An open letter and "right of reply" to…

"The Conversation"

Regarding "Waste-to-energy in Australia: how it works, where new incinerators could go, and how they stack up"

Published in The Conversation: May 16, 2025

Preamble

This following is an expression of opinion from No Waste Incinerators in Lara & Greater Geelong Incorporated, in good faith.

Nothing in this letter is confidential.

Expression of concern

We claim "right of reply" to the recent article in The Conversation, "*Waste-to-energy in Australia: how it works, where new incinerators could go, and how they stack up*" Published in The Conversation, May 16, 2025.

We are troubled by the presented arguments and the lack of supporting evidence.

We believe that the article lacks the customary academic rigour of The Conversation.

Another perspective

> *"As chemical engineers, we recognise the potential benefits of this technology. Modern facilities operating around the world show these processes can be efficient, safe and environmentally controlled. However, minimal risk does not mean zero risk. Understanding both the benefits and challenges is crucial to address community concerns."* The Conversation (1).

What has not been acknowledged by the authors is the vast and rapidly growing body of scientific evidence which clearly demonstrates that waste incinerators, including modern incinerators, are harming public health, food safety, and the environment. See the entire Bibliography.

The public has every right to be not only concerned, but alarmed by the threat of waste incineration in our communities and agricultural lands (48).

Victoria for example, has a plan to construct many new housing estates (3), and a plan to make them uninhabitable (2).

> With respect to waste incineration "*a range of adverse health effects were identified, including significant associations with some neoplasia (cancers), congenital anomalies (birth defects), infant deaths and miscarriage, but not for other diseases. Ingestion (eating contaminated food) was the dominant exposure pathway for the public. Newer incinerator technologies may reduce exposure."*
>
> .. and …
>
> - *"New incinerators should be located away from areas of food production."*
> - *"Food grown near an incinerator should be avoided."*
>
> Tait et alia (2020) (37,40)

Given that food is commonly exported across state and international borders, the exhortation "*Food grown near an incinerator should be avoided*" is not a practical option.

Despite countermeasures, waste incinerators are known to emit a wide range of toxic pollutants (6,7,8,9,10,11,14,15,20,25,26,28,29,34,36,37,38,39,40,41,42,48) including;

- Dioxins and furans PCDD/Fs, often halogenated.
- Polycyclic aromatic hydrocarbons (PAH)
- Per- and poly-fluorinated alkyl substances (PFAS) (13,14)
- Bisphenols (45)
- Polychlorinated biphenyls (PCBs) (46)
- Heavy metals e.g. Hg, Pb, As and others (15,29)
- PM10 and PM2.5 fine particulates (smoke) (30)
- Gasses, including CO2, CO, NOx, and SOx

Some of these substances are known carcinogens (12), mutagens, teratogens, and endocrine disrupters. Many of the fat soluble pollutants are bio-accumulative and tend to biomagnify up the food chain …. with humans at the end of several of those food chains (14). The genetic damage from Persistent Organic Pollutants can last for generations (24). We have no reason to believe that PFAS introduced into a standard waste incinerator furnace, working at around 850 Celsius, will do anything other than broadcast that same PFAS over the surrounding landscape, either intact or modified (13,14). A temperature of at least 1,100 Celsius is required to destroy PFAS (14).

Regarding fine particle PM10 and PM2.5 (smoke) air pollution;

> *"Our findings suggest that increased PM (Particulate Matter) exposure prior to oocyte (human egg) retrieval is associated with reduced live birth rate following FET (Frozen Embryo Transfer), independent of the conditions at the time of embryo transfer. Importantly, the air quality during the study period was excellent, suggesting that even 'acceptable' levels of air pollution have detrimental reproductive effects during gametogenesis (production of eggs and sperm)."* Leathersich et alia (2024) (30).

During the data collection phase of Leathersich's study, no waste incinerator was operating in the region. However, adding two new waste incinerators near Perth, will not improve air quality in the region.

Knowingly broadcasting these polluting substances into the environment cannot be regarded as a responsible act.

> *"When most Australians hear about making energy from waste, they think of old-fashioned incinerators. Those outdated facilities released smoke and toxins into the air.*
>
> *But modern incinerators use advanced air pollution control systems that capture harmful emissions."* The Conversation (1).

Waste incinerators in Europe, and those proposed for Victoria and other places are required to conform to a set of European Union standards, commonly known as "BATs" (Best Available Techniques) (20). The BATs are intended to minimise pollution from waste incineration. Although well-intentioned, we are firmly of the view that the published EU BATs are <u>not fit for purpose</u>, and even with the most conscientious efforts, the evidence also suggests that many waste incinerators in Europe are unable to comply with the relevant BATs <u>all the time</u> (6,20).

The evidence of "not fit for purpose" and "inability to comply <u>all the time</u>" regarding <u>modern and refurbished</u> waste incinerators is in the landscape scale contamination detected in many European cities and other places with Persistent Organic Pollutants (POPs) and heavy metals. See for example;

- Paris, France (5,7,28)
- Harlingen, Netherlands (10)
- Beringen, Belgium (8)
- Turna nad Bodvou, Slovakia (9)
- Willamette Valley, Oregon USA (29)
- Lausanne, Switzerland (42)
- Zubieta, Spain (48)

The evidence also suggests that there is often a "gradient" of pollution around many of the waste incinerators examined; the closer the samples are taken to the incinerator, the more pollution is found (42,48)

The contamination of Paris around the recently refurbished Ivry-Paris XIII waste incinerator is notorious; resulting in backyard chicken eggs being declared unfit for human consumption by French health authorities, due to POPs (5,7,28).

These POPs are banned under the Stockholm Convention for good reasons.

> *"The volume of waste sent to landfill is also reduced by up to 90%. What remains includes incinerator bottom ash and fly ash. Often these can be reused in making concrete, pavement and other construction materials."* The Conversation (1).

The data we have seen suggests that incineration reduces the volume of waste by about 70% rather than 90%.

As bottom ash, and especially fly ash, are the most heavily contaminated outputs from a waste incinerator, their use in the production of construction materials is inappropriate and irresponsible. Construction materials have a life from "manufacture to demolition". Demolition will liberate these toxic materials back into the environment.

> *"A shortage of landfill sites in cities across Europe and Asia originally promoted investment in waste-to-energy technology. These power plants are now commonplace in Germany, the Netherlands and Japan, substantially reducing reliance on landfill."* The Conversation (1).

In Australia, we have also often seen the claim that "we are running out of landfill sites" (17,18).

There are two problems with this argument.

- This claim is made in Australia (Terra lapicidinarum) without supporting evidence, and
- "Landfill" is not <u>the</u> alternative to waste incineration.

The alternatives to <u>both</u> waste incineration and landfill begin with;

- Reducing consumption
- Re-using materials
- Recycling (16,25,47)

That said, waste incineration is not and never has been a form of recycling, nor a component of any "circular economy" concept, because incineration destroys the waste resource forever (16). Waste incineration is not a "transition" technology either. We need to go straight to "reduce, re-use and recycle". "Transition" is not required.

Amager Bakke Copenhagen ? A gimmick. Nothing more.

> *"Despite its potential, waste-to-energy technology remains controversial in Australia. Some local communities remain concerned about emissions and potential long-term health risks. Environmental groups also question the potential effects on recycling rates."* The Conversation (1)

We have had conversations with Europeans who say, "the waste incinerator where I used to live is OK because it is quiet, does not billow smoke, and does not smell." However, the problems with waste incineration, the emissions of toxic pollutants, is often unaccompanied by noise, smoke or odour (28,48).

Waste-to-energy is controversial only to those who have not read the science. For those who have, (see the entire Bibliography) the harms of waste incineration are obvious and unacceptable. From our readings, it appears to us that the public service of Victoria is oblivious to the science (12,16,17,18,21,22,23,28,35,37,38,40,48).

Ominously, we find that none of the waste incinerator projects in Victoria have been blessed with an Environmental Effects Statement (EES) (19), nor a Business Case (17).

Why is that ?

Wilful ignorance ?

Or something else ?

What's holding Australia back ?

Answer: science and common sense, quite frankly.

The Commonwealth Department of Department of Climate Change, Energy, the Environment and Water (DCCEEW) has figured it out.

DCCEEW has set a target is 80% of Australia's waste to be re-used or recycled by the year 2035 (16). The words "incinerate", "incinerator", and "incineration" do not appear in the document.

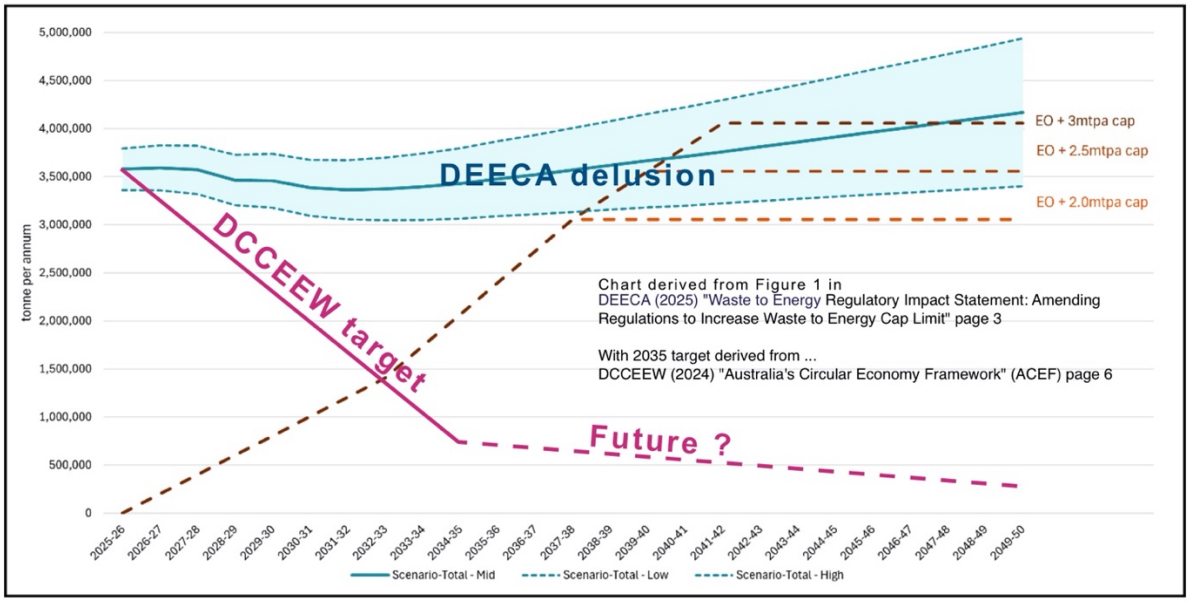
Arguably "80% re-used or recycled" would leave the waste incineration industry with so little feedstock as to make the industry commercially unviable.

So will Australian waste incinerator proprietors then be going to government begging for the importation of waste to keep the fires burning and the cash flowing ?

A nightmare scenario.

Every investor in waste management in Australia, needs to study the new DCCEEW policy "Australia's Circular Economy Framework" (16), then stop and think.

Figure 1: Projections of feedstock and WtE capacity to 2050



Conclusion

This work in The Conversation (1) is a very poor effort, falling well short of the academic standards we normally expect from The Conversation.

The article should be formally withdrawn.

There needs to be a Commonwealth Royal Commission into the looming waste incineration industry in Australia. We need to find out how this crazy idea got so far.

Yours faithfully,

Les Dew – President, and

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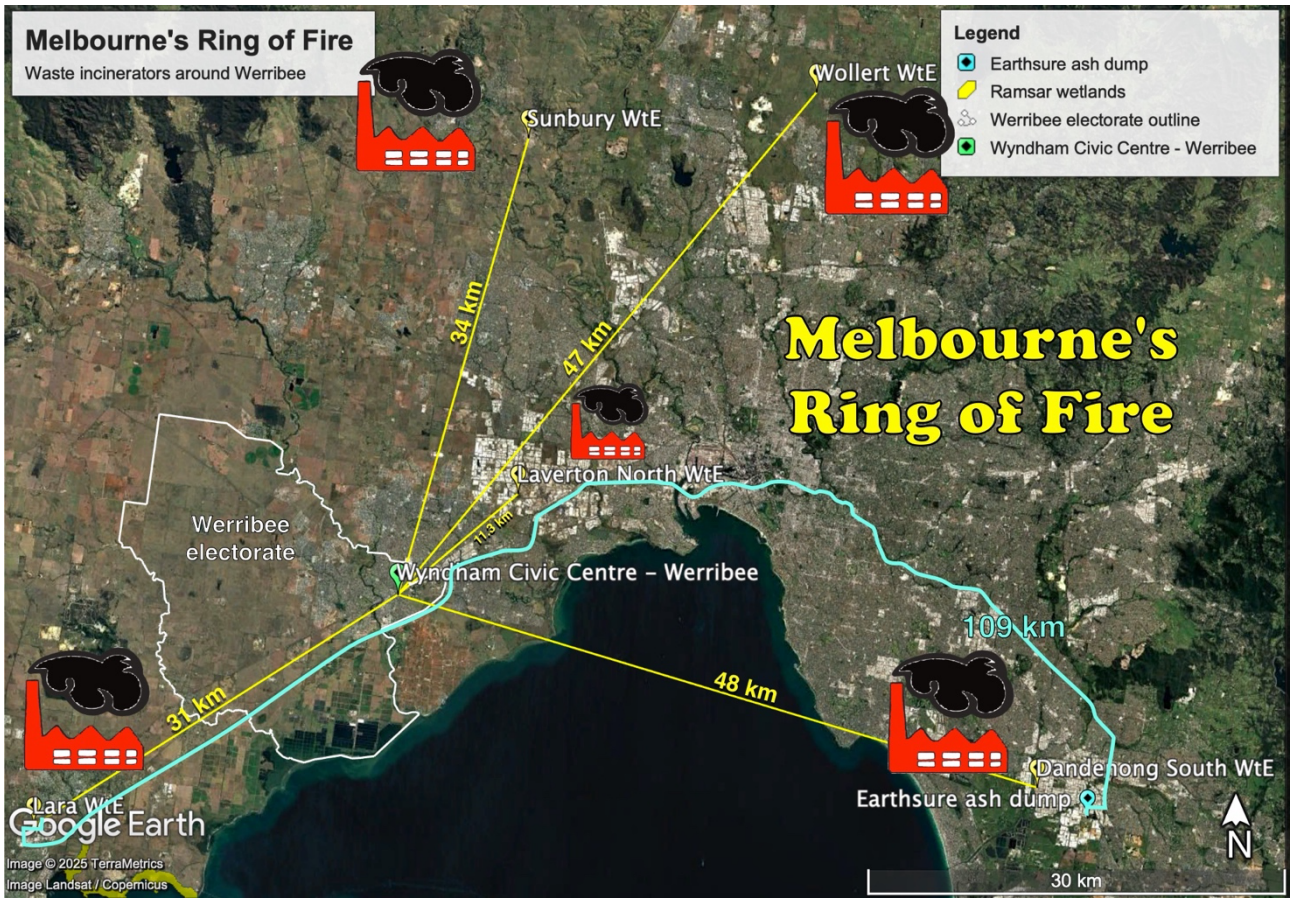
Here is a map that we produced for the Werribee by-election. It hardly matters which way the wind blows ……



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