

Energy from waste



What is energy from waste?

Waste generation continues to grow at an unmanageable rate. Resources are limited and so is landfill, making recovery of resources from waste an obvious option.

Energy from waste is complementary to recycling in that it can recover energetic value from any remaining waste, playing an important role in an integrated and sustainable approach to waste management.

Energy from waste is an alternative source of energy and has many benefits for us and our environment, for example:

- Certain types have a calorific value similar to fossil fuels, plastic for example, has a calorific value similar to coal.
- Energy from waste saves fossil fuels and makes an important contribution to reducing our needs for foreign imports.
- Energy from waste reduces greenhouse gas emissions in two ways; it avoids methane and other gas emissions from waste disposed of in landfill and, can generate lower CO₂ emissions than coal power stations.
- Energy from waste could be a major contributor to electricity production from renewable resources. Furthermore, the emissions from waste incinerators are comparable to gas power stations, which are considered one of the cleanest technologies available
- Energy from waste is considered a secure energy supply.

There are a number of different types of energy from waste technologies, some of which are still largely unproven throughout the UK.

Incineration

Page 2

- Incineration with energy recovery. This would be the most popular type of energy from waste technology throughout the UK and is incineration of wastes with recovery of energy in the form of heat or electricity.
- Pyrolysis and gasification is the recovery of energy through production of a fuel like substance for use in a chemical process.
- Gas recovery as a fuel, which can be done through recovering gas from landfill or through the anaerobic digestion of biowaste.

How does an energy from waste plant work?

Waste is unloaded into a bunker where it is stored under cover to prevent the escape of odours. The waste is then fed into a furnace, which operates at a temperature between 850-1350°C. These high temperatures destroy up to 80% of all contaminants with the left over being bound in the ash residue, which is then safely disposed of.

Combustion converts the energy content of the waste into heat. The hot gases are cooled down in a heat exchanger to between 150-200°C and their heat is turned into steam. The steam generates mechanical energy in a steam turbine, which is then converted into electricity via an alternator.

Frequently asked questions

Does energy from waste discourage recycling?

No. It is a complementary approach to sustainable waste management and will be used as a way to regain value from unrecyclable materials.

Are local populations at risk of ill health from incinerators?

No. There are ever more stringent controls of atmospheric releases and lower emissions than ever before, for example, the UK department of Health has reported that since 1990 emissions of lead from these plants have dropped by 97% and of dioxins by 99%. Older non-compliant incinerators are either being phased out or will be upgraded to be in compliance with the EU Incineration Directive.