WASTE TO ENERGY INCINERATORS: GREENWASH AT BEST

The Victorian Government and the Environment Protection Authority (EPA) have given waste to energy incinerators the green light in Victoria, with minimal environmental or health safeguards. Thanks to industry lobbying and greenwash, many are convinced incinerators are the clean alternative to landfill, however the facts tell a different story. There are now five major proposals for waste incinerators in Victoria that could burn almost all of the waste collected in our landfill wheelie bins, including recyclables like soft plastics.

Incinerators threaten to stifle our shift to zero waste and a circular economy by locking councils into long-term contracts for waste generation, not reduction. Incinerators also generate significant amounts of hazardous waste, threaten people's health and produce climate pollution. Waste incineration is not a 'renewable' source of energy; it is an extractive industry that burns waste made from virgin resources, mostly crude oil. Without intervention now, incinerators threaten to lock us into the old waste paradigm and become a source of significant environmental problems into the future.

KEY MISCONCEPTIONS ABOUT WASTE INCINERATORS

- Waste incinerators are a 'renewable' and clean source of energy.
- New incinerators don't create toxic waste or health risks like older plants.

THE FACTS ABOUT WASTE INCINERATORS

- Even new plants generate large amounts of hazardous waste every year, which risks the health of workers and local communities.
- Incinerators are more polluting than gas-fired power stations for energy output and they are very expensive.
- The Victorian Government should phase out landfills, by introducing policies and investment in zero-waste solutions. In the short term the environmental harms of landfills can be significantly reduced if organic wastes, such as food scraps and garden waste, are taken to industrial composting facilities instead.

WHAT ARE WASTE INCINERATORS?

Waste incinerators are a type of waste to energy facility which burns waste at very high temperatures, turning it into gas and ash.[1] They are essentially a fossil fuel power station. The main accelerant for the combustion is high calorific value, fossil fuel-based plastics (supported by natural gas backup to reach operating temperature). Small amounts of energy can be produced as a by-product of this process. Some facilities also use the excess heat as an energy source.

Municipal mixed waste streams with plenty of plastics are the most flammable and most desirable waste stream for incinerator operators. Some commercial waste is suitable, depending on the feedstock. Organic waste actually causes problems for incinerators due to moisture content, which must be reduced by pre-heating waste – usually with gas-fired heating. Most household waste contains significant organic waste at the moment.

INCINERATORS IN VICTORIA

There are now five waste incinerator proposals in Victoria at various stages of development:

•**Maryvale** – Plans to burn 325,000 tonnes of waste each year. Cost: $500 million. Australian Paper and SUEZ are the proponents. They propose to use commercial and industrial waste, plus a large amount of the household waste from Eastern Victoria and some Melbourne suburbs.

•**Laverton North** – 200,000 tonnes. Being developed by Recovered Energy Australia. Cost: $100 million. This project has EPA and planning approval, and construction is scheduled to start in 2021, with the facility operational by 2023.

•**Dandenong** – 100,000 tonnes. Great Southern Waste Technologies' proposal for a waste incinerator. Also, a consortium of South East Councils is progressing a tender process for a waste to energy facility with the support of the Municipal Waste and Resource Recovery Group. This is likely to include incineration, but may include other more sustainable waste to energy technologies.

•**Lara** - 300-400,000 tonnes. Currently seeking an EPA works approval.

•**Wyndham** - This has recently been announced and details are not publicly available yet.

These projects could consume more than one million tonnes of waste each year. Depending on how much these incinerators get from commercial and industrial sources, this could be up to 80% of the waste Victorians put in their landfill wheelie bins, stifling incentives to get better at getting things like soft plastics out of our waste bins and into recycling.

THE PROBLEMS WITH INCINERATORS

INCINERATION WILL UNDERMINE THE TRANSITION TO ZERO WASTE, A CIRCULAR ECONOMY AND OUR LOW-EMISSIONS FUTURE

Incinerators rely on a high volume of waste, perpetuating the linear model of resource extraction, single use and disposal. This is in direct contradiction to the Victorian Government's stated intention to move Victoria towards a zero-waste, circular economy.

At the time of writing, the Victorian Labor government is considering how to apply a one million tonne a year cap on incineration. But they are considering exempting proposals that already have EPA approvals, meaning Victoria's incinerators could end up burning *all* of the waste households put in their landfill wheelie bins. They are also considering allowing burning of recyclables where there is no market for recycling them. But the reality is that there is no market for many of our recyclables, like soft plastics, because governments don't take strong action like requiring manufacturers to use more recycled plastic.

Incineration facility proposals in Victoria could lock local councils into 25-year contracts to deliver a consistent, high volume waste stream to the incinerator. This creates a clear disincentive for councils to reduce waste levels and undermines efforts to increase recycling and composting and reduce plastic use.

Councils can face fines and court if they don't meet their required waste volume. In the United States, Wheelabrator, the owner of a waste incinerator plant in Baltimore is suing the Baltimore County Government, saying it reneged on a contractual agreement to send an annual minimum amount of trash to the facility. Wheelabrator is asking for damages 'to exceed $32 million'.[2]

With only long-term, 25–30-year contracts on the table for waste incinerators, councils who don't want to lock in long-term waste generation have the option to sign contracts with low-volume commitments. This is at least a better way forward if they choose to go down the path of incineration.

INCINERATORS GENERATE LARGE VOLUMES OF GREENHOUSE GAS EMISSIONS

Incinerators are essentially oil-fired power stations thanks to the plastics they burn, which are made largely from crude oil. Incinerators produce a higher level of carbon dioxide emissions per unit of electricity generated than gas. And if you take into account the full life cycle, there are many more environmental impacts. Landfills are environmentally problematic and we should replace them over time with real solutions, like waste reduction and better recycling and composting, not another industry that will create a raft of new problems.

Waste incineration for energy capture is not a 'renewable' source of energy; it is an extractive industry that burns fossil fuels and other resources like paper, glass and organic matter. Despite this, incinerators are currently called 'renewable energy' by the industry and federal Liberal government and are thus eligible for greenhouse credits, which is used to prop up their expensive

financial model. Energy generated by these facilities is also eligible for Large-Scale Generation Certificates as part of the federal government's Renewable Energy Targets.

Corporations promote the greenhouse benefits of incinerators, but rarely disclose the methodology for their calculations. Independent studies of the full waste management picture tell a very different story. Industry claims are based on comparing incineration to landfill with up to 50% organic material in it. Organics (like food, garden waste and paper) in landfills generate methane and are the primary source of climate pollution, not plastics. If organics are removed from kerbside waste through a state-wide food and garden organic collection and composting system, then emissions from landfill are significantly reduced. Organics can affordably and easily be removed from our waste stream. About a quarter of councils in Victoria have led the way on implementing food organics composting for households. The state government has now committed to provide food composting services to all households, but unfortunately has set a very slow rollout, aiming to complete this by 2030. They can do much better. We have the solutions to climate pollution from waste, we just need to implement them.

WASTE INCINERATORS ARE ENERGY INEFFICIENT AND EXPENSIVE

Waste incinerators are an expensive way to produce energy. Very little of the energy embedded in plastic products (from extraction, production, manufacturing and transport) is recovered by burning as waste to energy. Recycling products saves far more energy overall. Studies found that energy recaptured by recycling plastics was nearly 75 megajoules per kilogram of waste, while incineration was a mere 6 megajoules per kilogram of waste.[3]

In Europe, the large upfront expense of incinerators has meant many have had to rely on renewable energy credits and had to lock in council contracts before proceeding with construction.

WASTED OPPORTUNITIES

Waste to energy plants fail to create jobs. Research published by Environment Victoria in 2009 showed that incinerating 10,000 tonnes of waste would create only one job. Landfilling the same amount would create six jobs, and recycling would create 36 jobs.[4] As we recover from the COVID crisis we must invest in job creating, sustainable industries.

INCINERATORS GENERATE HAZARDOUS WASTE

Incinerator chimney stacks have filters in them in an attempt to reduce toxic emissions and particles entering into the atmosphere and the environment. The filters build up fly ash – or 'filter cake' – over time, which is a highly hazardous material that must be disposed of in a hazardous waste landfill. 1%–5% of the quantity of the original waste feedstock becomes fly ash.[5] In Germany, the toxic fly ash from waste incineration is buried deep in disused salt mines as they know how

dangerous it is. High volumes of chemicals and water are also used to treat the gas coming out of the furnaces.

Australia has been working for years under the Stockholm Convention to eradicate dioxins and furans in our environment.[6] These persistent organic pollutants (POPs) are known to be carcinogenic, mutagenic, teratogenic and have highly toxic characteristics.[7] Waste incinerators will create a new and large source of dioxins from emissions and ash.

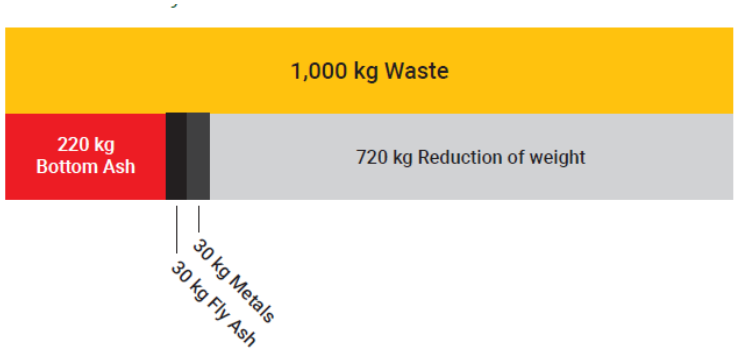
Incinerators are listed in Annex C of the convention as a primary source of these hazardous pollutants, which Australia has a legal obligation to reduce and eliminate – not increase.

The Lyndhurst landfill in Dandenong South is the only landfill accepting higher levels of hazardous waste in Victoria. Hazardous waste from incinerators across the state will need to be transported to this landfill. Incinerators in Victoria could produce tens of thousands of tonnes of highly toxic ash every year, for decades to come.

WASTE INCINERATORS GENERATE BOTTOM ASH, WHICH CONTAINS HAZARDOUS ELEMENTS THAT NEED TO BE DISPOSED OF IN LANDFILL IN HIGH VOLUMES

After the incineration/gasification, between 20%–30% of the original feedstock material (depending on the feedstock composition) remains in the form of ash. This also needs to be disposed of in landfill.

The figure below shows the industry-estimated standard distribution of each tonne of waste burned to bottom ash, metals and fly ash.



There is no market for ash by-product (for road base etc), despite industry claims. Victoria has an excess of ash due to our coal power stations.

Analysis of kerbside rubbish collection reveals rubbish earmarked for burning contains plastics, electronic and other hazardous wastes such as batteries, light bulbs and asbestos. Australian Paper for example, says it will undertake a 'visual assessment' so only appropriate rubbish finds its way into the incinerator, but batteries containing mercury can be hidden inside a device and are not easy to see on a rapidly moving conveyor belt. Brominated plastics from electronic equipment casings increase the development of brominated dioxins in the incinerator ash, and PVC plastics

generate chlorinated dioxins. The reality is, these materials will get into the waste stream and the ash will be hazardous.

Despite this, it is unclear from Victorian EPA approvals whether facilities will be required to test the chemicals in the ash before disposing of it in landfill.

INCINERATORS COULD HAVE NEGATIVE IMPACTS ON PUBLIC HEALTH

Air pollutants such as nitrogen oxides, sulfur dioxides, particulate matter, mercury, lead, dioxins and furans are emitted from waste incinerators at higher levels than gas-burning power plants. These substances are known to have effects such as increased risk of cancer, respiratory illness, cardiac disease, and developmental and neurological problems. In countries with many waste incinerators, such as the Netherlands, dioxins and other POPs are found in high levels in the environment, especially in hotspots where fly ash has been used in the environment.[8] Many health harms have been connected to incinerators. For example, a 2015 study conducted in Italy found that women living in close proximity were more likely than the general population to experience a miscarriage.[9]

Australia's air pollution standards for sulfur dioxide are currently 11 times higher than standards recommended by the World Health Organisation. Victoria's Latrobe Valley coal power stations are high sulfur emitters, well above legal limits in China and the EU.[10] The current Australian Paper proposal for a waste incinerator in Maryvale in the Latrobe Valley would add further sulfur dioxide to the atmosphere, yet current public health risk assessments that have been conducted by Australian Paper have not considered the cumulative impacts of sulfur emissions in the valley.

THERE IS NO WASTE IN NATURE – LEADING THE WAY FORWARD

We need a moratorium on waste incinerators until a thorough and considered community conversation can take place, free from the greenwash currently rife in the industry. We need the facts and an informed discussion. Councils should take a long-term approach to waste management when considering any contracts regarding waste incinerators and not overcommit on waste generation volumes.

We need to implement solutions that will begin our transition to zero waste and a circular economy. The most important thing we can do to achieve this is to reduce our waste generation and fix our recycling system.

REFERENCES AND ENDNOTES

1. Municipal waste incinerators are supposed to operate at >850°C to help prevent dioxin formation. Hazardous waste incinerators have to operate at >1,000°C due to the higher chlorine content, generating higher levels of chlorinated dioxins. Even these temperatures do not prevent de novo synthesis of dioxin on ash after the combustion chamber.
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