

Submission  
No 198

## INQUIRY INTO 'ENERGY FROM WASTE' TECHNOLOGY

**Organisation:** City of Sydney

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The Director  
Portfolio Committee No.6  
Parliament House  
Macquarie Street  
Sydney NSW 2000

To Whom it May Concern,

**Submission on NSW Parliamentary Inquiry into Matters Relating to the Waste Disposal Industry in NSW, With Particular Reference to Energy from Waste**

The City welcomes the opportunity to comment on the Committee's inquiry into the waste disposal industry in NSW. The City is committed to environmental leadership. Our guiding documents, *Sustainable Sydney 2030* and *Environmental Action 2016–2021*, set bold targets, including a long-term goal of zero waste to landfill.

Activity in the City of Sydney local government area produces more than 5,500 tonnes of waste every day, of which the City directly manages less than 10 per cent. We estimate that around 63 per cent of total waste produced is already recycled, but this means more than 2,000 tonnes still goes to landfill each day, with no further opportunity for reuse, recycling or recovery for energy.

The City supports the NSW Government's current Energy from Waste Policy Statement that, "... *energy from waste can be a valid pathway for residual waste where further material recovery through reuse, reprocessing or recycling is not financially sustainable or technically achievable*". However, we believe there are a number of broader issues that must be addressed to facilitate energy from waste as part of an integrated solution that manages resources in the most efficient way with the least environmental impact.

The City would encourage and support the following actions by the NSW Government to deliver long-term sustainable waste management solutions:

- Undertake a thorough review of existing and future waste treatment capacity, particularly in the Greater Sydney area
- Produce a metropolitan waste plan that identifies how Sydney can achieve its waste targets, and in particular identify suitable areas for waste management and protect these areas from residential development and other sensitive uses
- Nominate a single lead organisation as responsible for delivery of metropolitan waste infrastructure, with support from other agencies and stakeholders
- Facilitate increased collaboration between the state planning department and the regulator
- Implement improved mechanisms to collect and make available waste and resource recovery data
- Provide independently verified information regarding the environmental and health impacts of energy-from-waste facilities to address community concerns.

Our full submission is attached to this letter.

Should you wish to speak with a Council officer about this response, please contact Gemma Dawson, Waste Strategy Manager, by telephone on \_\_\_\_\_ or by email at \_\_\_\_\_

Yours sincerely

**Monica Barone**  
Chief Executive Officer

Encl.

## City of Sydney submission to NSW Legislative Council's Portfolio Committee No. 6 inquiry into 'Energy from waste' technologies, May 2017

### Introduction to City of Sydney's submission

The City welcomes the opportunity to comment on the Committee's inquiry into the waste disposal industry in New South Wales.

The City is supportive of the state government's resource recovery targets in the NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014–21<sup>1</sup>. In recognition of the long lead times for development of infrastructure to deliver resource recovery outcomes, the City recommends the NSW Government set longer-term waste targets and objectives to facilitate investment.

Energy from waste should be regulated and managed within a metro-wide planning framework, matching waste treatment capacity with planned population and development growth in greater Sydney. However, the current state infrastructure strategy<sup>2</sup> includes no reference to waste management. As waste in greater Sydney is rarely managed exclusively within the same local government area from where it is generated, there needs to be a metropolitan or regional planning approach to identify suitable areas for waste management use and protect these areas from residential development and other sensitive uses. Sydney is currently in a period of unprecedented development and growth and the availability of accessible and suitable sites for transfer and management of waste is diminishing as land surrounding existing landfills and waste treatment facilities is encroached upon by commercial and residential developments.

The City supports the management of waste based on the waste hierarchy, which should include a role for appropriate energy from waste technologies as not all waste can be avoided, re-used or recycled, and energy from waste delivers superior outcomes to landfills. The City will shortly release a revised waste strategy with the next round of initiatives to increase recycling and resource recovery, but also has an Advanced Waste Treatment Master Plan for energy from waste technologies which will be required to achieve the 2030 waste targets.

The NSW Government needs to identify a single lead organisation as responsible for delivery of adequate waste and resource recovery capacity with support from other agencies and stakeholders. The use of energy from waste technologies can then be considered as part of a broader and integrated solution that manages resources in the most efficient way with the least environmental impact. The NSW Government also needs to take a lead on providing the community with information on different energy from waste technologies to create a 'social licence' for appropriate energy from waste technologies.

Similar to the management of other utilities in Sydney the NSW Government should develop and publish a metro wide waste strategy. For example the Metro Water Plan provides overall direction

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<sup>1</sup> <http://www.epa.nsw.gov.au/wastestrategy/warr.htm>

<sup>2</sup> <https://www.nsw.gov.au/improving-nsw/projects-and-initiatives/state-infrastructure-strategy>

for operators such as Sydney Water and regulators such as IPART. A metro wide waste plan could ensure a strategic approach to maximising community value at least cost.

### Response to terms of reference

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

### Waste Data

Before an accurate assessment of whether the current provision of waste disposal and recycling infrastructure in NSW is adequate for now and into the future the collection and availability of waste data needs addressing.

Waste produced in NSW is transferred between multiple locations and combined with other waste streams before it arrives at its final destination. Interim and final destinations are often not within the same local government boundary (or sometimes the same state) as the waste is generated.

The most recent waste data available for NSW and the Sydney metropolitan area is for 2012-13 and is only for landfill deposits, not resource recovery facilities<sup>3</sup>. It is difficult to identify requirements for current and future provision of waste treatment capacity due to a lack of recent comprehensive data.

The NSW EPA State of the Environment report published in 2015, using 2012/13 waste data suggested an overall increase in waste generation but a slight drop in waste generation per person<sup>4</sup>. However, waste that is non-hazardous and is transported out of NSW (e.g. to Queensland, where there is no landfill levy), is not captured anywhere and therefore the total waste generation figure for NSW could be much higher<sup>5</sup>.

### Impact of the NSW Landfill Levy

The current NSW waste levy is \$137 /tonne in Metropolitan Sydney<sup>6</sup>, which is the highest landfill levy in Australia. The levy is an effective mechanism for encouraging the development of alternative and innovative solutions to landfill that can provide positive environmental and economic outcomes.

In 2012, the Queensland Government removed their levy on waste disposal. Since then they have reported a significant increase in the amount of trackable waste (hazardous waste) received from other states, 87% is from NSW<sup>7</sup>. There is no data available on non-trackable waste leaving NSW. The impact of this is that it undermines the ability of recycling and resource recovery facilities in NSW to compete against very low landfill gate fees in QLD, even with cost of transport included.

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<sup>3</sup> <http://www.epa.nsw.gov.au/resources/soe/150817-soe-7-waste-recycling.pdf>

<sup>4</sup> <http://www.epa.nsw.gov.au/resources/soe/150817-soe-7-waste-recycling.pdf>

<sup>5</sup> <http://statements.qld.gov.au/Statement/2016/2/29/stronger-measures-to-stop-nsw-rubbish-flowing-into-queensland-miles>

<sup>6</sup> <http://www.epa.nsw.gov.au/wasteregulation/waste-levy.htm>

<sup>7</sup> <http://www.ehp.qld.gov.au/state-of-the-environment/finding/?id=3.3.5.3>

## **Waste treatment capacity**

Since the sale of the state owned corporation WSN Environmental Solutions in 2010, the majority of waste infrastructure in the Sydney metropolitan area is now owned and operated by the private sector. Development opportunities for new facilities are only progressed where a strong financial business case is identified, rather than on broader cost vs community benefit basis.

In NSW, the Environmental Protection Authority (EPA) is responsible for waste as the environmental regulator and promotion of increased resource recovery, but it has limited ability to influence the strategic development and placement of waste or resource recovery treatment facilities. There is a need for strategic planning for waste at a metropolitan level that identifies and secures land for our existing and future waste treatment capacity requirements.

A waste treatment capacity study is understood to have been commissioned by NSW EPA circa 2015, however the results have not yet been made publically available. A report produced by KPMG in 2012<sup>8</sup> identified waste infrastructure as a key issue to be addressed in NSW.

In recent years, much of the land surrounding existing landfills and waste treatment facilities have experienced encroachment by commercial and residential developments. This has resulted in challenges with the expansion of existing waste treatment facilities or development of new resource recovery facilities on land that has an existing development approval for waste management.

### **Recommendation:**

In summary, the City believes that because waste in Greater Sydney is rarely managed within the same local government area where it is generated, there needs to be a metropolitan or regional planning approach to identify suitable areas for waste management use and protect these areas from residential development and other sensitive uses.

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

#### **Definition of energy from waste**

In NSW, the term ‘energy from waste’ is commonly used to refer to thermal treatment of waste to recovery energy. There are other energy from waste technologies that do not rely on thermal treatment e.g. anaerobic digestion technologies, or are purely for the treatment of biofuels. The inquiry should be clear in distinguishing between different types of energy from waste technologies where required in its report.

#### **The role of energy from waste and other treatment solutions in the waste hierarchy**

The NSW EPA has defined the role of energy from waste (EfW) in its Policy Statement<sup>9</sup> as having “the potential, as part of an integrated waste management strategy, to deliver positive outcomes for the community and the environment. Energy from waste can be a valid pathway for residual waste

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<sup>8</sup> <http://www.epa.nsw.gov.au/resources/wasteregulation/waste-levy-review-report.pdf>

<sup>9</sup> <http://www.epa.nsw.gov.au/resources/epa/150011enfromwasteps.pdf>

where further material recovery through reuse, reprocessing or recycling is not financially sustainable or technically achievable”.

Landfill disposal is considered internationally<sup>10</sup> and in the NSW Waste Strategy<sup>11</sup> as the least sustainable way to manage waste.

Waste going to landfill has a number of negative impacts such as:

- environmental (greenhouse gas emissions, potential contamination of land and groundwater, and harm to flora and fauna)
- amenity (odour, noise, dust, litter)
- encroachment on space (landfills continue to require more space that could be otherwise used for amenity, open space, development etc)
- loss of valuable resources (renewable resources are lost)

Despite landfill being recognised as the least preferable method of managing resources and waste in the waste strategy, development approvals for the expansion of additional landfill capacity continue to be awarded at a greater volume than resource recovery. In December 2016 approval was given for the expansion of the Lucas Heights landfill facility for a further 8.3million tonnes of putrescible landfill capacity between 2024 and 2037<sup>12</sup>, roughly 638,000 tonnes per annum.

The EfW policy statement sets thresholds for the maximum amount of waste that can be treated at an EfW facility from municipal or commercial sources according to the level of source separated recycling systems in place. This is to ensure that where possible all recycling of materials with a valid processing outlet and market can be achieved. No such restrictions are placed on landfill facilities.

**Recommendation:**

The City would like to see a more thorough review of existing and future waste treatment capacity, particularly in the Greater Sydney area, by facility type, so that an assessment can be made on whether there is sufficient treatment capacity to better manage waste that currently does not have a resource recovery market alternative.

c) current regulatory standards, guidelines and policy statements overlooking ‘energy from waste’ technology, including reference to regulations covering: i) the European Union, ii) United States of America and iii) international best practice

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<sup>10</sup> <http://ec.europa.eu/environment/waste/framework/>

<sup>11</sup> <http://www.epa.nsw.gov.au/resources/wastestrategy/140876-WARR-strategy-14-21.pdf>

<sup>12</sup> <https://majorprojects.accelo.com/public/5ce18f32b164b924505f847024e3b334/Assessment%20Report.pdf>

## Europe

Energy from waste has been used widely in Europe for many years<sup>13</sup>. European countries also have some of the highest recycling and lowest landfill disposal rates in the world<sup>14</sup>. Thermal energy from waste facilities are governed by very strict regulations regarding emissions and are often subject to review and updates<sup>15</sup>.

## United States

Currently, there are 86 facilities in the United States that recover energy from the combustion of municipal solid waste (combined capacity of 28 million tonnes of waste)<sup>16</sup>. All operating facilities are subject to the US Clean Air Act<sup>17</sup>.

The US EPA states that *Energy recovery from the combustion of municipal solid waste is a key part of the non-hazardous waste management hierarchy, which ranks various management strategies from most to least environmentally preferred. Energy recovery ranks below source reduction and recycling/reuse but above treatment and disposal.*

## Australia

At the national level, there is no policy on energy from waste. NSW, WA<sup>18</sup>, and Victoria<sup>19</sup> have a policy or position paper on the use thermal energy from waste technologies. South Australia also prepared an interim consultation paper<sup>20</sup> in 2013 but a policy has not been released.

WA have approved the development of 3 such facilities however they have yet to commence construction.

They all broadly support thermal energy from waste solutions as part of an integrated approach to improved waste management and achieving landfill diversion targets (without negatively impacting recycling). However, there are no mixed waste energy from waste facilities at a commercial scale in Australia, which lags other nations.

The City believes that obtaining a social license to operate is crucial to the future development of waste management facilities, particularly those involving thermal treatment of waste. At a recent waste conference in NSW the South Sydney Regional Organisation of Councils presented a paper on community perceptions of energy from waste<sup>21</sup>. The research highlighted the importance of making

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[http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=7&cad=rja&uact=8&ved=0ahUKewiIs cqasq\\_TAhWDEpQKHbYDAhcQFghLMAY&url=http%3A%2F%2Fwww.eea.europa.eu%2Fpublications%2Fmanaging-municipal-solid-waste%2Fdownload&usg=AFQjCNG4-8WUDJ9wZUOHMBKSSzxm4upCw](http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=7&cad=rja&uact=8&ved=0ahUKewiIs cqasq_TAhWDEpQKHbYDAhcQFghLMAY&url=http%3A%2F%2Fwww.eea.europa.eu%2Fpublications%2Fmanaging-municipal-solid-waste%2Fdownload&usg=AFQjCNG4-8WUDJ9wZUOHMBKSSzxm4upCw)

14 <http://ec.europa.eu/eurostat/documents/2995521/7214320/8-22032016-AP-EN.pdf>

15 <http://ec.europa.eu/environment/industry/stationary/ied/legislation.htm>

16 <https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw#02>

17 <https://www.epa.gov/clean-air-act-overview/setting-emissions-standards-based-technology-performance>

18 [http://www.wasteauthority.wa.gov.au/media/files/documents/W2E\\_Position\\_Statement.pdf](http://www.wasteauthority.wa.gov.au/media/files/documents/W2E_Position_Statement.pdf)

19 <http://www.epa.vic.gov.au/~media/Publications/1559.pdf>

20 [http://www.zerowaste.sa.gov.au/upload/resource-centre/publications/waste-to-energy/ZWSA%20WASTE%20TO%20ENERGY%202013%20DE\\_01.pdf](http://www.zerowaste.sa.gov.au/upload/resource-centre/publications/waste-to-energy/ZWSA%20WASTE%20TO%20ENERGY%202013%20DE_01.pdf)

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[https://www.dropbox.com/s/ylbtu3vudauguse/Planning%20and%20Infrastructure\\_7\\_Hazel%20Storey%20and%20Vicky%20Critchley.pdf?dl=0](https://www.dropbox.com/s/ylbtu3vudauguse/Planning%20and%20Infrastructure_7_Hazel%20Storey%20and%20Vicky%20Critchley.pdf?dl=0)



available information to the community that details health and environmental impacts of waste treatment facilities. The research also identified a preference for information from independent, trusted scientific sources and regulators.

### **Recommendation**

If energy from waste is to form part of an integrated waste management and resource recovery solution for NSW, as is outlined in the energy from waste policy statement, then the government needs to make available independently verified information regarding the environmental and health impacts of such facilities. As an example, the UK government produced a document<sup>22</sup> that is accessible to the broader community to provide an overview of energy from waste and links to more detailed technical information.

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

The following items could be considered as part of the development of a facility business case.

- Investigate the whether markets exist for re-use or recycling of the feedstock identified as a fuel.
- Investigate access to possible heat offtake market to enable combined heat and power or other energy uses to increase the efficiency of the facility. This is becoming more important in Australia as the cost of natural gas, often used in industrial heating processes, continues to rise.
- Investigate markets for process outputs such as metals, inert materials and energy.

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

In NSW, all responsibility for regulation of waste management facilities is with the regulator, the NSW EPA. The City supports this existing approach.

The NSW Energy from Waste Policy Statement<sup>23</sup> references the requirement for emission monitoring with real-time feedback to the controls of the process. This is consistent with requirements in other European countries. In many instances (e.g. UK), these monitoring systems are available for the public to access on an average daily emissions basis for each month<sup>24</sup>.

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<sup>22</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/284612/pb14130-energy-waste-201402.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284612/pb14130-energy-waste-201402.pdf)

<sup>23</sup> <http://www.epa.nsw.gov.au/resources/epa/150011enfromwasteps.pdf>

<sup>24</sup> <https://www.veolia.co.uk/sheffield/what-happens-your-waste/what-happens-your-waste/energy-recovery-facility/emissions>

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

No response.

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

The European Commission has recently released a report that discusses the role of energy from waste as part of the circular economy<sup>25</sup>. Summary notes from the document are as follows:

- The waste hierarchy broadly reflects the preferred environmental option from a climate perspective: disposal, in landfills or through incineration with little or no energy recovery, is usually the least favourable option for reducing greenhouse gas (GHG) emissions; conversely, waste prevention, reuse and recycling have the highest potential to reduce GHG emissions.
- To support the transition towards a more circular economy, public financing of waste management should be consistent with the goal of shifting upwards in the implementation of the waste hierarchy.
- When reviewing national waste management plans and assessing the need for waste-to-energy capacity for the treatment of non-recyclable waste governments should take a long-term perspective and carefully assess the following factors:
  - the impact of existing and proposed separate collection obligations and recycling targets on the availability of feedstock to sustain the operation of new incineration plants over their lifespan (20 -30 years);
  - the available capacity for co-incineration in combustion plants and in cement and lime kilns or in other suitable industrial processes; and
  - planned or existing capacity in neighbouring countries.
- Exporting non-recyclable waste for energy recovery to another country should not necessarily be seen as contradicting the so-called principle of proximity (i.e. using the nearest appropriate facility) where a carbon or lifecycle benefit can be demonstrated.
- Where waste-to-energy processes are opted for, there is a need to ensure that the most efficient techniques are used: this maximises their contribution to the state's climate and energy objectives.

The document concludes that waste-to-energy processes can play a role in the transition to a circular economy provided that the waste hierarchy is used as a guiding principle and that choices made do not prevent higher levels of prevention, reuse and recycling.

Similarly, the existing NSW EfW policy statement sets thresholds for the maximum amount of waste that can be treated at an energy from waste facility from municipal or commercial sources according to the level of source separated recycling systems in place. This is to ensure that where possible all

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<sup>25</sup> <http://ec.europa.eu/environment/waste/waste-to-energy.pdf>

recycling of materials with a valid processing outlet and market can be achieved. It should be noted that access to recycling and reprocessing markets is more restricted in Australia than in Europe.

**Recommendation:**

The City supports NSW adopting a similar approach and would recommend that the same assessment be considered for landfill disposal given its placement below energy recovery on the waste hierarchy.

**h) any other related matter**

To achieve its objective as leader and innovator in environmental technology<sup>26</sup> and to secure adequate treatment capacity to match the planned population and development growth in Greater Sydney, increased collaboration between the NSW Department of Planning and the EPA is required. The current state infrastructure strategy<sup>27</sup> includes no reference to waste management, yet this is a fundamental and growing service requirement for all residents and workers in the greater Sydney area.

**Recommendation**

The NSW Government needs to identify a single lead organisation as responsible for delivery of adequate waste and resource recovery capacity with support from other agencies and stakeholders. The use of energy from waste technologies can then be considered as part of a broader and integrated solution that manages resources in the most efficient way with the least environmental impact.

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<sup>26</sup> <http://www.planning.nsw.gov.au/~media/Files/DPE/Plans-and-policies/a-plan-for-growing-sydney-2014-12.ashx>

<sup>27</sup> <https://www.nsw.gov.au/improving-nsw/projects-and-initiatives/state-infrastructure-strategy>