



Latest Developments in England and Scotland with new Waste Technologies

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Hot
for Heat!





SELCHP

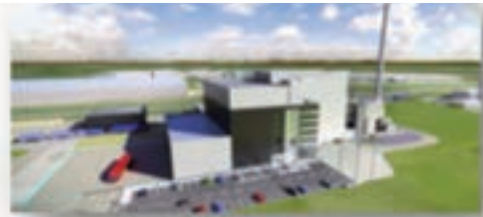
The 1990s

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....then they came like buses!

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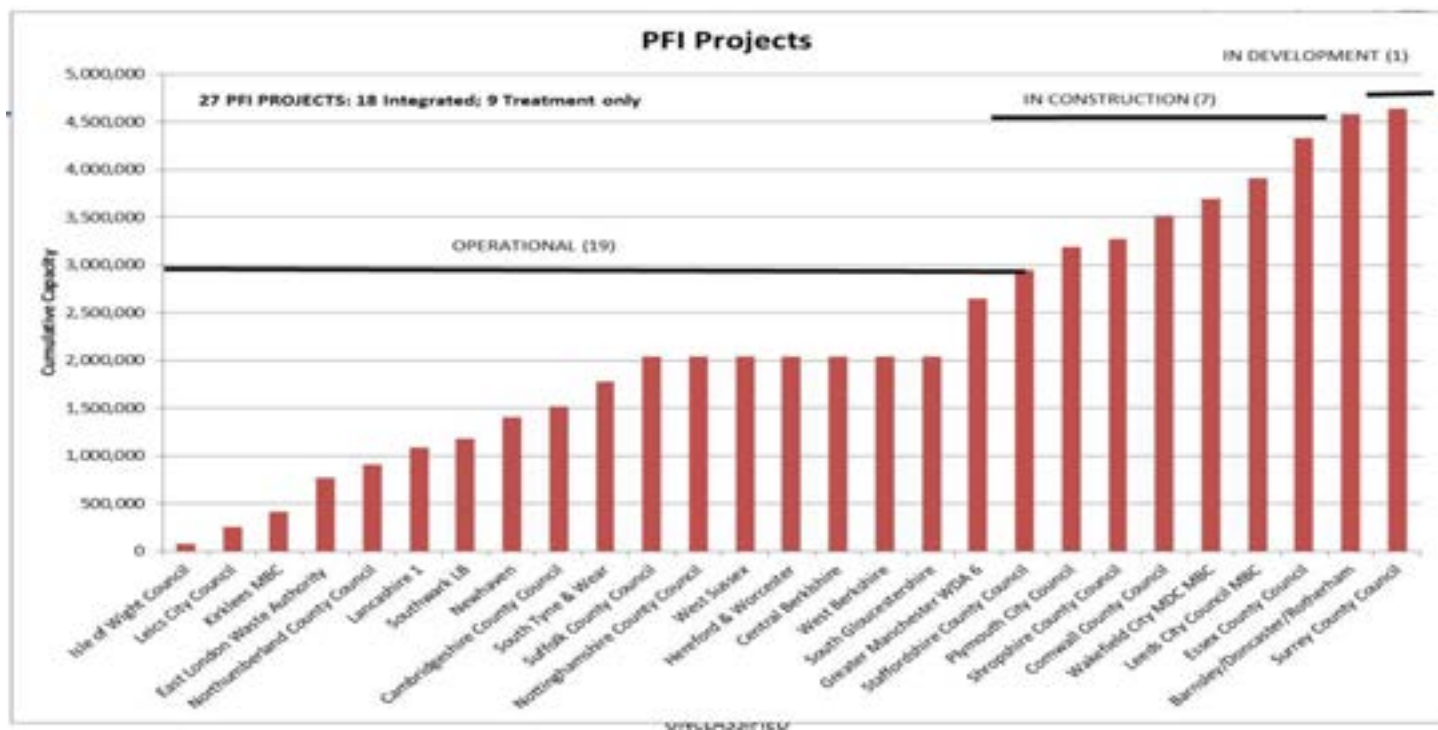


Government Support

Costs

- Defra has allocated ~£1.5bn in Waste Infrastructure (WI) Credits for 27 projects
- Paid over the 25 year operating life of each plant and when adjusted for inflation Defra will pay ~£3.2bn.

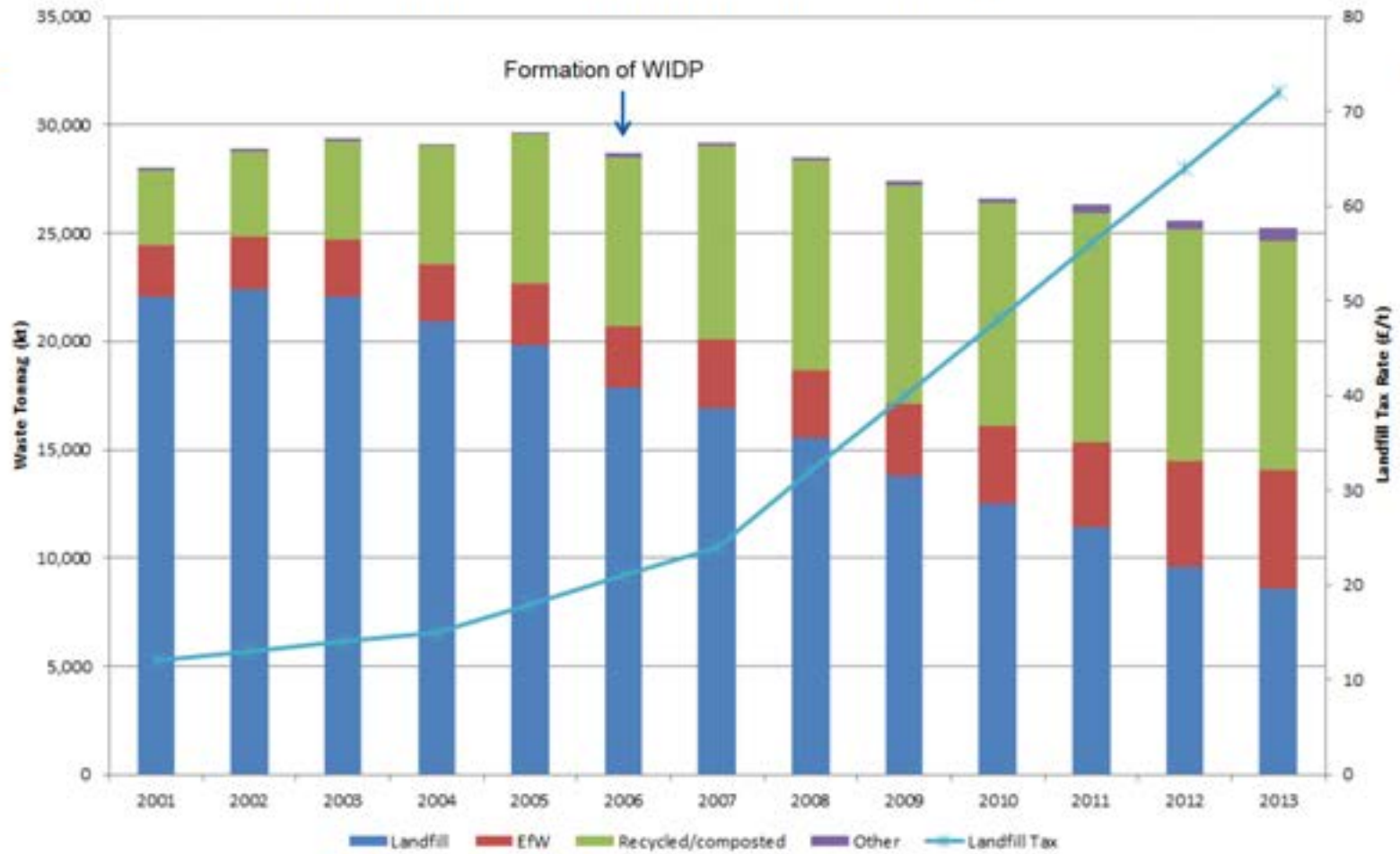
The Development of UK Waste Treatment 1996 - 2014



Thanks to Partnerships UK

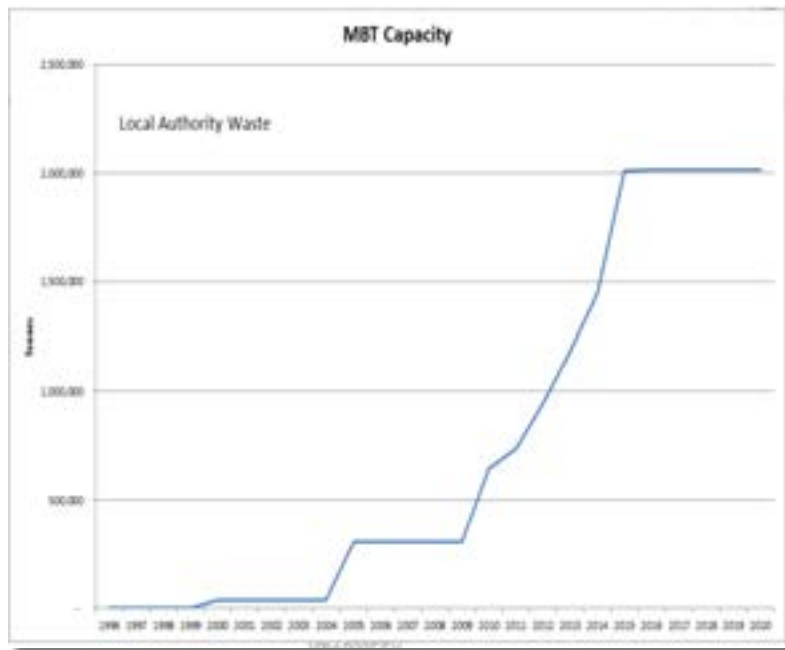


Management of Local Authority Collected Waste (England)



UNCLASSIFIED

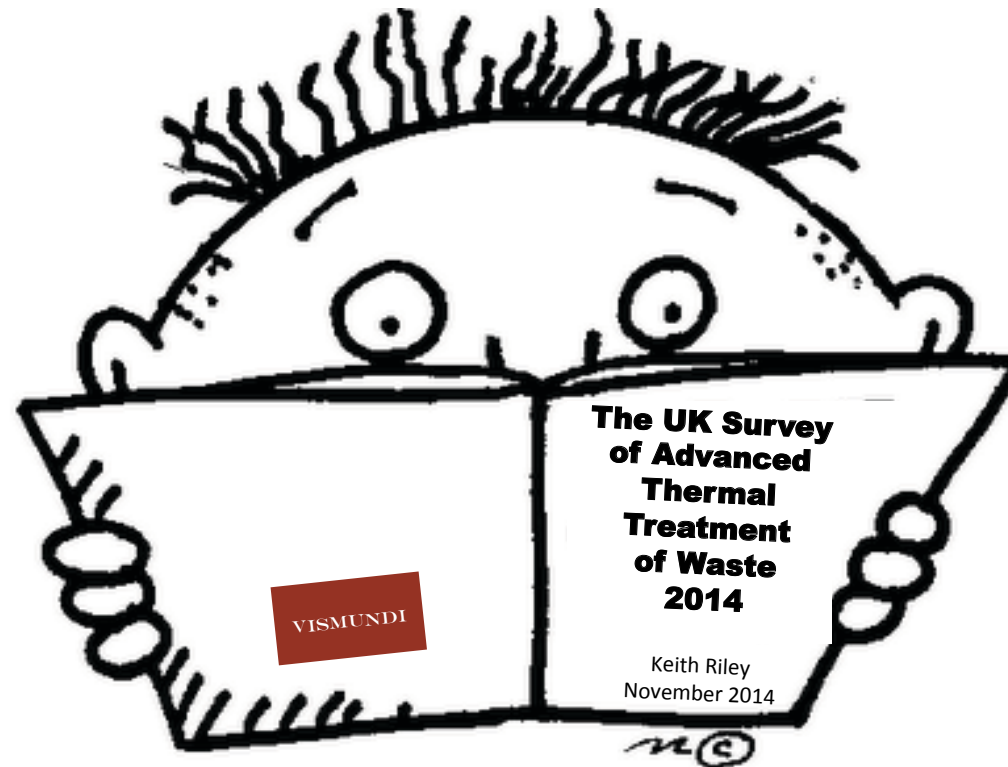
The Growth of MBT



Waterbech, Cambridgeshire	179,000 tpa
Leicester (Biffa)	100,000 tpa
Cotesbach, Leices. (New Earth)	50,000 tpa
Frog Island (E. London)(Shanks)	2 x 180,000 tpa
Farington, Lancashire	300,000 tpa
Southwark, london (Veolia)	87,500 tpa
Basildon, Essex	417,000 tpa
Nearly 1.5 million tonnes pa	

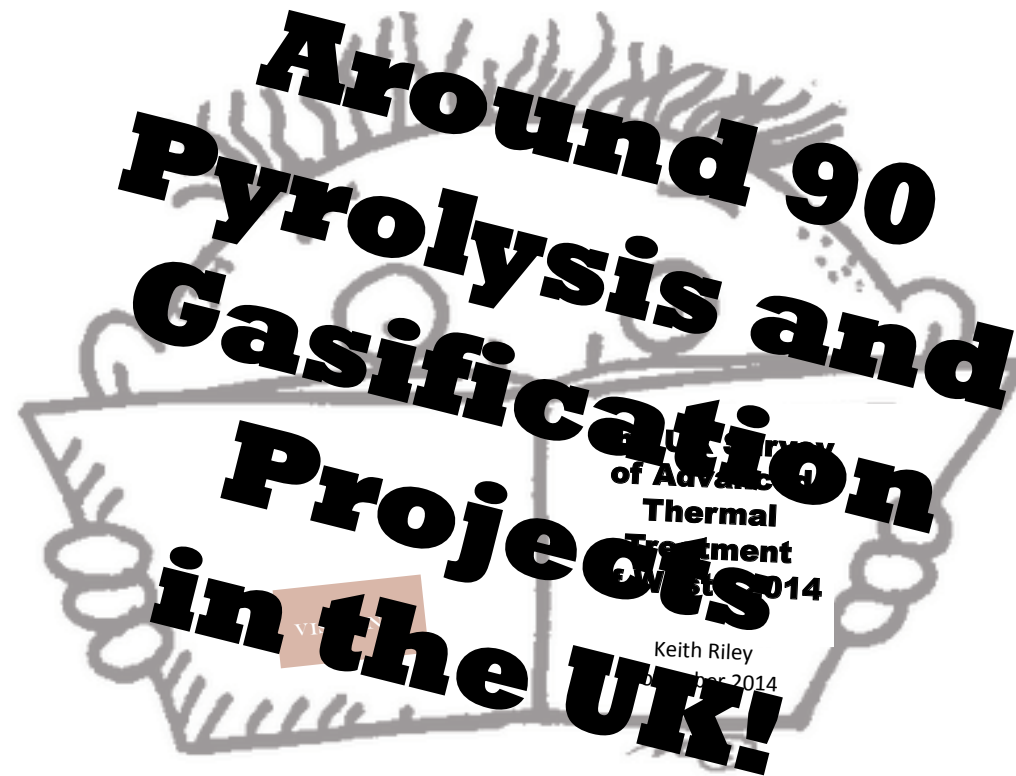
.... but they are not working so well and are expensive!

The 2014 Survey of ATT in the UK

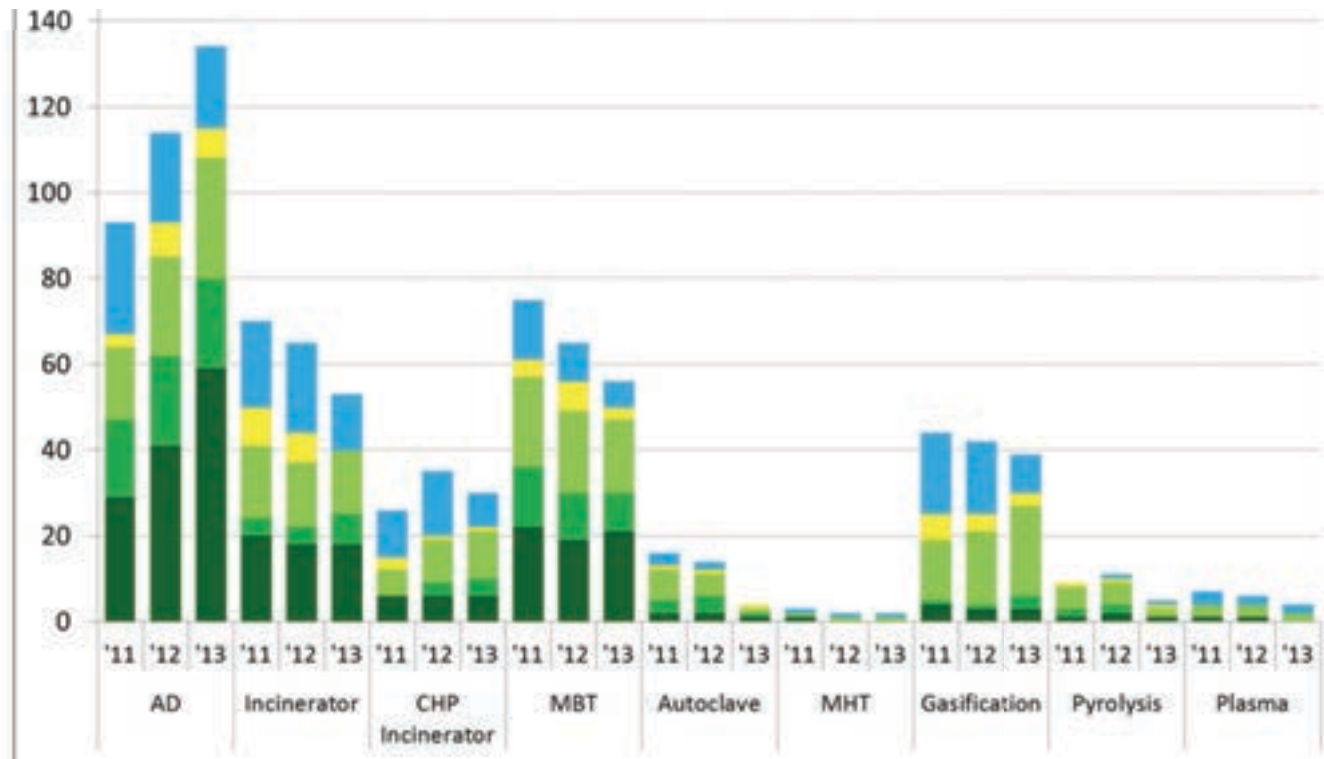


The 2014 Survey of ATT on the UK

**Around 90
Pyrolysis and
Gasification
Projects
in the UK!**



UK waste Plants (2011 – 13) by technology and status



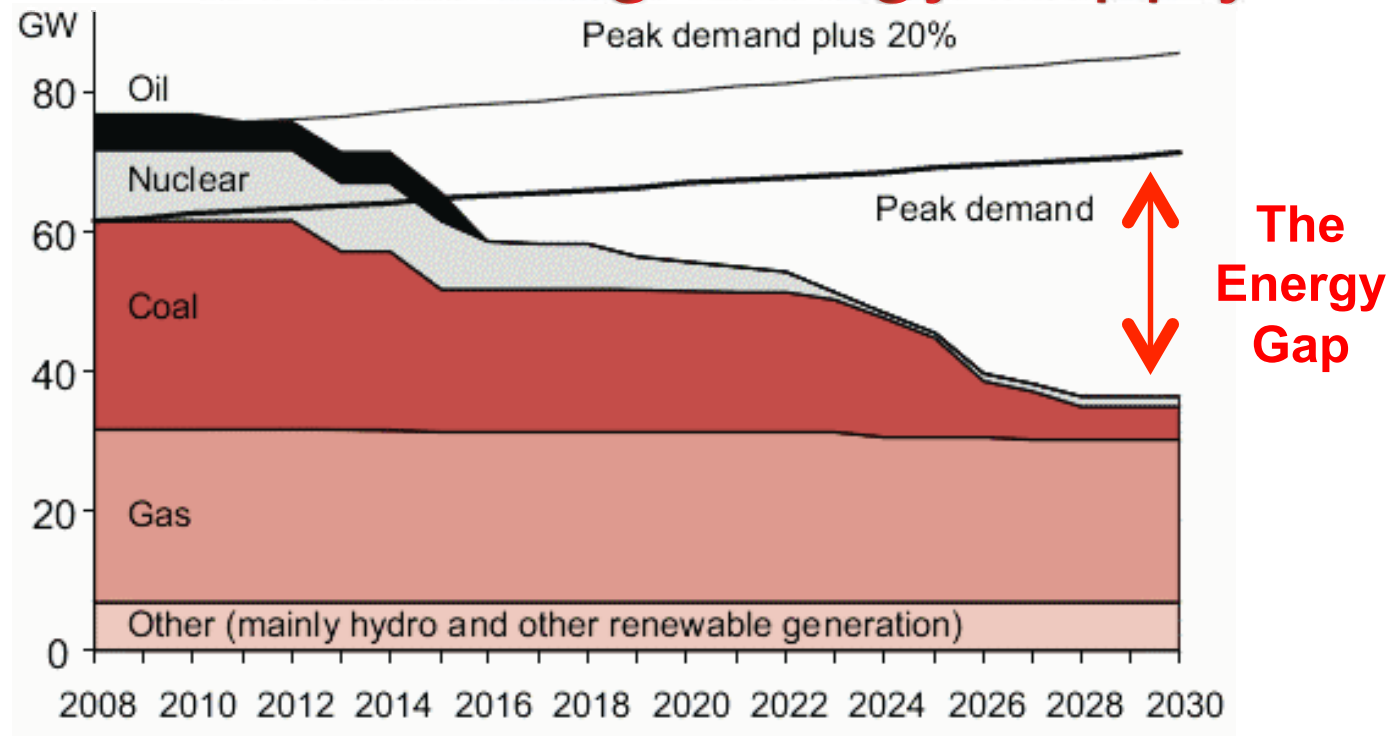


Landfill Directive

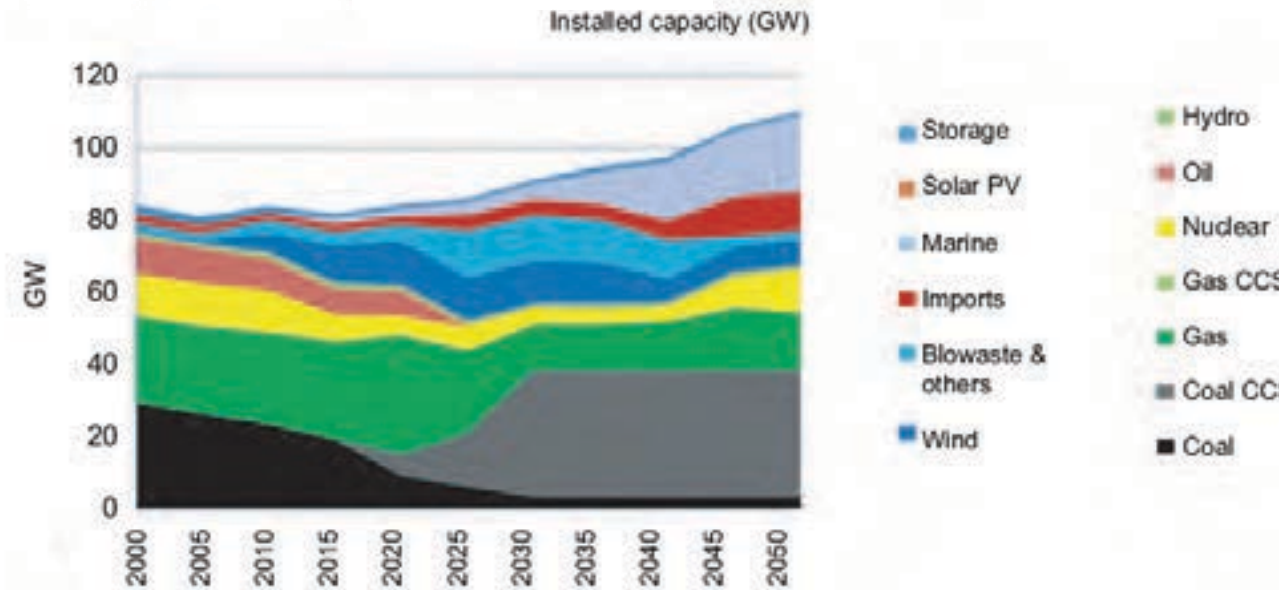
Waste Incineration Directive

Waste Framework Directive

The UK's dwindling energy supply

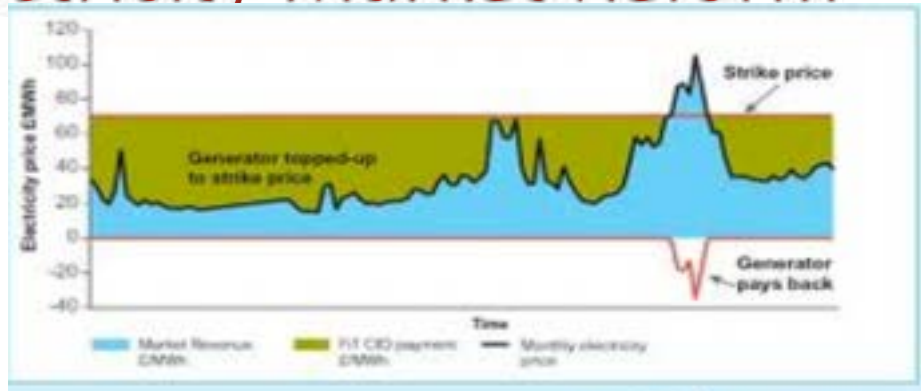


RO Technology Banding



**For generation, Pyrolysis & Gasification received up to 2 x ROC
(less regression)**

Electricity Market Reform

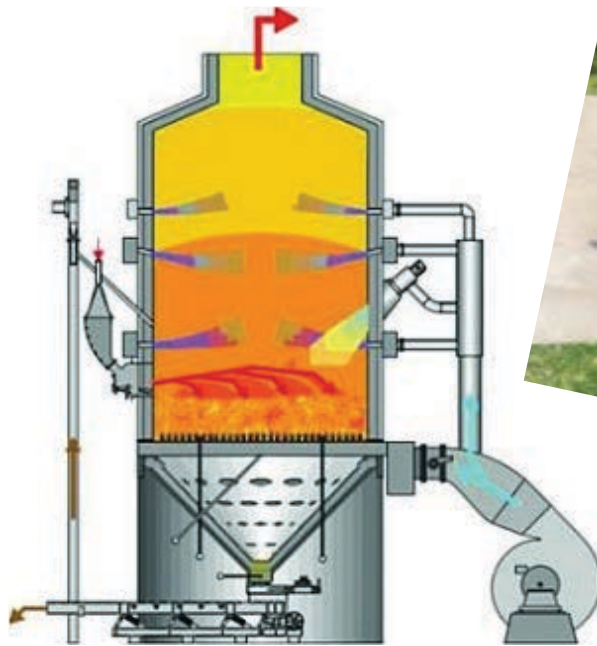


Transforming the UK's Electricity Market



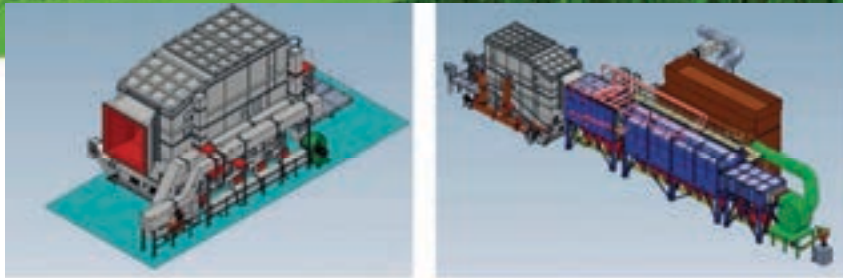


Outotec

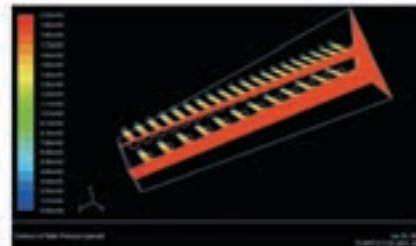
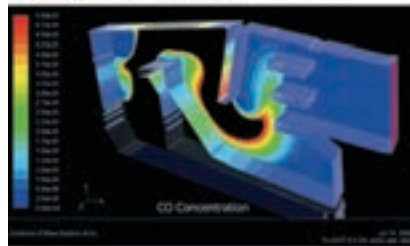


biomass power

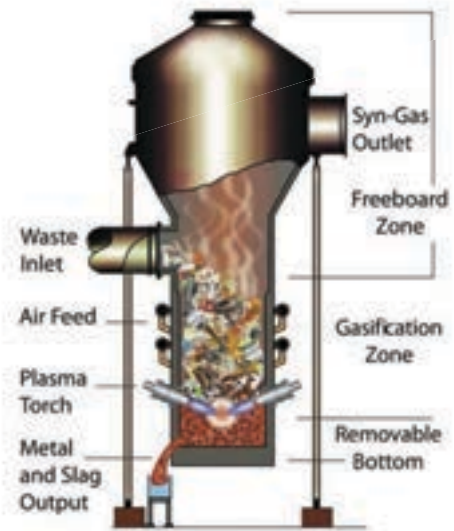
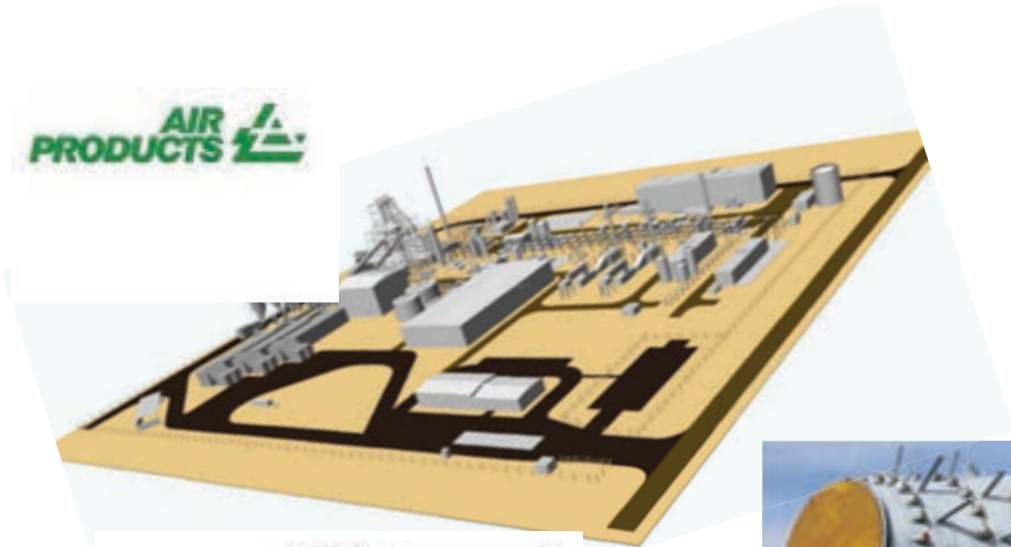
POWER WITH RESPONSIBILITY



Computerised fluid dynamics:



AIR PRODUCTS

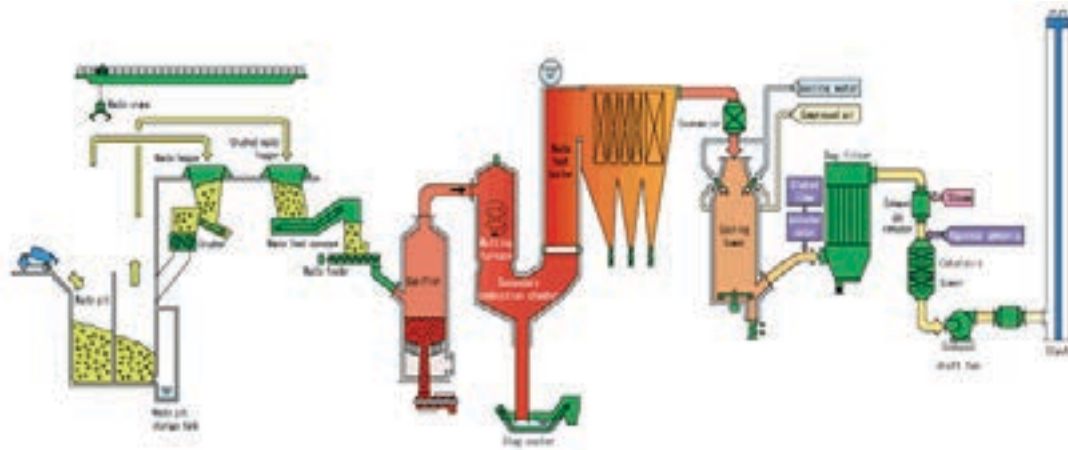


ALTER NRG

ENERGY
FROM WASTE



Chinook Energy



Receiving and feed equipment	Combustion equipment	Exhaust gas cooling equipment	Exhaust gas treatment equipment
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KOBELCO



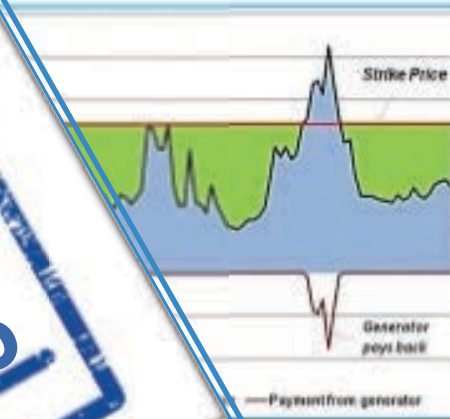


The CfD

The Contract for Difference - CfD

- Provides long-term stability for carbon
- Generates electricity at the 'strike price'
- A single government counterparty by the Carbon Contract will administer the

POSTPONED UNTIL: Late 2016



- When market price < 'strike price' generator receives a top-up
- When market price > 'strike price' – The generator pays back the difference



What do we know?

- 23m tonnes MSW
- C&I recycling >MSW recycling at 60% = 24m tonnes

So about 47m tpy of Residual Waste in the UK

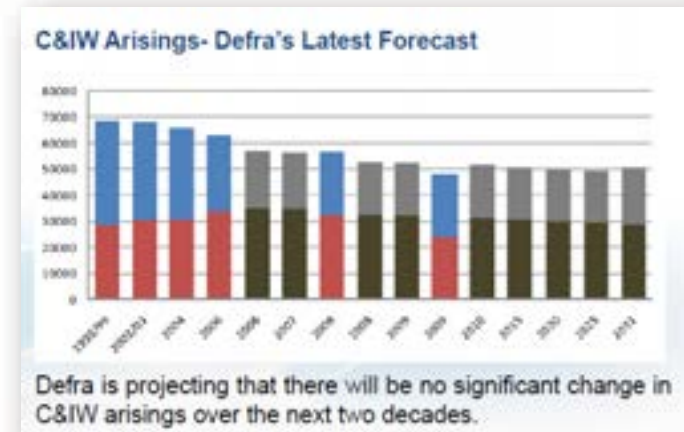
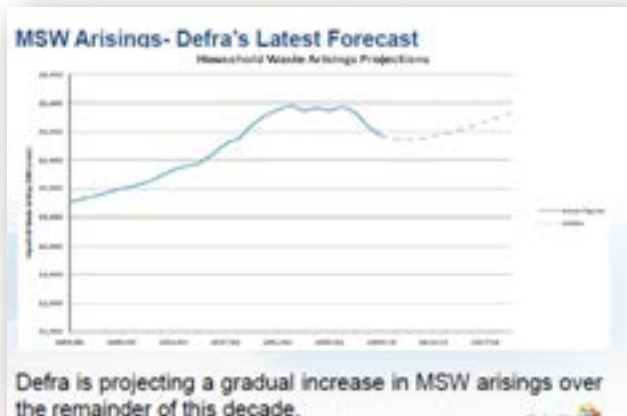


Landfill Tax Year 2012/13
38 million tonnes

About 19 million tonnes in England
paid at the standard rate

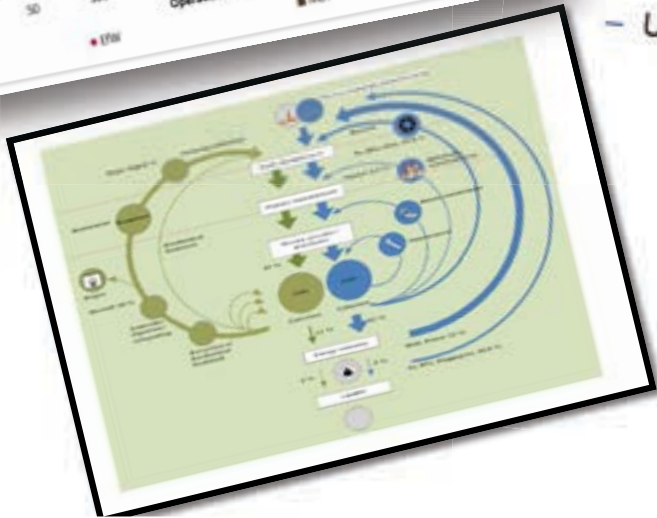
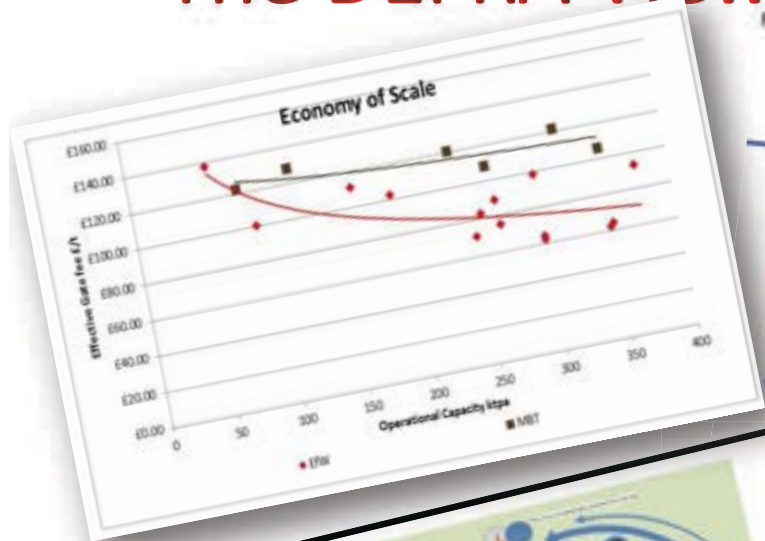
So about 21 million tonnes pa in the
UK goes to Landfill

Forecast Waste Arisings



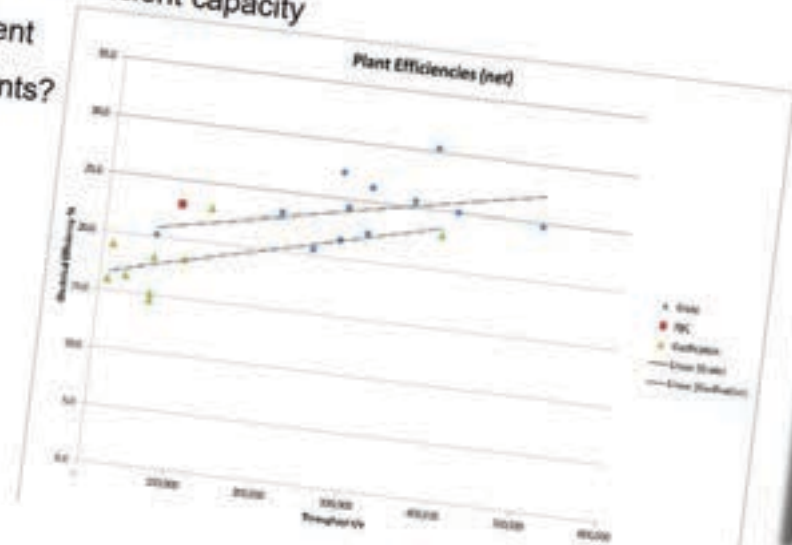
- MSW will increase slowly with increasing population
- C&I waste will stay fairly constant

The DEFRA View



What Next (post 2020)?

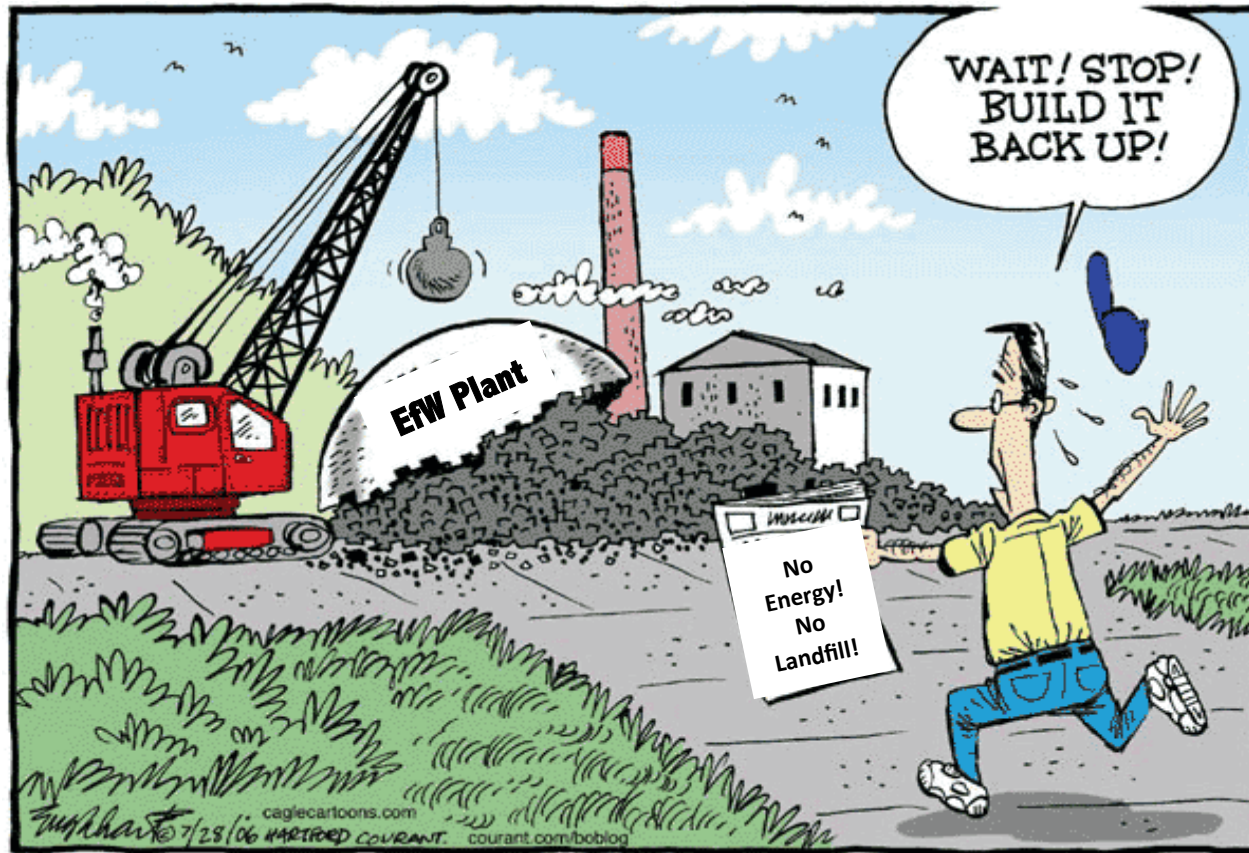
- New EU Targets – move towards higher recycling; zero waste to landfill
- Higher Efficiency (CHP/gasification)
- Local Authority Waste – sufficient capacity
- Merchant development
 - Up to 20 new plants?



The Drivers now for EfW in the UK

- Waste Economics – Landfill tax at £82.60, coupled with reducing availability of landfills is putting pressure on waste collector costs and there is still in excess of 21 million tonnes pa of waste being landfilled.
- Exports have boomed – but RDF export is proving to be more difficult than people thought and anyway is unlikely to exceed 3.5 million tonnes pa.
- If disposal is contracted long-term, EfW helps fix the disposal cost for the waste collectors.
- EfW can now be price competitive with landfill and export, the question is the gate fee.
- Energy prices are currently low, but the UK needs more generation, and being an island, supply cannot be easily imported – so energy prices will rise no matter what.
- Gasification has higher efficiency potential and syngas can be put to many different potential uses – but it is still to be proven.
- Recycling is well established but static, and the Circular Economy will emerge slowly.
- Thermal treatment has to be part of CE, but in terms of technology, the UK has experimented with MBT - but at the end of the day thermal treatment has to be part of the solution.

How the future will unravel is not certain, but EfW will without doubt be part of it.



Thank you for listening