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Expansion of UK Emissions Trading Scheme

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ETS

ETS

BNSF

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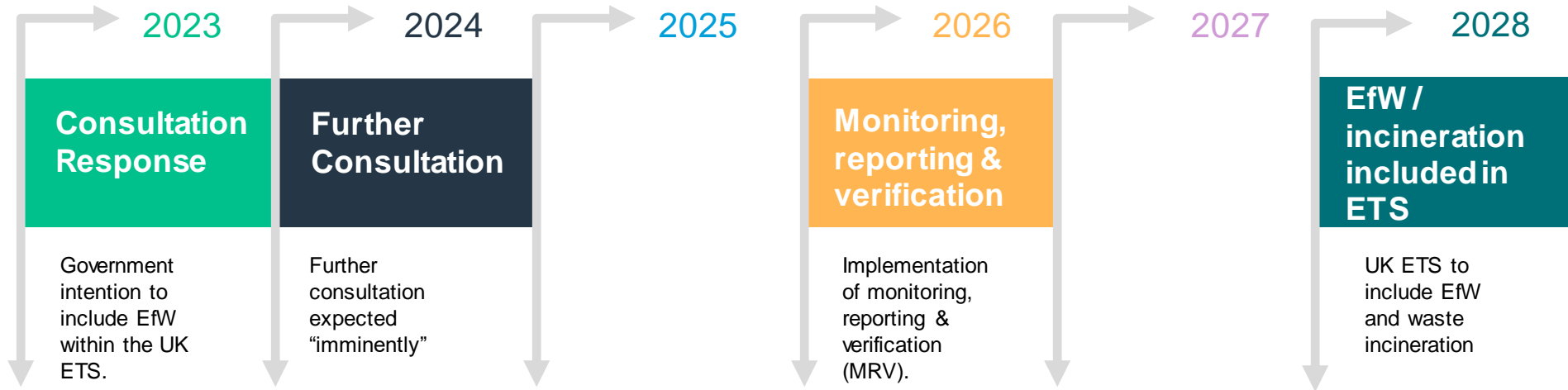


- 1. Introduction to ETS**
- 2. Understanding the Costs**
- 3. Understanding Material Impacts**
- 4. Mitigations**
- 5. Takeaway Considerations**



1. Introduction to ETS

ETS Expansion Timeline



ETS Overview

- Market based cap-and-trade scheme for carbon allowances
 - Cap reduced in line with UK's 2050 net zero commitment
- ETS will apply to waste incineration both with and without energy recovery
- Obligations (MRV and carbon emission cost) will be on the **operator**, however...
- **Significant implications for LAs** Most (not all) LAs use standard WIDP Waste contract terms with clause:

“in the case of [EfW facility] any Change in Law which specifically refers to emissions from industrial facilities.”
- Costs can be passed through to anchor contract under change in law clause or indirectly through gate fee to third party users.



2. Understanding Costs

What are the costs of complying with the ETS?

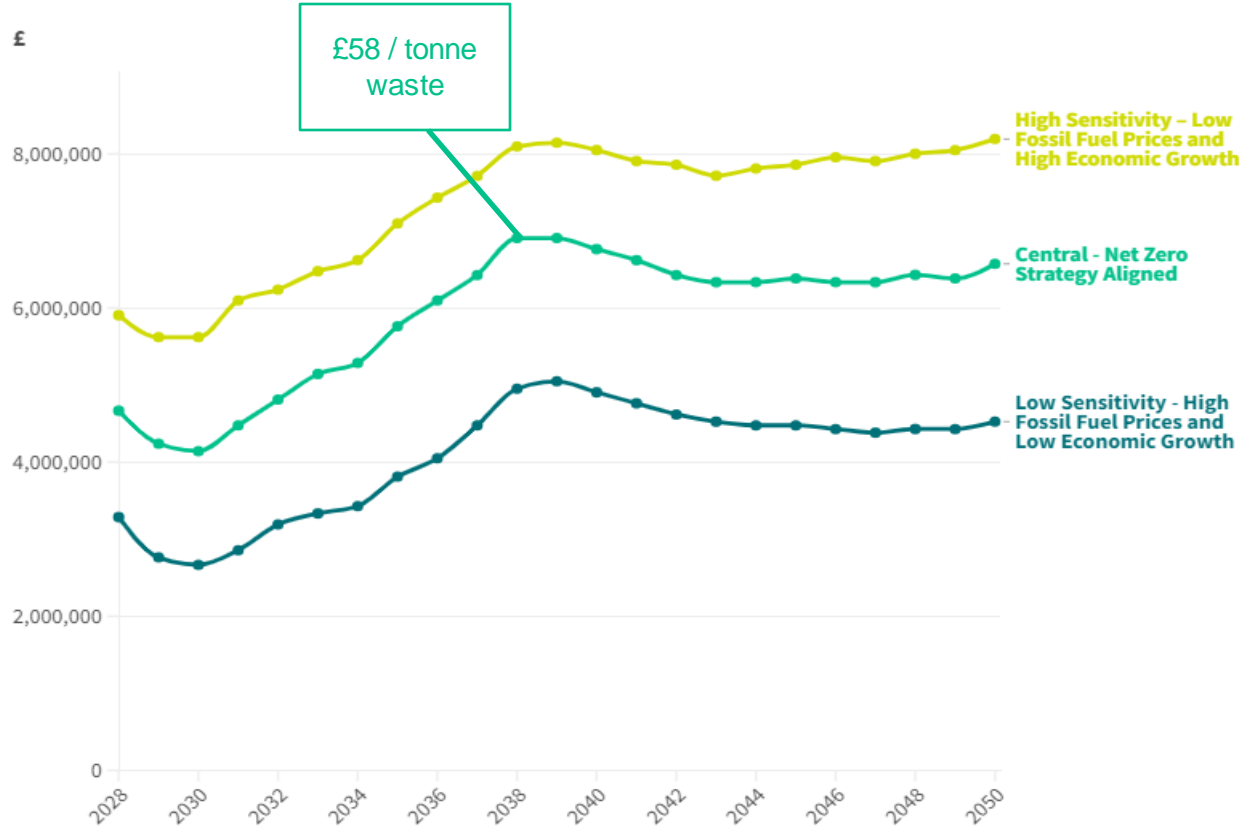
Authority	Authority A
Residual waste (t)	120,000
Year	2028
Composition	2017 baseline
Fossil derived tCO ₂ e/ t waste	0.4
Modelled £/tCO ₂ e in 2028	£98

£4.67m

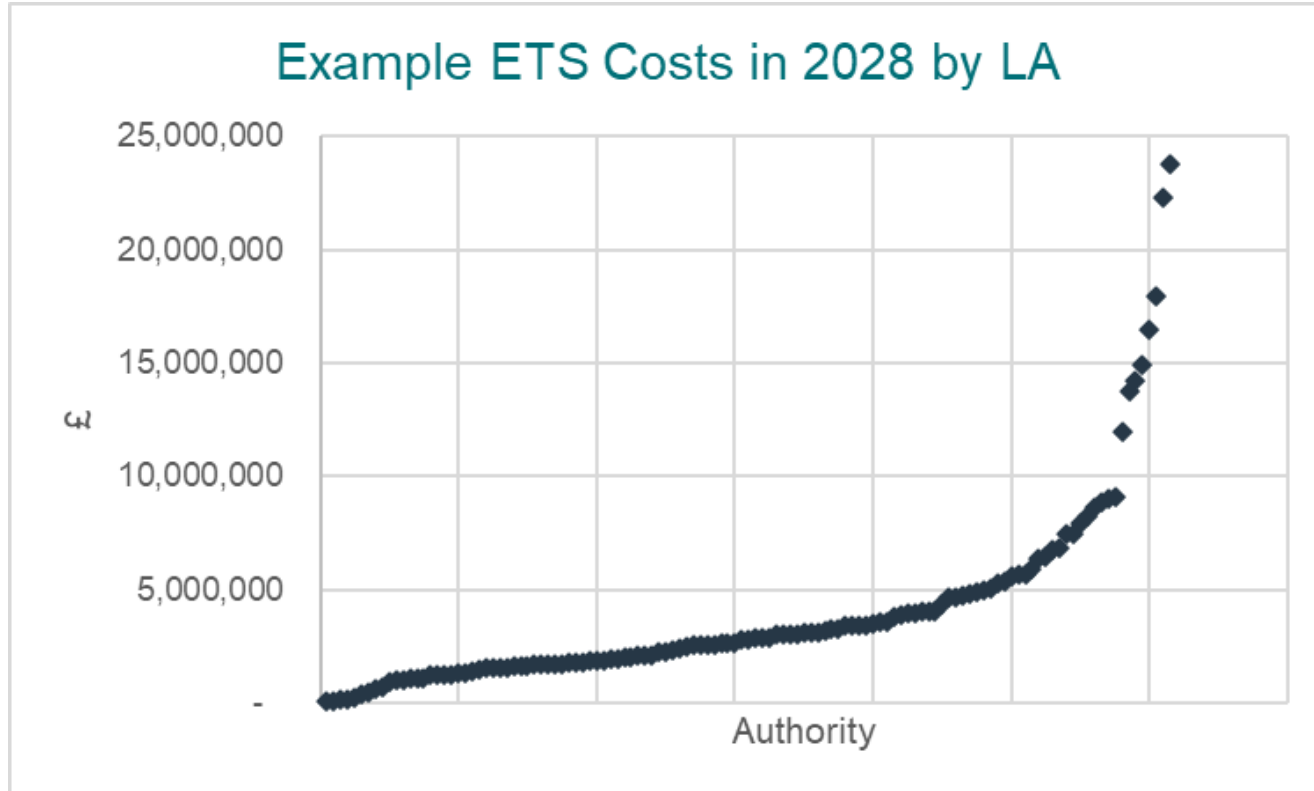
= £39 / tonne
waste

What are the costs of complying with the ETS?

If tonnage and composition were to remain constant...



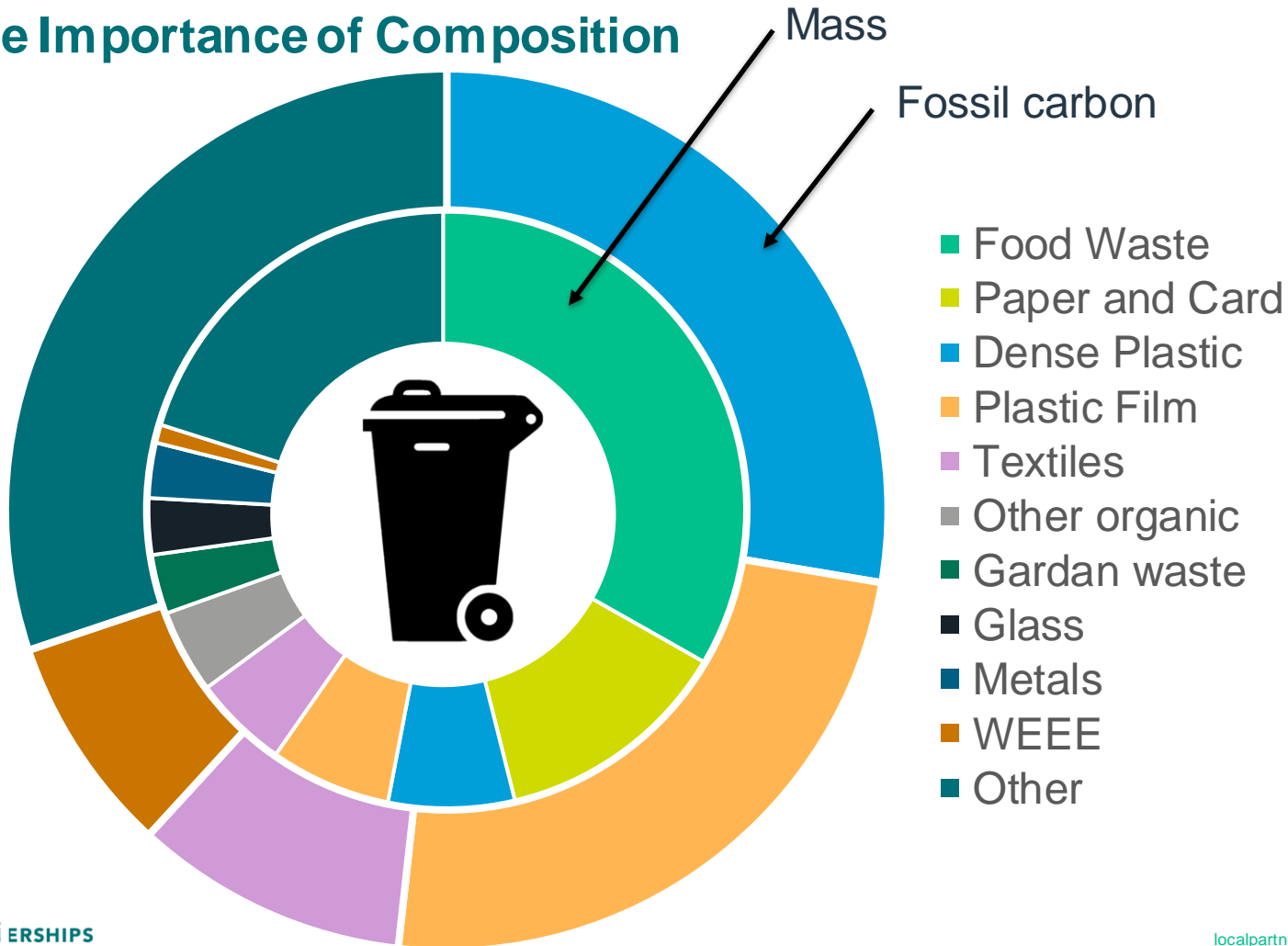
What are the hypothetical costs of complying with the ETS by LA?





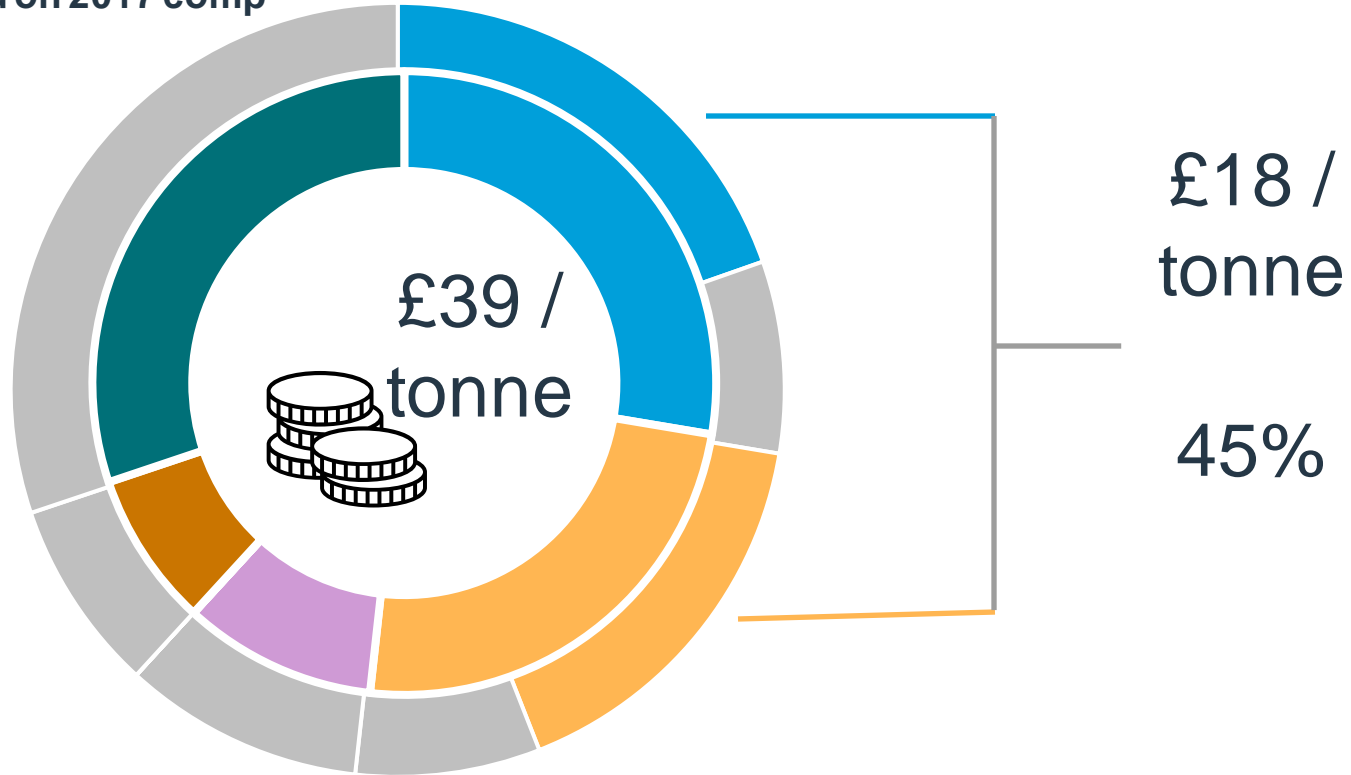
3. Understanding Material Impacts

The Importance of Composition



Proportion covered by packaging EPR

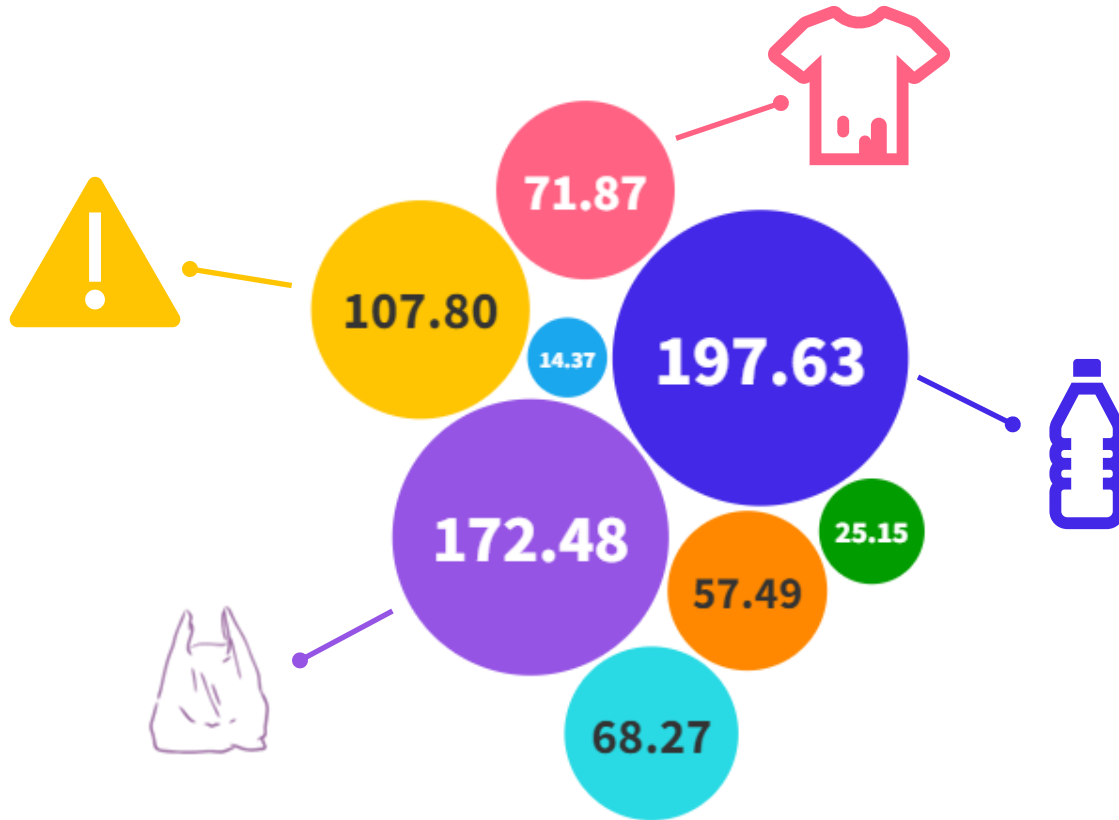
^ based on 2017 comp



ETS Costs by material (£/t, 2028 central forecast)

- Dense Plastic
- Plastic Film
- Textiles
- WEEE
- Hazardous
- Wood
- Misc combustible
- Misc non-combustible
- Fines

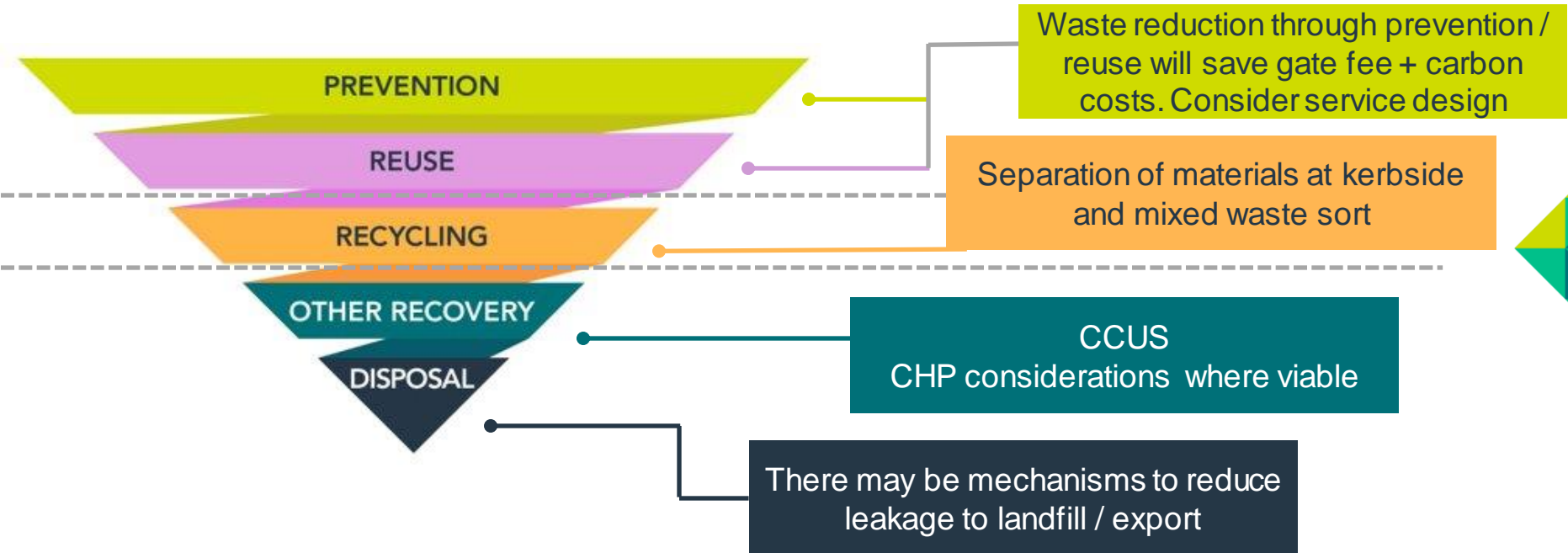
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4. Mitigations

Mitigations – How to Minimise Carbon Emissions



Mitigation Options – Remove Carbon before Incineration

	Description	Opportunities	Challenges
Waste Reduction	<ul style="list-style-type: none"> Waste reduction through prevention and reuse activities 	<ul style="list-style-type: none"> Save gate fee and ETS costs. Consider service design to minimise waste and maximise reuse 	<ul style="list-style-type: none"> Potential service design constraints Behaviour change Placed on market out of direct control
Recycling - Kerbside	<ul style="list-style-type: none"> Segregation of materials at the kerbside for recycling – collections options / campaigns 	<ul style="list-style-type: none"> Capture of carbon in material form Target high carbon materials Higher quality materials 	<ul style="list-style-type: none"> Potentially increased collection costs Need to factor savings across 2 tier authorities Not all carbon is removed
Recycling – Mixed waste sort	<ul style="list-style-type: none"> Mixed waste sort of residual waste prior to incineration Co-located or hubs – new infra required 	<ul style="list-style-type: none"> Save gate fee and ETS costs. Utilise existing technologies Lower capital cost for infra 	<ul style="list-style-type: none"> Requires suitable offtake routes Fluctuation in value of materials and net costs Not all carbon is removed

Mitigation Options – Remove Carbon Post Combustion / Limit Exposure

	Description	Opportunities	Challenges
CCUS	<ul style="list-style-type: none">• Install CCUS technology at facility	<ul style="list-style-type: none">• Removes c. 90% of emissions• 'Negative' emissions from biogenic fraction	<ul style="list-style-type: none">• High capital and operating costs
CHP	<ul style="list-style-type: none">• Install CHP	<ul style="list-style-type: none">• Emissions associated with heat MAY be offset to incentivise CHP (as yet unknown)	<ul style="list-style-type: none">• Requires facility to be CHP ready• Requires suitable heat offtake demand• Doesn't prevent or capture emissions



Takeaway Considerations

Takeaway Considerations

1. **Understand** your potential cost exposure over time (it's unique to you), and contractual position:
 - Allocation of costs between multiple users
 - Third party revenue impacts
 - Inter-authority agreements
 - Hedging allowances
2. Essential to start **dialogue with contractor**
3. Develop your **mitigation plan** with consideration of full system, resources hierarchy and wider reforms

THANK YOU



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