Reducing the carbon footprint: Methodology for application of WRATE to monitor the carbon footprint (CO_2 eq.) for the VES Shropshire contract

Data collection, design, and development of a base scenario

June 2021 update of March 2008 original document

Prepared for Phil Lucas

Veolia UK
8th Floor
Technical Direction
210 Pentonville Road
London
N1 9JY
Tel: +44 (0)207 812 5194

Content:

1 – BACKGROUND.. 3
2 – PROJECT CONTACTS 3
3 – PROJECT OBJECTIVES 4
4 – SCOPE.. 4

1 – BACKGROUND

Veolia was awarded a waste management contract with Shropshire Council (formerly Shropshire Waste Partnership (SWP)) in 2007, which is due to end in 2039. The Contract includes collection of waste from households in the Shropshire Council area, operation of a 90,000 tonnes/year energy recovery facility (ERF); the provision of Household Recycling Centres and waste transfer stations, and an in-vessel composting facility (still to be developed). A base footprint model was created for the integrated waste management system to assess the carbon footprint (CO_2 eq.). This has been done using the Environment Agency's life cycle assessment (LCA) tool WRATE (Waste and Resources Assessment Tool for the Environment) for this purpose.

2 – PROJECT CONTACTS

Main Contact:

Phil Lucas, Contract Performance Manager, Veolia ES Shropshire Ltd
Phil.Lucas@veolia.com

Veolia ES Shropshire Ltd
Bolingbroke House
Vanguard Way
Battlefield Enterprise Park
Shrewsbury
Shropshire
SY1 3TG

WRATE Project Contacts:

Charlotte Walkington, Environmental Analyst
Charlotte.Walkington@veolia.com
Esther Boyer, Carbon Manager
Esther.Boyer@veolia.com

Veolia UK
7th Floor
210 Pentonville Road
London
N1 9JY

3 – PROJECT OBJECTIVES

Veolia contracts with local authorities to provide integrated waste management services, and is the leading operator of long term PFI-type contracts in the UK. Veolia operates Birmingham, Hampshire, Nottinghamshire, Sheffield, SELCHP, and Tower Hamlets integrated contracts.

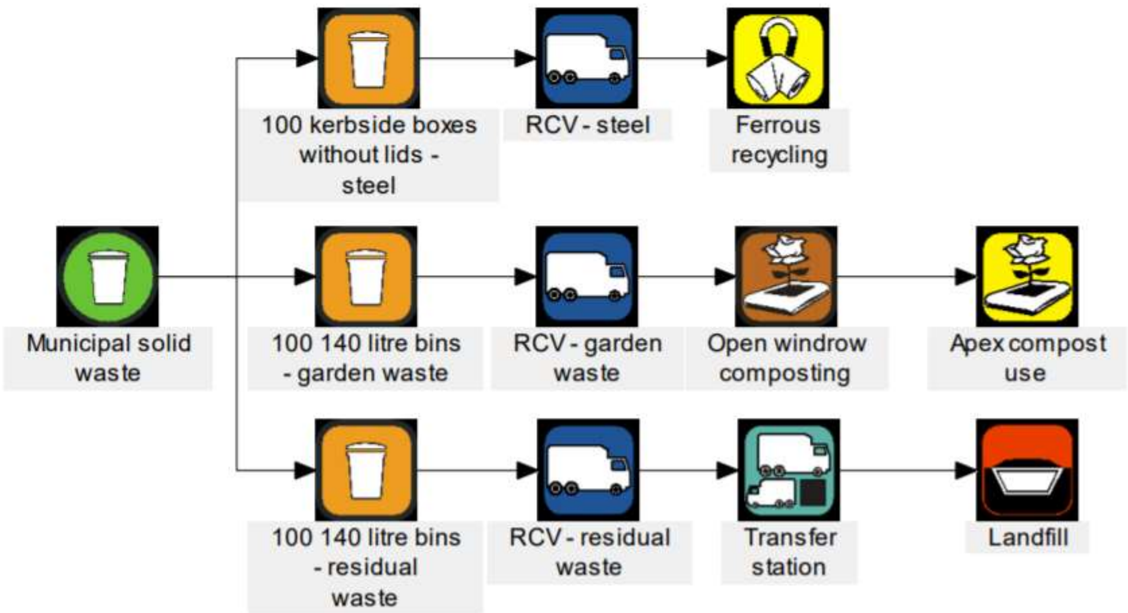
When tendering for new contracts Veolia is required to undertake environmental assessments of the service proposed. WISARD was a life cycle assessment tool for waste management used to develop models and look at the environmental impacts which make up part of these environmental assessments. WRATE was the updated version of WISARD developed by the Environment Agency and is used to evaluate the environmental impacts from waste management activities over the life cycle of the materials involved. This tool has been used to assess the annual carbon footprint of the integrated waste management system for Shropshire since 2009.

4 – SCOPE

Veolia provides a WRATE model of the waste management solution currently existing for Shropshire Council to allow assessment of the global warming potential (or carbon footprint). This model, which is updated on an annual basis, is accompanied by a step-by-step statement of key assumptions made, any modifications made to the parameters defined in WRATE (e.g. process characteristics), and all other inputs. The assumptions regarding the final destinations for all process outputs is clearly stated.

The waste flows are modelled as demonstrated in Diagram 1.

Diagram 1 – Example scenario map



Where user-defined processes are used, full details of the assumptions and process characteristics applied together with their source are provided. The pro-forma in Table 1 is submitted with this data. Additional fields will be added as and when required. The assumptions of the end destinations for all process outputs will also be clearly stated. Actual tonnage information collected as part of Contract operations is used as part of the model analysis.

Table 1 – Pro-forma for user-defined treatment process

Data Required	Data
Name of process	
Technology supplier	
Number of process lines	
Treatment capacity of each line (t/hr)	
Total treatment capacity (t/annum)	
Parasitic power load (MW)	
Thermal efficiency (%)	

Actual transport distances and vehicle types are selected to reflect as closely as possible to the real situation. A summary of transport data will be provided set out in the proforma in Table 2.

Table 2 – Pro-forma for transport data

Solution Component	Data required
Transfer of residual waste from kerbside to transfer station (or direct to treatment facility if appropriate)	Number of vehicles to be used
	Vehicle type
	Number of traffic movements per hour, per day and per year
	Cumulative annual road distance
	Cumulative weekly road distance
Transfer of residual waste from transfer station to treatment facility(ies)	Number of vehicles to be used
	Vehicle type
	Number of traffic movements per hour, per day and per year
	Cumulative annual road distance
	Cumulative weekly road distance
Transfer of residual waste from HWRCs to treatment facility(ies)	Number of vehicles to be used
	Vehicle type
	Number of traffic movements per hour, per day and per year
	Cumulative annual road distance
	Cumulative weekly road distance
Transfer of recovered materials to point of recovery	Number of vehicles to be used
	Vehicle type
	Number of traffic movements per hour, per day and per year
	Cumulative annual road distance
	Cumulative weekly road distance
Transfer of treatment process residues to end disposal point/s	Number of vehicles to be used
	Vehicle type
	Number of traffic movements per hour, per day and per year
	Cumulative annual road distance
	Cumulative weekly road distance