Cleanaway's Proposed Processing & Co-generation Plant
Why it shouldn't be allowed

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SUMMARY

1) Cleanaway Operations Ltd and Macquarie Capital are proposing to build a processing facility and waste incinerator at Eastern Creek, burning solid materials collected from a range of disposed domestic and industrial materials, to produce electricity.

2) The major driving factor for this project is undoubtedly the Australian Government's legislation banning the export of our recycled plastics and while it may reduce the need to export recycled plastics, the emissions from the incineration of these plastics and other solid waste will cause severe, long-term impacts to the environment and to the health of residents living in the Greater Sydney area. This is not an acceptable trade-off.

3) The incineration of waste creates highly toxic ash, contaminated filter carbon and range of pollutants which accumulate in the environment, food chain and people, can't be treated or recycled and must be contained in a hazardous waste landfill forever. Any PPE or other consumables used during maintenance activities would also have to be treated as hazardous waste. In short what is proposed is "dumb engineering".

4) What is proposed has major adverse health implications. Incineration of waste creates dust particles which are less than 2.5 microns in size that can't be filtered out of the stack gases. These PM2.5 particles can carry toxic pollutants which, when inhaled, can lodge in the lungs and then migrate into the blood stream causing cancer and a range of other serious health effects.

5) Today Blacktown is not just a commercial and manufacturing hub, but a highly urbanised area with large numbers of residents living within 5km of Cleanaway's proposed waste processing plant and as such this represents a serious long-term health risk to all residents living in Blacktown City and the Greater Sydney area generally.

6) This proposal will not reduce greenhouse gas emissions. Every tonne of mixed waste burnt produces approximately 1.5 tonnes of greenhouse gases. The bulk of greenhouse gas emissions are created from rotting organic material which will not be recovered by Cleanaway's process.

7) There is a viable, sustainable alternative which provides a win-win solution for the environment, jobs, the health of Sydney residents and solves the waste issue. The NSW government needs to adopt a Zero Waste policy. This will promote a robust recovery and recycling industry creating a circular economy and a range of manufacturing and service industries able to provide thousands of skilled, permanent employment opportunities across all sectors of the NSW economy. Promoting a circular economy is a viable alternative to the use of incineration to manage waste throughout Greater Sydney and NSW.

8) The incineration of waste represents the greatest threat to the creation of a sustainable, circular economy in NSW and a move back to the past where air pollution in the Sydney basin will inevitably become much worse, causing the adverse environmental and human health impacts that successive NSW governments have worked so hard, for so many years, to reverse.

THE PROBLEM

Some of the main issues of concern are:

1. The Sydney basin traps and concentrates pollutants

   Figure 1 shows the typical morning and afternoon seasonal wind directions over the Sydney basin. With the Blue Mountains to the west the prevalent winds move any pollution back and forth across the Sydney basin, and when the right temperature conditions occur, this can create an inversion layer trapping any pollution and allowing it to accumulate over the Greater Sydney area.

   The formation of inversion layers over Sydney has always been a problem and Photos 1, 2 and 3 show pollutants trapped under typical inversion layers that formed over the Sydney basin in the 60s and 70s, and even during a minor prescribed burn off in 2018.

2. Release of Persistent Organic Pollutants (POPs) into the environment

   The fuel for Cleanaway's incinerator will be sourced from construction, demolition & municipal waste streams. Overall, the fuel stream will contain a range of plastics – including halogenated plastics which cannot be separated out and other oil-based materials which, when burnt, can produce dioxins and furans which are some of the most lethal Persistent Organic Pollutants (POPs) known.

   Dioxins or polychlorinated dibenzodioxins, (PCDDs) are considered to be so toxic that in 2012 the USEPA announced that the safe limit for human consumption is 0.7 picograms Toxic Equivalence (TEQ) per kilogram of bodyweight per day. This is a tiny quantity – one picogram is 10^{-12} grams.

   Dioxins are only one of a range of highly toxic compounds that can be emitted by waste incineration. Many of these compounds can bioaccumulate in the marine and land environment, i.e. they become more concentrated as they are passed from one species to the next through the food chain. They contaminate the air we breathe and the food we eat, and damage reproductive, neurological and immune systems, interfere with hormones and cause cancer.

3. Scrubbing stack emissions doesn't work

   Experience has shown that even with the most sophisticated scrubber and pollution control equipment installed, it is notoriously difficult to maintain the optimum furnace conditions to minimise the production of highly toxic pollutants such as dioxins. This is because the conditions required to form dioxins (and other pollutants) are not fully understood. Dioxins may be formed at either low or high temperature and formation reactions do not go to completion[1].

   In addition, uncontrolled emissions of dioxins and other persistent organic pollutants can occur during bypass events such as start-up, shut-down and maintenance events. These transient events are not usually measured or reported to regulators yet represent a significant pollution impact for the surrounding community through contamination of the environment and food chain, e.g. eggs[2]

[1] Environment Australia (1999), Incineration and Dioxins: Review of Formation Processes, consultancy report prepared by Environmental and Safety Services for Environment Australia, Commonwealth Department of the Environment and Heritage, Canberra.

[2] Arkenbout, Abel, Petrlik, Jindrich, 2019/08/26, Hidden emissions of UPOPs: Case study of a waste incinerator in the Netherlands

4. The ash and other by-products produced by waste incineration are highly toxic

   The scrubber liquid, ash and dust produced by high temperature incineration are also highly hazardous to workers and the environment and require special treatment and must be disposed of as hazardous waste. These wastes would need to be disposed of in double encapsulated clay lined cells and monitored forever as they have the potential to cause serious environmental pollution if leaching occurs.

   Numerous studies have been carried out on dioxins and other POPs entering the environment. For example, dioxins in incinerator ash used to make paving in residential areas in the UK have been found in free range poultry[3] and in mothers and their breast-fed infants living near a 10-year-old municipal waste incinerator (MWI) in China[4].

5. Ever increasing greenhouse gas emissions

   Waste incineration produces large amounts of carbon dioxide and nitrous oxides which are potent greenhouse gases that contribute significantly to global warming and ozone depletion. History shows that waste incinerator/co-gen plant operators seek ever increasing quantities of waste to burn causing greenhouse gas emissions to steadily increase. There is no savings of greenhouse gases as claimed.

   Every tonne of mixed waste burnt produces approximately 1.5 tonnes of greenhouse gases. Cleanaway's waste processing and incineration facility will not reduce greenhouse gas emissions by reducing the amount of waste going to landfill as the bulk of greenhouse gas emissions are created from rotting organic material which will not be recovered by Cleanaway's process and go to landfill anyway.

6. The collapse of the recycling industry

   Experience in Europe has shown that high temperature incineration has undermined the recycling industry causing it to collapse. This is because facility operators insist on contracts that force local councils and other municipal authorities to supply minimum quantities of waste or face contractual penalties. In effect the use of high temperature incineration discourages the collection and reuse of recyclable materials resulting the recycling industry becoming unsustainable.

   Municipal and state governments are also vulnerable to waste incineration contracts which are lengthy (30 years) and lock in fuel feedstocks. This has the effect of diverting waste resources away from higher order waste management outcomes like reuse and recycling. The financial risk for municipalities are significant as they are required to meet their contracts whether they have the waste supply volumes or not.

   The ongoing environmental and health issues associated with HT incineration has led to waste management through recovery and recycling being preferred as a more ecologically sustainable and cost-effective waste management solution and the European Commission has:

   - Legislated to discourage and decommission waste incineration in the EU[5]

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[3] Petrlik J, et al. (2018); High levels of PCDD/Fs around sites with waste containing POPs demonstrates the need to review current standards, Abstracts Book of the Dioxin 2018: 38th International Symposium on Halogenated Persistent Organic Pollutants & 10th International PCB Workshop, 26-31 August 2018, Krakow, Poland

[4] Peiwei Xu, et al. (2019) High intake of persistent organic pollutants generated by a municipal waste incinerator by breastfed infants, Environmental Pollution 250 (2019), 662–668

[5] European Commission, 26 January 2017, The role of waste-to-energy in the circular economy, Brussels.

- Removed all renewable energy and industry subsidies that the industry relies upon to be viable[6] and
- Announced that the EU taxonomy will not include waste incineration[7] in recognition of the significant environmental impacts HT incineration causes and threat it poses to the creation of a robust circular economy[8].

THE SOLUTION

Clearly, the high cost of Australian produced natural gas needs to be reduced to ensure the long-term viability of industry in Australia, but what of the huge and ongoing environmental legacy that will occur if Cleanaway's (and other high temperature incinerator/co-gen facilities) are built?

How is NSW (and the other States) to deal with the ever-increasing quantities of plastics and other materials separated from municipal waste streams that was previously exported to other countries – particularly given the scarcity and high cost of land fill?

The solution lies in the NSW Government adopting a Zero Waste City model[9] that includes the expansion of the existing waste resource recovery and recycling industry to recover and recycle a range of waste resources to form a sustainable, circular economy, which in turn will drive the creation of a solid manufacturing base and 1000's of permanent, skilled jobs for NSW.

Recycling of food contact grade PET and PE largely abandoned, should be encouraged and relaunched as both PET and PE drink and milk containers have been designed for easy recycling.

Various government incentives could also be provided to foster a viable, robust waste recycling industry able to provide thousands of new, permanent job opportunities ranging from entry level through to senior management.

By doing this NSW (and Australia) will benefit from:

- Reducing the quantity of waste requiring landfill
- Significantly reducing greenhouse gas emissions
- Protecting the long-term health of Sydney residents
- Maintaining and enhancing the existing waste recovery and recycling industry and
- Provide viable, permanent job opportunities for all Australians.

[6] The REGI committee report excludes from the scope of the Cohesion Fund "investment in facilities for the treatment of residual waste with the exception of outermost regions and in case of state-of-the-art recycling solutions in line with the principles of the circular economy and the waste hierarchy fully respecting the targets laid down in Art 11(2) of Directive (EU) 2008/98 and provided that Member States have established their waste management plans according to Art. 29 of Directive (EU) 2018/851"

[7] EU technical expert group on sustainable finance, EU Taxonomy, March 2020

[8] Zero Waste Europe, September 2019, The impact of waste to energy incineration on climate policy.

[9] Zaman, Atiq, Lehmann, Steffen, 2011/08/15, Challenges and Opportunities in Transforming a City into a 'Zero Waste City'.

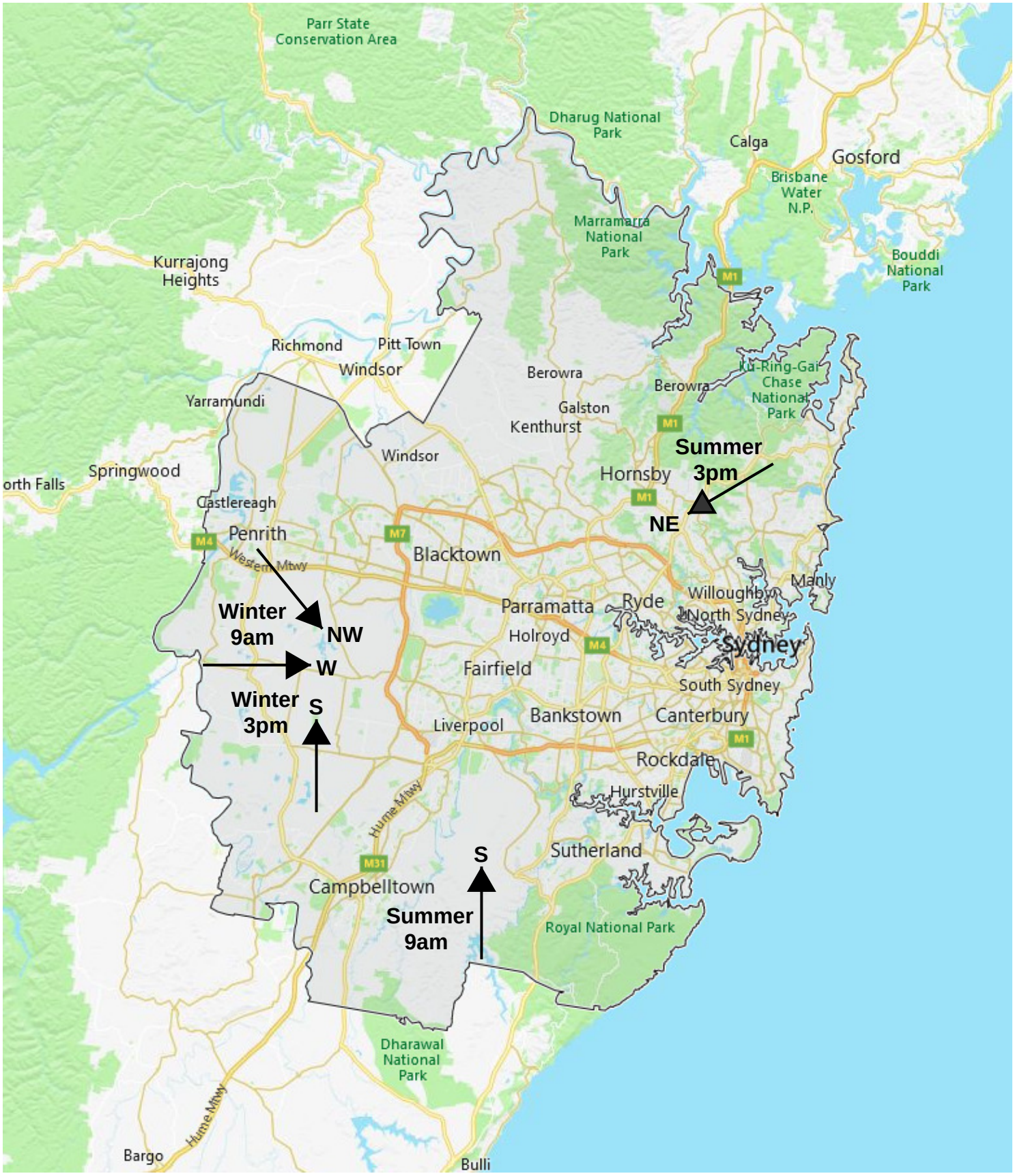

Figure 1: Greater Sydney area showing typical summer and winter morning and afternoon wind directions

Source: Bureau of Meteorology average seasonal wind speeds for Sydney Airport

Photo 1: Typical Sydney Inversion Layer – 1960s

Photo 2: Typical Sydney Inversion Layer – 1970s

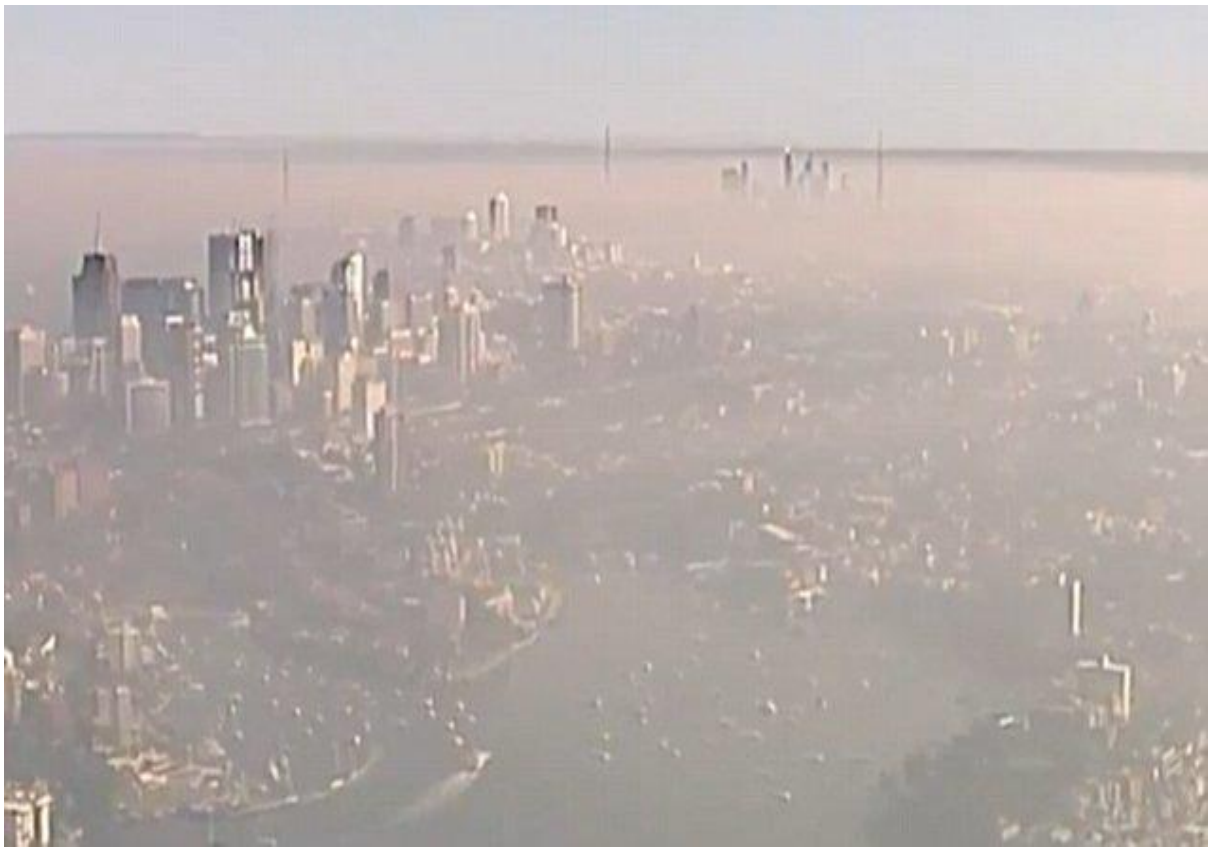

Photo 3: Inversion Layer, Sydney, May 2018