

Infrastructure Victoria: Recycling and resource recovery Submission

Infrastructure Victoria requested public submissions regarding the development of advice to government on how better recycling and resource recovery industry for Victoria might be developed. Oil Fox Australia welcomes the emphasis placed on clean input streams, resource recovery and look forward to innovative organically derived products being encouraged as part of a transition to a genuinely circular economy.

The tools at the Victorian government's disposal, e.g. targets and landfill levy, can significantly influence the systemic and technological choices made by individuals and waste management service providers. We would favour the formal inclusion of Life Cycle Analysis (LCA) techniques in the setting and demonstration of meeting any targets. LCA could also be used to proportion the landfill levy to different elements of a waste management value chain to ensure maximisation of resource recovery before final disposition.

There is a need to support the availability of uncontaminated streams of organic waste which provides ready feedstocks for anaerobic digestion and its associated byproducts. While heavy emphasis is placed on managing the organic fraction of Municipal Solid Waste other organic waste streams can provide the necessary scale to develop commercially viable regional bioremediation hubs generating organic products to standards that can generate confidence to potential customers. However, it is important to recognise that there will always be some Organic Fraction of Municipal Solid Waste and appropriate mechanisms need to be available to recover its associated resources.

Providing regulatory certainty regarding products derived from waste organics streams to allow for the development of strong end markets is critical. To this end we would advocate a certification scheme to allow digestates to be treated as products rather than waste, based on internationally recognised standards such as BSI PAS 110:2014 and that the necessary associated protocols and developed by appropriate regulatory authorities. This has proved successful in the UK and has obvious potential to be replicated in Victoria.

Introduction

Infrastructure Victoria published an evidence based report on *Recycling and resource recovery infrastructure* in October 2019 (1). Based on this report public submissions were requested regarding the development of advice to government on how better recycling and resource recovery industry for Victoria might be developed. As a new entrant to the Australian market in general and the Victorian market in particular Oil Fox Australia appreciates the opportunity to contribute to the wide ranging and in depth analysis undertaken by Infrastructure Victoria.

Oil Fox Australia views organic waste streams as valuable resources of complex nutrients and chemicals whose recovery and reuse need to be maximised as part of a genuinely circular economy. The dispersion of organic materials into the wider environment imposes the twin impacts of pollution where nutrients are unwanted, and the use of artificial fertilisers where nutrients are needed.

Anaerobic digestion, bioremediation and aquaculture fueled by organic waste streams offer the potential to regional Victoria to minimise pollution and develop innovative new industries that reinforce existing production and employment. We look forward to playing our part in Victoria's circular economy.

Infrastructure Victoria's request for submissions

Have we identified the right outcomes for Victoria to aim for?

Oil Fox Australia consider the outcomes identified to be appropriate and reflects our directors' experience of Victorian waste management markets. We welcome the emphasis placed on clean input streams, resource recovery and look forward to innovative organically derived products being supported.

Have we identified the most effective potential actions for the government to take?

The tools at the Victorian government's disposal, e.g. targets and landfill levy, can significantly influence the systemic and technological choices made by individuals and waste management service providers. We would favour the formal inclusion of Life Cycle Analysis (LCA) techniques in the setting and demonstration of meeting any targets. LCA could also be used to proportion the landfill levy to different elements of a waste management value chain to ensure maximisation of resource recovery before final disposition.

Export bans are a useful tool in ensuring Australia takes responsibility for its waste. Our parent organisation is painfully aware of the pressures being placed on developing and emerging economies with weak governance to accept external waste. However, as the ocean plastic pollution crisis demonstrates, contaminants recognise no borders and outsourcing our responsibilities is not a viable long term strategy.

We welcome the focus on high levels of recovery for organics, particularly food organics, and note that those scenarios that emphasised organics collection scored highest in the Multi-Criteria Assessment the *Resource Recovery & Recycling Infrastructure Analysis* (2) report. The proper separation and treatment of organics is an essential element in rightsizing incineration facilities and not creating perverse incentives regarding waste generation and management options.

However, it is necessary to recognise there will always be some element of Organic Fraction of Municipal Solid Waste (OFMSW). Legal and regulatory clarity will need to be provided regarding resource recovery options for OFMSW and avoid the operational and investment risks that arose with the NSW Environment Protection Authority revoking (3) their general and specific Resource Recovery Orders and Exemptions with Mixed Waste Organic Outputs.

Which, if any, of the initiatives implemented in Wales would you like to see applied in Victoria?

The UK in general provides an excellent model for promotion of anaerobic digestion as a resource recovery technology. Clear definitions regarding feedstock and the use of digestate and associated byproducts using BIS PAS 110:2014 (4) and Quality Protocol (5) have made anaerobic digestion projects practically and financially feasible. Selling products is easier than disposing of waste. The certification scheme in the UK has allowed anaerobic digestate and products derived from it to avoid bureaucracy by focusing regulation on how the waste is treated rather than where an appropriately treated product is used.

While some have identified a certification of digestates as a potential barrier (6), we believe such a certification scheme is essential to allow the development of appropriate end markets. Without

such schemes digestates will have constrained end markets both financially and geographically which, outside of a limited set of circumstances, would render many projects unviable.

What do you think of the market design opportunities proposed to improve waste sector outcomes and efficiency?

While we welcome a focus on encouraging separation of organics at source, some of the suggestions contained in the report *Opportunities to improve investment in-the-Victorian waste economy* from the Centre for Market Design (7), e.g. using the wastewater treatment system to collect separated household organics, would induce other infrastructural and resource (water) issues much greater than the problem seeking to be addressed.

While competition is desirable in the procurement of waste management services, concession periods need to be sufficiently long to allow for capital investment to be accessed and recovered. An over emphasis on competition will see less capital intensive ideas promoted rather than achieving better medium and long term outcomes. Life Cycle principles across the entire collection, processing and disposition value chain need to be applied.

Where do you think the government should focus their efforts to increase recycling and resource recovery?

As a company which specialises in bioremediation, organic streams from industrial, commercial and municipal represents the fuel for our operations. A true circular economy views these streams as resources for the production of energy, water, food and other products rather than waste to be treated and disposed of.

There is a need to move towards a more positive agenda which makes the community aware of the resources that they play a critical role in harvesting. Recognition of the environmental and societal benefits of processes that may be perceived as dirty or undesirable in addition to managing legitimate concerns regarding pollution and amenity risk will be essential to prevent “Not In My Back Yard” attitudes inhibiting essential infrastructure development.

The main levers at the government’ disposal, the setting of legally enforceable targets and the landfill levy, should be set to promote resource recovery not just diversion from landfill, so as to maximise all the ancillary benefits available. Life Cycle thinking and analysis should be incorporated in the design of these levers and system participants should be asked to address Life Cycle issues in their operations and service offerings.

The financial viability of anaerobic digestion plants benefit significantly from economies of scale. Given that the resource catchment areas of regional hubs are likely to cross municipal and potentially Waste and Resource Recovery Region boundaries, the government should promote consistency across these entities. Such consistency will allow the location of hubs to be driven by logistics rather than artificial boundaries.

A statewide byproduct certification scheme allowing digestate, and materials derived from it, to be considered as products rather than wastes should be initiated. Ideally the scheme would be operated on a national basis which would help prevent waste crossing borders. As well as making it easier to dispose of properly treated digestate, such a scheme would provide a level playing field for those competing for organic streams. This will prevent those operating outside the scheme from

claiming equivalence with those in compliance. The scheme is also a critical element in raising awareness and providing assurance to the wider community.

Which materials or infrastructure types present the most opportunity in your region?

While heavy emphasis is placed on managing the organic fraction of MSW, other organic waste streams can provide the necessary scale to develop commercially viable regional bioremediation hubs generating organic products to standards that can generate confidence to potential customers. Organic Commercial and Industrial waste streams can be better used to derive energy and other valuable products that composting alone cannot deliver.

Optimising system performance will see co-digestion becoming increasingly common. Providing certainty that streams can be combined without compromising the commercial viability of the resulting products, via regulatory documents similar to the Quality Protocol in the UK, will be essential.

The potential for anaerobic digestion to be deployed at wastewater treatment plants is significant and something we would welcome. However, there is still far too much organics going to trade waste and care should be taken not to encourage further volumes. A genuinely circular economy will seek to maximise the potential benefits of these resources rather than merely seek their safe disposal.

What is a legislative barrier or enabler that you have encountered when trying to use recycled materials?

The lack of clarity regarding how waste may be safely transformed into useable byproducts has, in our experience, act as a brake on innovation. For example AS 4454:2012 (8) expressly excludes liquid organic wastes, making the largest fraction of digestate by volume difficult to market regardless of any treatment process applied.

Such a lack of clarity makes regulatory bodies understandably reluctant to act, particularly when presented with innovative technological approaches. Anaerobic Digestion is a long established technology around the world and experience in the UK has demonstrated that, with a sympathetic regulatory regime, deployment rates can be increased significantly.

References

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Document History

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Oilfox Australia is part of the international Oilfox Group. Founded in Argentina, Oilfox seeks to address the energy, water and food challenges of the 21st century with sustainable technology that can be deployed by Small and Medium Enterprises ensuring the broadest spread of the environmental and economic benefits.

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Understand the potential of your organic waste

Oil Fox Australia's Bioremediation Potential Report is a free online tool that uses annual energy, water and waste data to produce a site specific estimate of the financial viability of anaerobic digestion and bioremediation. This tool can be accessed at <https://bit.ly/2OckKyl> or by scanning the QR Code. For more information please visit our website.

