

Maribyrnong City Council would like to thank the MWRRG for the opportunity to comment on the draft Metropolitan Waste and Resource Recovery Implementation plan 2015. This submission is a draft that is to be ratified at the Maribyrnong City Council February meeting. We would like to make the following comments on the priorities in the plan.

Priority 1 Minimise Council's reliance on landfills through group procurement of residual waste collection and processing that progressively increases the resource recovery rate over the contract duration.

While collection and processing have been combined in this proposal, we would like to address these separately as they both raise different issues.

Group procurement theoretically should create a better result than individual negotiations, through shared expertise and increased bargaining power. However, in our experience, group procurement has not always been beneficial. The skill level of those creating the shared procurement contracts has been variable with some poorly worded contracts developed. Also as a smaller Council, fewer concessions have been offered to us on some contracts as the contractors prefer to focus their efforts on winning the larger Council contracts. Also, the prices we have been offered have sometimes been far higher and conditions worse than those we have been able to negotiate individually.

This priority relies on the assumption that joint procurement is better for each Council, however, this Council is becoming wary of the terms and conditions and prices offered to us through joint procurement contracts for waste.

Also we have no guarantee that a residual waste processor will provide a better collection service than other organisations, or who they will subcontract their collections to. This is likely to reduce the flexibility and control we have in dealing with collection issues and add a further layer of administration.

Maribyrnong Council is unlikely to take part in group procurement for residual waste collection for these reasons.

Residual Waste Processing Contract

In relation to a residual waste processing contract, there is not enough information in this implementation plan about the exact details of this contract. If there is a proposed processing infrastructure in mind this needs to be clearly spelled out.

The type of proposed processing plant and its location are extremely important details and Council cannot give blanket support to this priority without knowing what these are.

The list of options provided on page 75 includes anaerobic digestion, wet MRF, waste to fuel and energy to waste. Although lumped in as one proposal, these are very different with vastly different implications for the community, the environment and the treatment of recoverable materials and the future of Council's existing infrastructure and contracts and existing investments in community education based on avoidance and the waste minimisation hierarchy.

It was confirmed at the Metro Waste Forum on 4 December 2015 by Rob Millard CEO of MWRRG in response to a question asking why the Forum was not pushing Alternative Waste to Energy Technologies, (AWTs) was: “Priority number 1 as well as priority number 2 of the Implementation Plan has a Waste to Energy flavour” and that “this implementation plan needed to be more upfront about the focus on Waste to Energy technologies”.

Maribyrnong Council has serious concerns about the proposals to create “Waste to Fuel” residual treatment in the long term and “Energy to Waste” residual treatment in the medium term, as outlined in this report, for the following reasons.

1. Alternative Waste to Energy is another name for Incineration.

Thermal Waste to Energy plants using methods of pyrolysis and gasification and plasma arc technologies are classified as incineration in the United States¹ and by the European Union², with many of the same issues as open incineration plants. AWTs plants generally refer to thermal methods of treatment, specifically, pyrolysis, gasification and plasma arc technologies.

In addition to air and water emissions, incinerators create toxic ash or slag that must then be land filled. This ash contains heavy metals, dioxins, furans and other pollutants, making it too toxic to reuse, although industry often tries to do so. Dioxins and furans are some of the most toxic chemicals known to human health. There is no safe exposure level to dioxins.

In newer incinerators, air pollution control devices such as air filters capture and concentrate some of the pollutants; but they don't eliminate them. The captured pollutants are transferred to other by-products such as fly ash, bottom ash, boiler ash/ slag, and wastewater treatment sludge that are then released into the environment.³

In some studies Alternative Waste to Energy plants were found to have higher levels of dioxins than conventional incinerators.^{4 5}

2. Alternative Waste to Energy Incinerators will Undermine Zero Waste & Recycling Efforts

You can have AWT Incineration, or you can have a Zero Waste approach with a focus on Resource Recovery but in the long term you cannot have both as both compete for the same resources.

¹ 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 European Union (EU) Directive 2000/76/EC on the incineration of waste (the WI Directive)

³ Römcke, J., et al. Ecotoxicological characterisation of 12 incineration ashes using 6 laboratory tests. *Waste Management*, 2009.

⁴ Pyrolysis Plant - Presentation by South Coast Air Quality Management District to California Integrated Waste Management Board, 20 Sept. 2005, available at HTU <http://www.ciwmb.ca.gov/agendas/mtgdocs/2005/09/00019545.ppt>UTH; Confirmation of this presentation's data being the same as the finalized analysis (with the exception of heavy metal emissions data, which were considered invalid), by personal communication with the SCAQMD, April 7, 2006.

⁵ Plasma Arc Plant -Environmental Technology Center (EvTEC), UEnvironmental Technology Verification Report for the Plasma Enhanced MelterU,. CERF/IEC Report #40633, May 2002.

AWT Incinerators require long term contracts of 15 to 25 years guaranteeing a specific amount of waste will be delivered in order to be viable. This means that it becomes a breach of contract to increase recycling levels to the point that it threatens the guaranteed waste amount. Councils would still be required to continue to pay for the guaranteed minimum residual waste disposal rates under a take or pay contract to an AWT incinerator even if recycling rates were to increase dramatically.

Long term contracts of twenty to thirty years for one type of AWT incinerator means that all other innovative technologies that actually reduce waste and value and conserve the inherent resources in waste are locked out for the twenty to thirty years term of the contract.

AWT incineration provides an incentive to keep producing waste, as contractors are paid per tonne of waste treated. In fact municipal waste does not provide enough volume, hence the need to focus on priority 2 which adds commercial and industrial waste to the mix.

High calorific items such as plastics as well as dense organic materials such as food, wood, and paper are all recyclable materials that are attractive to AWT Incinerators, as plastics provide greater energy and organics higher gate fees due to the weight.

3. Greenhouse Gas emissions of Alternative Waste to Energy Incinerators are worse than Coal Fired Power Plants.

AWT Incinerators emit significant quantities of direct greenhouse gases, including carbon dioxide and nitrous oxide, that contribute to global climate change. They are also large sources of indirect greenhouse gases, including carbon monoxide, nitrogen oxide, non-methane volatile organic compounds, and sulphur dioxide. In fact, incinerators emit more CO₂ per megawatt-hour than any fossil fuel-based power source - including coal-fired power plants⁶

According to the U.S. EPA, “waste to energy” incinerators and landfills contribute far higher levels of greenhouse gas emissions and overall energy throughout their lifecycles than source reduction, reuse and recycling of the same materials.⁷

Denmark, often quoted as a role model for AWT has made a commitment to close down all of their incinerators including thermal waste to energy plants by 2050 due to the level of greenhouse emissions and low recycling levels and move to a system that recovers more waste.⁸

Australia is in the process of committing to reduce global warming temperature increases to 1.5 degrees. The introduction of AWT Incinerators at a time that other countries are committing to closing theirs down in order to reduce greenhouse gases is highly questionable.

4. The potential risks of poorly managed and regulated Waste to Energy Incinerators are far greater to our community than the landfill issues that they are seen to resolve.

⁶ U.S. EPA, <http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html>

⁷ U.S. EPA, “Solid Waste Management and Greenhouse Gases, A Life-Cycle Assessment of Emissions and Sinks 3rd edition,” 2006.

⁸ <http://www.zerowasteurope.eu/2014/01/the-story-of-denmarks-transition-from-incineration-to-zero-waste/>

AWT Incinerators are seen as a panacea for aggrieved communities who want to close down landfills in their area due to issues related to odour, dust, noise and truck queuing. Most of the odour issues relate to the inclusion of putrescible organic waste in landfills. Issues are exacerbated where there are poor management of landfills and under resourced government bodies who are slow to regulate breaches.

Rather than resolving issues that communities face, resolving odour issues by replacing a landfill, with a poorly managed and poorly regulated AWT Incinerator with the potential for release of toxic gases, toxic waste and explosions would take the threat to our communities health and wellbeing to a whole new level.

Additionally, the financial risk to public funds from landfill levies and councils waste management budgets is substantial as there is a long history of AWT incineration plants failing.⁹ The latest of these is the abandonment of the \$200 million investment in the Linc gasification plant in Queensland by its owners due to massive environmental pollution caused by the plant.^{10 11}

The gate fees of \$200 per tonne for AWT incinerators compared to the current \$110 per tonne average of landfill as mentioned in this report are another financial risk either to be paid for by Councils through waste budgets or increased landfill levies, at a time when resources are being constrained through rate capping in local government.

5. There are perverse incentives to use the Alternative Waste to Energy Incinerators for waste that should go to landfill or a scheduled landfill.

Due to the cost of landfill and the higher cost of disposing of scheduled waste, the cost of an existing incinerator provides a perverse incentive to burn the waste, rather than remove it from the waste stream and dispose of it to landfill or a scheduled waste landfill. For example, faced with the high cost per tonne of disposing of tonnes of demolition waste mixed with asbestos to a scheduled landfill there is a perverse incentive to avoid the additional transport and disposal charges and burn the waste on site increasing the threat to our community.

Priority 2 – Build the metropolitan organics processing network and maximise the network’s productivity by accepting household and commercial food waste.

- Maribyrnong supports biological systems of treatment and energy collection.
- There is no room for AWT Incinerators due to reasons detailed in Priority 1
- As around half of our waste stream being sent to landfill is organic food and garden waste – we support this as long as appropriate low carbon biological methods are used.

⁹ Incinerators in Disguise: Case Studies of Gasification, Pyrolysis, and Plasma in Europe, Asia, and the United States - Greenaction for Health and Environmental Justice Alliance for Incinerator Alternatives (GAIA) - June 2006

¹⁰ Solomons Mark and Willacy Mark, "Linc Energy: Secret report reveals toxic legacy of coal gasification trials near SE Queensland town of Chinchilla", ABC News, 10 Aug 2015 <http://www.abc.net.au/news/2015-08-10/linc-energy-secret-report-reveals-toxic-chemical-risk/6681740>

¹¹ Garvey, Paul, 6 Nov 2013, Linc Calls It Quits on UCG Project, Australian Financial Review <http://www.theaustralian.com.au/business/mining-energy/linc-energy-calls-it-quits-on-ucg-project/story-e6frg9df-1226753791059>

- There is a danger that food and garden waste currently being treated on site in home compost bins will be added to the waste stream. On site treatment from home composting reduces collection and treatment costs to the community. This should be encouraged.
- We need good data about how many people currently use home composting systems and the tonnages involved in this. A Maribyrnong council community survey question a number of years ago indicated that over 40% of people owned a compost bin or worm farm and regularly used them. We also have one waste and recycling audit result from a medium density area of low rise townhouses with little garden space – that indicated that this community had average to higher than average recycling rates, but produced far more garbage than lower density areas. The difference was mainly in food waste. This may be due to a number of reasons but may be partly due to limited space for home composting. More research is needed into this area as we may be underestimating the amount of home composting of food and organics.

Priority 3: Ensure hubs support industry while protecting communities and the environment through defining the role of hub, promoting best practice and acting on opportunities to co-locate with water utilities.

Maribyrnong City Council supports this priority where it improves the management of waste and resource recovery infrastructure and is able to support industry and protect communities.

Priority 4 – Develop planning policies and tools that facilitate resource recovery targeting:

Protection of buffer separation distances of waste and resource recovery facilities

- Council supports protections of buffer separation distances for new waste and resource recovery facilities. This is good planning. However, a large proportion of our community already lives in housing that is within existing buffers. Buffers do not address the issues of residents that are already living near waste and resource recovery facilities.
- Also needed are actions to acknowledge and to minimise existing issues in relation to odour, noise and truck queuing in residential areas.
- More monitoring and enforcement is needed by state and local governments to ensure that residential development does not occur within buffer zones after the facilities and the buffers are established.

Provisions for recycling infrastructure in multi-unit dwelling.

- Maribyrnong Council supports the development of planning policies and tools that require minimum provisions for infrastructure to store and access, recycling and hard waste collections, regardless of whether the collections are undertaken by Council contractors or private contractors.

- To date this is an issue that Councils have had to manage in isolation. Combined resources at the state level to support recycling infrastructure in multi-unit dwellings is welcomed.

Priority 5 – Support and promote small on-site organic processing infrastructure.

Maribyrnong Council supports this priority. Small scale on site processing is preferable to larger scale collection as the additional resources involved in off site transport and processing is avoided.

Council does not support all processes equally. Dehydration plants that heat organic waste to remove moisture are only appropriate in limited circumstances due to the high amount of energy required.

Energy use can be a significant ongoing cost in using such systems. Greenhouse gas emissions from electricity generation of dehydrators can offset any environmental benefits obtained from food waste diversion.

Based on a US study¹² that detailed electricity use and dehydration quantities for three types of industrial dehydrators, used 12 hours per day, the energy use on average was 232 kilowatt hours per 100kg treated.¹³

Greenhouse emissions from electricity use for 1 tonne of organic waste treated through dehydrators using these figures is estimated to be around 2.7 tonnes of Co2e.

The greenhouse emissions from placing this waste in landfill is 1.6 tonnes of CO2e per tonne of waste land filled.

If half the 392 tonnes of waste diverted from landfill by the Degraeves St Dehydrator Example on page 40 of the report was 196 tonnes of food waste, this would have generated 529¹⁴ tonnes of CO2e (compared to 313¹⁵ tonnes CO2e if this was sent to landfill.) and cost a minimum of \$58,000 in electricity charges.

The greenhouse emissions from transporting and treating commercial food waste at a composting facility are far lower than on site dehydration plants.

As a Zero Carbon Council, Maribyrnong City Council does not support treatment options for organic waste that increase greenhouse emissions to higher levels than land filling the organic waste would produce.

The Degraeves St recycling facility received large grants from the State Government for both the equipment and the employment of dedicated education officers. Traders did not pay for the energy cost of running the equipment. This is unlikely to be able to be replicated in other locations without a large amount of financial support.

¹² Isaac Griffith---Onnen, ZakPatten, and Jennifer Wong, On---Site Systems for Processing Food Waste: A Report to the Massachusetts Department of Environmental Protection, Northeastern University 4/26/2013

¹³ We estimate from these figures that this would cost a minimum of AU\$30 per 100kg treated (for those with large electricity contracts with low rates,) up to AU\$90 per 100kg for those paying maximum electricity rates.

¹⁴ <http://carbonneutral.com.au/carbon-calculator/#waste>

¹⁵ Australian Government, Department of Environment, Australian Government Greenhouse Factors, Factor for purchase of Victorian Coal Fired Electricity p 19

Further research is required to understand the value for money and the greenhouse gas impact of waste dehydration versus providing organic waste collection services to biological composting treatment plants or other approaches to organic waste treatments. If it is found that greenhouse emissions are even greater than the very high emissions from placing organic waste in landfill, dehydration plants should not be considered as an acceptable on-site processing option.

Page 39 – Table 6 - This table indicates that the output from dehydrators is able to be used as compost. The following research¹⁶ indicates that waste treated by dehydrators needs further treatment at a compost facility or needs to be land filled.

“The requirements for destruction of pathogens via dehydration or drying are:

- Material is dried by direct or indirect contact with hot gases [for sufficient time] to reduce the moisture content of the material to 10% or lower. Either the temperature of the material particles exceeds 80°C (176°F) or the wet bulb temperature of the gas in contact with the material exceeds 80°C (176°F) as it leaves the dryer.
- The machines are required to be managed as a batch based system, with one batch fully processed and cleared from the chamber prior to loading any fresh materials.”

“The Recycled Organics Unit (ROU) (at the University of NSW) has assessed samples of the finished output materials from numerous installations in Australia as having moisture content ranging from 18% to 31% moisture. These installations are failing to meet the requirements for pasteurization due to inadequate management, or inappropriate size of dehydrator unit for the quantity and/or type of food waste being generated.”

“Numerous dehydration technologies on the market operate at temperatures in the low to mid 40 – 45 °C temperature range, and there is an incentive to operate at lower temperature in order to present lower power consumption figure per quantity of food waste processed. However, as most *Salmonella* serotypes, for example can grow over the temperature range 7 – 48 °C this approach may pose health and safety risks. “

“That food waste has been processed via a dehydrator is therefore no guarantee that the material is safe to handle or use. Technologies must be selected, located and managed correctly to deliver safe and acceptable performance. Consequently some State EPAs consider the output product to be “waste”, and require it to be managed as such, allowing it to be used only as an input into a composting processes, or disposed of to landfill.”

Maribyrnong City Council will be happy to support and promote other technologies listed on table 6 that do not contribute extra greenhouse emissions in the treatment process in

¹⁶ <http://www.managefoodwaste.com/technology-directory/dehydration-technology/>

comparison to landfill, particularly aerobic composting, anaerobic composting with gas capture and vermiculture.

Priority 6 – Develop a Transfer Station Growth Strategy to facilitate a network that can manage projected waste volumes while maximising resource recovery.

- Maribyrnong Council supports the development of a Transfer Station Growth Strategy
- Maribyrnong Council would like to see the development of facilities in shopping centres with multiple owners and managers, e.g. strip and village shopping centres that enable the shopping centres waste and resource recovery to be managed holistically, similar to shopping malls owned and managed by one owner, with centralised waste management and recycling systems to enable the highest level of waste reduction and resource recovery in the commercial sector. This is to assist amenity, reduce noise to residents in the growing number of medium to high rise dwellings around shopping centres and promote economic growth amongst small to medium sized businesses.

Priority 7: Establish relationships between commercial food waste generators and organic processors.

- Maribyrnong Council supports this priority
- More investment needs to be put into organic processing to reduce the contamination levels through pre sorting technology and methods.

Priority 8: Maximise recovery of priority materials (identified through Victorian Market Development Strategy) by establishing relationships between waste generators and the processing industry.

Maribyrnong City Council supports this priority but does not support the aggregation of waste simply to provide secure fuel for AWT incinerators.

Priority 9: Community and stakeholders are engaged in waste and resource recovery decision making.

- Maribyrnong City Council supports this priority as long as all of the community are engaged and provided with a variety of sources of information, not just industry marketing and sales copy.
- The Victorian Government should release the Victorian Advanced Resource Recovery Initiative which provided the business case for the adoption of Alternative Waste Technologies to assist the community and stakeholders to make informed decisions about proposed investments.

Concluding Comments

While some recycling systems are not currently economically viable and markets for recyclable items are not developed, AWT Incinerators are not economically feasible without massive government subsidies and 20 to 30 year take or pay contracts either. There is

currently \$512 million¹⁷ sitting in the Sustainability Fund representing years of unspent landfill levies that were contributed by local communities through their councils. This provides the resources to choose to pay for infrastructure to support and make economically feasible a zero waste approach which is what the landfill levies were designed to do, not fund polluting and risky AWT incinerators.

The foundations of which direction Victoria takes, ultimately depends on values. Do we value the environment, conservation of resources, a liveable climate temperature range, the health and wellbeing of our community and environmental justice, or do we value expediency, quick fix solutions to our difficult waste problems, large glitzy engineering projects, and the reduced workload and easy administration of managing one contract.

Victoria is at a crossroads in terms of which direction we take.

Maribyrnong City Council priority is to invest our resources into Zero Waste approaches rather than AWT Incinerators and endorses the following

- Expand the recycling and composting sector
- Support non incineration technologies such as composting and anaerobic digestion for organics processing rather than AWT incinerators
- Focus on producer responsibility to design for reduction re-use and recycling.
- Support the National Container Deposit Legislation

¹⁷\$430,777 million as of 30 June 2015 . EPA Annual Report 2014/15 p82 – plus an accumulation of approximately \$16.25million per month as the 2015/16 allocations to SV, EPA and Waste Groups were paid in advance in April 2015. EPA Annual Report 2014/15 p21
Based on last years \$195 million annual total revenue . EPA Annual Report 2014/15 p58