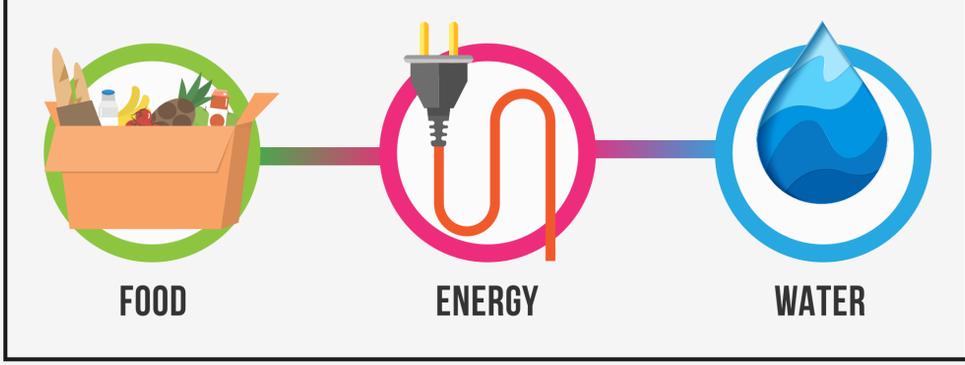


# CO-DIGESTION AS A WASTE-TO-ENERGY APPROACH

*Harnessing sustainable energy from food, waste and water*



## FOOD, ENERGY AND WATER NEXUS



### THE CHALLENGE

Organic wastes currently sent to waste contractors for further treatment or directly to landfills.

### THE SOLUTION

#### CO-DIGESTION

The aggregation of multiple waste streams to double biogas generation potential. Adding organic wastes (e.g., meat processing wastes, food production wastes, brewery wastes, fats, oils, and grease (FOG), glycerol) to wastewater sludge can generate a higher biogas yield than typical wastewater sludge.

### BENEFITS OF CO-DIGESTION

- ✓ Improves waste-to-energy process efficiencies and process economics
- ✓ Brings certainty and scale to waste-to-energy process for wastewater utilities
- ✓ Reduces sludge treatment costs for utilities
- ✓ Reduces volume of sludge disposed into landfills or incinerators
- ✓ Increases biogas volume used by the treatment plant or supplied to the grid
- ✓ Reduces waste disposal costs and challenges for the F&B beverage industry (organic wastes can be odorous and corrosive)
- ✓ Reduces transport emissions for sludge and waste disposal



### POTENTIAL ORGANIC WASTE PROVIDERS

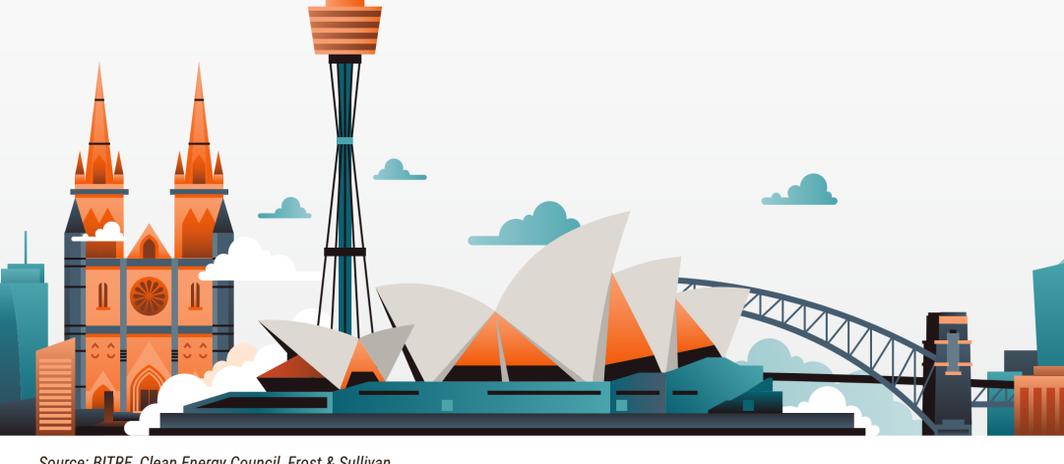
<p><b>F&amp;B PROCESSORS</b> Dairy, breweries, wine processing, meat processing /abattoirs</p>	<p><b>AGRI-BUSINESSES</b> Animal manures and slurries, vegetable by-products, crop residues</p>
<p><b>FOODSERVICE</b> Restaurants, fast food outlets</p>	<p><b>INDUSTRIAL PLANTS AND BIO-REFINERIES</b> Organic by-products</p>
<p><b>COUNCILS</b> Food and green waste</p>	
<p><b>RETAILERS</b> Fruit and vegetable waste from fresh food stores, past use-by-date products from supermarkets and grocery stores, packing shed waste from distributors</p>	

## GROWTH POTENTIAL IN AUSTRALIA

**673** The number of urban sewage treatment plants in Australia

**9.7%** Bioenergy share of total renewable energy generation in Australia in 2017, equivalent to only 1.65% of total energy generation

<h4>KEY CONSIDERATIONS</h4> <ul style="list-style-type: none"> <li>🔑 Strategies to combat variance in waste streams from different sources</li> <li>🔑 Addition of other wastes not to exceed safe organic loading limits of the system</li> </ul>	<h4>NEXT STEPS</h4> <ul style="list-style-type: none"> <li>✓ Identification and engagement with wastewater utilities in the area</li> <li>✓ Information sharing programs</li> <li>✓ Joint trials</li> <li>✓ Partnerships with clearly defined operational boundaries and business models</li> </ul>
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Source: BITRE, Clean Energy Council, Frost & Sullivan