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SUBMISSION

EIS Exhibition
Application Number: SSD 6236

The Next Generation NSW Energy from Waste Facility Eastern Creek

Introduction

The National Toxics Network (NTN) is a community-based network working to ensure a toxic-free future for all. NTN was formed in 1993 and has grown as a national network giving a voice to community and environmental organisations across Australia, New Zealand and the South Pacific on a wide range of toxic pollution issues. NTN is the Australian focal point for the International POPs Elimination Network (IPEN). NTN also participates in the work of the Global Alliance for Incinerator Alternatives (GAIA).

NTN makes this submission to the NSW EPA in support of the long-term health protection of Australian citizens, our environment, sustainable waste management and our globally shared and urgent responsibility to address the causes of climate change.

The *NSW Energy from Waste Policy Statement* states: 'Energy from waste can be a valid pathway for the residual waste where: community acceptance to operate a process can be obtained'.

NTN strongly disagrees with this policy statement, as it applies to the 'thermal processing of waste', which is incineration. We also believe the community is at a distinct disadvantage in its capacity to adequately assess such a complex and technical proposal in order to arrive at a considered position to provide a social license for this proposal.

The *NSW Energy from Waste* Policy *Statement* has overarching principles, including:

- 'mass burn' disposal outcomes are avoided
- air quality and human health are protected
- higher value resource recovery outcomes are maximized
- scope is provided for industry innovation

NTN believes that this application fails to meet all of the basic principles as evidenced by the information provided below.

NTN therefore strongly opposes the approval and construction of The Next Generation Energy from Waste Facility planned for Eastern Creek NSW for the reasons outlined below.

1. The proposed technology is a 'mass combustion' technology

The proposal plans to utilise the HZI moving grate technology, which is a mass combustion technology, defined as incineration by the US EPA and European Union[1].

Mass combustion incinerators are the dirtiest form of energy generation both in terms of toxic emissions and climate change gases. Mass combustion facilities produce far more carbon dioxide per unit of energy generated than coal, oil or gas fired power stations[2].

In addition to producing larger quantities of greenhouse gas (GHG) per energy unit than coal, incinerators also destroy the 'resources' in waste including the embedded energy that could be recovered if the discarded material - in this case residual waste from the MSW, C&I and C&D sectors - was instead recycled or reused.

Much of the residual waste material burned in incinerators is based on petrochemicals. These include plastic bottles, bags, packaging and even electronic waste. Petrochemicals are fossil fuels and burning plastics derived from fossil fuels does not create 'green' energy – it is simply burning fossil fuels in another form. When the GHG output is added to the embedded energy lost in burning waste, incinerators rank as one of the dirtiest known forms of energy production.

A recent study published in *American Economic Review* found that solid waste combustion has the highest ratio of negative environmental and economic impacts (gross external damage) to benefits, among U.S industries.[3]

The key to safe and sustainable waste management practices is dedicated source separation. TNE has not demonstrated that their facility will adequately provide for detailed source separation needed to reduce the levels of residual waste that would enter the incinerator. Rather, waste from the pre-existing landfill facilities chute, poorly separated waste from skip bins used in the C&D and C&I sectors and residuals from MSW which will inevitably contain a significant fraction of non residuals (ie recyclables and compostables), will become fuel for the incinerator.

Residual wastes should be a shrinking part of the waste-stream when increased recycling and composting are supported. The entire premise of this project is based on this shrinking waste stream and therefore does not provide a robust long-term business case justifying the massive capital costs involved or the profound long-term risks to health and environment.

Cities all over the world are drastically reducing their levels of residual waste through supported Zero Waste practices such as waste reduction education, dedicated source separation, reuse facilities, recycling and composting facilities. In some cities, such as San Francisco, nearly 90% of waste is diverted from landfill without incineration.

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[1] European Union (EU) Directive 2000/76/EC on the incineration of waste (the WI Directive);
U.S. Environmental Protection Agency, Title 40: Protection of Environment, Hazardous Waste Management System: General, subpart B-definitions, 260.10, current as of February 5, 2008.

[2] U.S. EPA eGRID 2012 Database. Analysis by Energy Justice Network. www.EnergyJustice.net

[3] Muller, N., et al . 2011."Environmental Accounting for Pollution in the United States Economy." American Economic Review, 101(5): 1649-75.

Europe and particularly Italy also have many towns achieving more than 75% diversion of waste from landfill without incineration.[4]

In Australia, the residual waste stream can be further source separated to remove up to 30% of recyclable and compostable materials. Indeed with further community education and better source separation and collection services our residual waste fraction should be declining.

2. Mass combustion incinerators destroy entrained resources in waste including the embedded energy

The embedded energy in any given product includes the energy expended in extracting resources, refining, manufacturing and transporting the product to the point of sale. This energy is lost when a discarded product is burned in an incinerator and the whole cycle must begin again.

Most of this energy is retained when the discarded product is recycled or reused. The only energy 'recovered' from burning a product in an incinerator is the 'calorific' energy of that item – in other words - the small amount of heat energy it contains. The types of waste contained in general waste (residual) bins are known to contain plastics (including PET) hazardous wastes such as batteries, medical wastes and bleached sanitary products that have the potential to generate persistent organic pollutants when burnt.

Mass combustion incinerators seek the highest calorific value fuels available to burn as this increases the efficiency of their energy production and makes them more money from selling electricity. Unfortunately those high calorific value wastes are also highly valued for recycling. These include plastics, paper, wood waste and cardboard. By competing for the same materials as recycling operations, incinerators undermine the recycling sector and destroy valuable resources and their embedded energy.

In 2012 the European Commissioner for the Environment, Janez Potočnik warned:

> *"Today, even in countries with high recovery rates, there is simply not enough plastic available for recycling because most of it goes to energy recovery. A dominance of energy recovery over recycling is not acceptable in the medium-term…".*[5]

Europe has now started to turn away from waste incineration (energy recovery) with the realization that it acts as a barrier to sustainable management of waste.

Furthermore, *The Renewable Energy (Electricity) Act 2000,* specifically excludes fossil fuel based materials such as plastics.

3. Mass combustion incinerators require long waste supply contracts and stifle innovation

Mass combustion incinerators require long waste supply contracts that last for 25-30 years to become financially viable and to ensure their fuel supply. This means that local and state governments must supply the incinerators with a steady flow of waste at an agreed volume for that period of time. If the waste stream is locked up by incinerators for decades, alternative waste treatment technologies including recycling, re-use, composting and anaerobic digestion are effectively stymied.

This is a significant barrier to achieving sustainability as new developments in environmentally friendly technology are prevented from accessing the resources. Waste

[4] Connett, P. (2011) Zero Waste Solutions – Untrashing the Planet One Community at a Time.
[5] http://europa.eu/rapid/press-release_SPEECH-12-632_en.htm?locale=en

incineration is a disposal technology and locking into this activity means that we may still be disposing of large volumes of our waste instead of recycling it well into the future. This makes a mockery of current 'diversion from landfill' targets by 2020.

4. Jobs will diminish not increase

Numerous independent studies [6] have reported that jobs generated in waste management systems that use recycling, re-use, composting and anaerobic digestion far outstrip the few jobs involved in running an incinerator.

In general terms, waste incinerators are expensive, computer controlled, largely automated technology that only require a small workforce to operate. Conversely waste management systems based around recycling, re-use and non-combustion 'cool technologies' have a high employment generation potential and flow-on effects throughout the community and economy. Installing a waste incinerator means that communities forego employment opportunities while squandering valuable resources.

5. The Eastern Creek community and surrounds will be disproportionately affected by air pollution

This project will pose an additive, cumulative and synergistic air pollution threat to the host communities. There is no comfort in claims that predicted emissions will meet air quality protection standards while communities do not breathe air pollutant averages and those applicable NEPM's do not currently protect public health.

In addition the Federal government has just postponed action on our air quality protection standards undermining the ability of state regulators to ensure smoke stack industries such as this project, ensure the protection of air quality in the host area and statewide.

Dioxins and mercury

There is no safe level of exposure to dioxin and mercury and any addition of these Persistent Organic Pollutants, however small, to the host community's air shed compromises their health, particularly their children.

The only method to eliminate and minimise dioxin formation from waste management is to avoid incineration and adopt alternatives. If Australia is to comply with its international obligations under the *Stockholm Treaty on Persistent Organic Pollutants* it should not approve any waste incinerators. Every new incinerator is a new source of dioxin for Australia that we can ill afford.

NSW does not have a proven, robust regulatory framework to oversee this technology nor address air quality impacts in a way that could protect public health. Air pollution monitoring does not protect human health, it only provides air quality data after the event and the pollution cannot be reversed or redressed. The scale and potential public health impacts have not been fully accounted for in this EIA and public health claims made by TNE are challenged by the experience of those communities around the world where these plants are already operating.

Covanta[7] (largest mass combustion/moving grate technology company globally) has a litany of pollution breaches.

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[6] More Jobs, Less Pollution: Growing the Recycling Economy in the U.S. Prepared by: Tellus Institute with Sound Resource Management 2011 and More jobs, less waste. Potential for job creation through higher rates of recycling in the UK and EU. Friends of the Earth UK, September 2010

[7] http://www.independent.ie/irish-news/poolbeg-firm-repeatedly-fined-in-us-for-floutingpollution-laws-26626078.html and https://stopcovantahempstead.wordpress.com/our-problem-with-covanta/

The Tredi incinerator[8], listed by TNE as evidence of proven efficacy and safety, has been involved in pollution events. Chlorine gas caused road closures and emergency response.

Ultrafine an nano-material particulates

There is overwhelming evidence of the harm to human health caused by ultrafine particulates (those less than 0.1 microns in size)[9], which are known to be emitted in high amounts from all forms of incinerator technologies.

These small particles can lodge deep in the lungs and cause respiratory and cardiac diseases. There are currently no state or national air quality standards, license conditions or other regulatory measures to protect the Australian community from ultrafine particulates.

TNE admit that ultrafine particulates will increase as a result of this project and they are relying on existing regulatory standards to manage them, but these standards don't exist for PM2.5, ultrafines or nanoparticles.

Engineered nano-materials in the waste stream and the inevitable production of nano-particles through the combustion process itself also represent a significant risk to human health. There have been significant public health concerns related to the effects of nano-materials in the human body.

Australia currently has no regulatory framework for nano-materials and therefore cannot control the types or amounts of it entering our municipal waste streams. Given that nanotechnology is increasing globally, it is expected that the amounts of nanomaterials entering the waste stream is likely to steadily increase[10]. The toxic potential of nano-materials increases the hazards and risks associated with their release to the environment, particularly via stack emissions[11].

Nano-material pollution and ultrafine particles require a cross disciplinary approach to estimating risk which has not been provided in this EIA[12]. The persistence of engineered nano-particles in a municipal solid-waste incineration plant needs a dedicated assessment, which has not been provided in this EIA.[13]

6. Poor choice of independent peer review

NTN is critical of the choice of independent peer review. Choosing a Danish incinerator company – Rhombal- to provide independent peer review is not independent and does not meet the standard the general public would expect.

TNE should be required to resubmit this EIA for peer review with a truly independent sustainability focussed agency with experience in full life cycle GHG accounting, public health and ecosystems based analysis expertise. Any peer review must be at arms length from vested industry interests.

7. All mass combustion incinerators generate toxic ash

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[8] http://www.risques.tv/video.php?id_DTvideo=65

[9] Ibald-Mulli A, Wichmann HE, Kreyling W, Peters A.(2002) Epidemiological evidence on health effects of ultrafine particles. *J Aerosol Med. 2002* Summer;15(2):189-201.

[10] http://www.ncbi.nlm.nih.gov/pubmed/21170123?dopt=Abstract&holding=npg

[11] http://chemport.cas.org/cgibin/sdcgi?APP=ftslink&action=reflink&origin=npg&version=1.0&coi=1:CAS:528:DC%2BD28XptVyrsg%3D%3D&pissn=17483387&pyear=2012&md5=762786590815279b3e66f539c63dd111

[12] http://www.ncbi.nlm.nih.gov/pmc/?term=10.1289/ehp.7339

[13] http://www.nature.com/nnano/journal/v7/n8/full/nnano.2012.64.html#ref2

All mass combustion incinerators generate ash that is contaminated with toxic heavy metals and persistent organic pollutants (POPs) such as dioxins and furans.[14] The levels of contamination vary according to the waste burned, the process used and configuration of the pollution controls on the smoke stack. All solid and air emissions contain contaminants, many of which can be at a level that can impact on human health and the environment depending on the disposal method and exposure.

According to the incinerator industry, most incinerators generate 1 tonne of contaminated ash for every 4 tonne of waste burned.[15] This includes smaller volumes of highly toxic 'fly ash' and larger volumes of less toxic 'bottom ash'. Despite claims by TNE, there is currently no market for incinerator ash in Australia and it must be disposed of to landfill.

Given that TNE plans to burn 552500 tpa of residual waste, resulting in the generation of 330000 tpa of toxic ash, it is not credible to suggest that this technology is a successful solution to divert waste from landfill. In fact, transforming solid waste into toxic ash and gases on a site where a large-scale landfill currently operates under the very same company, suggests that it's highly probable that this toxic ash will end up in the Eastern Creek landfill.

Therefore, in essence this project represents a dangerous transfer of solid waste into toxic ash that will require disposal in amounts that compare poorly to the benefits claimed of diverting waste from landfill. Replacing solid waste residues with toxic ash can hardly be considered a net environmental benefit while risking worker and community health and leaving a toxic and hazardous ash legacy for future generations to deal with.

A recent report by the International POPs Elimination Network (IPEN)[16] demonstrates major problems with the unregulated and partially regulated use of incinerator ash in Europe as a construction material.

NTN does not support the use of incinerator fly ash for any construction material or other downstream use.

8. Inadequate Preliminary Hazard Analysis and Fire Risk Assessment

NTN is concerned about the adequacy of the Preliminary Hazard Analysis and Fire Risk Assessment provided in this EIA. Comprehensive community evacuation and emergency response plans are associated with similar plants, such as the Tredi plant in France, where a fire broke out and caused chlorine gas releases causing offsite impacts.

The attached Australian hazard assessment advises:

> *"A hazard identification table was developed for the energy from waste (EfW) facility to identify potential hazards that may be present at the site as a result of operations or storage of materials. Based on the identified hazards, scenarios were postulated that may result in an incident with a potential for offsite impacts. Postulated scenarios were discussed qualitatively and any scenarios that would not impact offsite were eliminated from further assessment. Scenarios not eliminated were then carried forwards for consequence analysis. Incidents carried forwards for consequence analysis were assessed in detail to estimate the impact distances. Impact distances were developed into scenario contours and overlaid onto the site*

[14] British Society for Ecological Medicine (2008) *The Health Effects of Waste Incinerators*. 4th Report of the British Society for Ecological Medicine
[15] Vehlow, J., (2002) *Bottom ash and APC residue management*. Proceedings of the Expert Meeting on Power Production and Waste and Biomass – IV, Espoo, Finland.
[16] Petrlik, M.S.J. and Ryder, R., (2005) *After Incineration – The Toxic Ash Problem.* The International POP's Elimination Network. "Keep the Promise, Eliminate POPs!" Campaign and Dioxin, PCBs and Waste Working Group of the International POPs Elimination Network (IPEN) Report

layout diagram to determine if an offsite impact would occur. The consequence analysis showed that none of the scenarios would impact over the site boundary and so a fatality would not occur at the site boundary and therefore the cumulative risk at the site boundary would be less than 50 pmpy."

Clearly this assessment conclusion does not match the lived experience of communities already hosting similar incinerators around the world. It is rather curious to conclude that air pollution events and fires would remain behind the fence line.

9. Inadequate risk assessment models

NTN is critical of the HIA and its reliance on USEPA risk assessment models. It is unclear why a US model was used rather than an EU risk assessment model given the standards the plant hopes to achieve will meet EU WID standards and not USEPA standards.

Given that the majority of incinerators in the US are not even regulated, confidence in US risk assessment advice cannot be assured. In any event, NTN is critical that the HIA has not included assessments of nano-materials or nano-particles. This is a significant flaw of the HIA. The HIA also dismisses impacts to the community in relation to contaminated groundwater. This position is not supported by NTN given the high leachability of incinerator ash.

Again, NTN is highly critical of any HIA that concludes that large-scale incinerators pose little if any risk while the lived experience of communities all over the world demonstrates the contrary.

10. Waste to energy incineration entrenches a linear economy

Waste to energy incineration entrenches a linear economy in our society that relies on the extraction of virgin materials and rewards consumptive and wasteful lifestyle choices.

Our society needs to transition as soon as possible to a circular economy where resources are not destroyed through landfills or incineration but rather are conserved through reuse, recycling and composting schemes generally known as *Zero Waste Solutions*.

Incineration of our waste fundamentally represents surrender to climate change and can never be part of a safe, clean energy future for Australia.

For further information about this submission please contact Jo Immig, NTN Coordinator.