Submission No 141

INQUIRY INTO 'ENERGY FROM WASTE' TECHNOLOGY

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NEW SOUTH WALES LEGISLATIVE COUNCIL

Submission to inquiry about
Energy from waste technology

I am pleased to send this submission to the above inquiry on behalf of Toxfree Australia Pty Ltd (Toxfree).
Toxfree is currently operating several thermal treatment facilities in Australia, such as medical and hazardous waste incinerators in Melbourne and Sydney and plasma arc gasification facilities for the destruction of persistent organic pollutants and PCB's in both Melbourne and the Sunshine Coast. Toxfree is cognisant of the planning, regulatory and operational issues connected with operating these type of facilities. Toxfree would be prepared to submit further information as and when required. Toxfree is also cognisant and supportive of the submission of the Waste Management Association of Australia (WMAA).

a *The current provision of waste disposal and recycling, the impact of waste levies and the capacity (considering issues of location, scale, technology and environmental health) to address the ongoing disposal needs for commercial, industrial, household and hazardous waste*

NSW has a well developed waste disposal and recycling industry and is either achieving or is well on track to achieving the waste diversion targets set by State Government policy. Nevertheless, each year more than 2 million tonnes of waste are still being disposed off to landfill in Greater Sydney. According to the Waste Hierachy, which Toxfree fully supports, disposal to landfill is the least desirable outcome for dealing with society's waste. Yet, disposal to landfill has less stringent criteria to it than energy from waste facilities, would they be approved, under the current State Government policy. One reason for this is of course that landfill is a solution of last resort and needs to be able to take materials of all sorts, if there is no other solution. That does not mean though that landfill could not have more stringent acceptance criteria attached to it. Many European countries only allow waste to be landfilled if it cannot be recycled or its energy recovered. One exception from this rule may be waste disposal in times of natural catastrophies when a quick and safe disposal of large volumes of waste is necessary to guarantee public health and safety and avoid the spread of diseases.

Toxfree believes it is wrong to create the perception that energy from waste is equal to waste disposal or just another waste disposal solution. The waste hierarchy clearly differentiates between disposal as a last resort and energy recover or even treatment (to make certain wastes less harmful) as preferable (and different) to disposal.

Without the waste levy very little recycling would occur, because landfill would be so cheap that investment in recycling infrastructure would not be viable.

The landfill capacity in Sydney needs differentiation between so called inert and so called putrescible wastes. The landfill capacity for putrescible waste in Sydney is very restricted and without the Woodlawn landfill near Goulburn, Sydney would have a serious waste disposal problem. Landfill capacity for inert waste is still sufficient.
As long as state-of-the-art technology is employed, environmental health issues can be adequately addressed. Most large European cities (ie. Paris, London, Vienna, Berlin, Zurich) are a good example.

b *the role of 'energy from waste' technology in addressing waste disposal needs and the resulting impact on the future of the recycling industry*

An energy from waste facility would certainly provide a viable alternative to the landfill disposal of residual waste in Sydney. It would also contribute to the circular economy as the energy created would not only replace fossil fuel energy, but would also provide base load power, as an energy from waste facility typically operates 24 hour per day. A large portion of waste being landfilled daily in Sydney contains a recoverable energy content (calorific value). Burying this energy into the ground seems to be a real "waste" of an otherwise perfectly recoverable resource.

Energy from waste facilities can provide another advantage, if located and planned well; they can provide energy close to the user. This concept is called 'distributed generation' and means that instead of building a large power station somewhere far away from the cities and most end users of the energy, the power should be generated closer to the user of the energy. Large distances between energy generators and energy users require large investment into transmission and distribution infrastructure. In fact, around 50% of Australian's electricity costs are transmission and distribution costs. This large distance also means that the energy efficiency of the generation facility is limited. The fuel a power station burns is turned into heat and the heat is typically recovered via a steam cycle to run a turbine to create electricity. This process however, is not very efficient and most of the heat (= energy) is lost to the atmosphere. If the power station (here: energy from waste facility) is closer to the end user of energy, it is viable and much more attractive to sell heat and cooling, which is not only more efficient but also cheaper to generate than electricity. This concept is used in most large European cities, where energy from waste power stations provide energy in form of electricity, heating and cooling to domestic and industrial users.
There is no reason why this could not be done in Australia as well. In fact I would make a lot of industrial users of energy (in from of electricity, heating and cooling) more competitive and would be a sign for a 'smart economy'.

The economics behind this are simple:
The generator can get an exemption (under certain circumstances) from selling its electricity to the grid and sell it directly to an end-user. In order to attract the end-user the sale price has to be cheaper than the grid price. The generator gets a better price from the end-user than selling into the grid because he can charge a portion of what would otherwise be a transmission and distribution cost and both parties have a win.
This way the efficiency of the power station (energy from waste facility) will go up and it will become more economically viable.

One argument, which is often brought against energy from waste facilities is that they may 'cannibalise' materials that would otherwise go to recycling. Another argument is that energy from waste facilities need constant feeding with waste and could absorb material streams that would otherwise be recycled.
Some distortions that have occurred in the European market are often used to support this argument. However, the main reasons why some European countries suffer from an overcapacity of energy from waste facilities is that these facilities have been subsidised for decades and the population and waste generation is those countries are often declining.
The NSW energy from waste policy has very clearly put a stop to any 'cannibalising' of recyclables into an energy from waste facility, as only residual waste can be used as a fuel.
It also appears unlikely that the State Government will provide a constant stream of subsidies to energy from waste facilities. In any event, this is clearly in the Government's hands. Also, Australia is an immigration country and has economic and population growth rates most European countries look upon with envy.
One other way to avoid market distortions is to only approve facilities for which there is a need. The Government has the power to define that need.

c *current regulatory standards, guidelines and policy statements oversighting 'energy from waste' technology, including reference to regulations covering*
i. The European Union
ii. United States of America
iii. international best practice

Toxfree fully supports the statements and recommendations made in the WMAA submission.

d *additional factors which need to be taken into account within regulation and other processes for approval and operation of 'energy from waste' plants*

Toxfree supports the statements and recommendations made in the WMAA submission. Particular attention should be given to the very restrictive interpretation of the policy statement that energy from waste facilities should always be commercially proven technologies with reference facilities. This strict interpretation "suffocates" innovation and investment and has already driven companies, investment and employment out of the state. There is a simple solution to this issue in that the EPA gives innovative developments/technologies conditional licences subject to the facility/technology meeting milestones that prove the performance and compliance of these developments/ technologies. There is sufficient expertise in Australia and around the world, accessible to the

regulator, being able to help in determining what those milestones ought to be and whether or not they have been achieved. The fact that other states and territories are not as restrictive as the NSW EPA and no one person or the environment have come to harm speaks for itself.

e *the responsibility given to state and local government authorities in the environmental monitoring of 'energy from waste' facilities*

Toxfree supports the statements and recommendations made in the WMAA submission. Toxfree also supports that the EPA is given the funds needed to develop, employ or procure the expertise necessary to properly interpret and understand the information obtained by the monitoring of energy from waste facilities. Local Government should not be involved in the monitoring of those facilities. There is no need in replicating the EPA's role and responsibility.

f *opportunities to incorporate future advances in technology into operating 'energy from waste' facility*

Whilst Toxfree supports the statements made in the WMAA submission, thought may be given to the policy adopted in some European countries of adopting "best available technology". This policy allows the regulator to ask for and enforce (under certain conditions) technology upgrades if and when the technology upgrade has been proven to deliver better environmental outcomes, is technically feasible in the specific facility and commercially affordable or viable.

g *the risks of future monopolisation in markets for waste disposal and the potential to enable a 'circular economy' model for the waste disposal industry; and*

It is highly unlikey that energy from waste facilities are able to monopolise the market for waste disposal (note that EfW is not waste "disposal" but recovery). Please see also above the explanation of why some countries in Europe have an overcapacity of energy from waste facilities. As long as NSW does not repeat the mistakes made overseas, there is no reason for concern. It was also mentioned above that Australian conditions of waste generation and population growth are very different from European conditions.

However, it would be prudent for the government to ensure that no one facility is so large that it can play a market domineering role. In the waste management industry, as well as in most other industries, when providing a fixed asset to process materials, volume throughput is a game-changing factor. The capital costs do not increase in a linear fashion as the facility's ability to process increases. Example: a facility with the ability to process 300,000 tonnes per annum costs say $300million. That does not mean that a facility with the ability of processing 500,000 tonnes per annum costs $500million. In fact a facility able to process 500,000 tonnes per annum will have a lower unit cost (= cost per tonne) than a smaller facility. What that means is that a large facility will be more cost competitive than a smaller facility. In this context it would be prudent for the government to allow a facility size that does allow for (future) competition and not allow one facility due to its sheer size to monopolise or become dominant in any given market.

It has been explained above that energy from waste facilities can play a major role in enabling a circular economy. In fact at the centre of every 'industrial ecology park' there should be an energy

from waste facility because every industry sector needs some form of energy to function and the energy from waste facility can provide energy cheaper than other energy providers can due to its "dual revenue model" and ability to increase energy generation efficiency (as explained above).

h any other related matter.

Australia is going through the same process that Europe went through decades ago. A new (for Australia) technology "scares" people and many wrong and unsubstantiated claims are being made for various, including for political reasons. Energy from waste facilities are now the accepted norm in most large Euopean cities. They contribute positively to waste management, reliable supply of energy and industrial development of those cities. They provide stable and long term (mortgage securing) employment of skilled labour. Australia is in the enviable position to be able to look back over 30 to 40 years of European experience and "buy" only the best that is on offer, avoid the policy mistakes that were made and avoid the costs and downfalls that come with those mistakes.
The (right) energy from waste technology is one of the most bankable, stable and reliable waste management technologies on offer. It would be a very sad mistake not to use this technology to Australias best advantage.

Yours sincerely

General Manager Innovation