

THE LEEDS RECYCLING AND ENERGY RECOVERY FACILITY FACT FILE 4:

Climate Change and Technology

The Leeds Recycling & Energy Recovery Facility (RERF) formally opened in 2016 as a high quality, innovative building, located on the site of the former Cross Green wholesale market in east Leeds. Standing at 42 metres high and 150 metres long, this award-winning, landmark building is highly visible in the city and incorporates a visitor centre providing local schools with an education resource to support learning about waste, recycling, energy and the environment.



Schools have a key role in contributing to Leeds' ambition to be a 'zero waste' city as waste from UK primary and secondary schools totals around a quarter of a million tonnes each year, equivalent to 185 double decker buses every school day!

Climate change is the build-up in the atmosphere of man-made gases that trap the sun's heat, causing changes in weather patterns around the world.

The earth's climate has seen many changes in its 4.5 billion years in existence for example 18,000 years ago most of the United Kingdom was covered in ice and glaciers! Although changes to the earth's climate occur naturally, current changes are a result of increasing human populations and associated activities.



Climate change is important because of the effect it has on the environment, people and animals.

Meteorologists (scientists who measure the weather) collect lots of detailed information on the weather every day and compare it with previously collected data. From this, these weather scientists, have concluded that the world's climate is getting warmer though they also know that changes in the climate are not new.

The main difference now is that it seems to be happening much more quickly than before because human activity is believed to be speeding up the rate at which the climate is warming and many plants and animals cannot adapt quickly enough to the changes in order to survive.

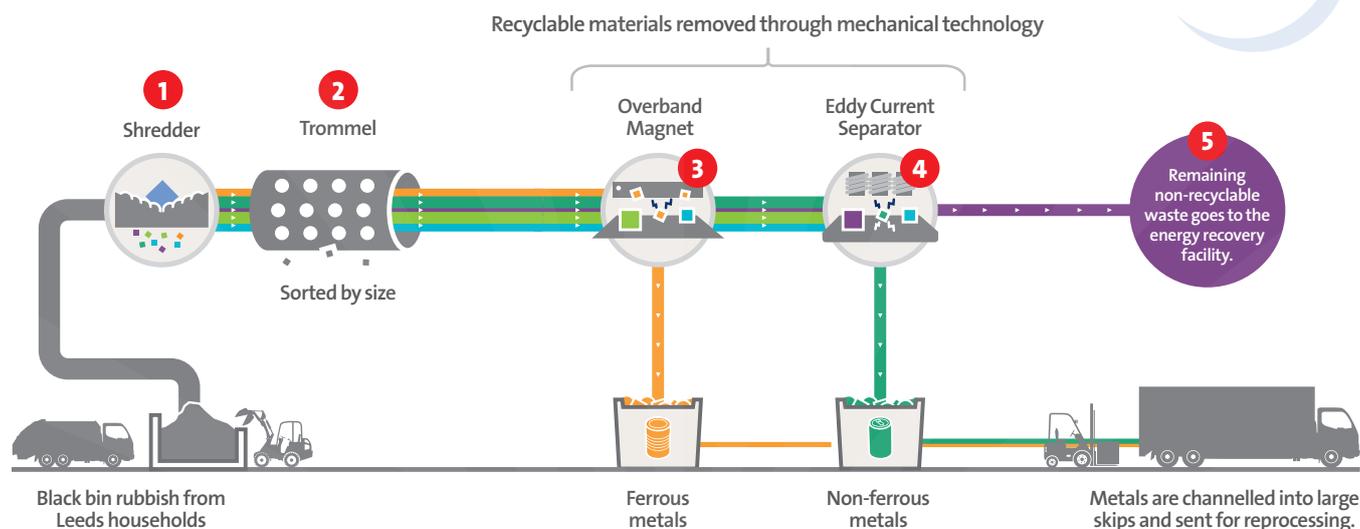


working in partnership





The pre-treatment process



The state-of-the-art technology used at the RERF to separate and sort waste is a very high-tech system. This specialised equipment employs different techniques to separate and sort the waste which is illustrated in detail in the diagram above and summarised below.

- 1** The waste is dropped into two **shredders** that operate at a rate of more than 50 tonnes per hour.
- 2** It is then sorted by size in a **trommel**.

- 3** Metals which are magnetic, and contain iron (ferrous metals), are picked from a conveyor belt by a **huge magnet**.
- 4** Non-magnetic metals are separated via an electrical field, known as an **Eddy Current Separator**.
- 5** Any remaining non-recyclable waste is sent to a storage bunker before going into a specialised combustion process through a **feed hopper**.

Resulting emissions from the furnace are cleaned up in a process that uses lime and activated carbon to neutralise acid gases and remove heavy metals respectively. The fine particles are then captured by filter bags leaving a powdery residue substance which is alkaline in nature and is used to treat industrial acids.

Of all the waste taken to the RERF more than 96% of it is converted into heat, electricity, or is recycled. Treating waste in this way prevents the release of greenhouse gases such as methane, which would otherwise build up in landfill sites and contribute to climate change.

Did you know

Of all the waste taken to the RERF, more than **96% of it is converted into useful energy or recycled.**

Curriculum links

- National Curriculum **Science**
- National Curriculum **Geography**
- National Curriculum **Citizenship**
- Programme of Study for **PSHE Education** (non-statutory)

The Leeds RERF makes a direct and significant contribution to climate change through diverting Leeds' waste that was previously sent to landfill. Using the latest state-of-the-art technology to separate and sort waste also has the benefits of:

- Preserving natural resources
- Protecting biodiversity
- Combating climate change and raising environmental awareness through the educational work at the facility

Brain Teaser: Explain the stages involved in separating different types of materials at the Leeds RERF focussing on what is separated and the processes by which it is separated.