Crematorium Decarbonisation

APSE - Energy

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North West Net Zero Hub

Department for Energy Security & Net Zero

Agenda

- Emissions
- Technology options
  - Gas
  - Electric
  - Hybrid
- Costs
- Summary
- Q&A

Cremator Emissions

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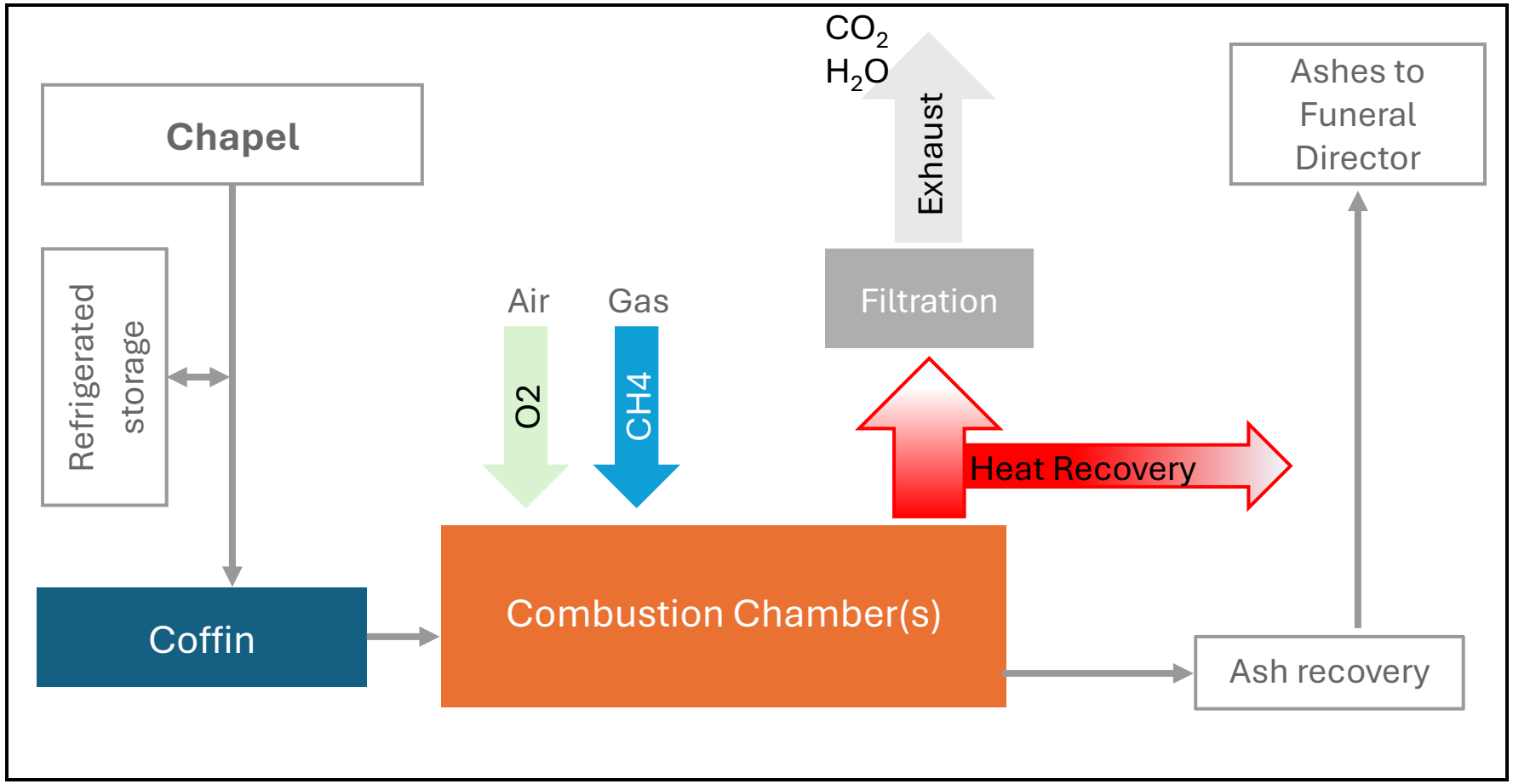
Cremators – Introduction



Cremator emissions

Indicative CO_2 emissions per cremation

Source	CO_2 (Kg)
Cadaver	52
Coffin	49
Gas	135
Electricity	7
Subtotal	**243**
Service	NQ
Headstone	68
Total	**311**

- Focus is on fuel

Source: Preston Study, CDS reports, NWNZHub analysis

Technology Options

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Options

GAS

ELECTRIC

HYBRID

+ “Others”...

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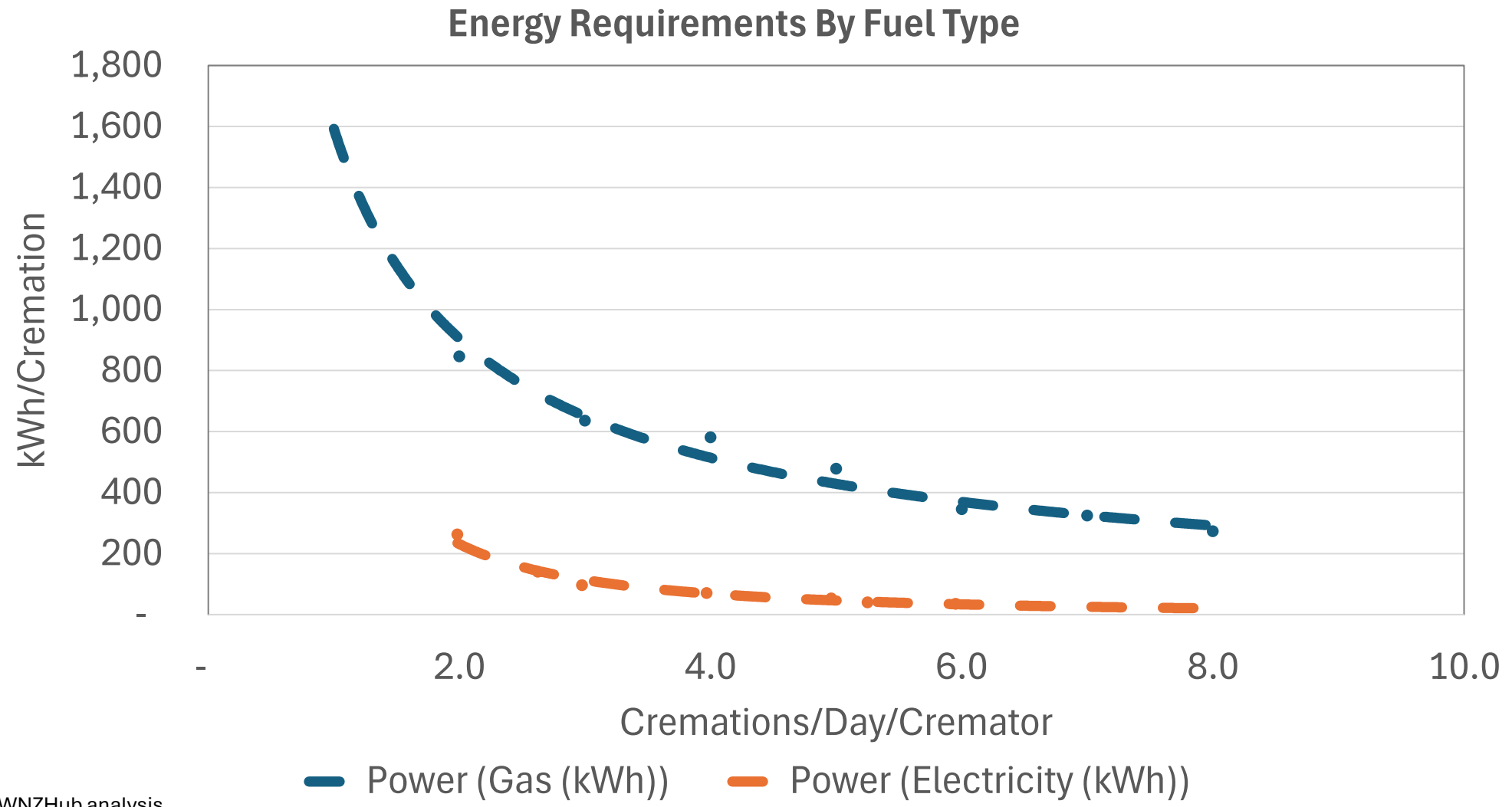
GAS – Current Technology

Advantages	• Incumbent technology • Turbulent high temperature flame • Consistent 90min cycle times
Disadvantages	• CO_2 emissions
To Consider	• Not net-zero compatible : Process improvement possible! • Cost of carbon • Biomethane/biofuels: Clarity end 2026 - Higher cost than gas

ELECTRIC

Advantages	• Achieves net– zero • 10-15% of the energy requirements of gas • Thermal stability – Heat Battery
Disadvantages	• Higher capital : + DNO costs + building modifications + alternative provision • Longer cycle times • No cycle time control - (Addfield 'Electric boost' technology)
To Consider	• Number of suppliers increasing (DFW/CremaTech/Addfield/+) • Operating fuel costs - c.40% less than gas • Low-cost power options

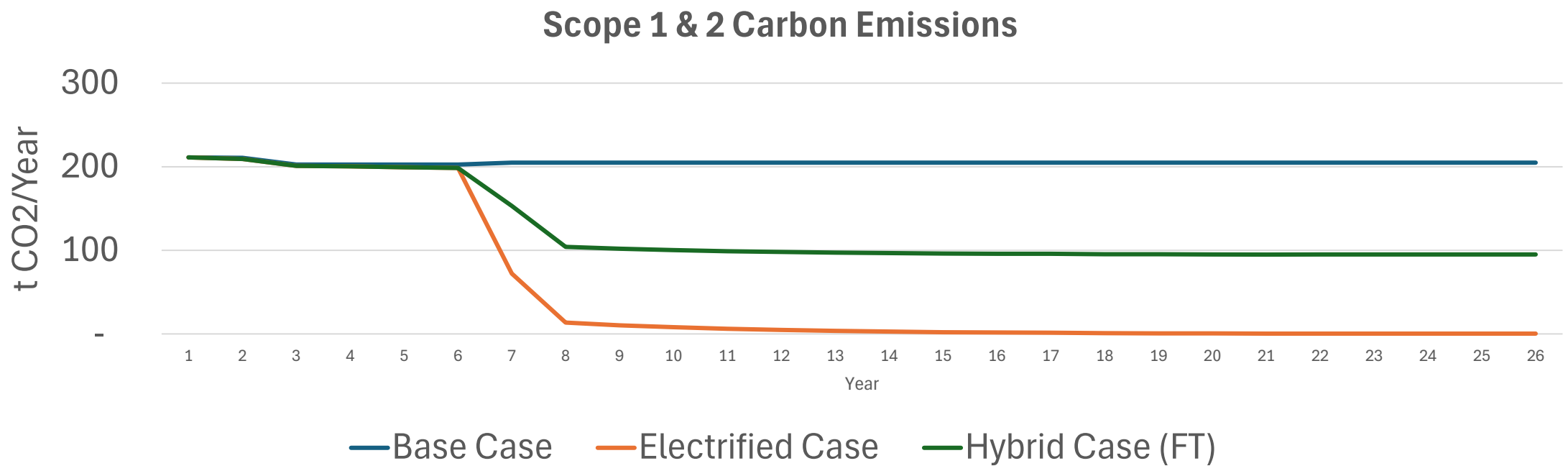


Source: DFW, NWNZHub analysis

HYBRID - Combined gas and electric heating

Advantages	• Matches gas cycle time • Maintains gas rapid warm-up • May be run as fully electric, fully gas or as Hybrid
Disadvantages	• Needs bio-fuel to meet Net Zero • No performance data until mid 2026 (Addfield/CremaTech) • Dual technology - more complex maintenance ?
To Consider	• No fuel / performance data yet • UK Gov. biofuel guidance – End 2026 • Transition technology or final technology for high volume crematoria?

Net zero objectives - Currently only met in the fully electrified scenario.

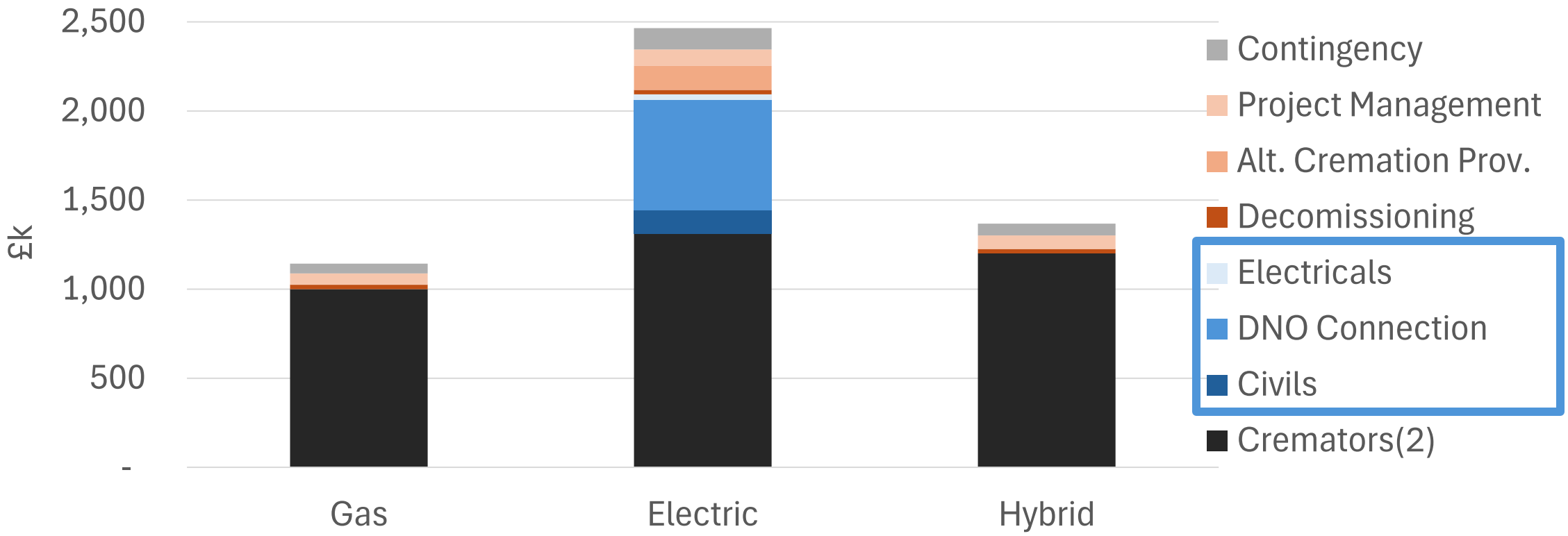


Note: Above chart **excludes** contributions from cadavers and coffins (Treated as ~renewable)

Source : Preston NWNZHub Study

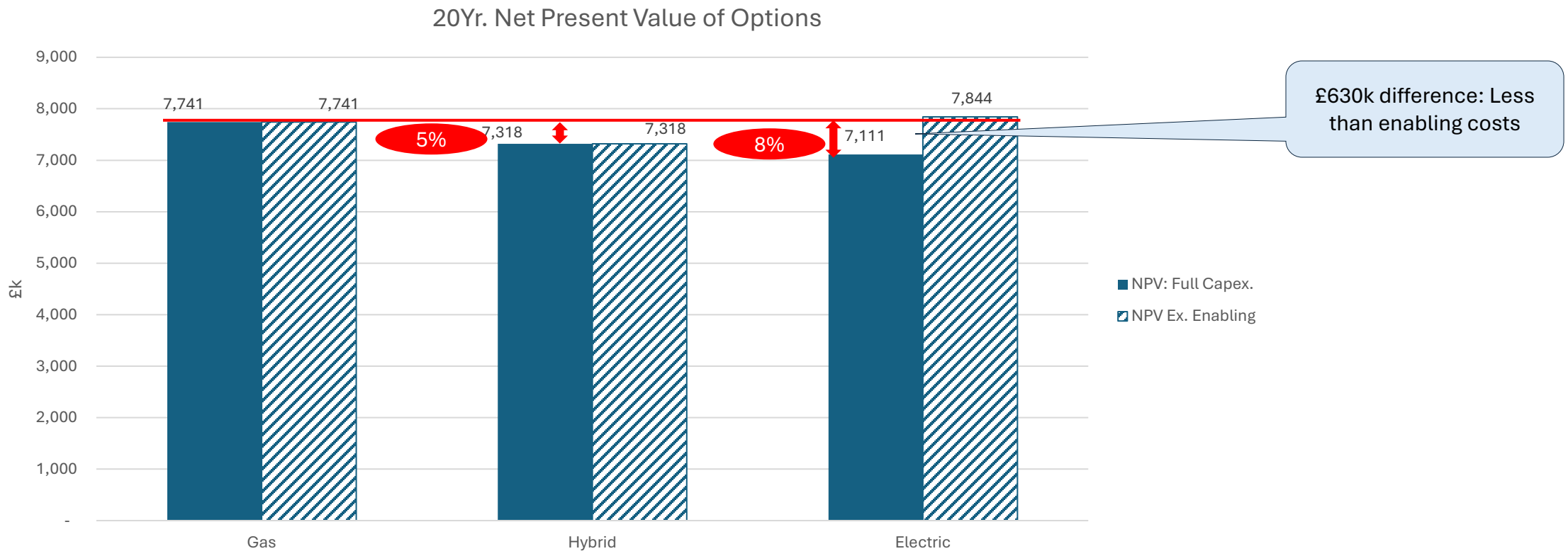
Electrification requires enabling costs

One-off enabling costs are material



Source: Preston Business case Model- NWNZH

Net Present Value: What's it worth?



Source : Financial Model output, CDS Reports

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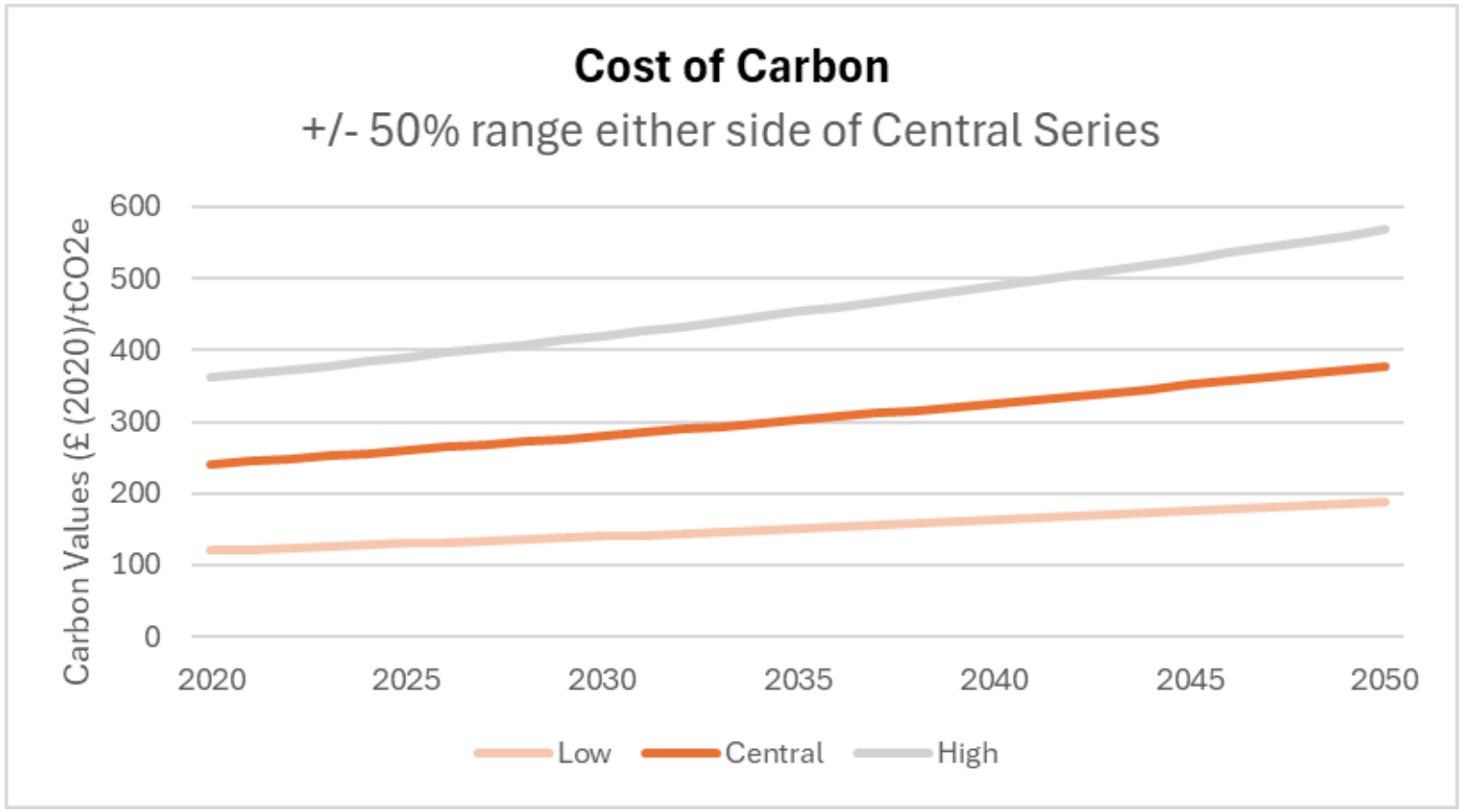
Cost of Carbon

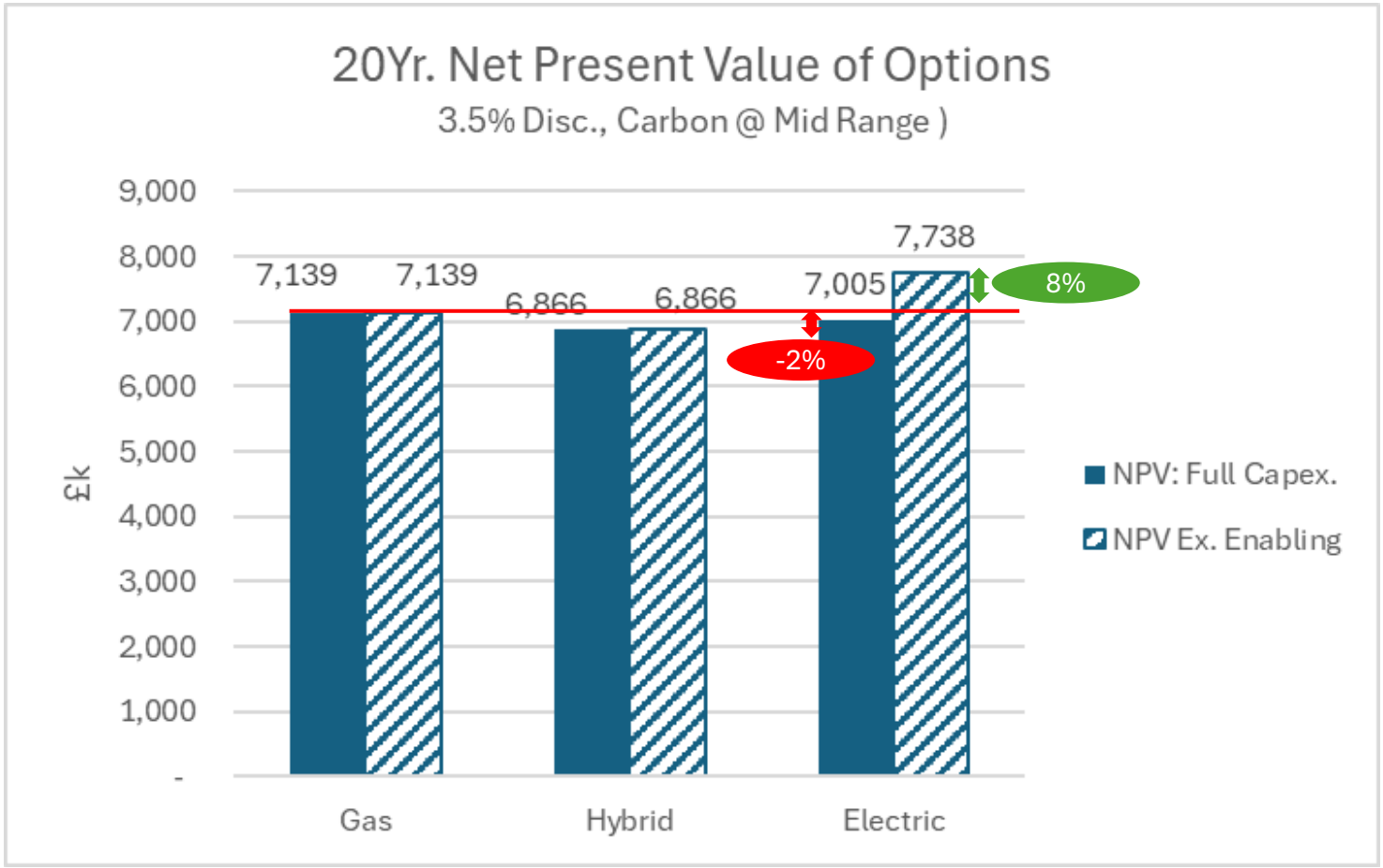


The cost of carbon represents a monetary value that society places on one tonne of carbon dioxide.

This differs from carbon prices, which represent the observed price of carbon in a relevant market (such as the UK Emissions Trading Scheme, c.£70/tCO_2)

Source : Valuation of greenhouse gas emissions: for policy appraisal and evaluation - GOV.UK

Economic Appraisal: SNPV



Source : Financial Model output

Summary

- Electrification is the only assured route to net zero.
    - Electric cremators use less energy; solar + battery cut operating costs.
    - Requires workforce flexibility
    - Requires enabling Capex
    - Increasing number of suppliers
- 5 years advance planning to ensure capital phasing in place
- Biofuel guidance: Late 2026
- Market changing – High utilisation reduces costs. Private sector is competing for your business.

Q&A

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