

# The Big Recovery

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# The Big Recovery - Presentation Overview

- The fourth 'R'
- The biggest 'R' ?
- The most urgent 'R'?
- The 'New R'?
- What Support is Available?

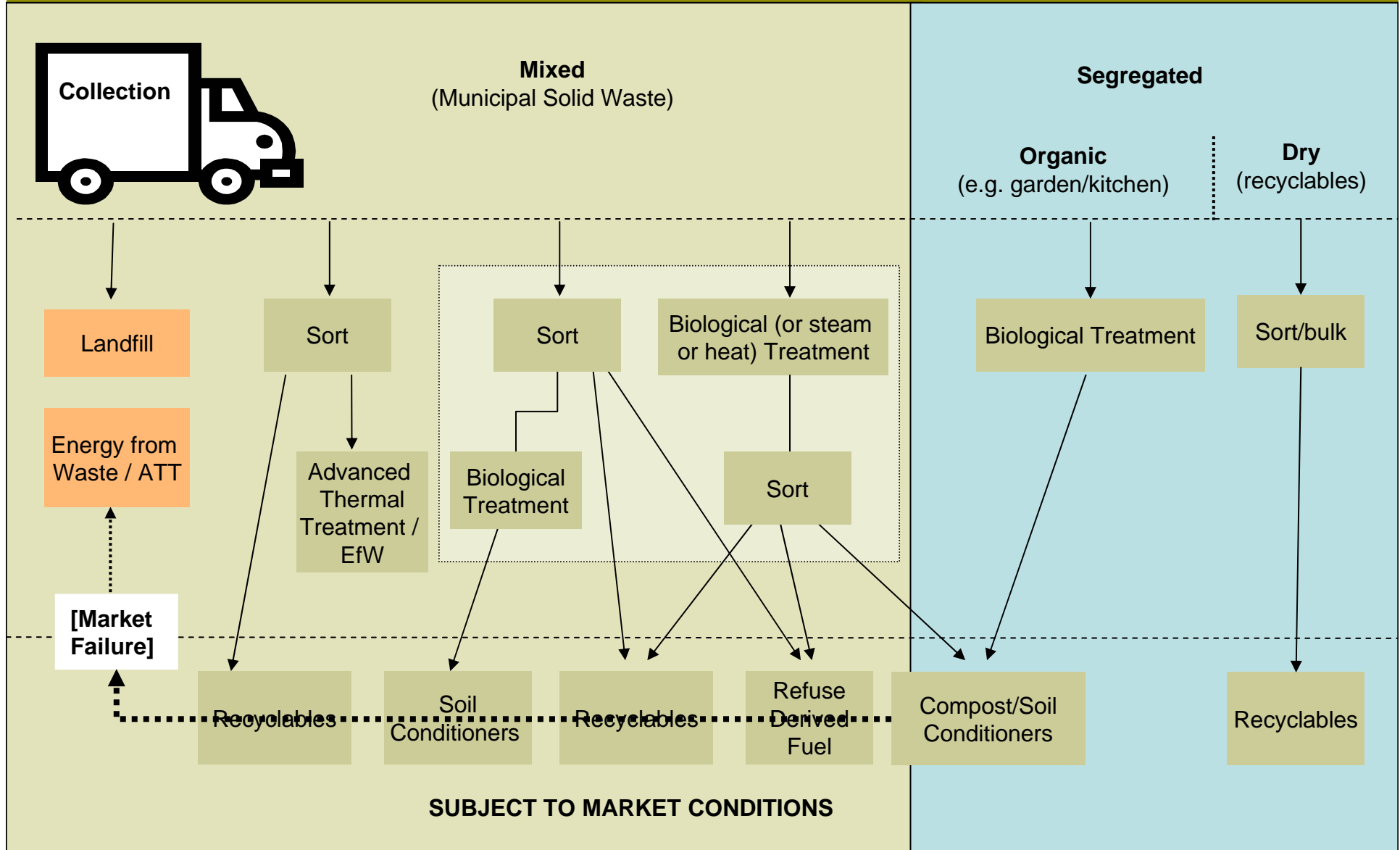
# The Fourth R

- Recovery and treatment of MSW
- Tackling the black bag
- Three philosophies:-
  - Get something useful out of out of it (Recovery)
  - Render it less harmful (Treatment)
  - Render it less harmful and get something useful out of it (Treatment & Recovery)



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# The fourth R



# Direct Energy Recovery

- Through direct combustion, thermal degradation or biological decomposition
- Contribution to Renewable Energy
- May qualify for incentives
- What are the options?



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# Indirect Energy Recovery

- Preparation of a Fuel for combustion
- Known as co-combustion
- Replacement of fossil fuels
- What are the options?



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# Materials Recovery

- Mechanically separated
- With or without treatment ( thermal, biological)
- For recycling
- Application to land
- Contribution to BVPIs
- What are the options?



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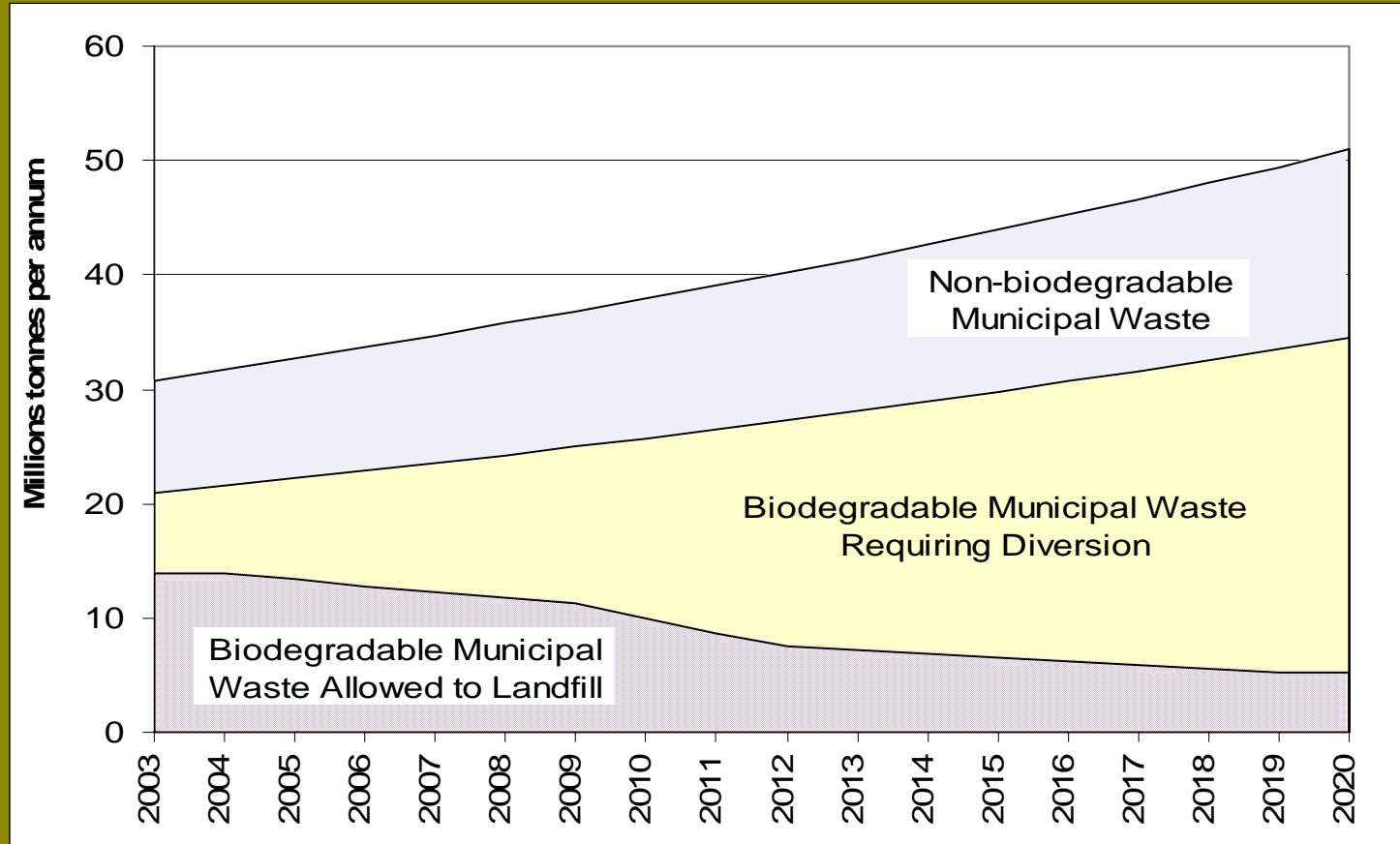
# Treatment of Waste

- Render it less harmful
- Render it less biodegradable
- Reduce volume / mass
- May be part of / complementary to a recovery process
- What are the options?



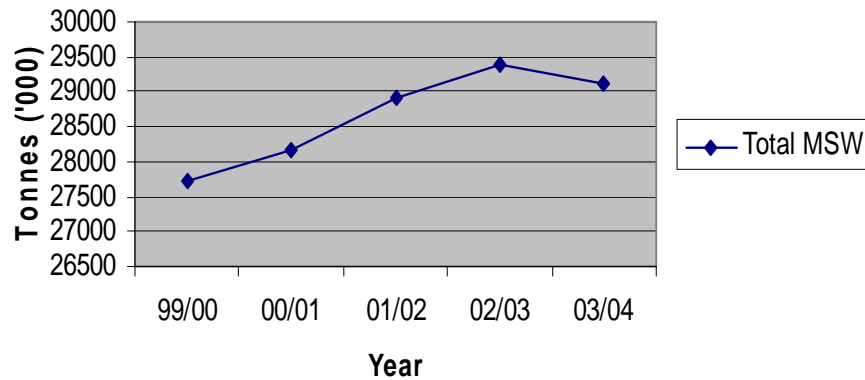
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# The Biggest R?

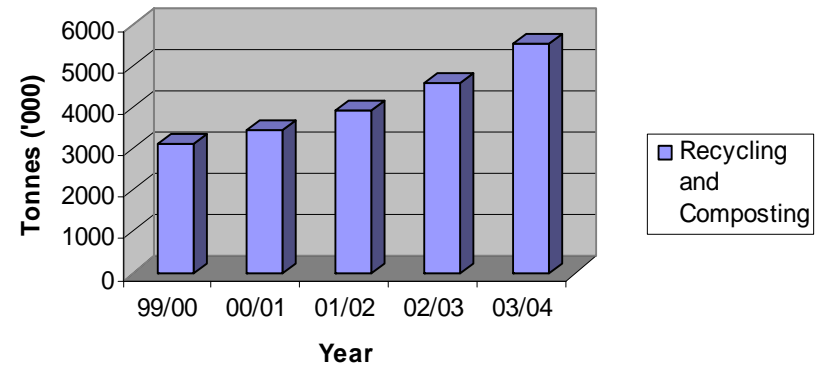


# The Biggest R ?

### Total MSW arisings in England

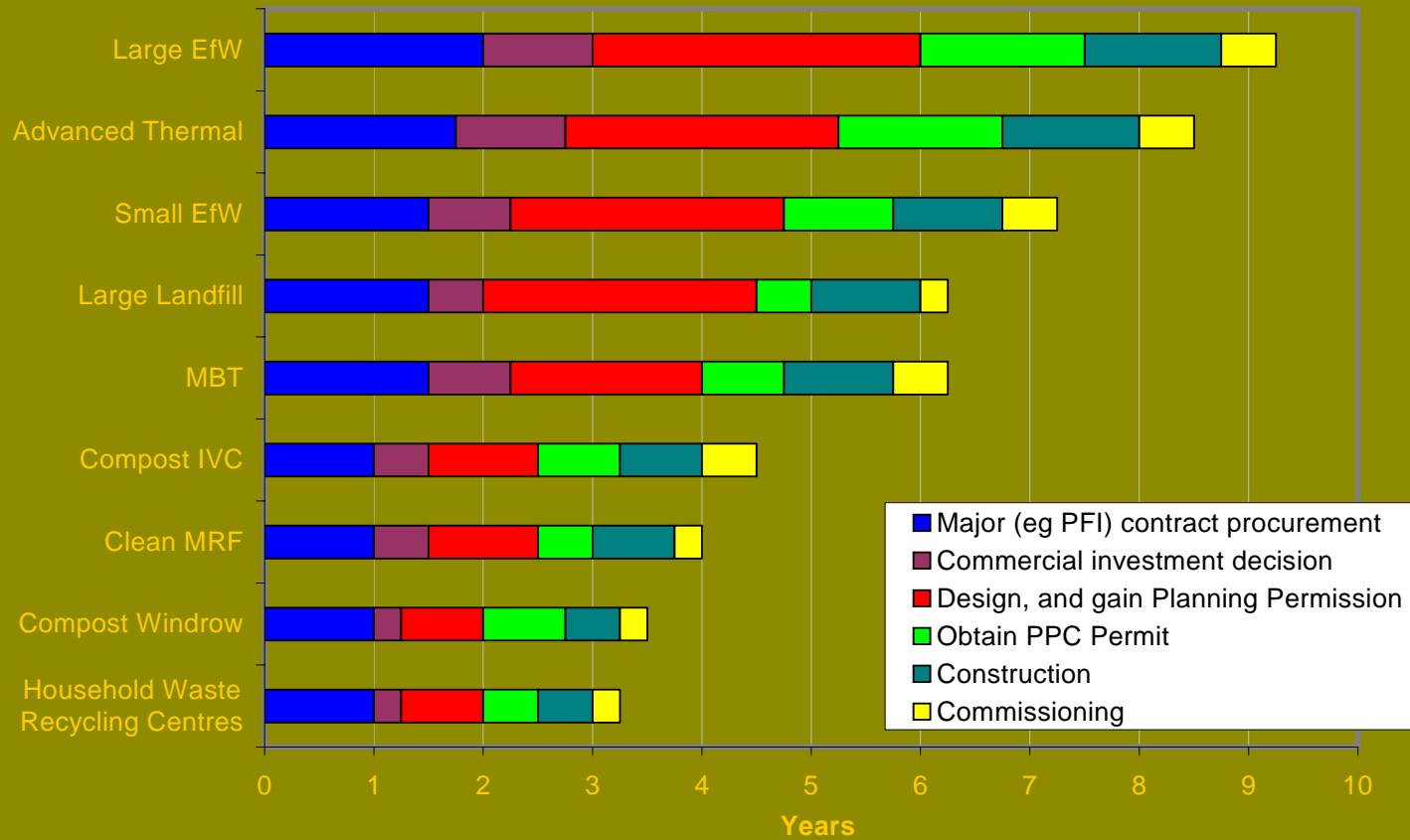


### Tonnage of materials sent for Recycling / Composting

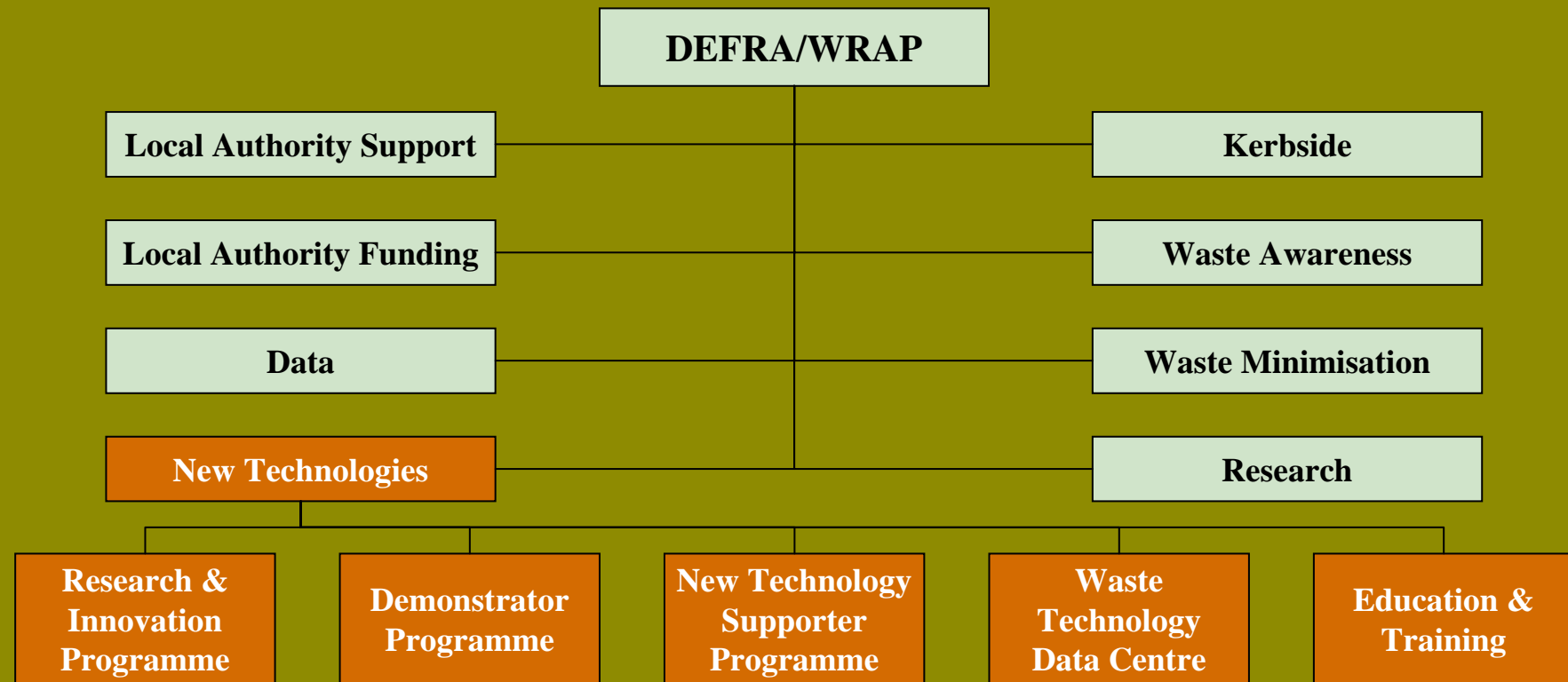


# The most Urgent R?

Delivery Periods for Non-Hazardous Waste Management Facilities



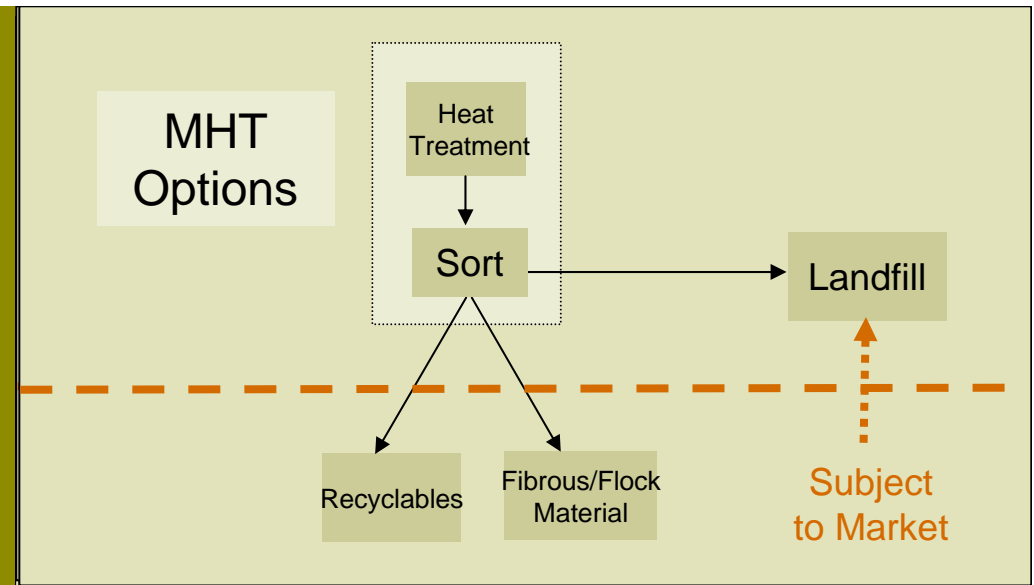
# The 'New R'



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# The 'New R'

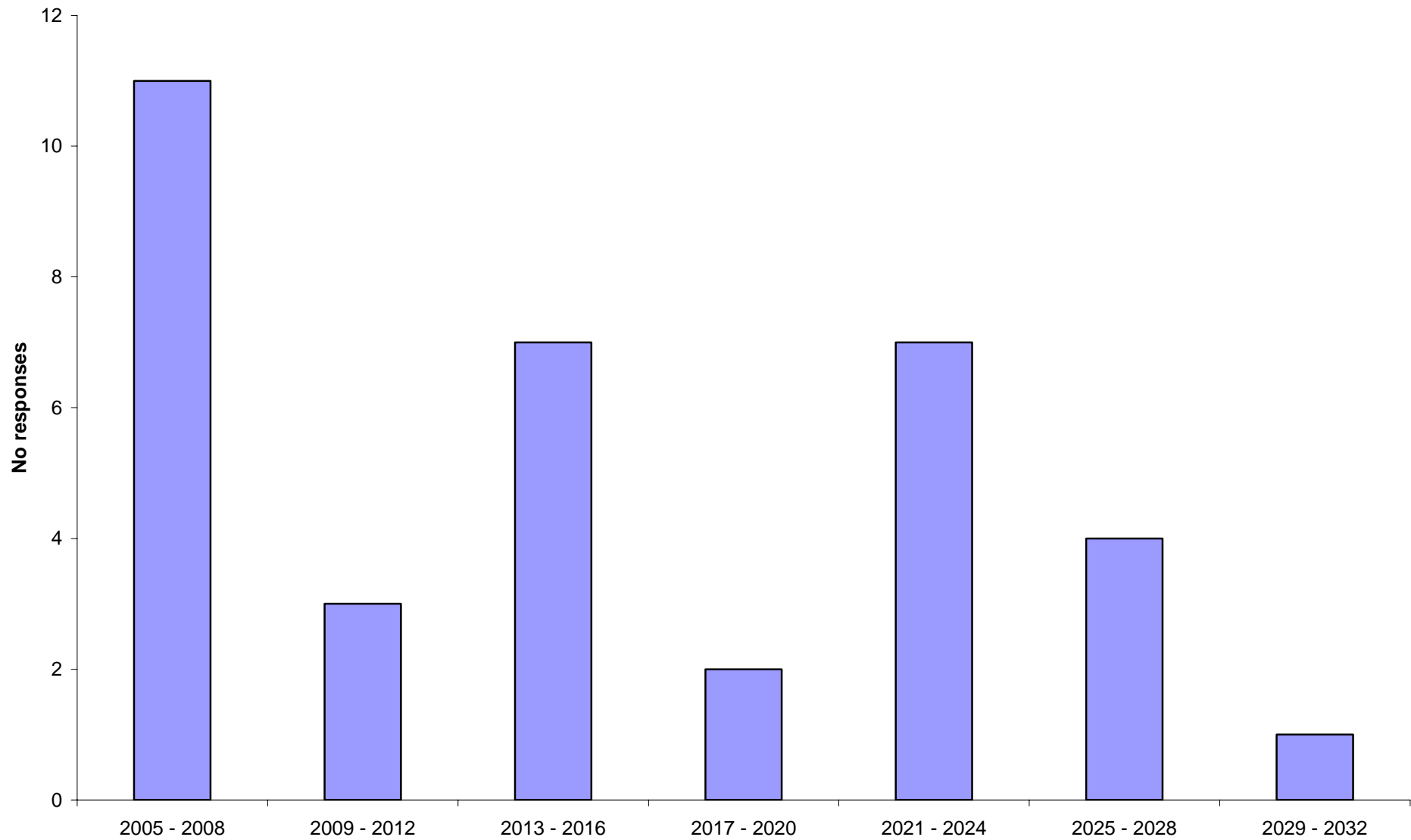
- What are the New Technologies for MSW treatment:-
- Mechanical Biological Treatment (MBT)
- Mechanical Heat Treatment (MHT)
- Advanced Thermal Treatment (ATT)



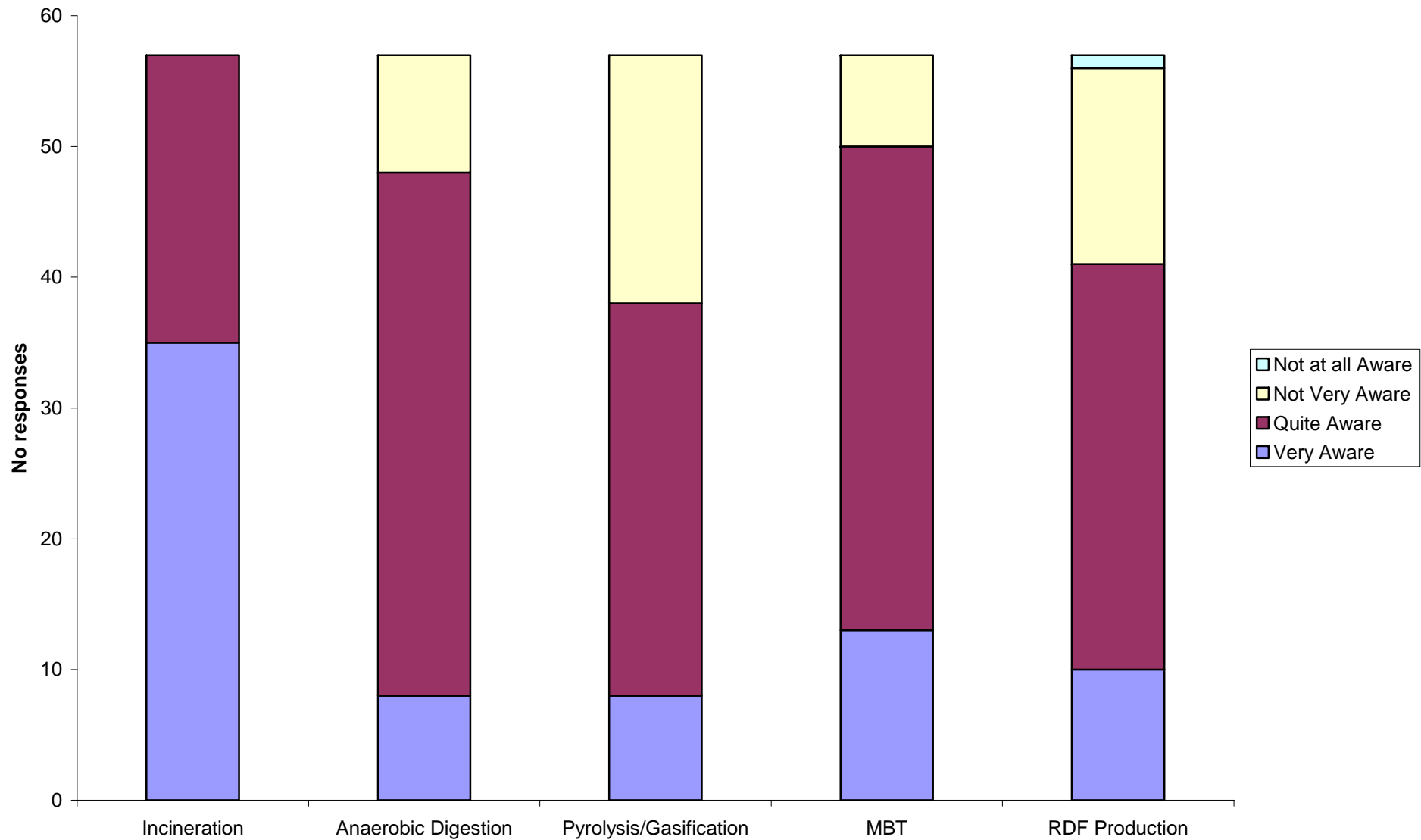
# New Technologies - why is support needed?

- Developing policy framework
- Developing regulatory position
- Uncertainty over available outlets for outputs
- LAs need to evaluate risks
- LATS is upon us!
- An alternative to EfW
- Residual waste facilities may take up to 10 years to implement!

# Timing of New Contracts



# Awareness of Waste Technologies



# What support is available to LAs (1)?

- Free briefing sessions for Members / Officers
- Regional seminars commencing this week
  - Birmingham 21<sup>st</sup> July
- Emailed newsletter of latest developments
- Helpline for technical queries...

t. 0870 2409894

e. [wastetech@enviros.com](mailto:wastetech@enviros.com)


# What support is available to LAs (2)?

- Literature to demystify the technologies!
- Available on Defra New Technologies Supporter website
- Through helpline

www.defra.gov.uk

### Introductory Guide

Options for the Diversion of Biodegradable Municipal Waste from Landfill



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### Climate Change and Waste Management: The Link

Sustainable waste management is moving up the political agenda and includes issues of sustainability, escalating waste growth and public concern over proximity to proposed waste treatment facilities as well as implications for greenhouse gas emissions and mitigating climate change.

Increased greenhouse gases in the atmosphere have caused the temperature of the earth to rise by 0.6°C over the last 100 years. The 10 warmest years of the 20th century all occurred in the last 15 years of the century and 1998 was the warmest year on record. Thermal expansion and glacier melting are causing sea levels to rise, exposing populations to increased risk of flooding. Patterns of precipitation are changing, with greater likelihood of extreme events and more areas subject to water stress, with consequences for agricultural production. Developing countries are particularly at risk. Global temperature will continue to increase causing further disruption to climate patterns. Ultimately all this can only be brought under control by stabilising greenhouse gas concentrations in the atmosphere.

**Significance of waste management**  
Waste management generates carbon dioxide and methane which are both greenhouse gases<sup>1</sup>. Everyday waste contains readily biodegradable carbon based organic matter such as kitchen waste, garden waste, and paper, and slowly biodegradable organic materials such as lignin (wood-like material). Some products such as plastics, contain carbon derived from the fossil fuels which are used as a feedstock (oil). The treatment and disposal of these wastes has a direct influence on the emissions of these greenhouse gases.

When we manage the treatment and disposal of our wastes we are also managing the method by which the carbon will be released back into the environment: similarly the changing climate impacts on the way waste will need to be stored, treated and disposed of, and will also alter the risks associated with waste (e.g. pests, disease).

When materials are broken down by organisms in the presence of air, the gas released is carbon dioxide. Methane is also produced when the material decomposes in the absence of air. Weight for weight methane is 21 times more powerful than carbon dioxide as a greenhouse gas<sup>2</sup>.


<sup>1</sup> Under international guidelines carbon dioxide from biomass is not included in national total greenhouse gas emissions because an equivalent amount of carbon will be removed again from the atmosphere as the crops or timber regrow. Carbon dioxide from fossil fuels contained in waste is included in national totals.  
<sup>2</sup> Twenty one is the global warming potential (GWP) of methane using a 100 year time horizon as estimated by IPCC in 1995. This is the value used in international reporting of emissions. IPCC has more recently estimated the 100 year GWP to be twenty three.

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### Advanced Thermal Treatment of Municipal Solid Waste



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### Case Study 03

Leicester City Council

**How does their approach demonstrate an effective strategy in diverting BMMW from landfill?**  
The strategy incorporates a range of particular technologies to treat mixed municipal waste including a ball mill, screens, magnets and separation to sort and segregate the waste. The sorting process produces a recycle stream, a combustible fraction (Refuse Derived Fuel) and the remaining waste fraction is then sent to an Anaerobic Digestion plant with a composted conditioner end product. This approach is effective at diverting BMMW from landfill, subject to the successful operation of the innovative technologies and sustainable markets for the RDF and soil conditioner.

**Background**  
Leicester City Council is a Unitary Authority and as such is responsible for both the collection and disposal waste management functions.  
The council has an integrated waste collection and disposal contract with the main contractor Biffa Leicester. This service commenced in November 2002 and the contract period is 25 years. Collection of household residual waste is via wheeled bins and the kerbside and refuse delivered to the civic amenity sites with recyclables being collected using a kerbside box scheme for dry recyclables which are sorted on to the collection vehicle and being civic amenity sites.

**Summary/Key Issues**  
**Key Factors for Success:**

- Effective procurement team
- Close working with successful contractor
- Regular meeting and updates with councillors and other stakeholder groups
- Effective minimisation of risk

**Innovative Approaches:**

- Use of information gathered during research in consultation with stakeholders
- Invitation made to stakeholders including local newspaper journalists to visit German facility
- Selection of innovative waste management technologies to treat and recover value from residual waste stream

**Key Risks**

- The largest risk was gaining planning for the new facility which was overcome through the early inclusion of planning officers in the process, consultation with residents and the submission of the planning application before the contract was awarded to the preferred bidder.

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## What support is available to LAs (3)?

- Education & Training
- On four levels:-
  - Supporter Training workshops
  - Level 3 VRQ
  - Level 4 VRQ
  - M- level (Masters) module
- Rolling out in 2005 & 2006



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## What support is available to LAs (4)?

- Impartial technology analysis
- Mass balances
- Energy balances
- SWOT analysis
- Physical Characteristics
- Broad Indicative cost information
- [www.environment-agency.gov.uk/wtd](http://www.environment-agency.gov.uk/wtd)
- The Waste Technology Data Centre



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## What support is available to LAs (5)?

- Site visits & information from Demonstrator projects
- Research findings of Technology Research & Innovation Fund (TRIF)
- Articles and technical papers

# Further Information

- **Defra Waste Implementation Programme**  
<http://www.defra.gov.uk/environment/waste/wip/index.htm>
- **Defra New Technology workstream**  
<http://www.defra.gov.uk/environment/waste/wip/newtech/index.htm>
- **Waste Technology Data Centre**  
[www.environment-agency.gov.uk/wtd](http://www.environment-agency.gov.uk/wtd)
- **New Technologies Helpline, 0870 240 9894**  
[wastetech@enviros.com](mailto:wastetech@enviros.com)
- **DEFRA Waste Management Technology Briefs**