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WTERT-UK Opportunities and Barriers

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WTERT Waste-to-Energy Research and Technology Council
Advancing Sustainable Waste Management

Overview

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Waste to Energy (WtE) technologies in the UK

- **Management of MSW**
- **Drivers for change**
- **Current status of WtE**
- **Barriers to increasing WtE**
- **WTERT-UK**

Conclusions

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Management of MSW in the UK

Current MSW production in the UK

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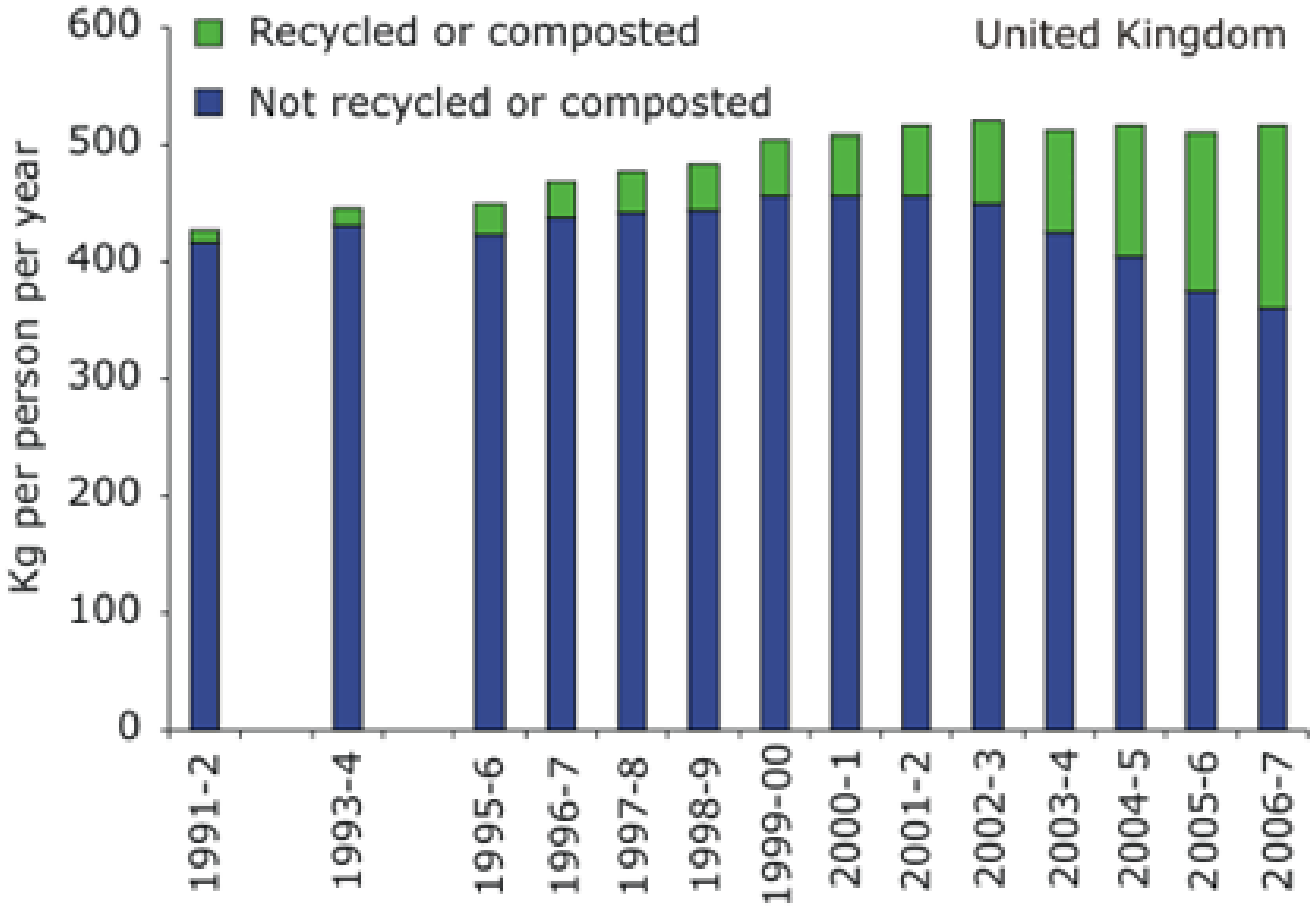
31 million tonnes of MSW from England and Wales = 509 Kg per person
Average annual increase was 3.3% but now at about 0.5%



Source: Defra, EH, SEPA, WAG

MSW management in England and Wales 2007/8

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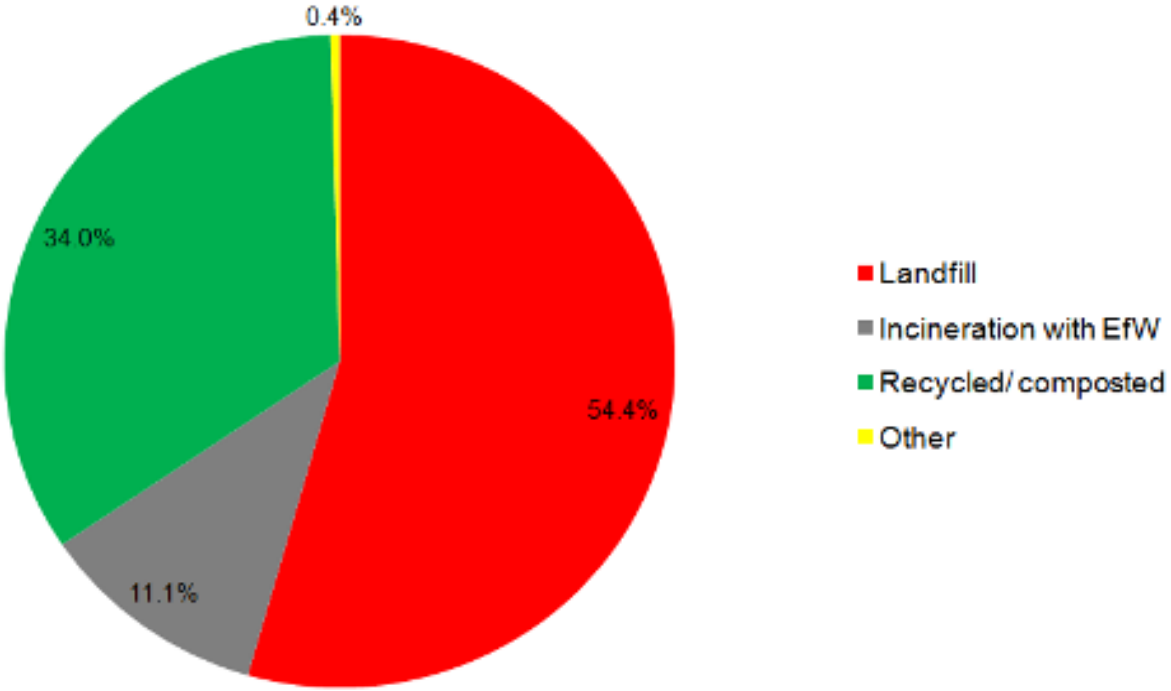
	Tonnes ($x10^6$)	Percent %
Landfill	15.5	54.4
Incineration (EfW)	3.2	11.1
Recycled/composted	9.7	34.0



Source: Defra

Comparison with other EU countries

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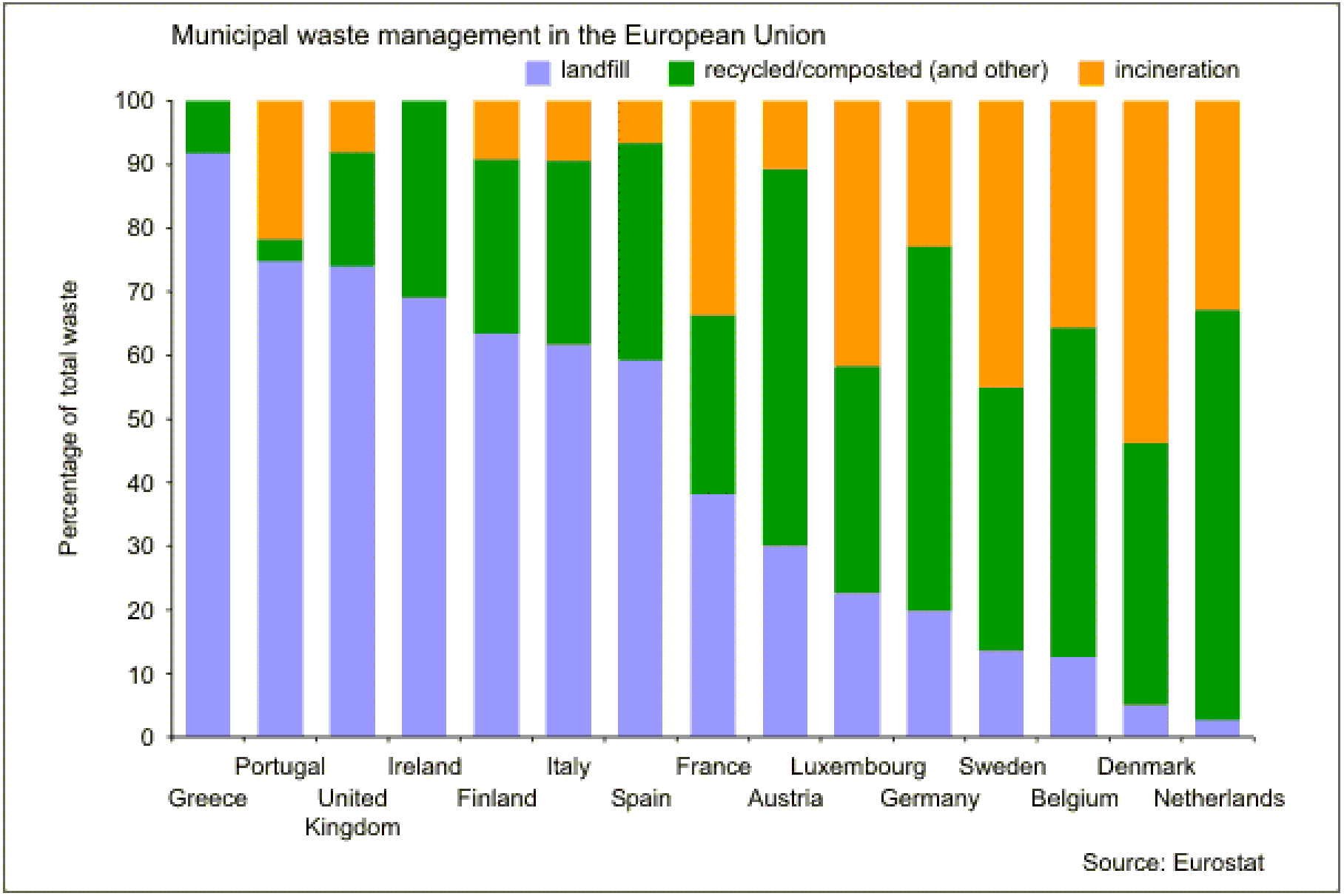

Drivers for change

EU Landfill Directive:

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Reduction of biodegradable municipal waste sent to landfill:

2010 - reduce biodegradable waste to landfill to 75% of 1995 levels
2013 - reduce biodegradable waste to landfill to 50% of 1995 levels
2020 - reduce biodegradable waste to landfill to 35% of 1995 levels

Ban co-disposal of hazardous and non-hazardous wastes

Require separate landfills for hazardous, non-hazardous and inert wastes

Ban on landfill of tyres (whole tyres by 2003, shredded tyres by 2006)

Ban on landfill of liquid, infectious and certain hazardous wastes

Provisions on the control, monitoring, reporting and closure

Diversion of biodegradable waste

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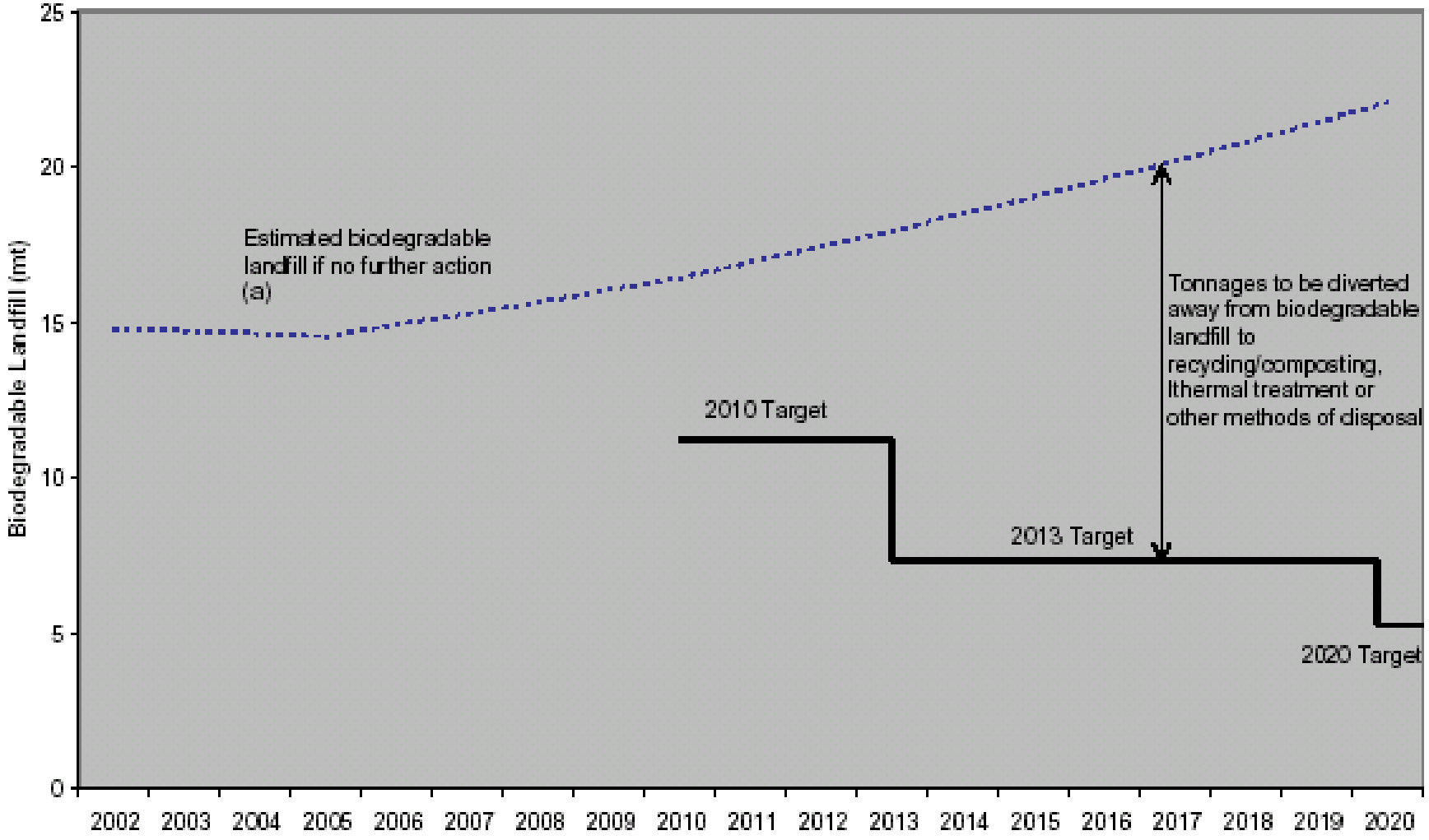

Source: Strategy Unit analysis

UK Landfill tax

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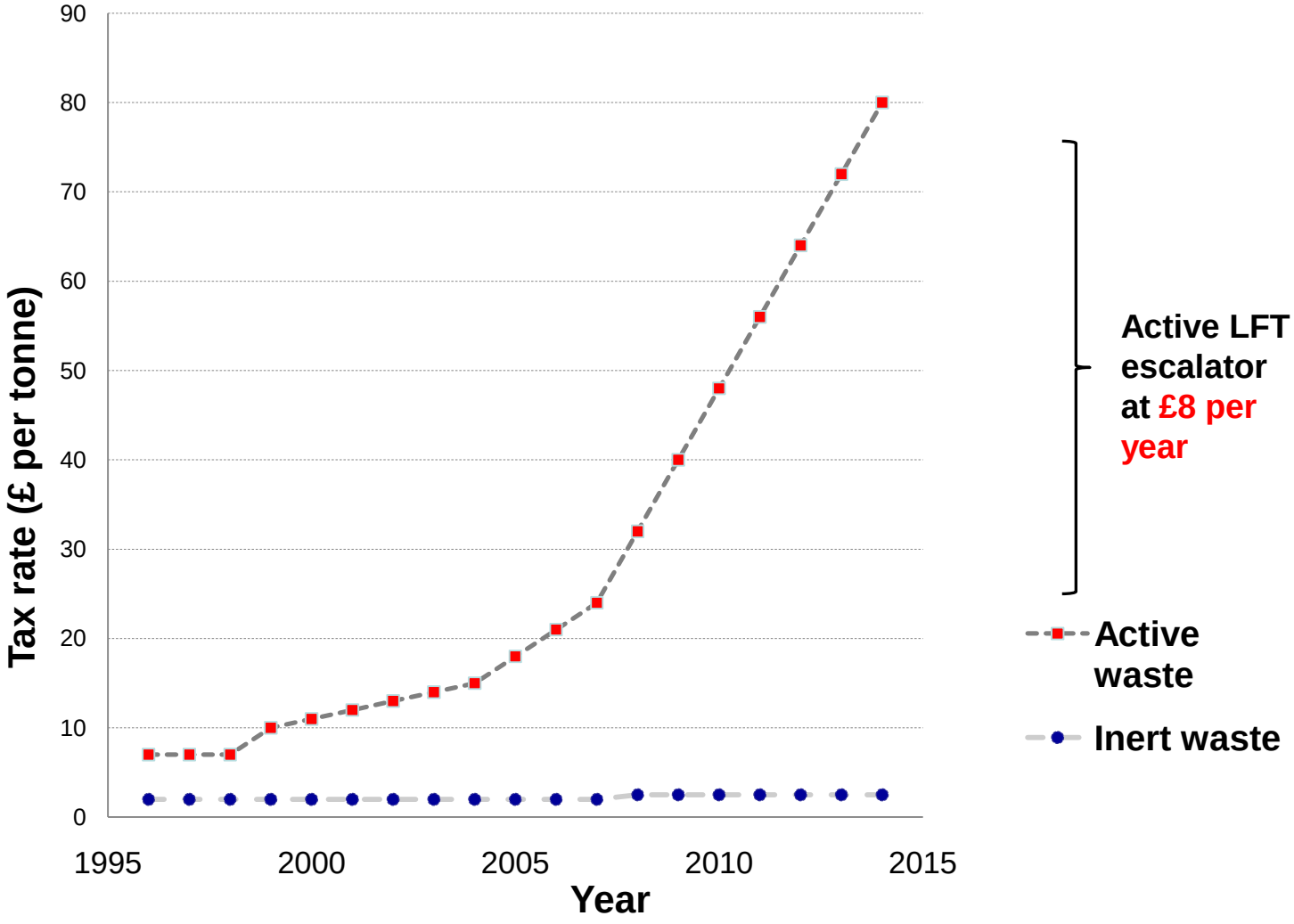

Landfill tax on MSW will increase to £80 per tonne by 2014

UK Waste policy

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Waste strategy for England 2007

Decouple waste growth from economic growth and put more emphasis on waste prevention and re-use;

Meet and exceed the Landfill Directive diversion targets for biodegradable municipal waste in 2010, 2013 and 2020;

Secure investment in infrastructure to divert waste from landfill and for the management of hazardous waste;

Get the most environmental benefit through increased recycling of resources and recovery of energy from residual waste using a mix of technologies.

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Current status of Waste to Energy in the UK

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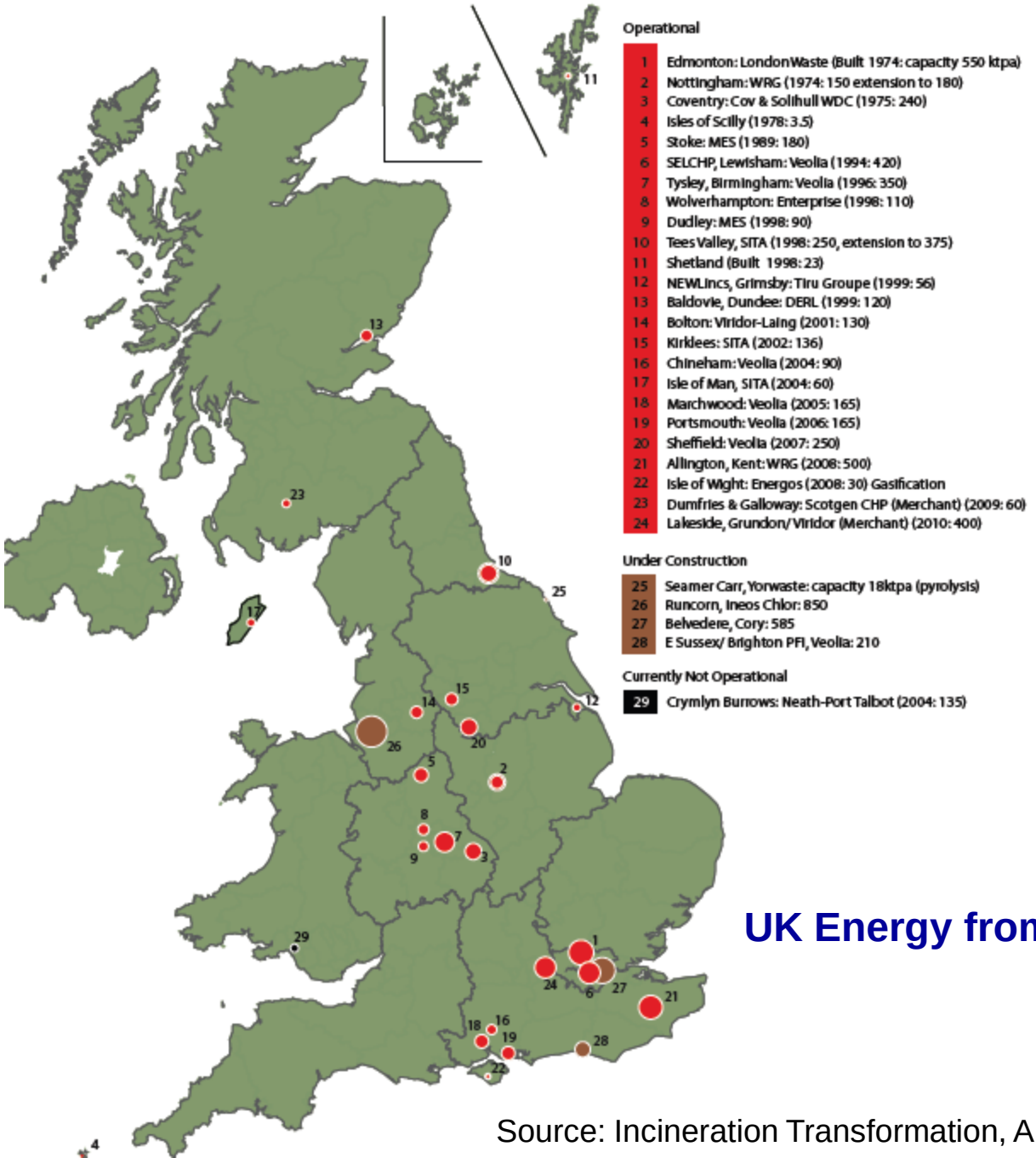

UK Energy from waste (EfW) plants

Source: Incineration Transformation, A.Metcalfe, CIWM, June 2010

MSW Incineration plants in the UK

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Plant	Company	Scale (tpa)	Electrical Energy
Edmonton	London Waste	500,000	32MW
Allington	WRG	500,000	43MW
SELCHP	SELCHP/Veolia	420,000	32MW
Tysesley	Tyseley Waste/Veolia	350,000	25MW
Cleveland	Sita	245,000	20MW
Coventry	Coventry/Solihull WDC	240,000	18MW
Sheffield	Veolia	225,000	+ Heat 39MW
Stoke	MES Environmental	200,000	13MW
Marchwood	Veolia	165,000	14MW
Portsmouth	Veolia	165,000	14MW
Nottingham	Veolia	150,000	+ Heat 20MW
Kirklees	Sita	136,000	9MW
Dundee	Dundee Energy Recycling	120,000	83MW
Wolverhampton	MES Environmental	105,000	7MW
Dudley	MES Environmental	90,000	7MW
Chineham	Veolia	90,000	7MW
Isle of Man	Sita	60,000	6MW

South East London Combined Heat and Power

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Veolia EfW plant Southampton

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New Grundon/Viridor Lakeside EfW plant

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400,000 tonnes capacity, operating from 2010

Energy from Waste plant on the Isle of Man

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Number of plants in Europe

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	Number of facilities	MSW Treated Mtonnes per year
France	130	12.3
Germany	67	17.8
Italy	51	4.0
Sweden	30	4.5
Switzerland	29	3.6
UK	21	4.4
Norway	20	0.8
Belgium	16	2.6
Netherlands	11	5.8
Spain	10	1.8
Austria	8	1.6
Portugal	3	1.0
Finland	1	0.05
Poland	1	0.05

http://www.cewep.eu/

Data from CEWEP (Confederation of European Waste to Energy Plants)

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Barriers to increasing WtE in the UK

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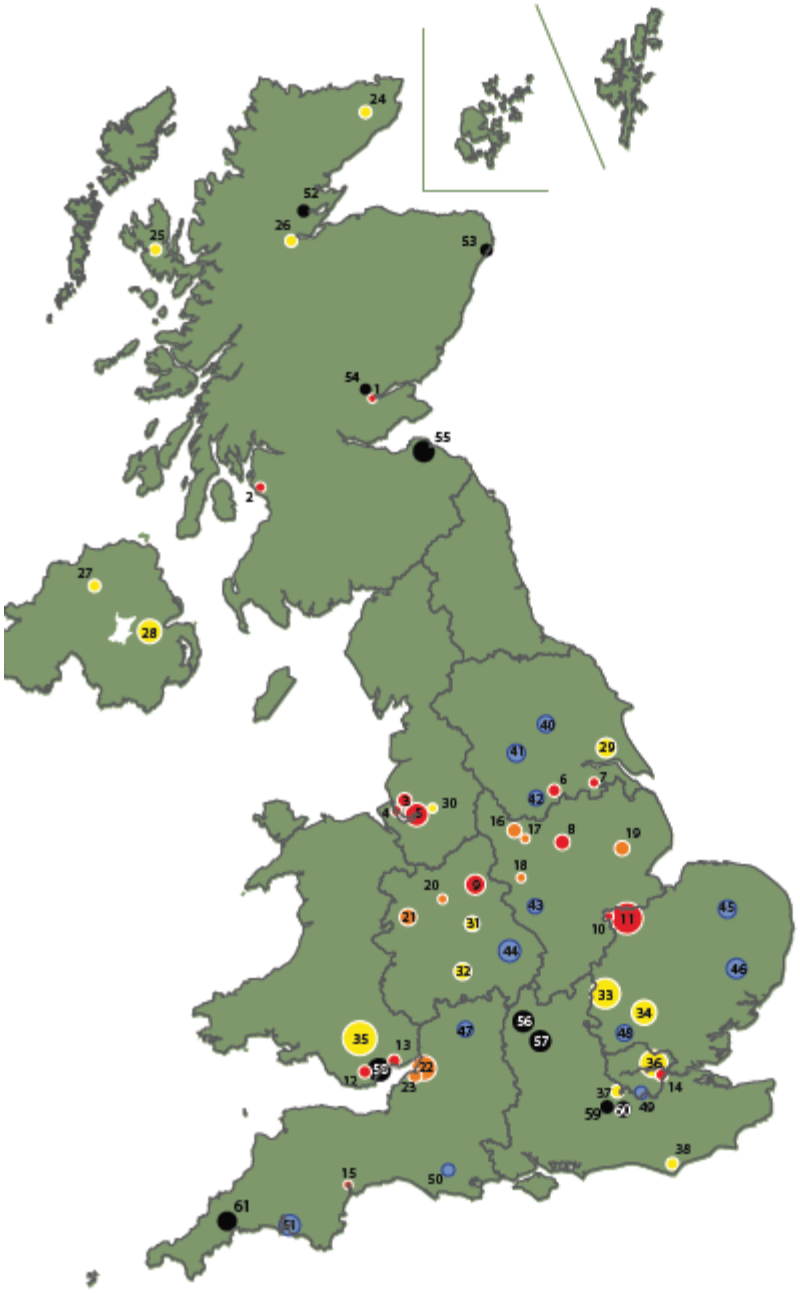
New proposed WtE facilities



Planning Permission Granted

1. SITA, Perth (Mer) (Capacity 60ktpa)
2. BioGen N Ayrshire (Mer G) (80ktpa)
3. European Metals Recycling, Bootle (Mer) (137.5)
4. BioGen Knowsley (Mer G) (95)
5. New Earth Energy/ Biossence, Mersey Green Solutions (Mer G) (400)
6. BioGen, Doncaster (Mer G) (120)
7. Singleton Birch, N. Lincs (Mer) (80)
8. Nottinghamshire, Veolia (PFI) (180)
9. Staffordshire (PFI) (300)
10. Peterborough (65)
11. PREL, Peterborough (Mer G) (650)
12. Sterecycle, Cardiff (Mer) (124)
13. BioGen Newport (Mer G) (120)
14. Biossence, Dagenham (Mer G) (100)
15. Viridor: Exeter (Municipal) (60)

Planning application submitted, no decision

16. Derbs, United Utilities (PPP G) (140)
17. Cyclamax, Chesterfield (Mer G) (60)
18. Cyclamax, Derby (Mer G) (60)
19. Lincolnshire (Mun) (150)
20. SITA, Telford and Wrekin (Mer) (62)
21. Shropshire, Veolia (PFI) (190)
22. SITA, Avonmouth (Mer) (400)
23. Cyclamax, Avonmouth (Mer G) (120)

In planning

24. Caithness: Highland 1 (Mun)
25. Skye: Highland 2 (Mun)
26. Inverness: Highland 3 (Mun)
27. Derry etc., NWRWMG (Mun)
28. Belfast etc., Arc21 (Mun) (370)
29. Hull & E Yorks/ WRG (PFI) (250)
30. Warrington (Mun) (60)
31. Sandwell (Mun G) (138)
32. Hereford & Worcs, Mercia Waste (PFI) (19
33. Covanta for Bucks (PFI) (585)
34. Biffa, Herts (Mer) (400)
35. Covanta, Merthyr Tydfil (Mer) (750)
36. British Airways for biofuel (Mer G) (500)
37. Surrey Waste-SITA, Sharpness (PFI G) (60
38. Biossence, East Sussex (Mer G) (95)

PFI Reference Case

40. York/ N Yorks
41. Leeds
42. Barnsley, Doncaster, Rotherham
43. Leicestershire
44. Coventry, Solihull, Warwick
45. Norfolk
46. Suffolk
47. Gloucestershire
48. Hertfordshire
49. South London
50. Dorset
51. Devon, Plymouth, Torbay

Planning Application Rejected/ Withdrawn

52. Combined Power and Heat, (Mer)
53. Buchan CHP, Peterhead (Mer) (100)
54. Grundon, Perth (Mer)
55. Viridor Oxwellmains, Dunbar (Mun)
56. WRG for Oxfordshire (PPP)
57. Viridor for Oxfordshire (PPP)
58. Viridor, Cardiff (Mer)
59. Surrey Waste-SITA, Capel (PFI)
60. Surrey Waste-SITA, Trumps Farm (PFI)
61. Cornwall-SITA (PFI)

Source: Incineration Transformation, A.Metcalfe, CIWM, June 2010

Local Authorities and the Environment Agency

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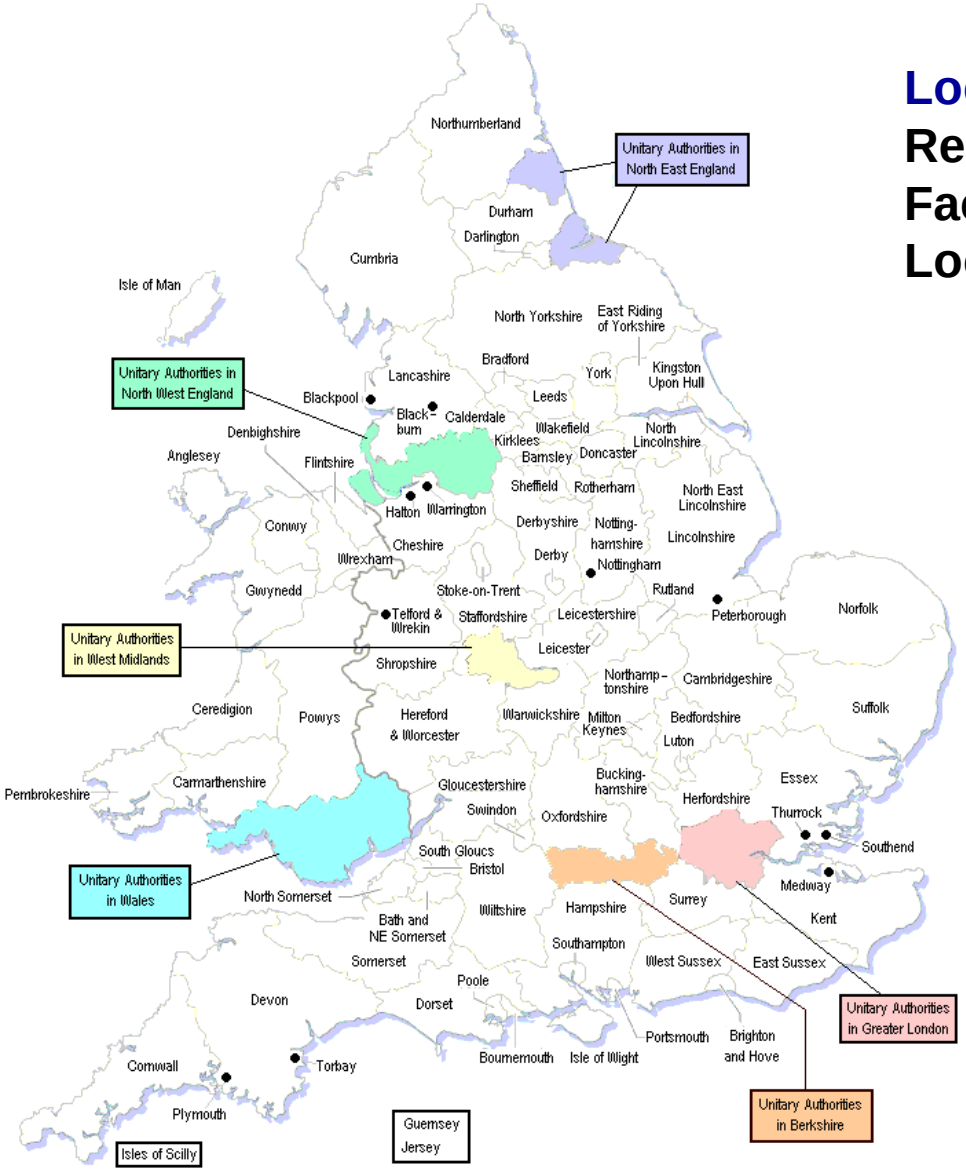

Local authorities:

Responsible for MSW management;
Facilities and infrastructure needs;
Location of facilities.

Environment Agency:

Issue permit to operate;
Regulate plant performance;
Input into planning process.

Local opposition - well organized and high profile

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UK Without Incineration Network - UKWIN

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Michael Warhurst, senior campaigner at Friends of the Earth:

It's insane for the government and local councils to waste taxpayers' money on expensive pollution-belching rubbish burners.

Incineration is a problem for climate change, not a solution, and will send valuable recyclable resources up in smoke.

The Government should abandon this wasteful and old-fashioned technology by stopping all incinerator funding and investing in real green alternatives.

http://ukwin.org.uk

http://ukwin.org.uk/knowledge-bank/incineration/the-story-behind-the-map/

Google

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incineration uk Search

About 298,000 results (0.12 seconds) Advanced search

Pages from the UK

Incineration - Environmental Services Association
Currently, 2.8 million tonnes (9%) of municipal waste and 100000 tonnes (3%) of hazardous waste is treated in **incineration** facilities in the **UK**. ...
www.esauk.org/waste/**incineration**/ - Cached - Similar

UK Without Incineration Network
UK Without **Incineration** Network. ... Welcome to the website of the United Kingdom Without **Incineration** Network (UKWIN). For 20 working days a year you can ...
www.ukwin.org.**uk**/ - Cached

[PDF] **149 - Incineration of Household Waste (PDF 47 KB - POST 149**
File Format: PDF/Adobe Acrobat - Quick View
incineration in waste management. BACKGROUND. Each year **UK** households ... 2 many countries recycle and **incinerate** a larger proportion of waste than the **UK**. ...
www.parliament.**uk**/post/pn149.pdf - Similar

[PDF] **Pollution and health impacts of waste incinerators**
File Format: PDF/Adobe Acrobat - Quick View
Local authorities in the **UK** are now stampeding towards huge **incineration** plants, capable of burning 200000 tonnes or more of rubbish per annum, ...
www.greenpeace.org.**uk**/MultimediaFiles/Live/FullReport/3809.PDF - Similar

Incineration | Environment | guardian.co.uk
UN **incineration** plans rejected by world's rubbish-dump workers ... 16 Mar 2010: Report for **UK** government refutes persistent claims that recycling is a waste ...
www.guardian.co.**uk**/environment/**incineration** - Cached - Similar

Environment Agency - Waste Incineration Directive
27 Sep 2010 ... The Waste **Incineration** Directive is implemented through Environmental Permitting Regulations in England and Wales. ...
www.environment-agency.gov.**uk**/business/.../31969.aspx - Cached - Similar

Chesterfield Against Incineration
Chesterfield Against **Incineration**. Last Updated: 23/09/10 ... iChesterfield · PAIN – People Against **Incineration** · **UK** Without **Incineration** Network ...
www.against**incineration**.org.**uk**/ - Cached - Similar

Hatfield Anti Incineration
Contact us. info@hatfield-anti-**incineration**.co.**uk** · Image: dan / FreeDigitalPhotos.net. Links. **UK** Without **Incineration** Network · Herts WithOut Waste ...
www.hatfield-anti-**incineration**.co.**uk**/ - Cached

BALI Bexhill Against Landfill & Incineration: stop the landfill ...
A campaign group opposing the proposal for a landfill site at Ashdown Brickworks. News,

Mechanical Biological Treatment

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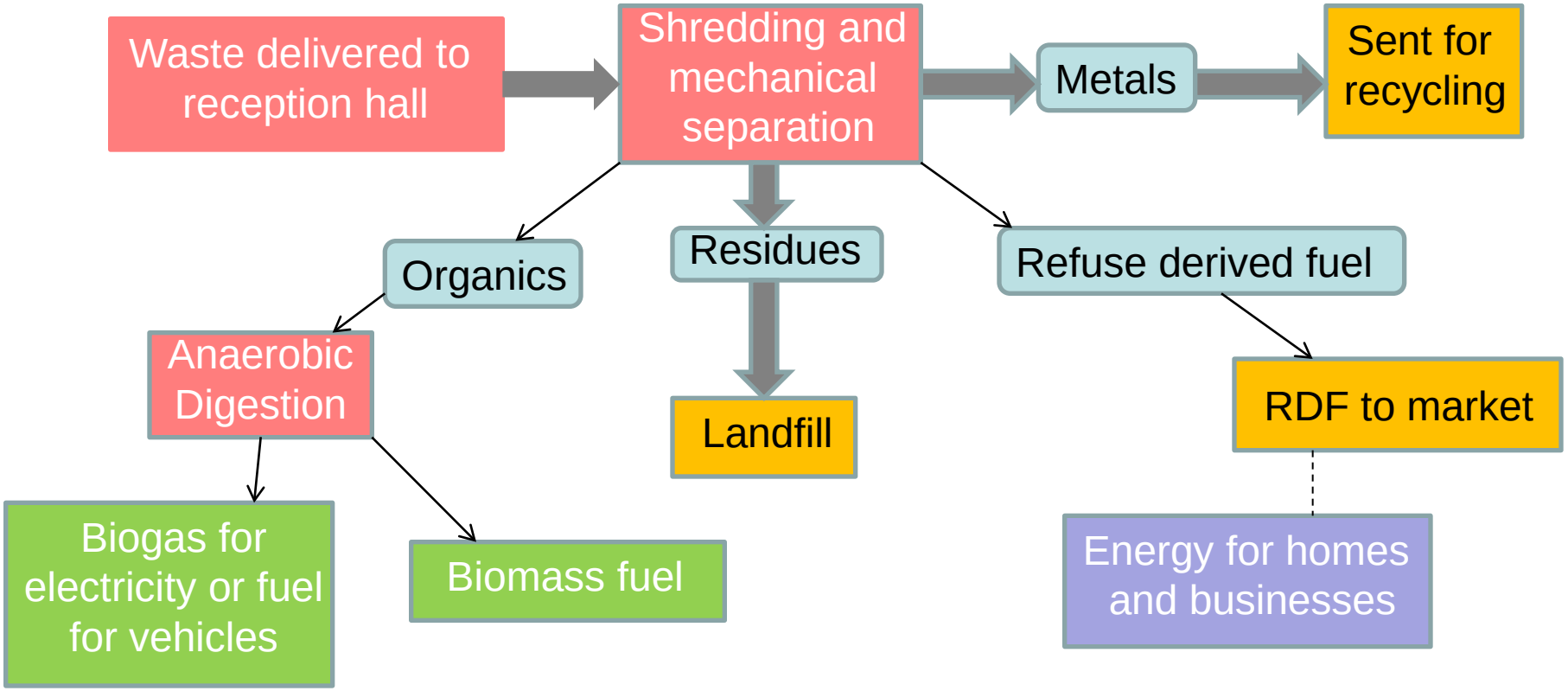
Alternative to mass burn energy from waste plants



Producing RDF or Solid Recovered Fuel (SRF)

450,000 Tonnes of SRF currently produced in the UK (9 large facilities)

About 1.5 million tonnes SRF capacity planned (19 facilities)

SRF mainly used in cement kilns

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WTERT-UK

Aims and objectives of WTERT-UK

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The aim of WTERT-UK is to:

Increase UK recovery of energy and materials from wastes

This will be achieved by meeting the following objectives:

Promoting the best available technologies for the treatment of wastes;

Developing a WTERT-UK website providing unbiased information;

Collaborating with groups working on various aspects of waste management in the UK and throughout the WTERT sister organizations.

Optimum solution as for CEWEP

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Conclusions

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Significant existing UK WtE capacity with excellent track record;

WtE is expected to increase significantly in the UK;

Major barrier is public opinion and effect of this local authorities;

Industry has a great product but poor marketing in the UK;

Well organized and high profile anti-incineration UK network;

Results in significant barriers to further development;

Key role of WTERT-UK to provide unbiased information.

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Thanks to WTERT and Professor Nickolas Themelis

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