibly took 50 years or more to capture the carbon that is released in one night. The replacement rate of trees planted to compensate for trees burned is simply not practicable in the Climate Emergency time frame which is immediate – by 2030. The tree is removed from the carbon-capture environment, released as global-warming emissions, and its absence is also felt in biodiversity impacts.

Burning wood produces far more carbon
than burning fossil fuels,
for each kilowatt hour of electricity produced
The result is a large carbon debt, with
emissions often 3 times or more
than those of burning fossil fuels

Letter of Scientists regarding Japanese Policies for Using Wood for Bioenergy (March 14, 2020)

This statement was made in reference to large efficient biomass plants^{xlix}. It can be inferred that far less efficient residential indoor and outdoor burning will have far higher carbon emissions per kg of wood burned.

CODE RED FOR HUMANITY IPCC REPORT 2021ⁱ which states:

Air Quality & Climate Change ARE TWO SIDES OF THE SAME COIN:

The latest alarming IPCC report makes it clear that issues of air pollution and climate change are intimately connected, yet both science and policy arenas treat these issues independently leading to “win”-lose scenarios such as wood burning for fuel. The (supposed) WIN of treating wood burning as carbon-neutral leads to a LOSE by resulting in *“significant emissions of air pollutants, including carbon monoxide, nitrogen oxides, volatile organic compounds, and particulate matter, that locally or regionally affect the climate, human health and ecosystems”*.

We must address both Air Quality and Climate Change together; doing so would lead to significant synergies and economic benefits - as will AVOIDING policy actions that “mitigate one of the two issues but worsen the other”.

It's been clear to many scientists and environmental groups that the treatment of biomass as a natural, renewable, carbon-neutral energy source is an accounting fallacy, ignoring other global warming accelerant emissions and 'the other side of the coin': Air Quality.

NOTE re figure below: this version of the IPCC Report is labelled "subject to copy-editing".

33 Most human activities, including energy production, agriculture, transportation, industrial processes, waste
34 management and residential heating and cooling, result in emissions of gaseous and particulate pollutants
35 that modify the composition of the atmosphere, leading to degradation of air quality as well as to climate
36 change. These air pollutants are also *short-lived climate forcers* – substances that affect the climate but
37 remain in the atmosphere for shorter periods (days to decades) than long-lived greenhouse gases like carbon
38 dioxide (see FAQ 6.1). While this means that the issues of air pollution and climate change are intimately
39 connected, air pollutants and greenhouse gases are often defined, investigated and regulated independently of
40 one another in both the scientific and policy arenas.

41
42 Many sources simultaneously emit carbon dioxide and air pollutants. When we drive our fossil fuel vehicles
43 or light a fire in the fireplace, it is not just carbon dioxide or air pollutants that are emitted, but always both.
44 It is therefore not possible to separate emissions into two clearly distinct groups. As a result, policies aiming
45 at addressing climate change may have benefits or side-effects for air quality, and vice versa.

46
47 For example, some short-term 'win-win' policies that simultaneously improve air quality and limit climate
48 change include the implementation of energy efficiency measures, methane capture and recovery from solid
49 waste management and oil and gas industry, zero-emission vehicles, efficient and clean stoves for heating
50 and cooking, filtering of soot (particulate matter) for diesel vehicles, cleaner brick kiln technology, practices
51 that reduce burning of agricultural waste, and the eradication of burning of kerosene for lighting.

52
53 There are, however, also 'win-lose' actions. For example, wood burning is defined as carbon neutral because
54 a tree accumulates the same amount of carbon dioxide throughout its lifetime as is released when wood from
55 that tree is burned. However, burning wood can also result in significant emissions of air pollutants,
56 including carbon monoxide, nitrogen oxides, volatile organic compounds, and particulate matter, that locally

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Chapter 6

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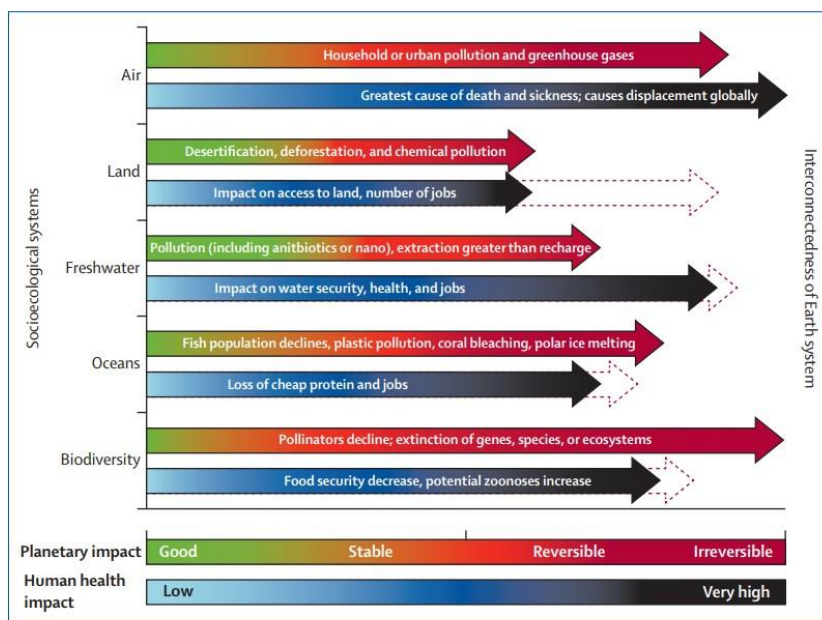
1 or regionally affect the climate, human health and ecosystems (FAQ 6.2, Figure 1). Alternatively, decreasing
2 the amount of sulphate aerosols produced by power and industrial plants and from maritime transport
3 improves air quality but results in a warming influence on the climate, because those sulphate aerosols
4 contribute to cooling the atmosphere by blocking incoming sunlight.

5
6 Air quality and climate change represent two sides of the same coin, and addressing both issues together
7 could lead to significant synergies and economic benefits while avoiding policy actions that mitigate one of
8 the two issues but worsen the other.

7(e) Non-Compliance with Principle 7: Option 1 fails to consider and review wood-heater usage in light of the impacts on biodiversity esp. given Australia is facing an extinction crisis hastened by the impacts of climate change

Biodiversity and health impacts in NSW

Residents' health is inextricably linked to the health of the planet. Loss of biodiversity is directly linked to poor outcomes for human health. Tragically Australia is amongst the top seven countries worldwide responsible for 60% of the world's biodiversity loss between 1996 and 2008. Australia ranks as the second worst of the group, with a biodiversity loss of 5-10%^{li}. Our precious forests need protection and to be conserved, not to be burned for discretionary recreational use in our homes and backyards. Wood harvesting and collection is directly linked to biodiversity losses as flora and fauna and insects are reliant on both living and dead trees for food and habitat; the decomposition of debris on the forest floor is critical to soil nutrient and overall forest health. Yet people see the act of wood collection from our forests as a benevolent act of "tidying up".



(Figure) ^{lii}

Figure: Global impacts on health of the planet and human health, 2018-50

Length of bars indicates severity of impact on the planet or humans: the worse the impact, the longer the bar. Dotted lines reflect the cumulative nature of a locally occurring problem and its effects on the most vulnerable, showing that these effects might be more serious in some areas than others shown by the solid bar.

In Victoria's Flora and Fauna Guarantee (FFG) Act 1988^{liii}, "loss of coarse woody debris from Victorian native forests and woodlands" is listed as a "Potentially Threatening Process". There are at least 17 animal species listed under the FFG Act which are threatened by firewood collection from native forests and woodlands. We need to covet our forests in all states of Australia, allow them to grow old and be spared the scouring of the forest floor for purposes of discretionary domestic burning.

7(f) Non-Compliance with Principle 7: Option 1 of POEO Regulation fails consider and review wood-heater usage in light of recent data from Asthma Australia that public attitudes on wood-burning have shifted

There is a perception that Australians love burning wood, however a recent Asthma Australia nationally representative survey of 25,000 people^{liv}, completed in November 2020, asked the Australian public about their attitudes to woodfire heaters and their regulation.

General Population views are:

**77% agree woodfire heaters should not be allowed in urban or built-up areas*

**55% agree they should be phased out*

**54% agree they should be banned completely*

Asthmatics views were even stronger:

**84% support for regulation of woodfire heaters in urban built-up areas,*

**71% support for a scheme to phase them out completely*

**65% agreeing they should be banned*

Critically, people who are exposed to wood-heaters said they are **largely unable to protect themselves from the smoke**, - Asthma Australia considers this a signal for support for government regulation, which is lacking in the draft POEO Regulation.

As Australia shifts towards a clean sustainable energy and net zero waste future, with coal-fired power stations closing ahead of schedule and vehicle manufacturing shifting to electric, it is inconceivable that the greatest polluters - our wood burning households - continue to be permitted to pollute.

Bushfire smoke is an increasing threat, planned burns smoke stifles our air for months, wood-heaters pollute on any cool/cold days, and fire pits, chimineas, wood-fired BBQs, food smokers and slow cookers can be lit at any time unregulated/unenforced.

We need regulations that will prevent exposure to discretionary lifestyle recreational burning.

7(g) Non-Compliance with Principle 7: Option 1 of POEO Regulation fails to consider and review wood-heater usage in light of the recent respiratory COVID-19 pandemic health crisis

Since the beginning of the COVID-19 pandemic research has linked air pollution exposure to poorer outcomes for health in many regards:

- “Air pollution from particulate matters – especially the smaller PM 2.5 – can increase the risk of inflammation of the lungs, making the lungs more susceptible to harm to respiratory infections such as COVID-19”^{lv}
- “Review highlights that both short- and long-term exposures to air pollution may be important aggravating factors for SARS-CoV-2 transmission and COVID-19 severity and lethality through multiple mechanisms”^{lvi}
- “Long-term exposure to low levels of air pollutants, especially PM2.5, increased the incidence of COVID-19”^{lvii}
- “Case-crossover study of Swedish young adults suggest that short-term exposure to particulate matter and BC was associated with increased risk of positive PRC test results for SARS-CoV-2, supporting the broad public health benefits of reducing ambient air pollution levels”^{lviii}
- “Harvard Chan study found an association between air pollution over many years with an 11% increase in mortality from COVID-19 infection for every 1 microgram/cubic meter increase in air pollution”^{lix}

....and many more

It is very clear that the adoption of Option 1 approach fails to consider the impacts of this virus on the NSW community, as it is clear that every step should be taken to prevent air pollution exposure, with this compelling NSW government to phase-out wood-heaters.

7(h) Non-Compliance with Principle 7: Option 1 of POEO Regulation fails to consider and review wood-heater usage in light of the recent exceedance of the 6th Planetary boundary^{ix} for safe limits for humanity

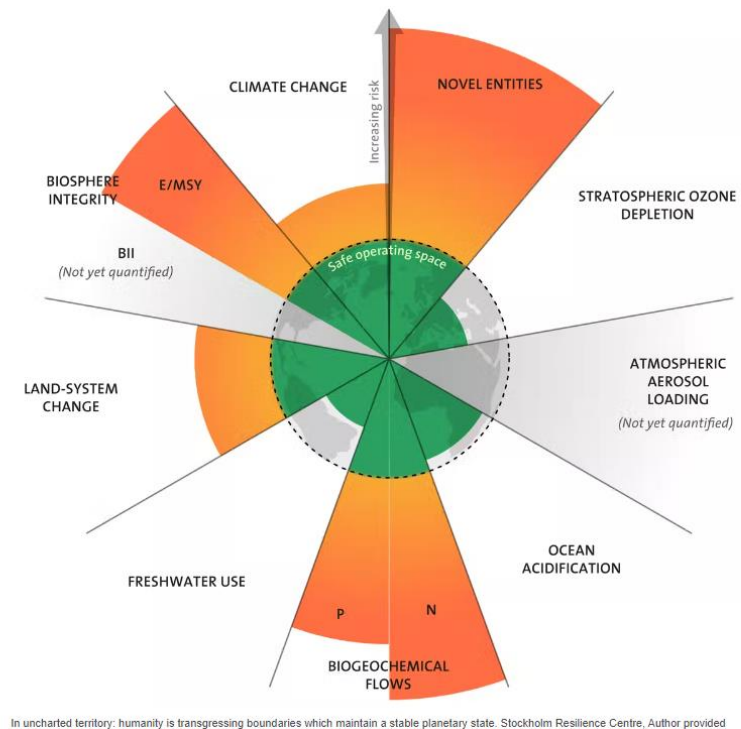
It is evident that the NSW government has not reviewed management of wood-heaters in this draft POEO Regulation in line with the latest and very serious health and environmental crises facing NSW, Australia, and the planet. The boundaries for the safe limits for human existence are being exceeded at a rapid rate and call on us to do what we can to protect health and environment. The pollution load on our planet is unsafe and we must do all we can to prevent pollution wherever possible.

Conclusion

Given our planet is facing existential environmental crises we need to be addressing all forms of pollution esp. preventable air pollution that we have the ability to completely phase out, as the global and local public health emergency that it is.

It is not an option any longer to conduct business-as-usual, leaving the POEO languishing at 2016 levels when the last wood-heater efficiency and emissions standards were adopted. Wood-heaters emit not just particulate matter but many toxic chemicals and gases that harm us and the environment.

It is time for NSW to lead the way for better health, well-being and environment.



RECOMMENDATIONS FOR DRAFT POEO Clean Air REGULATION 2022

Clean Air Communities submits that the incontrovertible health and scientific data from over two decades of research on PM2.5 impacts, should lead to the phase-out of discretionary residential solid fuel combustion/wood burning.

The following recommendations will lead to massive billion-dollar health savings and significant improvements in community well-being and quality of life, and environmental outcomes:

Recommendation 1 – Transfer management of residential air pollution to EPA NSW

- (i) Transfer management responsibilities for residential solid fuel combustion emissions from Local Government which has insufficient capacity to address air quality issues, to EPA NSW
- (ii) Adopt the position of “No Safe Level” science of PM2.5 and woodsmoke – in lieu of the current “burn better/burn right” position and advice
- (iii) Compel EPA NSW to increase monitoring where people live, work and spend their time –residents deserve to have accurate data on their air
- (iv) EPA NSW to publish PM2.5 data on domestic solid fuel combustion to the NPI, and release retrospectively the PM2.5 emissions data on domestic solid fuel combustion to the NPI for all previous years to when it was first available. Businesses and community deserve to know the pollution levels they unwittingly created and were exposed to
- (v) EPA NSW be given new powers and funding that will allow it to assist in the implementation of the following recommendations, as appropriate:

Recommendation 2 – Introduce a major public health education campaign

Introduce a broad-based public health education campaign to inform and educate all community members (including culturally targeted programs for Aboriginal and Torres Strait Islander peoples and those from Non-English-Speaking Background) of the harms of woodsmoke/solid fuel combustion emissions exposure. A program comparable to the scale and breadth of the Quit Smoking tobacco campaign. We all have a right to be fully informed.

Recommendation 3 – Introduce interim health warning labels on solid fuel devices

Immediately require all retail wood/solid fuel-burning devices (wood heaters, BBQs, chimineas, fire pits, food smokers, slow smoker cookers etc.) and firewood and other solid fuels to have mandatory health hazard warning labelling, akin to the health warnings on cigarette packaging. This will serve to educate on the health harms.

Recommendation 4 – Introduce interim polluter pays levy on solid fuel devices

Introduce an interim pollution levy on all existing wood/solid fuel burning devices, and solid fuel products, concurrently with a notification of an imminent phase-out of solid fuel burning devices (Recommendations 5 and 6):

- (i) acts as a signal of the health harms of the device
- (ii) provides funds for the mandatory health hazard labelling program in Recommendation 3
- (iii) provides funds for a wood/solid fuel-burning device replacement program

Recommendation 5 – Commence phase-out of wood-heaters and fireplaces

Commence implementation of a wood-heater buy-back/replacement scheme that requires residents to convert indoor wood-heating devices to clean efficient electric appliances, with an end date by which full conversion is required:

- (i) No new sales of wood-heaters or fireplace installations permitted
- (ii) Implement a *Healthy Homes for All* type program to inform and subsidise home sealing and insulation; replace wood heaters with efficient heat pump technology which provides both heating and cooling. As we migrate to renewables, this will be a zero emissions scenario
- (iii) Require removal of wood heaters and fireplaces upon sale of a home, if sale occurs prior to the full conversion date

Recommendation 6 – Commence phase-out of all residential solid fuel burning

Commence the phase-out of retail sales of any new outdoor wood/solid fuel-burning devices, replaced by clean electric options only, with an end-date by which sales and use of solid fuel-burning devices will no longer be permitted

“There is nothing radical about clean air or water”

Robert F. Kennedy, Jr.

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