

Incineration

Quantifying its impacts, and how to reduce them

Are we entering an age of decommissioning?

15th June 2021

Will Shanks

Consultant, Waste-Carbon Modelling

Eunomia Research & Consulting



Agenda

- 1. Modelling GHG impacts of incineration (now and in 2035)**
- 2. Key takeaways**
- 3. How to decarbonise**

Modelling Impacts of Incineration

- **European policy has driven increase in incineration; this has CO2 consequences**
- **Quantify these GHG impacts for ClientEarth (environmental law NGO)**
 - **Today, and in possible 2035 scenario**
- **The study focused on UK waste composition, facilities and grid mix**
 - **Not designed to be used for other countries**



Technologies Studied

Landfill		Incineration		
No pre-treatment	With pre-sorting + bio-stabilisation	No pre-treatment, electricity production only	No pre-treatment, CHP	Incineration with pre-sorting

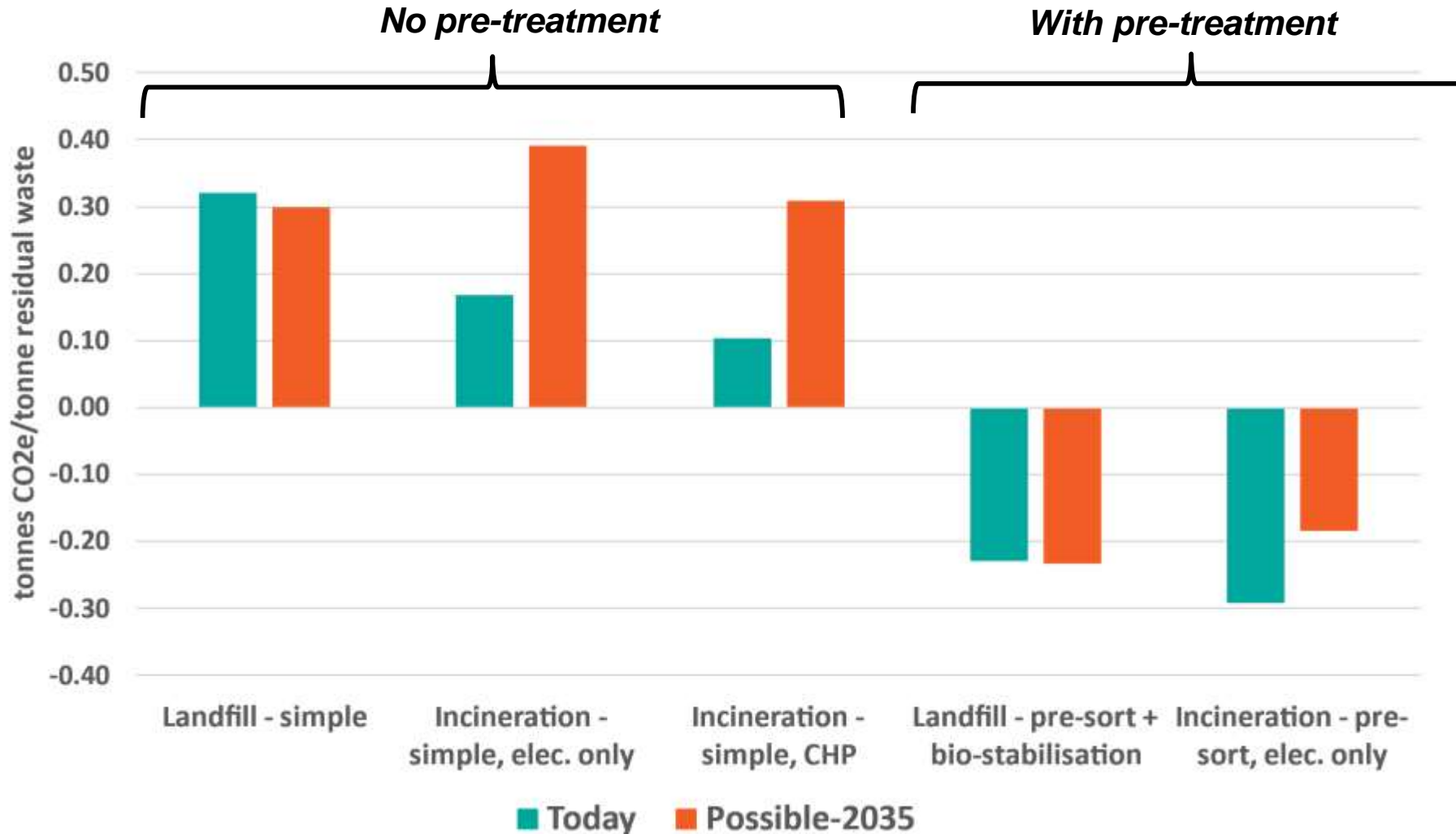
Key Assumptions

- **Two scenarios: today, and one possible future (2035)**
- **UK-specific**
- **Key materials for GHGs: food waste (landfill) and plastic (incin.)**

Scenario	Recycling rates	Composition	Electricity being displaced by EfW	Heat being displaced by EfW (CHP)
Today	~45%	Current	Renewables + gas mix	Gas
Possible-2035	65% recycling rate achieved: low plastic film captures, high food captures	Higher proportion of plastic, lower proportion of food waste	Mostly renewables (based on gov. projections)	Gas and some low-carbon heat



Incineration GHG Impacts (UK) – Now and in Future



- Incineration worse in future
 - Both elec + CHP
- Remove plastic
- Maximise recycling

Pathways to decarbonisation: What actions should be taken?

Minimise plastic incineration



- Reduce residual waste
- Increase plastic recyclability

Plan for the long term



- Plant lifetime = 30 years
- Use and share existing facilities
- No commissioning on promise of CHP / CCS

No residual waste without pre-treatment



- Policy – carbon tax?



www.eunomia.co.uk

@Eunomia_RandC

william.shanks@eunomia.co.uk