RETAIL AND FOOD SERVICES SUPPLY CHAIN ADVISORY GROUP PROVISION OF ADVICE ON OPPORTUNITIES TO SUPPORT THE NATIONAL FOOD WASTE STRATEGY

Organisation: National Waste and Recycling Industry Council (NWRIC)

1. TITLE OF OPPORTUNITY

Repurposing food waste and high BOD[1] liquid waste streams through anaerobic digestion (AD) to produce fuel and fertilizer.

2. TIMEFRAME

The permitting, licensing, construction and commissioning of new recycling infrastructure typically takes 3-10 years. Long term feedstock contracts (5-20 years) are needed for most projects.

- ☐ In years 4-8 - YES
- ☐ In years 9-12 - YES

3. THEME

Innovation.

4. DESCRIBE THE OPPORTUNITY

Anaerobic digesters (AD) break down food waste in the absence of oxygen. The useful products from this process include;

- Digestate - a nutrient rich, sanitised product which can be sold as a fertilizer or blended with compost.
- Biogas - a mixture of methane, hydrogen and carbon monoxide which can be combusted to create electricity or used directly as a fuel.

Treatment of liquid organics streams via AD also improves environmental water quality, as the nutrients in the water are captured by micro-organisms and trapped in the digestate. In other words, AD plants prevent eutrophication.

AD plants are the ideal technology to treat wet food organic wastes or high BOD liquid streams. These include beverage spoilage, post food manufacturing liquids and abattoir wastes. These wastes are unsuitable for landfill or composting without blending.

[1] Biological Oxygen Demand - a standard measure for whether a liquid is suitable for biological treatment.

AD plants are used extensively in sewerage treatment (for blackwater), but more recently have been expanded to ensure a beneficial use is made of the above mentioned liquid waste streams. New AD facilities are now being constructed in the UK, Europe and Asia.

a. Food waste characteristics

AD plants are the ideal technology to treat wet food organic wastes - such as liquid beverage spoilage, post food manufacturing liquids and abattoir wastes.

b. The scale of the problem the opportunity addressed

Australia currently sends 12.5 million tonnes of organics to landfill each year. AD offers an opportunity to divert organic wastes from landfill.

The addition of water to clean, solid food waste streams can make them suitable for anaerobic digestion.

- Liquids currently being dehydrated to make them suitable for landfill can now be treated.
- Energy and materials can be recovered from liquid organics streams currently going to sewer.
- Anaerobic digestion is a better environmental outcome compared to soil injection, a common technique used to treat liquid organics.

c. The opportunity

Australia currently has a number of operating and commercially viable anaerobic digesters. These include;

- The Richgro facility in WA.
- EarthPower in NSW.

Further, Yarra Valley Water are also in the process of developing an anaerobic digester in East Wollert, while SUEZ Australia run a co-digestion plant in South Australia. These facilities demonstrate the technology operates successfully. AD plants typically treat 30,000 to 60,000 tonnes per annum, and therefore these facilities can divert large volumes of food organics at a modest cost per tonne.

The NWRIC sees the expansion of anaerobic digesters as a key opportunity to reduce food organics going to landfill.

d. Why it is best placed to contribute to the reduction in food waste

The NWRIC supports all initiatives to reduce food waste upstream, as described by the waste hierarchy.

However, while millions of tonnes of food waste are going to landfill, it makes sense to capture value from this steam. Diverting food organic wastes from landfill using large processing infrastructure such as

AD technology is an economical efficient way to directly reduce land, fertilizer, water use and greenhouse emissions.

5. ACTIONS SUPPORTING THE OPPORTUNITY

The NWRIC has produced a 'Policy Roadmap' which outlines policy measures to improve private sector investment into resource recovery infrastructure. The roadmap summaries several measure which would useful in this instance.

The Commonwealth could;

1) Prepare and publish data on potential market opportunities for organics recovery infrastructure, including AD facilities.
2) Support high quality, 'whole of government' planning initiatives which create protected sites for recycling infrastructure.
3) Encourage States to make landfill levy revenue available as low interest loans to support new recycling infrastructure.
4) Harmonise the laws and regulations governing waste management and recycling (through COAG).
5) Put forward an ERF Method which supports and rewards the emissions reduction created by the diversion of organics into AD plants. These are not business as usual infrastructure.

From here this submission will only focus on points 2, 3 and 5.

a. Description and implementation

Action 1: Make levy funds available as low interest loans to support private investment into recycling plants, including AD plants.

Action 2: Prepare an ERF method for diverting liquid organics to AD.

Action 3: The Commonwealth Government should support high quality, 'whole of government' planning initiatives which create protected sites for recycling infrastructure.

b. Responsibility for delivery

Action 1	State Governments - agencies controlling levy funds.
Action 2	Commonwealth Government - Department of the Environment.
Action 3	State Government EPAs, Planning Departments, Environmental Authorities and Local Government(s).

c. Performance measurement

Action 1	By the capital value of successful investment into 'bankable' resource recovery infrastructure by private investors - and the long term ROI this generates .
Action 2	By the tonnes of CO_2-e contracted by the ERF for the diversion of organics into AD plants.
Action 3	By a reduction in community complains and nuisance from poorly sited waste and recycling facilities.

d. Funding

Action 1; This action does not require funding, instead it requires a re-alignment of the spending priorities for landfill levy funds, into a government led investment institution.

Action 2; The ERF is designed to contract the lowest cost emissions reduction available in the economy.

Action 3; By sanctioning dedicated waste management and recycling sites State Governments will; A) significantly improve public amenity and B) create jobs and recover resources from waste materials.

6. REALISING THE OPPORTUNITY

Action 1; A Government task force would be needed to be setup to establish these institutions. The Clean Energy Finance Corporation serves as an existing model.

Action 2; Methods have already been put forward for similar systems, including landfill gas, diverting organics from kerbside to composting and the diversion of mixed waste through mechanical biological treatment (often called alternative waste treatment). These methods could be modified to include AD plants.

Action 3; Sustainability Victoria has produced a number of high quality waste management plans. To improve planning, comprehensive plans are needed and a 'whole of government' approach must be adopted. This process must be replicated in every State and Territory.

7. OTHER INFORMATION OR ADVICE

Useful links for this submission;

- The NWRIC Policy Roadmap; contains initiatives which will stimulate government investment into new waste and recycling infrastructure.
- The ERF methods for; Landfill gas and diversion of organics to AWT.
- Sustainability Victoria - The Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP).