Land, Bioenergy & Waste: Waste Reduction

This lever controls the sub-levers listed in the table, and ambition levels are for the end year shown on the right-hand side. Units of 'Index' are relative to 2015.

The UK currently produces almost 200 million tonnes of waste. The Waste Production Index is a measure of how much the amount of waste produced has increased/decreased compared to the base year (2015). The calculator splits waste production into three different groups;

- Dry Waste including municipal solid waste (MSW) and commercial and industrial (C&I) waste, but excluding Construction and Demolition (C&D) waste that is inert
- Wet Waste including food waste, agricultural waste, slurry and manure
- Used Cooking Oil waste including used cooking oil and tallow

Once produced these wastes are then treated by either recycling, converting to useful energy or sending to landfill. Waste can be converted to energy by:

- Incinerating Dry Waste to generate electricity
- Converting Wet Waste to biogas in an anaerobic digestion facility
- Converting Used Cooling Oil Waste to a biogenic liquid energy resource

Waste management accounts for approximately 4% of the UK's greenhouse emissions, the majority of which originate from 'landfill gas'. Landfill gas is generated by the gradual decomposition of waste sent to landfill, releasing methane and CO_2. Since 1990 huge reductions in landfill gas emissions have been achieved by reducing the amount of biodegradable waste and capturing landfill gas. As well as reducing greenhouse gas emissions the captured methane can also be used as a fuel.

Key Interaction

Waste used for energy reduces the amount of biomass required to produce biomethane and biofuels. Incineration of dry waste produces electricity which is fed into the grid.

Level 1

There is no effort to reduce waste production. Overall recycling rates decrease, however more Used Cooking Oil is converted to biofuel.

Level 2

Waste production increases but more of this is recycled or used in energy.

Level 3

There is a greater drive by the UK population to reduce food waste. The amount of packaging and disposable items used are also reduced. Policies are introduced that make recycling easier for the public (for example standardized waste collection throughout the UK).

Level 4

Behavioural/dietary, technological and policy advances align leading to a reduction in total waste produced and the ability to recycle the majority of dry and wet waste. The share of landfill gas resulting in fugitive emissions of methane fall to less than one third of current levels.

Default Timing

Start year: 2020, End year: 2050

Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Waste Production						
Dry Waste	Index	1	1.25	1.00	0.85	0.65
Used Cooking Oil	Index	1	1.25	1.20	1.00	0.80
Recycled						
Dry Waste	Share	49%	50%	65%	80%	90%
Energy Processes						
Dry Waste	Share	3%	3%	10%	20%	10%
Wet Waste	Share	4%	4%	8%	12%	15%
Used Cooking Oil	Share	42%	40%	60%	80%	95%
Landfill Gas Fugitive Emissions	Share	34%	30%	20%	15%	10%