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# Waste Gasification FEED Study Project

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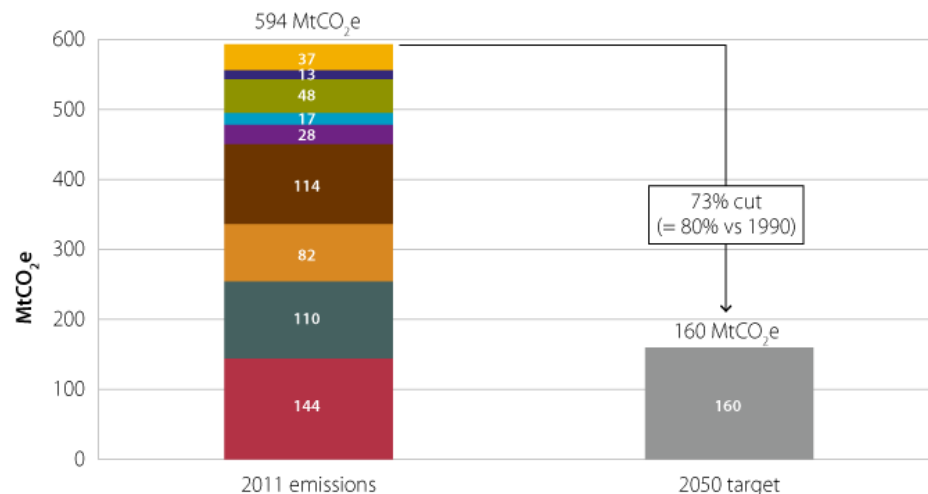
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# Introduction

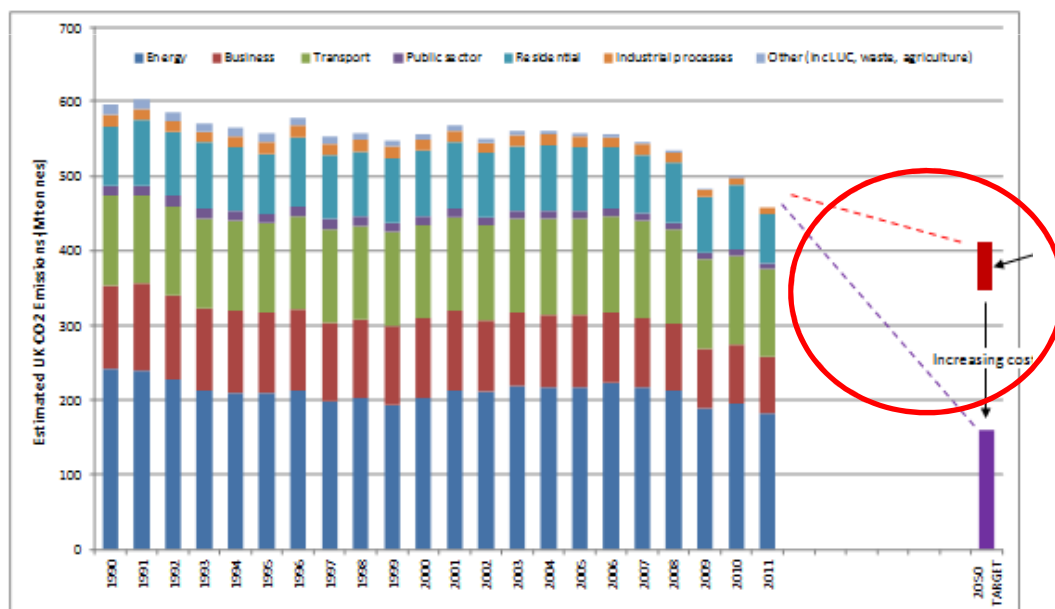


- Introduction / Welcome
- Why are we here
- The role of the ETI
- Why energy from waste
- Technology assessment
- Project aims

# Why are we here? UK targets

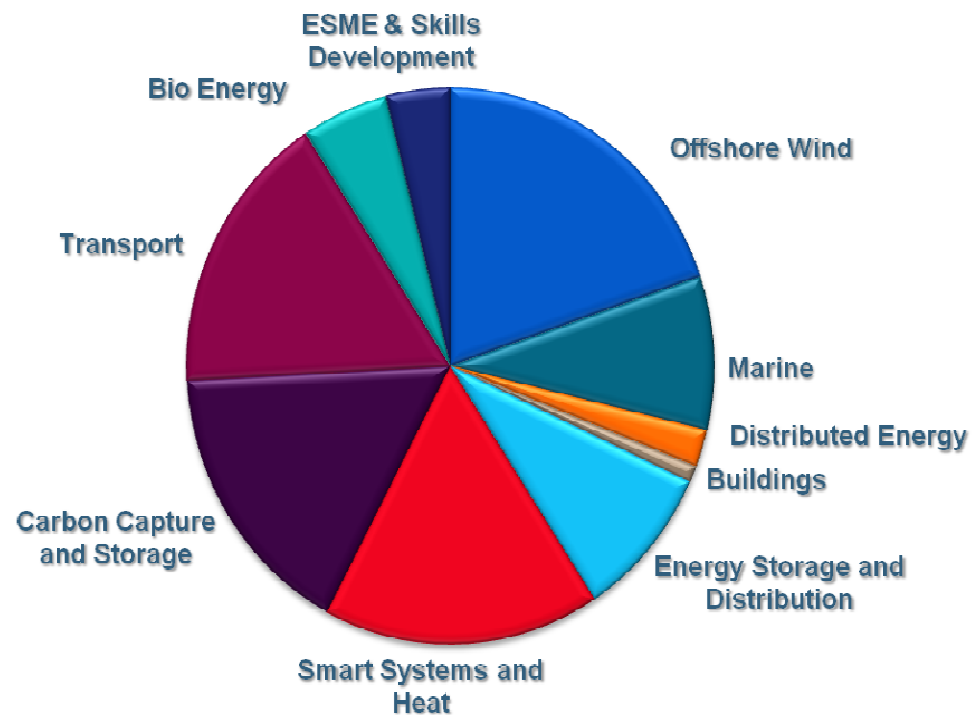


- 34% CO<sub>2</sub> reduction from 1990 levels by 2020
- 80% GHG emissions reduction from 1990 levels
- 15% of energy from renewable sources by 2020



**Acceleration** of the development and deployment of **Low Carbon Energy Technologies**

# What is the role of the ETI? 9 Technology Programmes

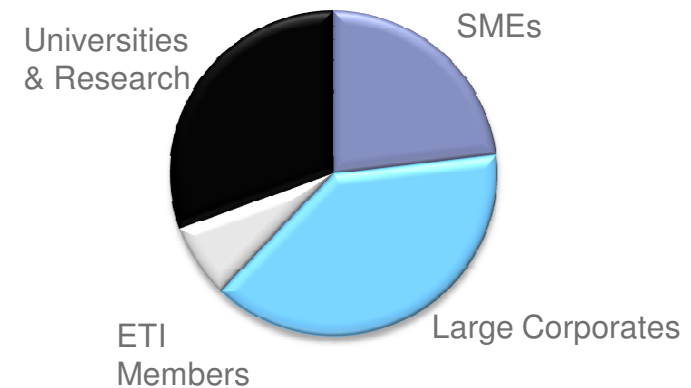


**£208m**

major projects underway

**£162m**

further projects in development



# Why Energy from Waste



- UK Waste Strategy – The waste hierarchy, local management of waste
- European focus on waste and EC 2025 Landfill Directive (35% reduction of biodegradable waste to landfill by 2016, and ban from 2025).
- ETI undertook a 1 ½ year research programme investing £1.4m identifying the following;
  - Between 2 to 4% of UK energy in 2050 from waste streams
  - Technology acceleration opportunity for gasification/gas clean up at the smaller scale
  - UK opportunity cost up to £5.5 billion, based largely on avoided emissions (ETI's Energy Systems Modelling Environment)

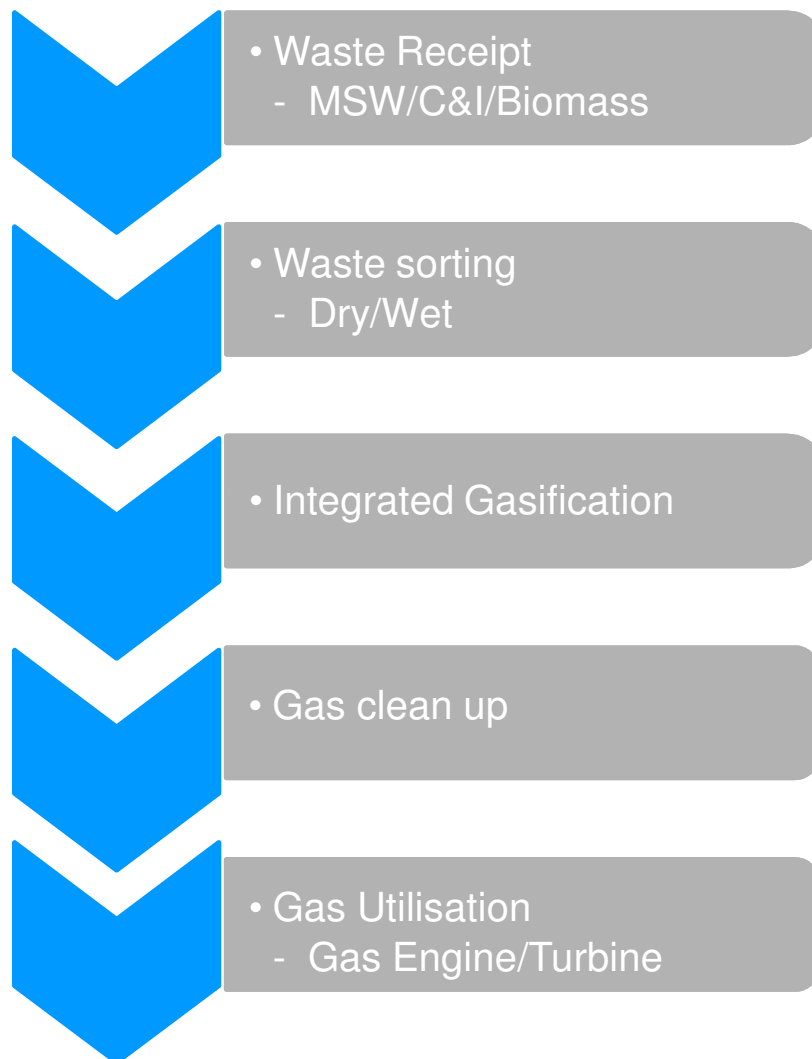
	City	Town	Village	Rural
Av Population	500,000	50,000	`	500
% UK Popn.	34%	43%	21%	2%
Waste kte/yr	500	50	5	0.5
Number of plants	76	946	4,544	4,544

# Appropriate Technologies



- Incineration and Anaerobic Digestion TRL 9 (*Actual system operated over the full range of expected conditions*).
- Pyrolysis and Gasification TRL5 (*Laboratory scale, similar system validation in relevant environment*)
- But, Gasification;
  - Can handle a wider range of waste without pre-sorting
  - Provides great energy sector flexibility (power, gas, liquids)
  - Is future proof, as an intermediate and destination technology
  - Greatest potential for ETI to deliver LCOE and efficacy improvements
- Coupling of key elements (Sorting, gasification, gas clean up, gas utilisation) of the system are vital

# Overall Project Aim



## Project Objectives

Demonstrate capability for a 5 -20 MWe  
Waste Gasification to energy facility

Project driven by performance targets

- *25% Net Electrical Efficiency over entire operation*
- *80% availability*
- *Combination of UK typical waste (MSW, C&I), & limited amount of biomass*

Phase 2 - One consortia selected to continue to detailed design, construct and operation of a demonstration facility

# Questions and Answers





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