ANAEROBIC DIGESTION PLANT VISIT

CORPORATE INFRASTRUCTURE AND REGULATORY SERVICES COMMITTEE

JUNE 2023

Councillors Alistair Dewhirst and Jacqi Hodgson visited Andigestion in Holsworthy, where food waste from across Devon is collected and processed. Andigestion staff gave them a tour and showed them around the facility, outlining the process in detail and answering questions the councillors had. There were also some engaging discussions around challenges with food waste, and the benefits of anaerobic digestion as an eco-friendly, sustainable source of electricity, gas and potent plant food.

Accompanying the councillors were Chris Chandler (Principal Waste Manager – Operations), Damien Jones (Deputy Director - Transport Operations, Environment & Waste), Tom Scrivens (Waste Management Officer – Operations) and Fred Whitehouse (Scrutiny Support).

THE ANAEROBIC DIGESTION PROCESS

What goes in?

Waste is collected and separated from packaging, which is recycled.

The food waste is then mixed and macerated to a 12mm particle size.

Then it is pasteurised at 70 degrees celsius to kill unwanted bacteria and then cooled to around 40 degrees celsius. Anaerobic bacteria is added, and the food waste is then digested for 60 days.

What comes out?

Gas - made up of approximately 60% methane and 40% carbon dioxide. This can be used in generators to produced electricity. Some is used to power the plant, but most is exported to the national grid. **Biomethane** (near-pure methane) is also injected into the gas grid for direct home usage.

Digestate - a dark, thick liquid bio fertiliser that is packed full of nitrogen, potassium, and phostphate which plants love. Councillor Hodgson took a bottle home for her own garden!

Residual heat - Andigestion recycles the heat produced back into the process. They also use it to heat water on-site; and also use it to dry woodchip to sell on.

If supply is outstripping demand, then the gas can be stored in a 'biodome' that holds up to 5000 metres cubed of gas. The digestate can also be stored in huge containers, or in 'storage lagoons' over winter when farms have less need for it. Basically, as little as physically possible goes to waste.

KEY TAKEAWAYS

Why only food waste?

The AD plant could, in theory, process garden waste – but processing only food waste provides a more 'pumpable sludge'! Practically, garden waste would be harder to process in the pump system.

Challenges

Councillors heard how the Environment Agency were considering implementing new regulations on plastic waste to try and limit it coming into the AD plant in the first place. Staff members were not keen on this, as they were concerned that this would simply disincentivise people to put food in their food waste bin in the first place, and that they had a machine that sorted this anyway, at least allowing the food to be processed in a green way.

Councillors had some interesting discussions around food waste participation across Devon and how to incentivise this. Some interesting programmes of education in primary schools were talked about, with one staff member telling Councillors how his young children were constantly reminding him to recycle!

Good for local businesses

The AD plant runs a service where local business pay a small stipend to receive a food waste bin (or multiple); these are GPS tracked. Their food waste is then collected and brought to the plant where it is weighted (great for collecting data!) and anaerobically digested. This is convenient for local businesses and great for the environment.

Conclusions

Anaerobic digestion offers **obvious and inexpensive benefits** to the gas and energy grid and farmers. Above all, it's **environmentally friendly and completely renewable**, providing clean energy and reducing the amount of waste that goes to landfill. Councillors were very thankful for the opportunity to visit the plant.