U.K. grocery store to power itself on biogas generated from its own food waste

July 23 2014, by Bob Yirka

British supermarket chain Sainsbury's has announced that it plans to power one of its grocery stores using only biogas generated from its own food waste. The store in Cannock, West Midlands is approximately one mile away from one of British based Biffa's waste management systems, and will get its power from a single dedicated line.

Sainsbury's is already Britain's largest retail user of power generated by

biogas, courtesy of anaerobic digestion systems. Food waste from its stores is used to generate enough power, the company claims, to run roughly 2,500 homes each year. In this new scheme, food waste from several of the chains' stores will be trucked to a central depot—from there it will be trucked to the Biffa facility near Cannock. Once there it will be dumped into an anaerobic digestion system—a big tank deprived of oxygen that allows for speedy decay. Biogas (mainly methane and carbon dioxide) rises to the top and will be sent to a separate mechanism that separates out the carbon dioxide and other gases. The methane is then sent to a generator for burning. The electricity produced will be sent by a cable to the grocery store, providing all of its electricity needs—any excess will be sold back to grid providers. Excess sludge from the digestion system will be sold to farmers for use as fertilizer. What happens to the carbon dioxide has not been made clear, though the company has noted in the past that carbon dioxide released into the air (directly or via burning) due to release from food products is not counted towards global warming gasses, because its considered neutral—the amount of the gas released by plant material is equal to the amount consumed by new plants that grow in their place.


Sainsbury's Cannock store
is powered entirely by food waste alone.
Sainsbury's
Sainsbury's sends absolutely zero operational waste to landfill.
On Offer!
If it's still not bought, a couple of different things happen next.
At the end of the day, if a product on the shelf is not bought, we mark it down to a lower price for customers.
Any food waste that suitable for charitable donations is collected by charity partners who come to the store to get it.
If it's not ok for humans, certain products including bread go to make animal feed. Some stores also send fruit to feed the animals at safari parks.
Sainsbury's
Sainsbury's
DEPOT
Biffa
If it's not suitable for any of that, it is picked up by the empty Sainsbury's lorry that has just delivered our food to the store. By using the same lorry we save carbon because Biffa don't have to come to get food waste from every store.
The same thing happens to remaining food waste collected from Sainsbury's supermarkets around the UK using Sainsbury's delivery lorries.
That waste is picked up by a Biffa lorry from our depot and taken to the Biffa anaerobic digestion plant at Cannock.
Biffa
AD Plant
The food waste is sent to big silos that act like a human stomach to break down the food into bio methane gas.
That gas generates electricity at the AD plant. A bypreduct of the process is called digestate, which is a great fertiliser and used by local farms.
Electricity for Sainsbury's Cannock store is directly supplied to the supermarket via a 1.5km electricity cable that runs directly from the AD plant. If we make too much electricity the rest goes back into the National Grid.
The new power supply – built in partnership with Biffa – means the Cannock store will come off the National Grid for day to day electricity consumption.
Sainsbury's is already the UK's largest retail user of anaerobic digestion, generating enough energy to power 2,500 homes each year.

Sainsbury's announced last year that it had met its goal of no longer sending any food waste to a landfill. Previously they had instituted a policy whereby food that cannot be held overnight is sold at reduced prices in the afternoon and evenings. Afterwards, edible leftovers are sent to charities. The remainder is sent to Biffa for processing. The grocery store receiving the electricity is believed to be the first of its kind to be run only on biogas generated by an anaerobic digestion system.

Citation: U.K. grocery store to power itself on biogas generated from its own food waste (2014, July 23) retrieved 20 April 2024 from https://techxplore.com/news/2014-07-uk-grocery-power-biogas-food.html