ORGANIC WASTE LOGISTICS

Date of Report: January 10, 2017

EXAMPLE- Environmental Report

Customer name	ABC Company plc
BioWhale location	Solihull, West Midlands
BioWhale ID number	B1005
Reporting period	December, 2016

Summary statistics:

	December 2016	**Y-T-D 2016**
Volume of food waste produced (tonnes)	20 tonnes	250 tonnes
BioGas and BioMethane production (m^3) **Number of houses heated** (for a full year)	BioGas: 4,420 m^3 BioMethane: 2,652 m^3 Houses Heated: 1.6	BioGas: 55,250 m^3 BioMethane: 33,150 m^3 Houses Heated: 20.1
Electricity production (Kwh / # of houses supplied for a full year)	Electricity: 9,277 Kwh Houses Supplied: 2.8	Electricity: 116,025 Kwh Houses Supplied: 35.2
Organic Fertiliser produced (tonnes)	16.1 tonnes	200.8 tonnes
CO_2 savings (equivalent) (tonnes)	74 tonnes	925 tonnes
Number of vacuum truck pickups (# of removals)	2	23

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Sources and bases of calculations

Volume of food waste produced (*tonnes*)

The actual volume of food waste fed into the BioWhale throughout the month. (Source: BioWhale telemetry)

Using the above volume, we calculate the following environmental impact/savings:

BioGas and BioMethane production (*cubic metres (m^3) and # of houses heated for a full year*)

Total cubic metres of **BioGas** production is the average BioGas yield for the specific BioWhale - based on the latest laboratory test results which analyse the gas yield per tonne at a food waste AD plant - multiplied by the monthly volume. [Note: Different food wastes yield different amounts of gas, making it necessary to test the BioSoup coming out of each BioWhale at regular intervals.]

It is assumed that **BioMethane** constitutes 60% of the BioGas. (Source: ADBA) The amount of BioMethane as a percentage of BioGas can vary slightly, based on the actual food waste and the specific technology at the AD plant.

The calculation of the **number of UK houses** that could be **heated for a full year** is based on average annual household consumption of 16,500 Kwh of natural gas (Source: OFGEM fact sheet) and assumes that all (100%) of the BioMethane is used for heating.

Electricity production (*Kwh and # of houses supplied with electricity*)

Total Kwh of electricity generated from the Bio Methane assumes that all (100%) of the BioMethane is used to generate electricity at the AD plant, using a 35% conversion efficiency. (Source: DEFRA 2011)

The total number of houses that could be supplied for a full year is based on average UK household electricity consumption of 3,300 Kwh (Source: OFGEM Fact Sheet), assuming that all the electricity that could be potentially be generated from the BioMethane is used for household consumption.

Organic Fertiliser produced (*tonnes*)

The amount of organic fertiliser produced is based on the UK industry average of the amount of digestate (organic fertiliser) produced per tonne of food waste from a food waste AD plant, i.e. 803 Kg. (Source: University of Southampton)

CO_2 (equivalent) savings (*tonnes saved*)

This calculation is based on the amount of CO2e (carbon dioxide equivalent) avoided by processing food waste at an AD plant versus sending it to landfill. One tonne of food waste to landfill creates approximately 4.2 tonnes CO2e and one tonne of food waste processed by an AD plant creates approximately 0.5 tonnes of CO2e., for a net savings of 3.7 tonnes CO2e per tonne of food waste. (Source DEFRA/DECC, AD Strategy and Action Plan, 2011)

Number of vacuum truck pickups

The actual number of removals in the month. (Source: OWL Shipping Registry)