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Submission on Energy from Waste Discussion Paper

Thank you for the opportunity to comment on the discussion paper on the proposed *Queensland Energy from Waste Policy*.

Boomerang Alliance welcomes the State Government's focus on the principles and practices of a circular economy to guide its resource recovery and energy from waste (EfW) policies. A circular economy model, a so called cradle-to - cradle system, manages resources and products through an economy so that they circulate and are retained in the economy, and not discarded as wastes. Energy from waste, with some exceptions, fails this fundamental test.

Circular Economy

Boomerang Alliance considers the following actions to offer a good guide to achieving a circular economy.

- *Prioritise the use of renewable, non-toxic and sustainable materials in manufacturing, whilst minimising resource use*
- *Design products for post-consumer re-use or recycling*
- *Maximise product lifespans through maintenance and repair*
- *Manage discarded products so that they are efficiently collected for re-use or recycling.*
- *Discarded products should be managed to achieve their highest resource value*

- *Collaborate throughout the product supply chain to maximise resource value, jobs and business opportunities in collection and resource recovery*
- *Educate consumers on the value of finite resources and the need to retain these in the economy, and specifically about best practice procurement and discard behaviour to achieve a circular economy*

Boomerang Alliance is pleased to see aligned circular economy actions expressed in this discussion paper.

The Queensland Department of State Development, Manufacturing, Infrastructure and Planning have endorsed a circular economy model for resource recovery in Queensland and have stated:

'It's about retaining value in resources and adding value to waste materials with a preference for local use, providing opportunities for new and innovative business ideas and new types of jobs. It has the potential to transform the way we design, teach and invest and how we buy products, gradually moving towards an economy where there's no waste and we use fewer virgin materials. We've set a bold vision to become a zero-waste society.'

Extract from Draft QLD Resource Recovery Roadmap 2019-Queensland DSDMIP

Energy from Waste Technologies and the Circular Economy

Energy from Waste (EfW)) includes a wide range of technologies. Some, such as anaerobic digestion or landfill gas capture (retrospective, but not as a justification for more landfill), can be beneficial and complement a circular economy. Some contradict those principles and practices. It is important to distinguish between the acceptable technologies and the unacceptable ones. The government needs to clarify what is acceptable and what is unacceptable. It should not be left to the market or technology proponents with vested interests to decide.

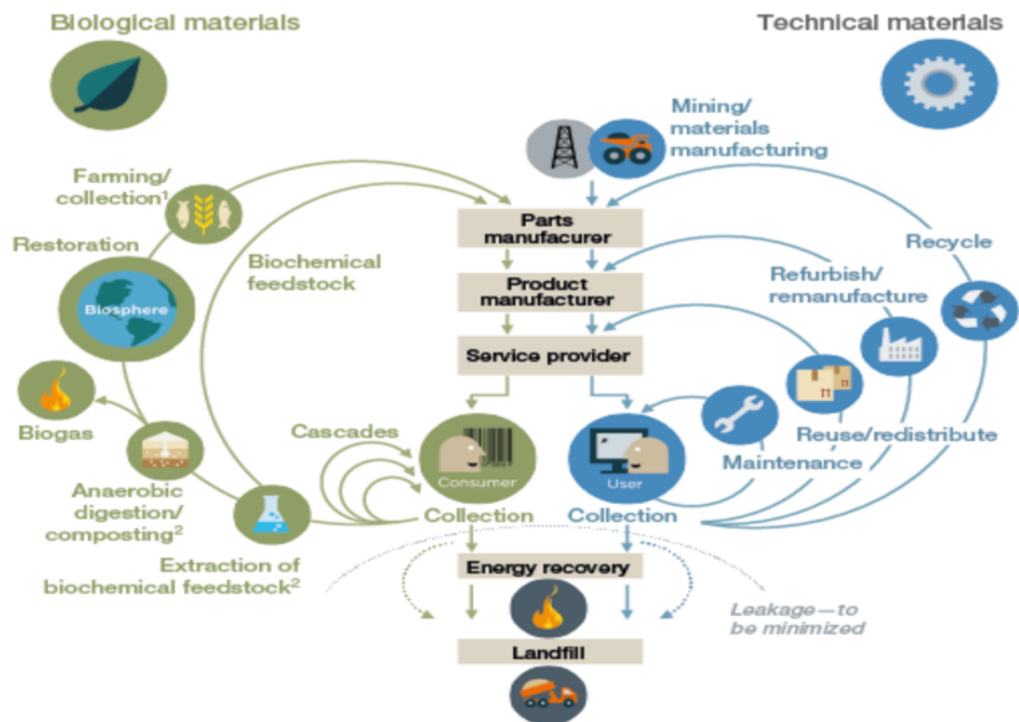
We note that in this Discussion paper the government has recognised that avoiding, reusing and recycling materials is more important than recovering energy, and that technologies like anaerobic digestion are preferred options under an EfW framework.

The paper states:

'On the waste hierarchy, energy recovery is preferable to landfill because it recovers some value from the waste, reduces greenhouse gas emissions from

organic wastes and lessens the legacy impacts of landfill. However, it is less desirable than avoiding the generation of waste, reusing or recycling materials.'

Technologies such as anaerobic digestion actually enhance a circular economy approach. They comply with circular economy principles, they don't undermine re-use or recycling and enhance and value-add to resource recovery.



Ellen Macarthur Foundation

Mixed waste energy recovery on the other hand means that materials have not been adequately separated for re-use or recycling, and given the materials left in mixed wastes (predominantly mixed plastics), greenhouse gas emissions and toxic emissions will not be reduced but increased.

Incineration of mixed wastes contradicts a circular economy. A recent EU Commission paper on the circular economy (*The role of waste-to-energy in the circular economy 2017*) states that mixed waste incineration undermines recycling, and is incompatible with the circular economy. It recommends the phasing out of these facilities in favour of investment in improved resource recovery and recycling. Its advice included a recommendation that, for nations with existing mixed waste incinerators, a moratorium be introduced on any new facilities.

Boomerang Alliance strongly opposes the use of mixed waste incineration and other incompatible EfW processes as an element of the circular economy as this represents a highly inefficient use of resources. Primarily, it does not achieve the objectives of retaining resources in the system for as long as possible. Additionally, the misleading information around the economics, safety and efficiency of most incineration technologies continues to ignore the negative environmental and human impacts associated with GHG emissions, human health concerns and compromised agricultural land quality. Such plants also carry high financial costs over time and requires a consistent flow of materials to provide economic viability. It has been estimated that incineration is 2-3 times more expensive than landfilling.

Further to this, incineration fails to provide the same potential for job creation as expansion of the recycling / repair / re-use sectors; the costly energy generation is insignificant when compared to the energy savings achieved through sustainable waste handling methods; incineration also adds to the use of hazardous waste landfill due to the production of toxic outputs which subsequently require additional handling and associated extra costs. EfW also locks up recyclable resources for long contract periods, thus diverting usable resources to one-off energy extraction.

Boomerang Alliance also draws your attention to the New Plastics Economy Pact (*A common vision for a circular economy for plastics-Elle MacArthur Foundation*), endorsed by over 400 major corporations and organisations. This includes 6 of the top 10 global consumer goods companies-Nestle, Pepsico, Unilever, Coca-Cola, L'Oréal and Mars, 7 of the top 10 global plastic packaging producers including Amcor, APHLA Group, Sealed Air, AptarGroup and Berry Corp and 5 of the top global retailers including Walmart, Schwartz and Target. Both Veolia and Suez are also signatories.

This states that all plastic packaging should be reusable, compostable and recyclable by a 2025 target (all Australian jurisdictions have endorsed this position). The initiative notes that:

- *No plastics should end up in the environment. Landfill or incineration, and that waste-to-energy (with respect to plastics incineration) was not part of a circular economy target state.*
- *Businesses producing and /or selling packaging have a responsibility beyond the design and use of their packaging, which includes contributing towards it being collected and reused, recycled or composted in practice*

- *Governments are essential in setting up effective collection infrastructure, facilitating the establishment of related self-sustaining funding mechanisms and providing an enabling regulatory and policy landscape*

Achieving Waste Reduction/Resource Recovery Outcomes

According to the QLD Waste Management and Resource Recovery Strategy, Queensland generates 10.9 MT of waste and sends 45% of this waste to landfill every year. Targets have been set to increase the diversion of those wastes. These are outlined below.

Table 2—Waste diversion from landfill targets (recovery rate as a percentage of total waste generated)

Stream	Baseline (2018)	2025	2030	2040	2050
MSW	32.4 %	55%	70%	90%	95%
C&I	47.3 %	65%	80%	90%	95%
C&D	50.9 %	75%	85%	85%	85%
Overall	45.4 %	65%	80%	85%	90%

The *Potential for Waste to Energy Preliminary Discussion Paper* estimated that municipal residual wastes (waste that cannot be realistically collected for re-use or recycling today, and the only wastes even considered for energy recovery) represented about 15% of the current municipal waste stream. Given the targets above and the estimates on residual municipal wastes available, why is the State Government even considering EfW options to reduce waste to landfill for this sector right now?

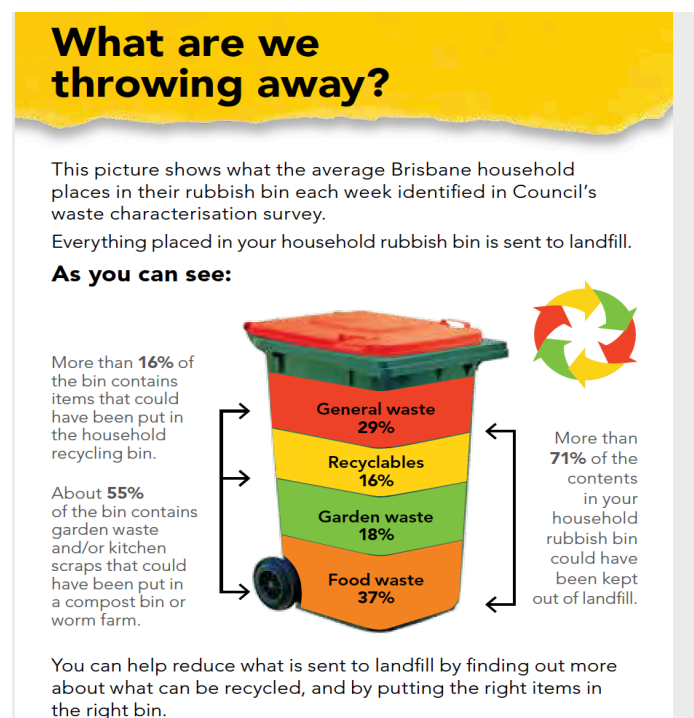
The EfW option is not necessary to meeting the municipal targets for waste diversion to 2030. And yet, it is the municipal sector that has been the subject of all the debate on EfW, and the primary reason why the government is rushing to produce an EfW policy. There is no urgency for a municipal sector EfW policy. Further the targets themselves are skewed towards the simplistic landfill diversion measure, rather than recycling which will be at risk if EfW is established and lock in a growing demand for materials.

One EfW option favoured by the LGAQ is anaerobic digestion. This option operates after organics have been collected and separated from general waste. Anaerobic digestion is an example of value-adding to the delivery of established waste strategies on organic separation. Anaerobic digestion of collected and separated organic wastes for the municipal sector could be introduced today to enhance best practice collection.

What Queensland really needs is the establishment of better re-use and recycling services to correct the lamentably low recycling rates for the municipal sector, currently marginally above 30%.

It is estimated that over 70% of the average household garbage bin in Brisbane (read most of urban Queensland) should not be there. The average bin contains organic materials, recyclables and hazardous products. The government should put focus in getting services that reduce these materials more effectively before focusing any more attention on EfW.

The immediate challenge for waste reduction in Queensland is to collect and separate organics (food and garden wastes), recyclables (plastics, containers and paper) and hazardous materials (batteries, paints etc) from the general waste stream. These can then be re-used/repaired, composted or recycled. This is the most effective way to achieve 2030 reduction goals.



The Real Need for Policy on EfW

There are valid reasons for developing a EfW policy. These are not primarily related to waste reduction. There are sugar mill co-generation bagasse plants, refuse derived fuel operations, tyre combustion facilities, and anaerobic digestion from commercial and livestock operations. Policies and regulations in place now need review and confirmation, to ensure that these facilities meet environmental and social standards.

Existing and proposed commercial EfW facilities are the real current need to have Queensland EfW policy and regulation.

However, none of these significantly contributes to achieving waste reduction goals.

Checklist for an Energy from Waste Policy (to reduce waste to landfill)

A Queensland Energy from Waste Policy should:

- Actively support a circular economy model by ensuring identified best practices are introduced at all stages of product lifecycles
- Set policy for best practice re-use and recycling collection services in Queensland (Municipal, C&D, C&I)
- Introduce Government procurement policies and business incentives or penalties to develop further markets for recycled materials
- Identify and promote only technologies that meet circular economy principles and clearly rule out other technologies
- Always preference avoidance, re-use and recycling above energy recovery
- Recognise that promoted technologies operate to enhance and value-add resource recovery, and do not undermine resource recovery
- Maintain a continuous improvement approach and avoid long term contracts for landfill or EfW.

Conclusion

In our view it is important that the State Government introduce an energy from waste (EfW) policy.

- (1) This should firstly address policy and regulation for existing EfW operations, primarily for the commercial sector.

(2) Boomerang Alliance does not consider there is any urgency in implementing an EfW policy to divert waste from landfill from the municipal sector. The expressed waste diversion targets for 2030 mean that EfW is not needed.

The government would be better served in this respect (2) by putting its energies into improving re-use and recycling services and opportunities to reduce the wastes currently going to landfill.

Setting the policy will provide a degree of certainty to business and communities about the future of EfW. It will provide the time to put in place the alternative and preferred options of avoidance, re-use and recycling, and the initiatives and services that support these arrangements.

Such an approach would not prevent the promotion and establishment of EfW technologies such as anaerobic digestion that value-add current resource recovery options. Technologies such as anaerobic digestion and landfill gas capture should be considered and promoted. Both augment and comply with a circular economy approach, neither undermines re-use or recycling and both enhance resource recovery.

Such an approach gives the government the opportunity to review material and product lifecycles, support new market development in recycled materials and with local government and C&D and C&I sectors establish more effective collection services.

This would mean:

1. Setting a schedule to introduce an EfW policy (consistent with a circular economy approach). This needs to identify technologies that will also be able to gain a social licence to operate. The policy should be designed in two parts (1) to manage and regulate existing or proposed commercial EfW facilities and (2) to establish a framework for future EfW facilities designed to reduce waste to landfill and support best practice resource recovery
2. Review policy and regulation on existing EfW operations and any proposed facilities for commercial sectors.
3. Continue engagement with stakeholders in government, business, waste industry and community to establish a more effective resource recovery system in Queensland. A broad-based stakeholder Taskforce to assist and review progress should be established.

4. Review the policy framework prior to the 2030 waste diversion target deadlines.

Boomerang Alliance views on current commercial EfW operations listed in the Discussion Paper.

Technology characteristics	Technology and waste feedstock examples	Proposed policy requirements
<p>Treats low-risk or homogenous waste streams.</p> <p>Environmental and human health risks of the technology are well understood. Measures to mitigate the risks are known and effective. Any risk remaining after application of the mitigation measures is low.</p> <p>Regulators and the wider community have confidence the facility can be managed in a safe and appropriate manner.</p>	<p>Combustion with energy recovery uncontaminated biomass (e.g. untreated timber or agricultural biomass).</p> <p>Energy recovery from bagasse.</p> <p>Combustion of shredded tyres/tyre derived fuel in cement kilns.</p> <p>Anaerobic digestion of sewage sludge.</p> <p>Anaerobic digestion of single stream organic waste (e.g. from food processing or intensive livestock operations).</p> <p>Landfill gas capture and combustion.</p>	<p><i>The EfW policy would set clear requirements and expectations regarding:</i></p> <p>Obtaining appropriate development approvals and environmental authorities under existing regulatory frameworks.</p> <p>Complying with operating conditions imposed under existing licencing frameworks, including standards for air emissions and disposal of residues.</p> <p>Applying the waste disposal levy on any residues disposed to landfill.</p>

Of the technologies listed, most could be considered appropriate for the future. We include anaerobic digestion, landfill /sewage gas capture in this. Combustion of uncontaminated biomass and bagasse would be placed above the line on acceptability, although we stress that the feed stock needs to remain uncontaminated. There are outstanding questions about fertiliser contamination of sugar cane in bagasse facilities.

Combustion of shredded tyres and tyre derived fuels or indeed refuse derived fuels we consider problematic. There are preferred options for tyres through a product stewardship approach that would favour re-use, re-treading, recycling and fuel production (without combustion).

Typically, modern tyres contain synthetic and natural rubber, carbon black, steel, silica, plastics and over 40 different chemicals, waxes, oils and pigments


Refuse derived fuel production is regarded as a backdoor means to undermine re-use and recycling.

As already noted, mixed waste incineration is not acceptable.

Signed



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*Boomerang Alliance represents 48 Australian and international community, environmental and local government groups on issues of waste and pollution. We are:

