



Ricardo
Energy & Environment

Session B

Waste to Energy Technology

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Residual Waste Options – Technology ‘Families’

Landfill



Fuel preparation



Biological Treatment



Thermal treatment



- Residual waste
 - Unavoidable waste remaining after reuse, recycling and recovery
 - ‘Black bag waste’
- Broad categories
 - Municipal (household and similar waste collected by municipalities)
 - Commercial & industrial
 - Construction and demolition

“You can never eliminate all waste and you can never recycle all of it. However you can still gain by recovering energy from the non-recyclable materials.”

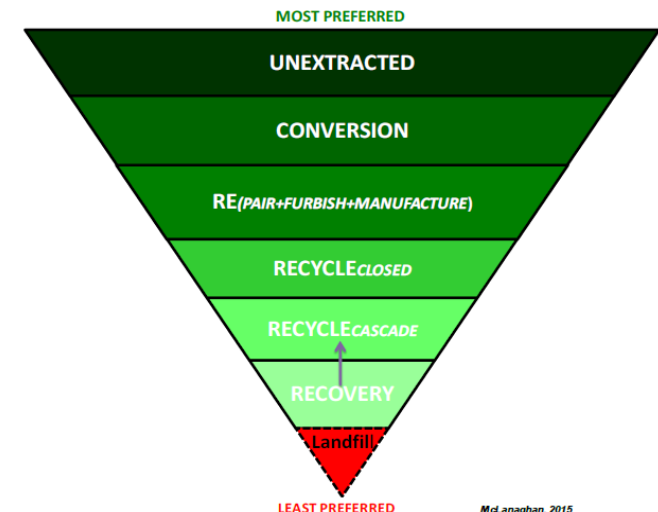
Karmenu Vella, European Commissioner for Environment, Maritime Affairs and Fisheries

- **WtE can exist alongside high recycling rates**



Source: European Commission DG Environment

DIAGRAM: EUROPEAN RESOURCE HIERARCHY



McLanaghan, 2015

Source: McLanaghan 2015 (published by the Chartered Institution of Wastes Management)

The opportunity

“Waste to energy (WTE) Market size was above USD 20 billion in 2015”.

“APAC, led by China and Japan... *should witness highest gains* at over 6.8% CAGR [per year] up to 2023.”

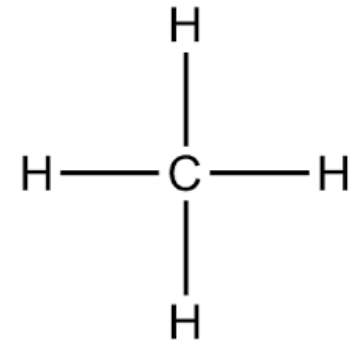
“Major countries accounting for significant MSW generation include China, U.S., India, Brazil, and Indonesia. *China is predicted to generate over 290 million tons per year... India was estimated at 222 million tons per year.*”

Potential constraint

“*Lack of awareness regarding benefits* of WTE technology across various developing economies... is projected to *hamper waste to energy industry growth*”.

Source: Global Market Insights, May 2016

The problem...



23 x more potent greenhouse gas than CO₂.

