

Crematorium Decarbonisation

Webinar - 25th November 2025

Speakers

Samantha Smith

Crematorium Manager at Huntingdon

Abigail Dombey

Director at Net Zero Associates

John Mullins

Estate Decarbonisation Lead for the NWNZH

Manali Kulkarni

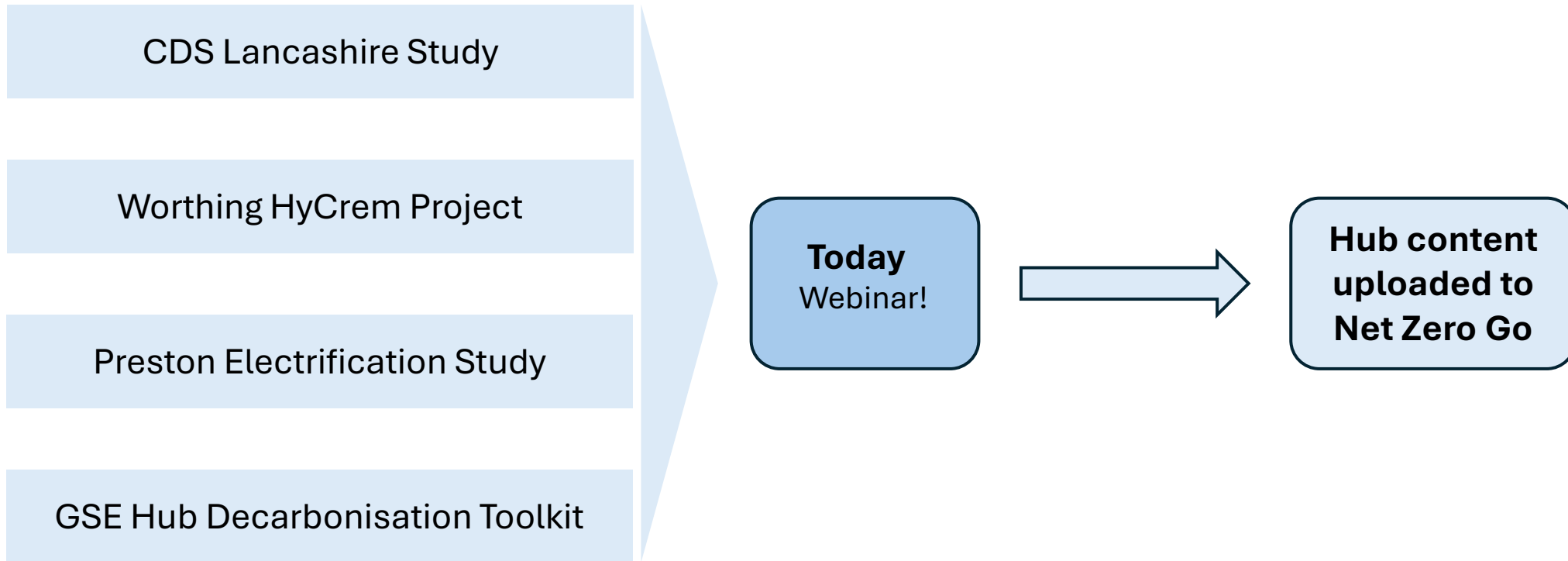
Energy Project Officer at GSENZH

Abigail Gorman

Net Zero Projects Officer from NWNZH

Where does today fit ?

Crematorium study timeline



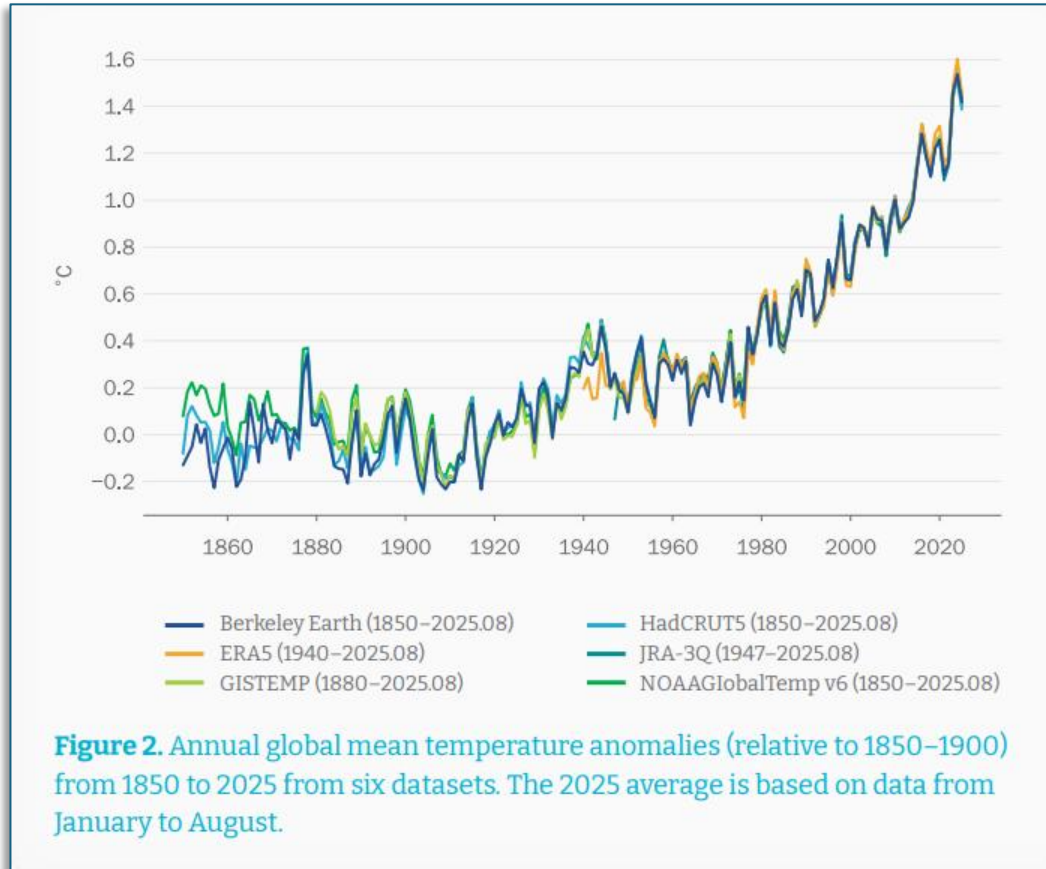
Webinar Agenda

- Why should we decarbonise?
- Technology options
 - Gas
 - Electric
 - Hybrid
 - Alternative technologies
- HyCrem Project – Key Findings
- Huntingdon – Practical Experience
- Q&A

Why should we decarbonise?

NET ZERO EMISSIONS BY 2050

Why decarbonise ?

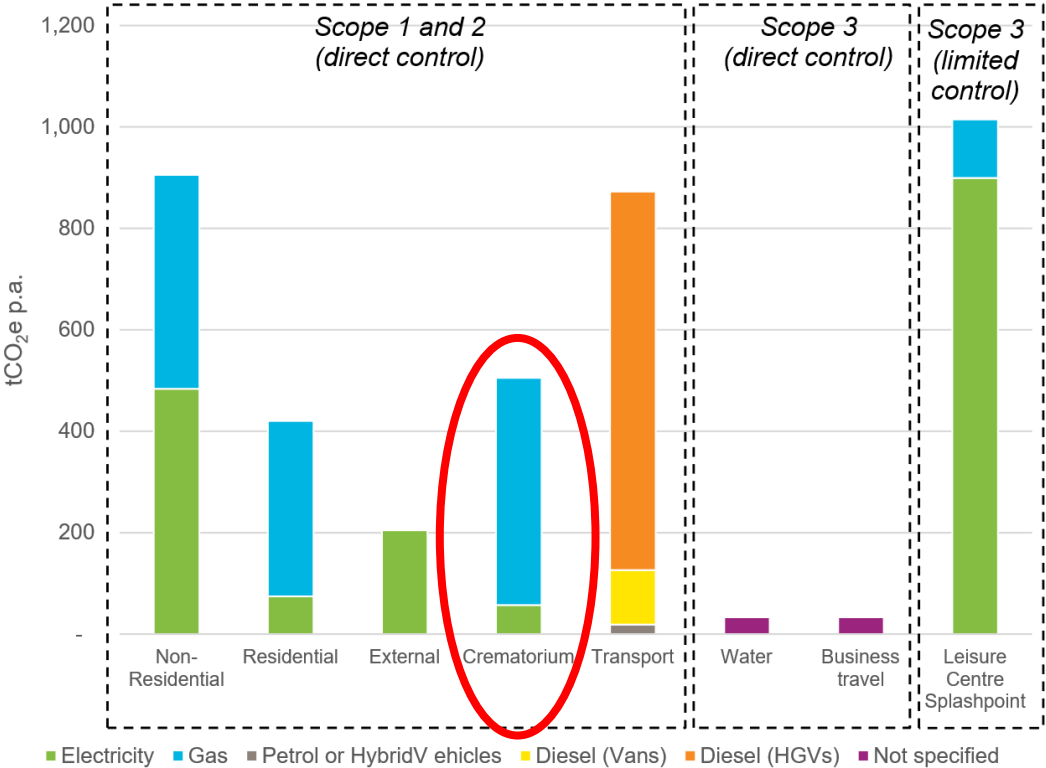


Source: State of the Climate 2025 Update COP30 (31 oct).pdf

- Climate Science – Clear
- Breaking temperature records
 - The new “normal”
 - Unsustainable

Council emissions: From Hycrem

Emissions by source and fuel type (2018)



Worthing Crematorium:

- Largest single source of carbon emissions across Adur and Worthing

Cremator fuel choice is the key driver of emissions

Indicative CO₂ emissions per cremation

Source	CO ₂ (Kg)
Cadaver	52
Coffin	49
Gas	135
Electricity	7
Subtotal	243
Service	NQ
Headstone	68
Total	311

Source: Preston Study, NWNZHub

What are the Technology options?

Choices now exist...



GAS

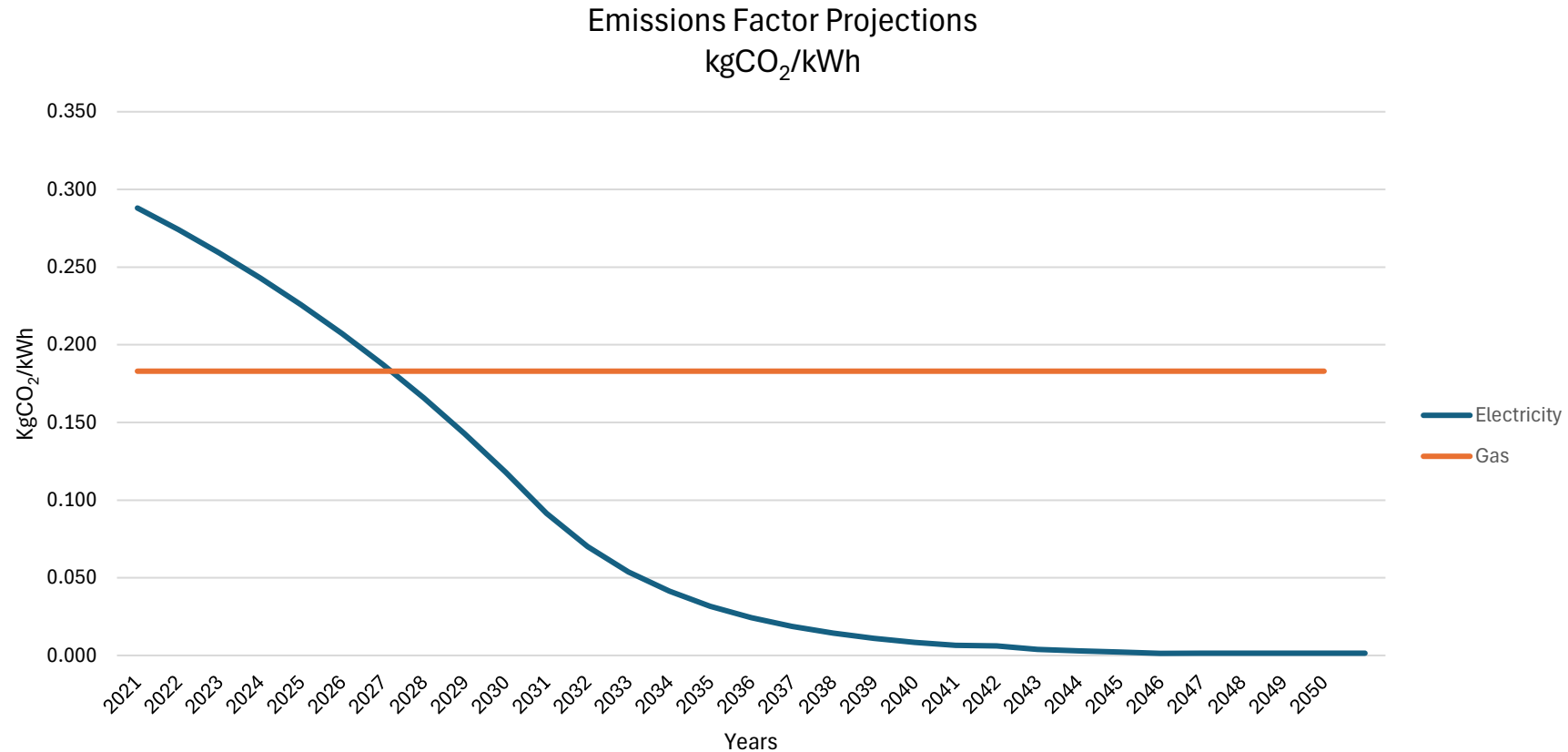


HYBRID



ELECTRIC

Electricity via the UK grid is decarbonising: Fast



Source :UK Treasury Green Book Guidance: Data-tables-1-19.xlsx

GAS – Current Technology

Advantages

- Established, incumbent technology
- High temperature flame, with airflow turbulence
- Additional fuel can be used to maintain cremation 90min times

Disadvantages

- CO₂ emissions
- Higher NO_x emissions

To Consider

- Not compatible with Net Zero objectives
- No costs associated with CO₂ emissions
- Long term dependency on gas prices / gas network availability
- Biomethane?

HYBRID

Advantages

- Maintains gas 90min cycle times
- Maintains gas rapid warm-up
- May be run as fully electric, fully gas or as Hybrid

Disadvantages

- 'Gas Boost' is under manual control
- Dual technology - more complex maintenance
- Does not meet Net Zero

To Consider

- Fuel usage under practical conditions undefined
- First unit (FTIV) installed in France H2'25, performance results in mid-'26
- Crematech units starting to go into operation, performance results'26

ELECTRIC

Advantages

- Massively lower energy requirements than gas
- 90% reduction in Carbon emissions
- Less thermal cycling than gas cremators - less stress on refractories

Disadvantages

- Higher capital and DNO costs
- Longer cycle times compared to gas
- No control over cycle times (Addfield 'Electric boost' technology)

To Consider

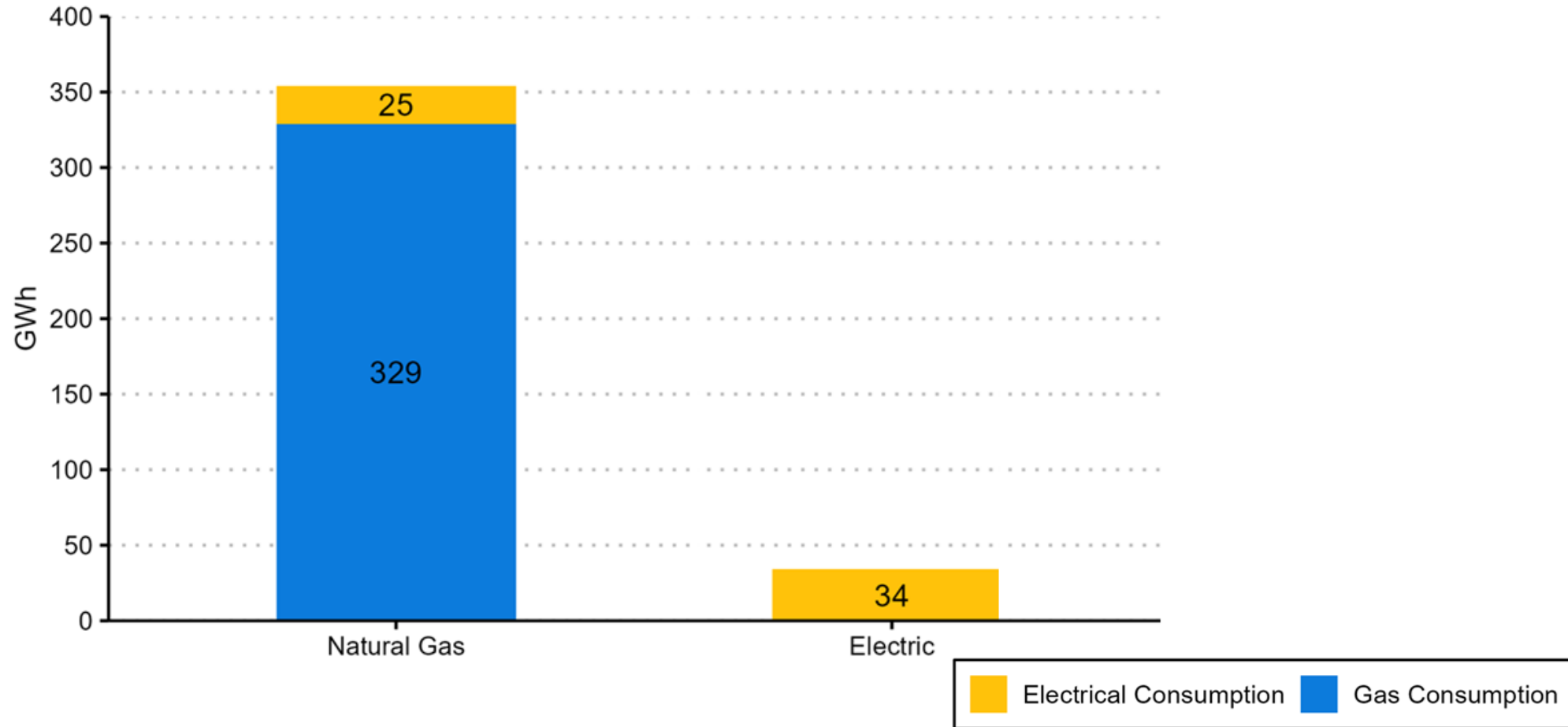
- Known technology, number of suppliers increasing
- Operating costs - less than gas
- Options to further reduce electricity costs through on-site PV and battery technologies

HyCrem- Key Project Findings / Results

Table 7: Performance metrics for natural gas vs electric cremators (adjusted for 3,523 cremations/year)

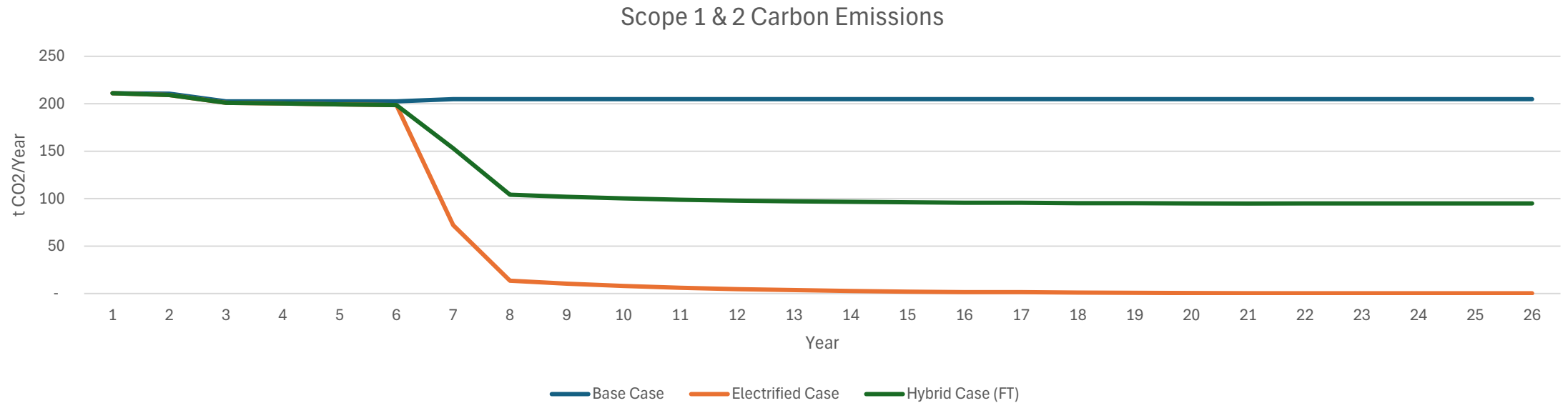
Variable	Natural Gas	Electric	Hydrogen
Real Data			
Average duration of cremation (hours) *	2.6	2.0	2.5 ***
Gas Consumption (kWh/year) *	2,363,550	N/A	2,239,510 ***
Electricity Consumption (kWh/year) **	225,230	152,270	225,230
Total Energy Consumption (kWh/year)	2,588,780	152,270	2,464,740
Design Conditions (supplied by DFW)			
Average duration of cremation (hours)	1.5	2.0	1.4 ***
Natural Gas Consumption (kWh/year)	1,965,830	N/A	1,862,670 ***
Electricity Consumption (kWh/year)	100,160	289,080	100,160
Total Energy Consumption (kWh/year)	2,065,990	289,080	1,962,823

UK Crematoria Fuel Consumption (GWh/yr)



Source: HyCrem Project

CO₂ emissions only meet net zero objectives in the electrified scenario



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

Source : Preston NWNZHub Study

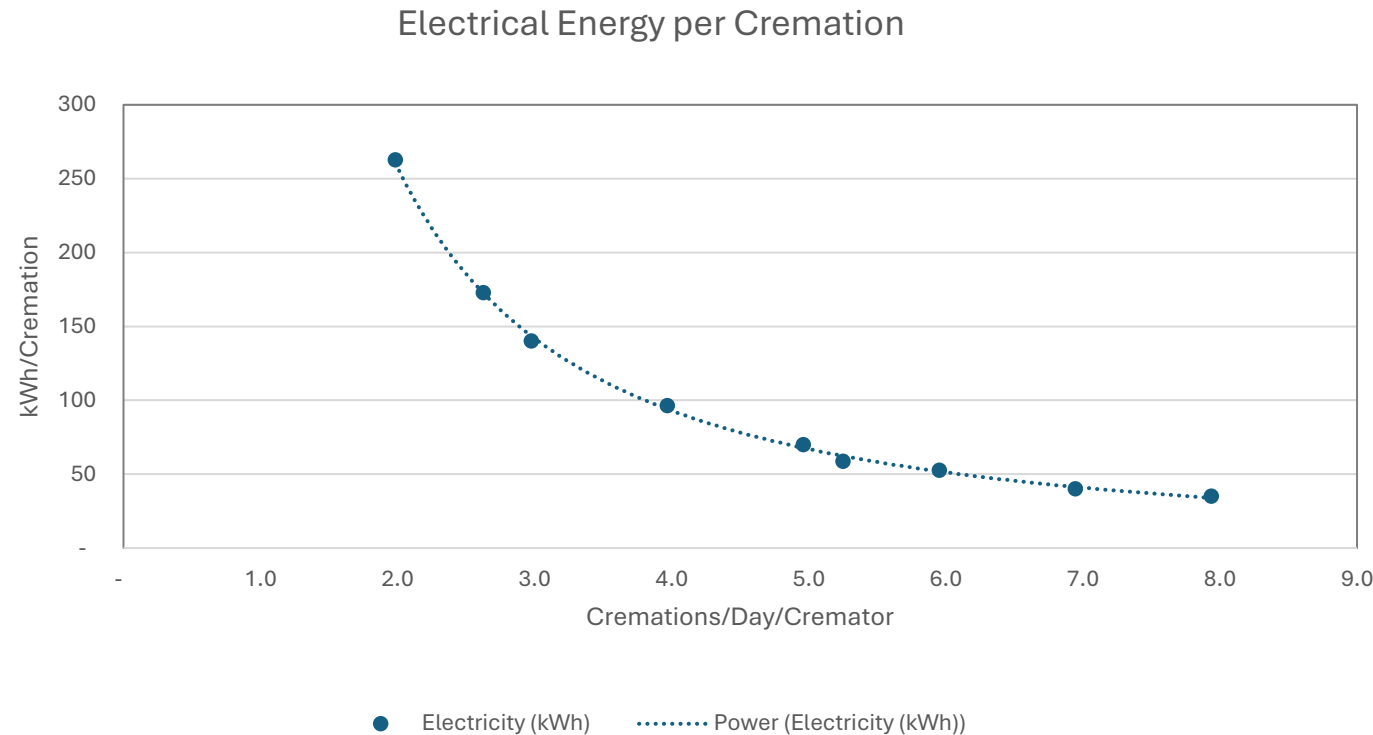
ALTERNATIVE TECH

- HYDROGEN
- RESOMATION
- MICROWAVE

So what?

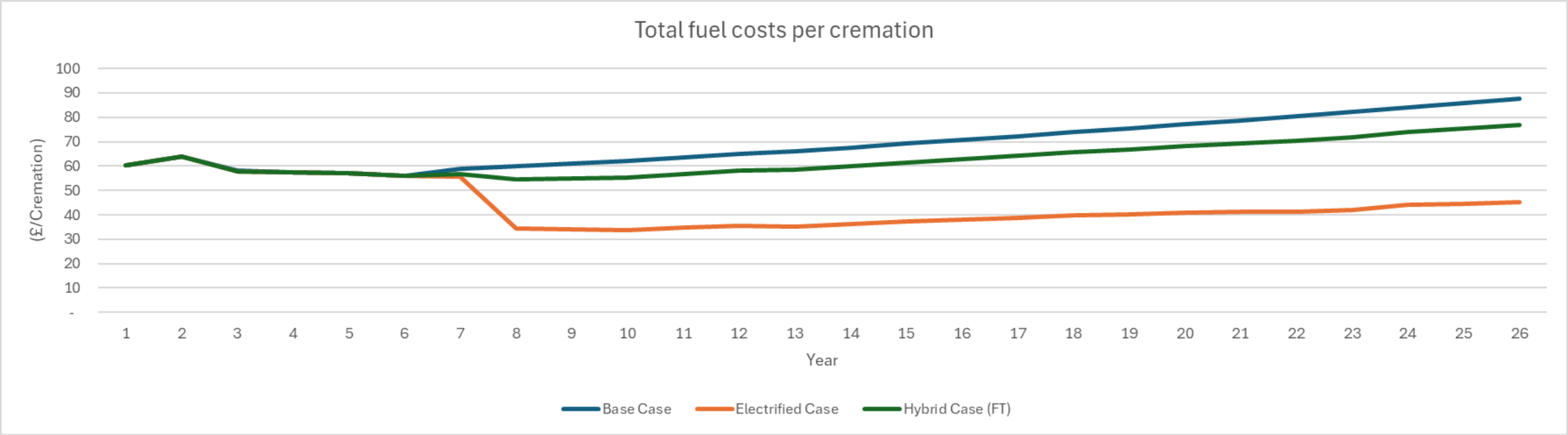
Electrification is the
better option

Energy consumption is sensitive to usage: More usage = Less energy, less cost



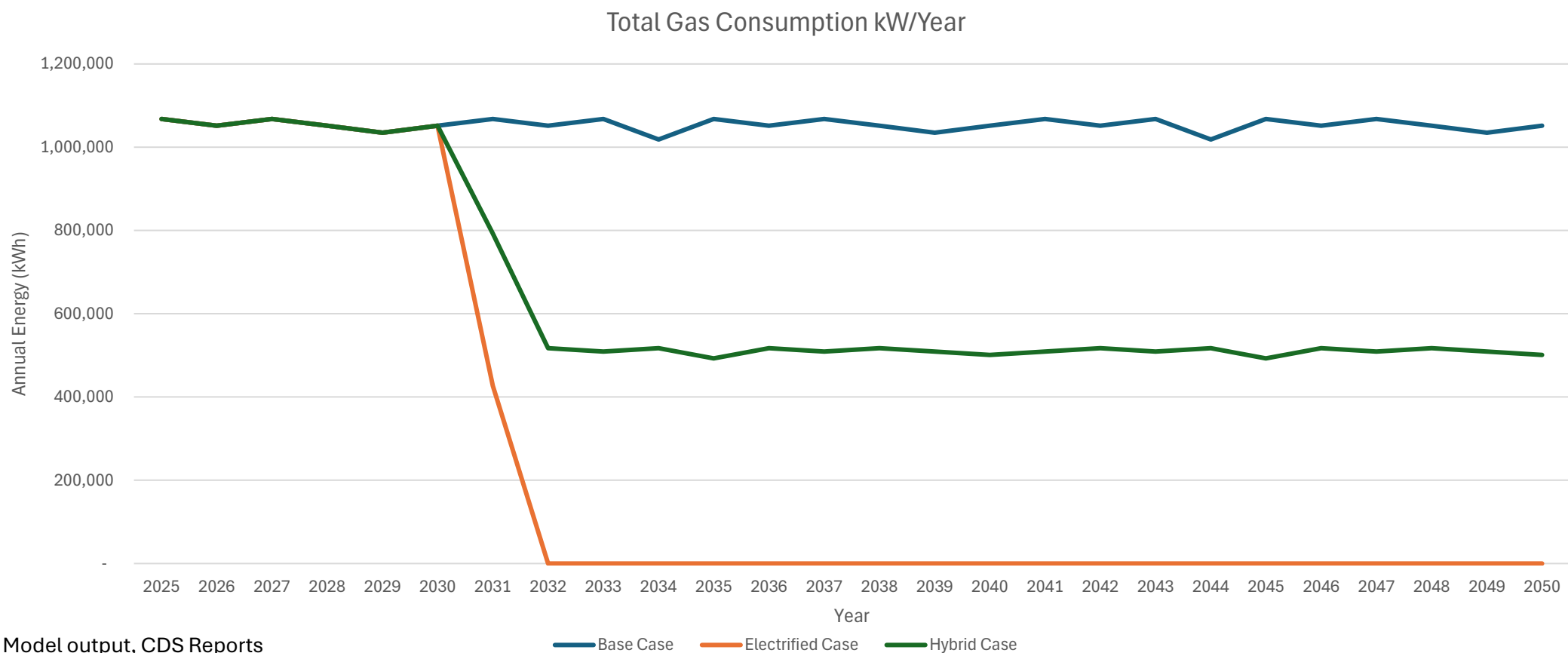
Source: Preston Business case Model- NWNZH

Despite higher electricity costs per kWh, overall fuel costs are lower



Source: Preston Business case Model- NWNZH

Switching to electric cremators and an ASHP eliminates gas consumption



Source : Financial Model output, CDS Reports

Summary: Transition factors

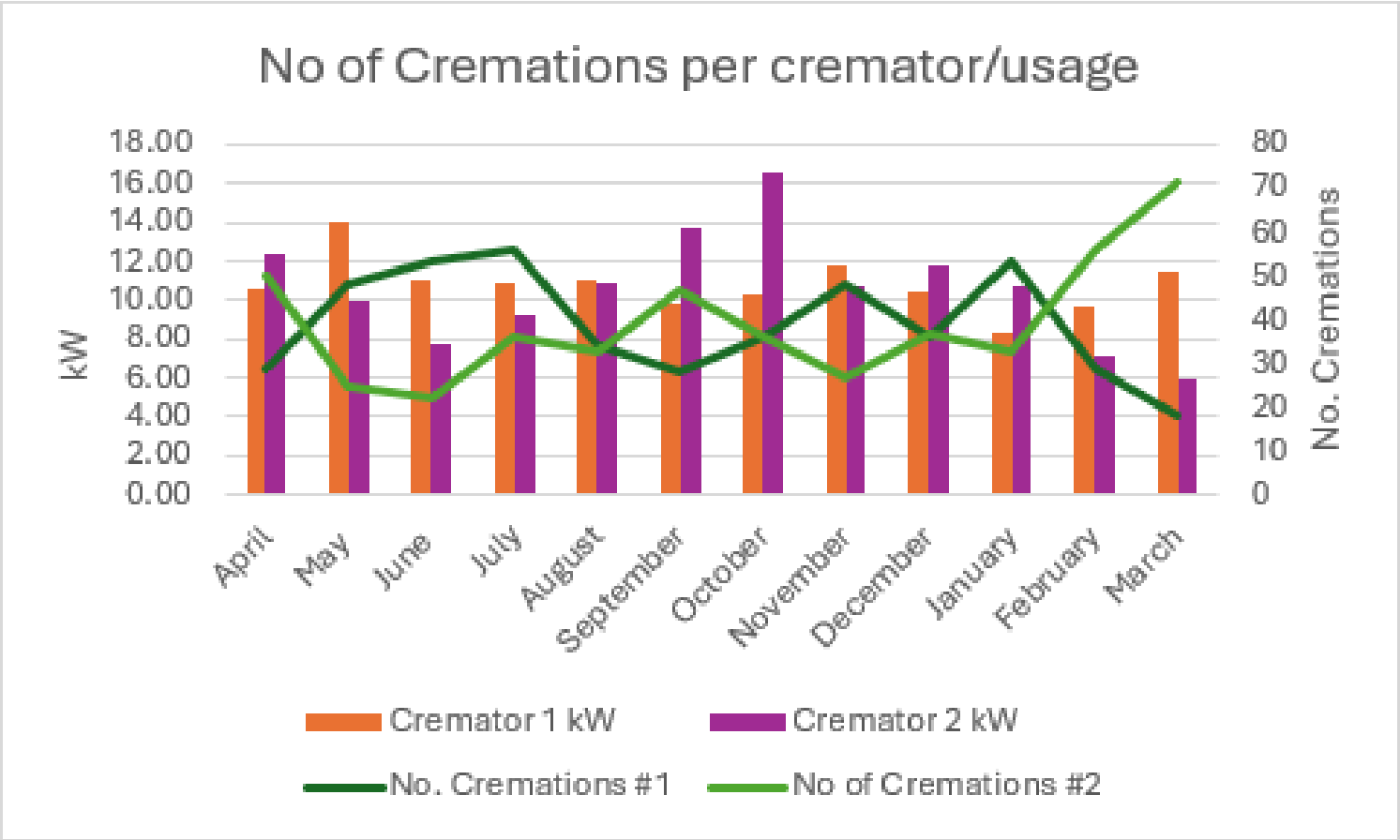
- Fuel Cost
- Cycle Time
 - Cremation Scheduling
- Maintenance
- Capital Cost

The Decarbonisation of Huntingdon Crematorium

Huntingdon – Practical Experience

- Brand new facility - October 2021.
- Cost c.£11.6 m – of which cremators c.£1.2m
- 900 cremations per year, with 2 cremators
- Project includes cemetery, memorial garden, wake building, crematorium, 2 greenhouses and support buildings.
- Electricity costs £100k/year, cremators driving 70% of energy demand.
- Heat recovery is used to heat the greenhouses which grow plants/shrubs for the town, cemeteries and crematoria site.

Huntingdon – Practical Experience



Source: Huntingdon Crematorium

Energy usage and carbon emissions comparison



Total Cremator Energy Usage

Cremators	187,000 kWh/Year
Other Uses	80,000 kWh/Year
Total Site Electricity	267,000 kWh/Year

Grid Emission Factor (Average)	0.177 kg CO ₂ /kWh
Estimated Emissions	47 Tonnes/Year

Estimated Energy (Gas) Avoided	818,000 kWh/Year
Gas Emission Factor	0.183 kg CO ₂ /kWh
Carbon emissions with gas	150 Tonnes/Year
Carbon Emissions Avoided	102 Tonnes/Year

Source:

[ghg-conversion-factors-2025-condensed-set.xlsx](#)

Cremator Maintenance

- **Electric Cremators** – approximately £60,000 per annum
- Most expensive part is particulate filters – every 1800 cremations.

Servicing Schedule:

- **Interim Service – 1 day (no cool down required)**
- Cleaning/Lubrication
- Check integrity of switches, motors & drive belts.
- **Annual Service – 2 days & cool down**
- Service/Calibrate Servomex Oxygen analysers
- Service/Calibrate CEMS (Fuji)
- Service Compressors



Overall

Crematorium Electrification is

- Safer
- Cheaper
- Convenient
- Better for our planet

Q&A Session

** These will be shared separately shortly*



Department for
Energy Security
& Net Zero