

Volume of waste and recycling

In 2007 the UK produced around 119 Mt of non-agricultural wastes, including industrial waste, wood waste, sewage sludge and other sources. In the same year, rates of recycling, energy from waste (EFW) and landfill were 37%, 9% and 54% respectively. Around 58 TWh/y of energy was generated from waste facilities, landfill gas, sewage gas and non-biodegradable waste.

The best use of waste is not necessarily energy recovery; options further up the waste hierarchy (such as prevention, recycling, re-use) may be preferable.

To be consistent with other sectors in the 2050 calculator, 2007 is used as a base year for the percentage changes quoted. Overall, waste reduced between 2007 and 2010, mainly due to the recession. The trajectories below represent different choices, rather than an increasing scale of effort. They cannot be compared with the Levels 1-4 in other sectors and have therefore been labelled as Trajectories A-D instead.¹

Trajectory A

Trajectory A assumes that the overall quantity of waste increases by 26% in the period from 2007 to 2050. Recycling rates increase 21% and EFW rates increase 44% from 2007 levels. By 2050, 24% of total waste is directed to landfill. 55 TWh/y of primary energy is generated in 2050.

Trajectory B

Trajectory B assumes the overall quantity of waste increases around 2% between 2007 and 2050. There is a rise in rates of recycling and EFW: an increase of 36% and 89% from 2007 levels. The

proportion of waste sent to landfill reduces from 54% to 11% in 2050. 59 TWh/y of primary energy is generated in 2050.

Trajectory C

Trajectory C assumes that the quantity of waste increases around 13% between 2007 and 2050, and waste is efficiently handled through high-tech, industry-led approaches. Recycling rates increase 61% and energy from waste increases by 56% from 2007 levels. By 2050, an overall recycling rate of 81% is achieved through post-collection sorting and treatment facilities, rather than a change in behaviour. The proportion of waste sent to landfill is reduced to just 2% by 2050. 59 TWh/y of primary energy is generated in 2050.

Trajectory D

This trajectory assumes a national focus on waste avoidance. The overall quantity of waste decreases by 33% between 2007 and 2050. This smaller volume of waste is managed efficiently and both recycling and energy from waste increase, by 70% and 7% respectively. By 2050, only 3% of waste is sent to landfill. 30 TWh/y of primary energy is generated in 2050.

For comparison, Denmark's use of waste for energy in 2008 was 11 TWh/y, including both agricultural and non-agricultural waste, but not straw or wood. Scaled to the UK population, that level of waste-to-energy is equivalent to 122 TWh/y in the UK.

¹ For a full and detailed description of the underlying assumptions to these trajectories, see: *Scenario Building for Future Waste Policy*, undertaken for Defra by Z punkt: The Foresight Company, supported by Resource Futures and Brook Lyndhurst. To be published shortly. Note that the descriptions here include only waste from households (HH), from commercial and industrial (C&I) and wood from construction and demolition (CDE). The descriptions do not include waste from the rest of CDE.

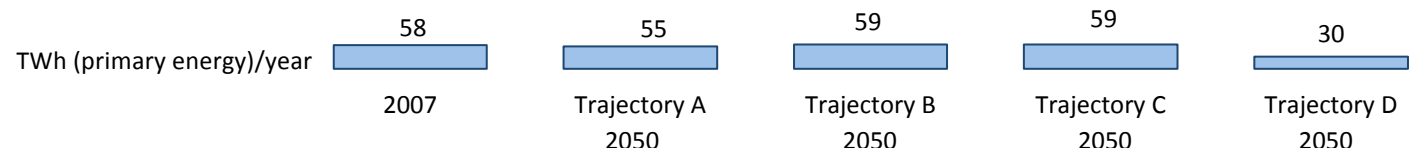


Figure 1. The South East London Combined Heat and Power plant, SELCHP, takes about 1100 tonnes of black-bag waste per day and delivers about 31 MW of electricity. Photo © Bill Bertram

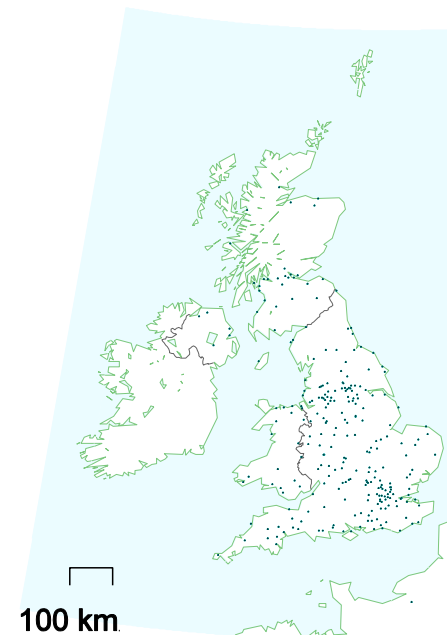


Figure 2. The 262 blue dots each represent a waste facility capable of taking as much waste as the SELCHP plant above and either recycling it or converting it into energy. This is the scale required to process UK waste in trajectory C, although the locations are illustrative.