Wessex Water

Trowbridge

Energy Management Plan

June 2021

Revision	Date	Description	Author	Checked by	Reviewed by
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1 INTRODUCTION

This document is an Energy Management Plan for Wessex Water Services Limited (WWSL), which is required as part of the Environmental Permit application for Trowbridge Bioresources Centre, Off Bradford Road, Trowbridge, BA14 9AX (the Site).

This Energy Management Plan (EMP) is provided in response to Environment Agency (EA) application form Part C2, Questions 6a and 6b. These Questions require the following information:

- Description of the basic measures for improving energy efficiency; and
- Breakdown of any changes to the energy the activities use and/or create.

This EMP has also been prepared to demonstrate how WWSL complies with the Industrial Emissions Directive 2010/75/EU (IED). The EMP will therefore address appropriate Best Available Technique (BAT) conclusions, as referenced in the Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing BAT conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council.

This EMP considers the following BAT conclusions to relate directly to energy:

BAT Conclusion 11

> *"BAT 11 is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water, with a frequency of at least once per year."*

BAT Conclusion 23

> *"In order to use energy efficiently, BAT is to use both of the techniques given below." (see Reproduced Table 1.1)*

Table 1.1 BAT 23

Technique		Description
a.	Energy efficiency plan	An energy efficiency plan entails defining and calculating the specific energy consumption of the activity (or activities), setting key performance indicators on an annual basis (for example, specific energy consumption expressed in kWh/tonne of waste processed) and planning periodic improvement targets and related actions. The plan is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc.
b.	Energy balance record	An energy balance record provides a breakdown of the energy consumption and generation (including exportation) by the type of source (i.e. electricity, gas, conventional liquid fuels, conventional solid fuels, and waste). This includes: (i) information on energy consumption in terms of delivered energy; (ii) information on energy exported from the installation; (iii) energy flow information (e.g. Sankey diagrams or energy balances) showing how the energy is used throughout the process. The energy balance record is adapted to the specificities of the waste treatment in terms of process(es) carried out, waste stream(s) treated, etc.

2 ENERGY MANAGEMENT

WWSL have a dedicated Energy Team, whose focus it is to manage energy use at the Site. WWSL use a continuous monitoring system, named 'Chellow', which tracks energy usage and energy generation from the Combined Heat & Power (CHP) facility. This information is sent to the Operations Manager for the Site on a monthly basis. The Chellow system allows WWSL staff to monitor energy usage and generation at any time.

It is considered that the use of the Chellow system meets the requirements of BAT conclusion 11, as identified in Table 1.1. The Chellow system provides an 'energy balance' which includes the energy consumption on the Site and energy generated by the CHP.

Four-yearly energy audits are undertaken on behalf of WWSL as part of the Energy Savings Opportunity Scheme (ESOS). These audits identify areas of improvement for energy efficiency on the Site. It is considered that these ESOS audits meet the requirements of BAT conclusion 23, as identified in Table 1.1. The ESOS Audits cover the following:

- Breakdown of activities and energy usage
- Energy consumption, including a breakdown of:
    - Electricity imported;
    - Electricity generated by the CHP; and
    - Electricity exported from the Site.
- Energy consumption throughout the year.

Furthermore, it is considered that the ESOS Audits provide a description of the basic measures undertaken to improve energy efficiency on the Site (EA Form Part C2, Q6a). A summary of these measures is included below:

- Energy is generated on the Site by the CHP (17% of energy);
- Assets / equipment using electricity are monitored continuously using the Chellow system, with one aim of monitoring being to identify the waste of energy; and
- Pumps run depending on flows into the Site and are controlled by ultrasonic level transducers which send a signal to a Programmable Logic Controllers (PLC), which will act to alert relevant WWSL staff in the event of a failure. This 'control system' will ensure that the flow of the pumps is at the maximum point of the duty point (most efficient point) for as long as possible, which will act to lower power usage.

In response to Question 6b from EA Form Part C2; there have been no changes to the activities carried out on the Site and therefore no changes to the energy used by or created by these activities.

It is noted that the CHP and Gas to Grid activities are currently permitted under the environmental permit EPR/HB3602TR and operated by Wessex Water Enterprises Ltd. The CHP and Gas to Grid activities are directly associated activities to the anaerobic digestion activity.