

East London Waste Authority

CO₂ Analysis Report

April 2019

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Executive Summary

Aardvark Certification Ltd (ACL) has been instructed by John Laing Environmental Assets Group Ltd to assess and report against the carbon savings achieved by the East London Waste Authority (ELWA) waste recycling operation. This assessment considers the CO₂ savings made as a result of activities undertaken by the waste treatment and wider recycling operation.

Asset Introduction

The ELWA waste operation comprises of 2 major sites which accept municipal waste from four borough councils, Redbridge, Havering, Newham & Barking and Dagenham.

The waste operation consists of two primary Mechanical Biological Treatment (MBT) sites, Frog Island in Rainham, Essex and Jenkins Lane in Barking and a further four Household Waste Recycling Centres (HWRC). The MBT facilities have a total processing capacity of 180,000 tonnes per annum, were commissioned in 2006 and 2007 respectively and have a design life of 25 years. The HWRC sites are licenced to process a further 125,000 tonnes per annum.

Outputs from the ELWA operation consist of material destined for recycling markets or Refuse Derived Fuel (RDF) which is used for electricity generation.

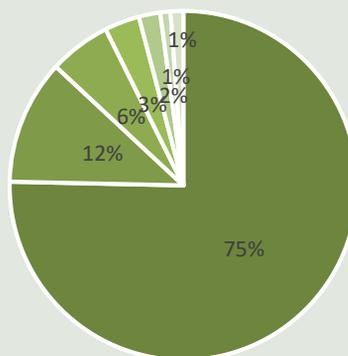


Input materials

The ELWA project processes a range of input materials comprising of an estimated annual tonnage for 2019 of 446,494 tonnes. The majority of material received is household and commercial waste which is treated via MBT prior to being exported as Refuse Derived Fuel (RDF). The RDF is exported to the Netherlands where it is used as a fuel for incineration plant which will produce heat and/or electricity. On average the annual RDF export is used to generate 147,300MWh of electricity.

Other waste fractions include those from the household recycling centres and highways and street cleaning operations. The input materials are segregated and processed at third party facilities. Much of this processing is either to produce recyclable outputs or recycled outputs with the ultimate goal being to avoid disposal in landfill.

ELWA Input Materials



- Household, Commercial & CA Site Residual Waste
- Mixed recycling
- Street cleaning & Highway waste
- Green & Park waste
- Bulky Household waste
- Fly tipped Waste

East London Waste Authority

CO₂ Analysis Report



Diversion from Landfill

The processing of wastes by the ELWA sees on average 93% of the annual input material successfully diverted from Landfill. This enables a significant amount of greenhouse gases to be prevented from being emitted to atmosphere. Municipal waste disposed of via Landfill produces 586.5313 kg CO₂e per tonne of waste. Those same wastes when recycled or processed as RDF avoid a large proportion of these emissions producing just 21.3842 kg CO₂e per tonne. Based on the analysis of waste types received by the ELWA, it is possible to determine the quantity of greenhouse gas emissions avoided through the recycling and reprocessing activities.

Waste Type	Annual Tonnage	Emissions for disposal at Landfill (kg CO ₂ e)	Emissions for recycled or re-processed waste (kg CO ₂ e)	net kg CO ₂ e avoided
Household, Commercial & CA Site Residual Waste	336,394	197,305,610	7,193,517	190,112,094
Mixed recycling	51,614	464,526	1,103,724	-639,198
Street cleaning & Highway waste	25,536	32,609	26,026	6,583
Green & Park waste	14,520	8,407,909	148,955	8,258,954
Bulky Household waste	8,897	147,512	190,255	-42,743
Fly tipped Waste	4,259	70,614	91,075	-20,461
Other	5,274	87,443	112,780	-25,337
All Waste received by ELWA	446,494	206,516,224	8,866,333	197,649,891

What do these savings mean?

The forecast annual CO₂ savings the East London Waste Authority will achieve based on the current annual volumes processed is equivalent to:

- Removing the combined emissions of 90,736 medium sized diesel cars every year from UK roads.
- The emissions produced by a mid range electric vehicle when driven 2,082,498,066 miles a year – equivalent to driving 83,631 times around the circumference of the earth

Why doesn't recycling reduce CO₂ emissions across all waste types?

The table above shows that some waste types such as mixed recycling actually produces more emissions than if they were disposed of in Landfill. This is because some materials processed by the ELWA are inert and will not readily decompose like organic wastes will. More energy is required to actually recycle these materials than would be expended were they to go to landfill. Despite the additional emissions associated with processing these materials, diverting them from landfill remains the most favourable means of dealing with these types of waste and has the least environmental impact overall.

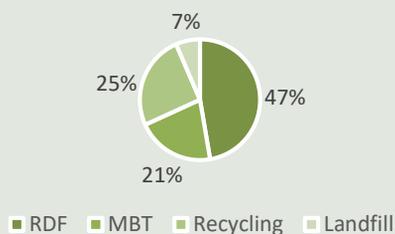
CO₂ Forecast

Based on the remaining operational lifetime of the ELWA facilities and current annual throughput, it is estimated that a further 2,371,799 t CO₂e will be avoided. Over the entire operational phase of the ELWA operation, an estimated 4,941,247 t CO₂e will be avoided through diverting waste from Landfill.

Where does all the waste go?

An average of 93% of waste received by ELWA is diverted from landfill. The diversion of waste from landfill is achieved by reduction through Mechanical Biological Treatment, further refinement and sorting and segregation of the remaining waste which is then mainly used as Refuse Derived Fuel or recycled. Just 7% cannot be processed further and ends up in Landfill. In the last 6 months the plant has been achieving a 99% diversion rate with only asbestos being sent to Landfill due to there being no alternative means of recycling or reprocessing of this material.

ELWA Waste Destination



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CO₂ Analysis Report



Methodology

This report has been prepared in good faith by Aardvark Certification Ltd based on data obtained from the owner/operator of the asset reviewed. Our calculations of CO₂ savings are based on IFI Approach to GHG Accounting for Renewable Energy Projects. Baseline Emission Factors used in this analysis are taken directly from the Department for Business, Energy & Industrial Strategy Greenhouse gas reporting: conversion factors 2018.

Liability

This document contains information and may contain conclusions and recommendations. Every effort has been made to ensure that the information is accurate and that the opinions expressed are sound. However, Aardvark EM Limited cannot be made liable for any errors or omissions or for any losses or consequential losses resulting from decisions based on the information.



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