

# **Submission on the draft POEO [Clean Air] Regulation 2022**

## **Submission by Resident of Armidale NSW - Ms Jennifer Vaughan**

**Recommendation:** Over winter NSW residents are subjected to dangerous levels of wood smoke emissions and high levels of PM2.5 in the air, and particularly in many regional towns such as Armidale. Vulnerable residents such as the elderly and children, risk their health being seriously compromised by dangerous levels of wood heater smoke emissions, and are largely unable to protect themselves from dangerous PM2.5 particulate gasses. These particles are easily able penetrate indoor environments because they are so microscopically tiny that they can enter the home environment even when windows and doors are closed (Asthma Australia study, 2021). Therefore, it is strongly recommended that, the **POEO draft (clean air) regulation 2022** should be revised under *Part 2: Domestic Solid Fuel Heaters-the Act, Sch 2, cl 6A*, to include effective and robust provisions and mitigation strategies, following NSW EPA guidelines, and for these to be *enforceable* by regional councils, to enable residents who currently operate woodfires to replace, or *significantly reduce* their wood fire smoke emissions to safer levels.

**NOTE:** It should be noted that the topography of Armidale NSW is particularly unique and allows for woodsmoke and associated pollutants to collect and hover over Armidale city for extended periods of time and indeed to concentrate as a result. During the 2020 bushfires, Armidale regularly recorded the worst levels of bushfire smoke pollution across the state.

### **1. Introduction**

As a resident of Armidale NSW, the level of woodsmoke that is clearly visible in the air every winter has always alarmed me. In recent years I have personally experienced the more direct impacts of wood fire smoke emissions through living in very close proximity to two houses with wood fires adjacent to my property. In the case of one, the chimney flue is at the same height as my living space and the doors and windows that open onto my deck, and is situated only a few metres from my front bedroom glass door. If I open the doors to go out onto my deck and the woodfire is in operation, I risk allowing large amounts of highly toxic gasses into my living spaces. The dangerous PM2.5 particles known to be emitted from woodfire operation will, in any case, be regularly penetrating the house given the close proximity of the flue on the western side. Even with the doors and windows firmly shut I can

regularly smell the wood smoke emissions. Thus, it is not difficult to suppose that myself and my 83-year-old mother will be experiencing detrimental health impacts over time from ongoing exposure to PM2.5 particles.

**2. As recommended in the Asthma Australia Submission to the NSW Draft Clean Air Strategy (2021):** RECOMMENDATION 1: The NSW Clean Air Strategy should include actions to phase out woodfire heaters in NSW, including:

- (a) Introducing a woodfire heater replacement scheme to subsidise the cost to households of replacing woodfire heaters with efficient reverse cycle air conditioners.
- (b) Prohibiting installation of woodfire heaters in new homes.
- (c) Requiring woodfire heaters to be removed when a home is sold

In addition, 2021 research on the connection between the effects of woodsmoke on premature mortality in Armidale found that, “Fourteen premature deaths (95% CI, 12–17 deaths) per year, corresponding to 210 (95% CI, 172–249) years of life lost, are attributable to long term exposure to wood heater PM2.5 pollution in Armidale” (Robinson, Horsley, Johnston & Morgan 2021, Abstract).

As the recent federal election strongly demonstrated, those in state and federal government and those who are responsible for developing public strategy on climate change in Australia, need to take heed of how important this issue is to voters. Thus, it behoves the NSW State government in their draft **POEO [Clean Air] Regulation 2022** to note voter sentiment on climate change and creating a cleaner environment for all.

Currently, the Armidale Regional Council has a 2022-2023 Community plan also open for submissions from Armidale residents. This plan provides some broad information about mitigating the local impacts of climate change and provides some evidence of a decline in Co2 emissions in 2017 and additional evidence from 2021 purporting to indicate a decline in spikes in measured particulate matter having exceeded the EPA safe air quality guide lines; however, on **Sunday the 29<sup>th</sup> of May 2022 at 8pm**, a ‘Purpleair’ air quality monitor situated between Taylor St and Holmes Avenue Armidale recorded a spike of **115.9 PM2.5** which is in the ‘red’ zone of the PM2.5 woodsmoke scale and is considered highly hazardous to residents, particularly the vulnerable such as asthmatics. The air quality at this site measured above safe levels for over **4 hours** that night.

Like the ARC Community Plan 2022-2032, the **Draft POEO [Clean Air] Regulation 2022**, does not provide specific detail in relation to mitigation of existing wood heaters and

associated toxic wood smoke emissions. Furthermore, there is nothing in either the **POEO [Clean Air] Regulation 2022** or the ARC plan relating to the removal of existing old wood heaters upon the sale of a property, updating or removal of old chimney flues, assistance to residents to make the change to cleaner heating technologies. Neither the **POEO [Clean Air] Regulation 2022** or the ARC Community Plan 2022-2032 offer sufficient regulatory and enforcement powers, or support in the form of increased resourcing to the Environmental Health Department within ARC council to effectively mitigate woodsmoke pollution over winter. All of the mitigation strategies suggested above are strategies that have been recommended in various previous submissions to the NSW Draft Clean Air Strategy (2021).

The **POEO [Clean Air] Regulation 2022** should articulate in more detail how it will mitigate PM<sub>2.5</sub> in the air that are the result of wood fires burning in NSW over the winter months. In their research, Robinson, Horsley, Johnston and Morgan (2021) state that in Armidale NSW, “about 40% of households use wood heating, the main source of air pollution in the city. Air pollution in Armidale exceeded the national daily PM<sub>2.5</sub> standard (25 µg/m<sup>3</sup>) on 32 days in 2018; all exceedances were attributable to winter wood heater pollution” (p. 269).

### **3. Air Quality and the Facts About Wood Burning Heaters and Fires.**

“Wood smoke contains huge quantities of the same and very similar toxic chemicals as cigarette smoke. Burning 15 kg of wood in an enclosed wood heater – an evening’s heat – produces as many toxic PAH as in the smoke from a quarter of a million cigarettes. On still nights, the smoke builds up and creates high pollution levels outside and inside our homes. The most hazardous air pollutant is PM<sub>2.5</sub> particles that behave like gases and enter our homes even when all doors and windows are closed and are breathed in to the deepest recesses of our lungs where they can cross into the bloodstream and transport toxic chemicals to every organ in the body. A brand-new wood heater produces more PM<sub>2.5</sub> in the first hour after lighting than a petrol burning car in an entire year of driving” (Australian Air Quality Group, 2021, p. 8).

In addition, the Australian Air Quality group (2022) states that, “particles less than 2.5 millionth of a metre (PM<sub>2.5</sub>) are generally considered the most hazardous air pollutant. The Lancet’s 2019 Global Burden of Disease study attributed 4.51 million deaths worldwide to ambient air pollution, 92% to PM<sub>2.5</sub> and 8% to ozone exposure. ‘Page 4 of the NSW Clean Air Strategy confirms: “Fine particles (PM<sub>2.5</sub>) have the largest health impacts across New

South Wales.” Furthermore, in the NSW EPA Report, Ambient Air Quality Research Project (1996–2001), ‘Dioxins, Organics, Polycyclic Aromatic Hydrocarbons and Heavy Metals,’ PAH measurements for Armidale, showed a relatively safe background level of 0.28 ng/m<sup>3</sup> in summer, but a whopping average of **8.62 ng/m<sup>3</sup> and a maximum daily average of 24.0 ng/m<sup>3</sup> [in winter]**. These results again imply that pollution from just one or two wood heaters can have significant and long-lasting impacts on the health of people living nearby” (Australian Air Quality Group, May 2022, p. 4).

#### **4. Conclusion**

As has been described in detail above, there can be no doubt that wood smoke emissions in NSW pose ongoing and serious problems for residents, particularly where the local climate is very cold over winter such as the New England Region of NSW. The Environmental Health Department within Armidale Regional Council has limited resources to manage this issue effectively, in a timely manner and particularly where the owners of the wood heaters resist any attempts by council to monitor their wood smoke emissions or to educate them on more appropriate heating and how to reduce the detrimental impacts of their wood fire emissions on their neighbours. If the **POEO [Clean Air] Regulation 2022** is to realise the goal of “reducing harmful pollutants in the air” and thereby, creating a cleaner, healthier environment, then there needs to be a clearly articulated, detailed and robust strategy included in the **POEO [Clean Air] Regulation 2022** with appropriate resourcing for local councils to mitigate the very real health risks that harmful wood smoke emissions pose to NSW residents.

## References

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- Australian Air Quality Group. (May 2022). NSW POEO (Clean Air) Regulation Consultation.[https://www.dropbox.com/s/pfcbvxyhcuctyqz/AAQG\\_Submission%20\\_NSW\\_POEO\\_May\\_2022.pdf](https://www.dropbox.com/s/pfcbvxyhcuctyqz/AAQG_Submission%20_NSW_POEO_May_2022.pdf)
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