

A large, long greenhouse complex with a series of gabled roofs, situated behind a body of water. The sky is blue with some light clouds. The water is a deep blue-green color. In the foreground, there are some reeds and grasses on the right side.

Energy update

Markets, trading and infrastructure

2024 Cucumber & Pepper Conference



TOPICS:
Energy markets
Hedging strategies
CO₂ economics
Technologies and infrastructure

Now Then Energy

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- Engineer by training
- 30+ years energy consulting
- Focus on agriculture & horticulture throughout

Ben Ablewhite

- Economist, business analyst, banking, IT
- Energy consulting for 8 years





Markets

NOW THEN
ENERGY
NO NONSENSE ADVICE

Gas price history

UK gas daily spot price (p/th)

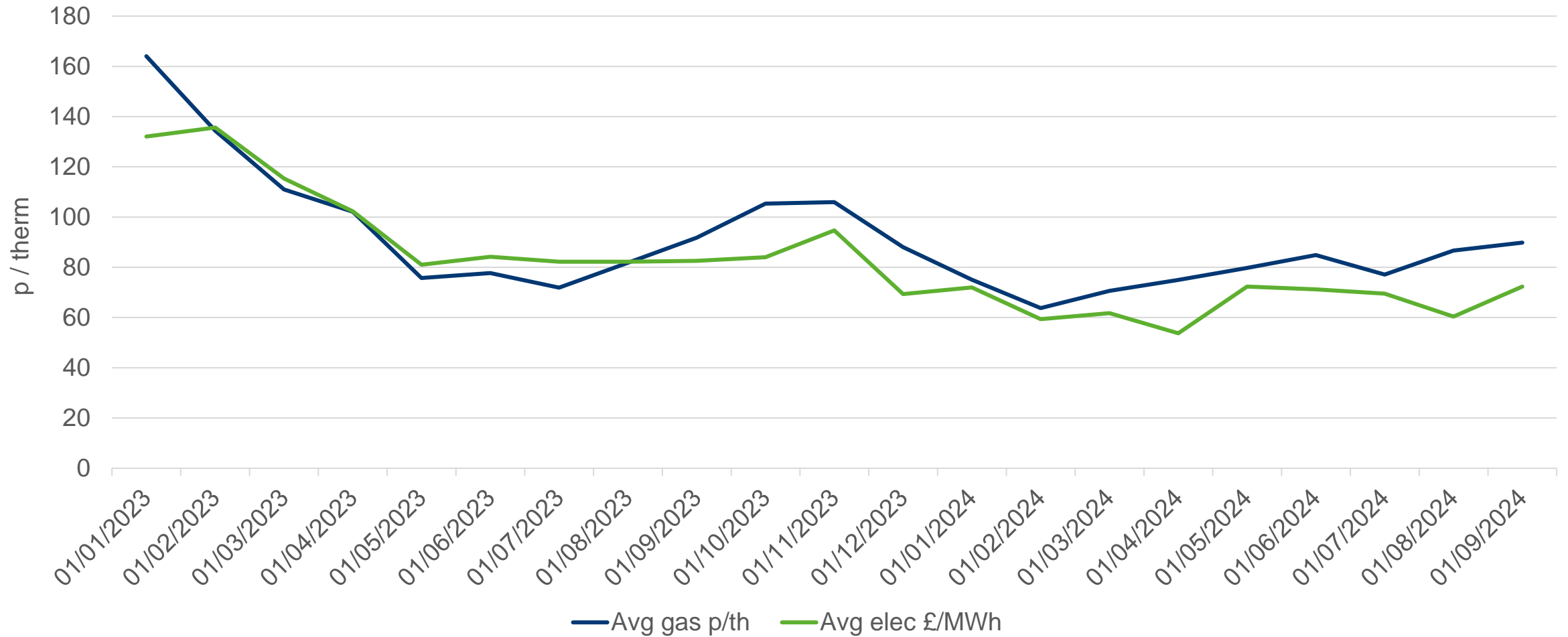


Gas price history

UK gas daily spot price (p/th)



Electricity vs gas



Looking ahead

Winter 2024 gas (p/th)



Looking ahead

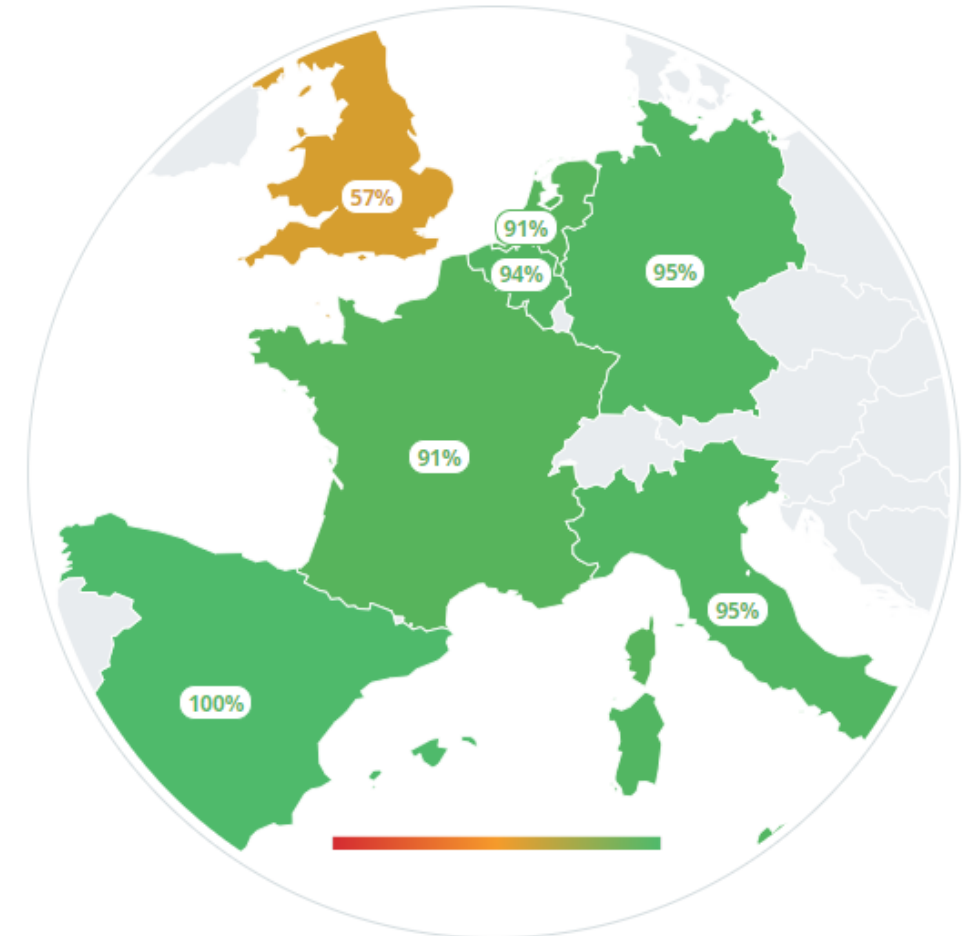
Winter 2025 gas (p/th)



Looking ahead: Gas

Storage	High in Europe, similar to W-23
Supply	Similar to W-23 with a little less from Russia
Weather	After 2 mild winters, a 'normal' winter will push prices up
Electricity	No concerns over nuclear generation
Geopolitical	Sensitivity around Middle East tensions
Economic	Stimulus could increase demand

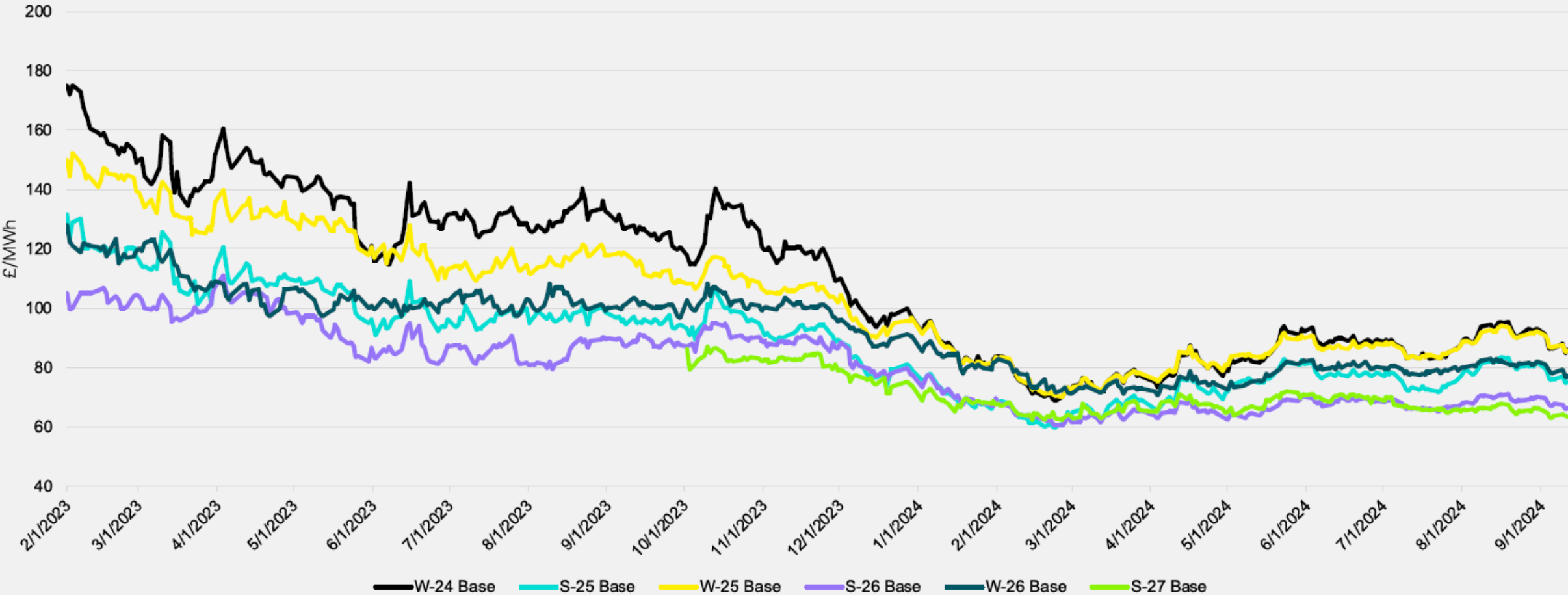
Natural Gas Storage by Country



Looking ahead: Electricity

Gas	Still a close relationship between gas and electricity prices
Nuclear	No great concerns for medium-term
Renewables	Renewable output, especially wind, is a significant driver of near-term prices
Weather	Winter might be more 'normal'. Hot summer = cooling
Carbon	Prices relatively low, forecast to increase
Economic	Stimulus increasing output could increase demand

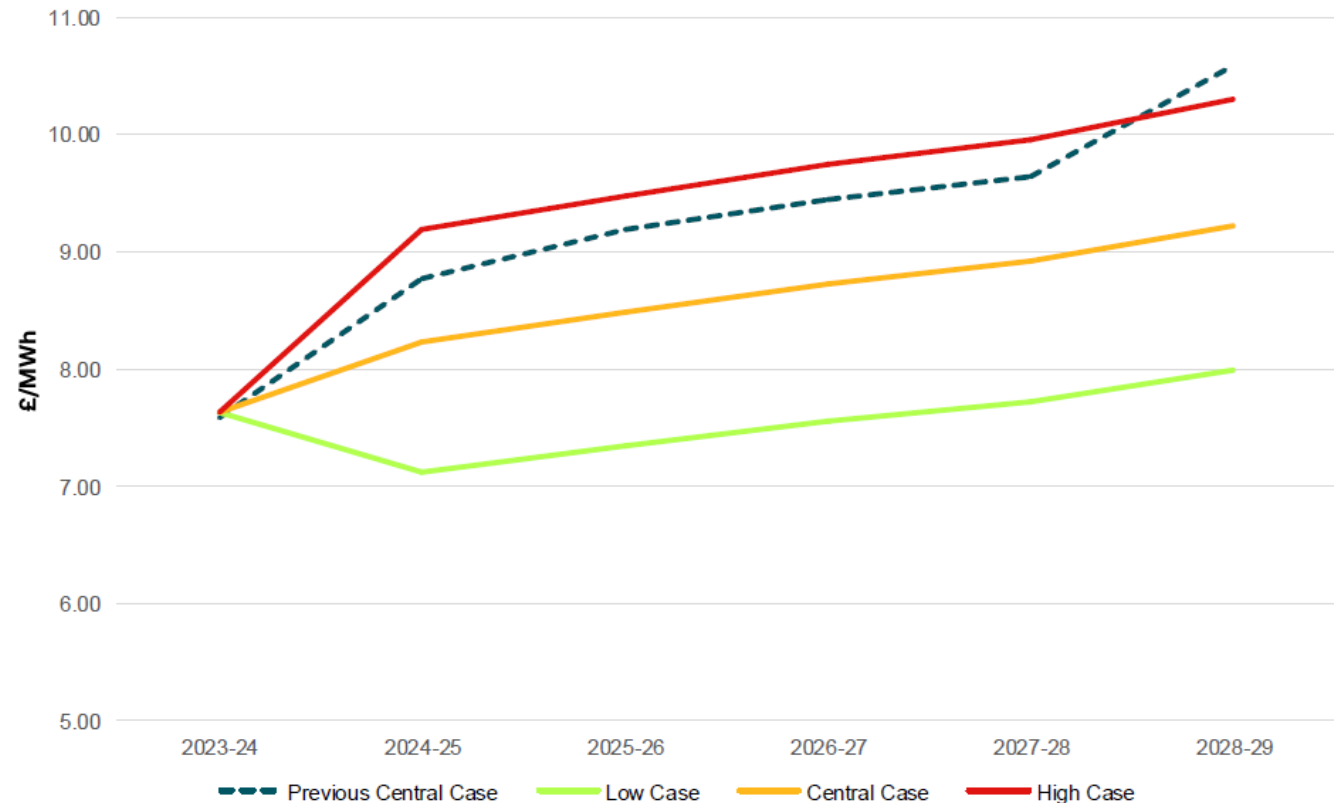
Looking ahead: Electricity



Electricity non-commodity charges

Inflation is a key driver of increases in low carbon subsidies

- EII discounts load cost onto others
- RO, FiT and CfD expected to increase by 2.5p/kWh over next 3 years

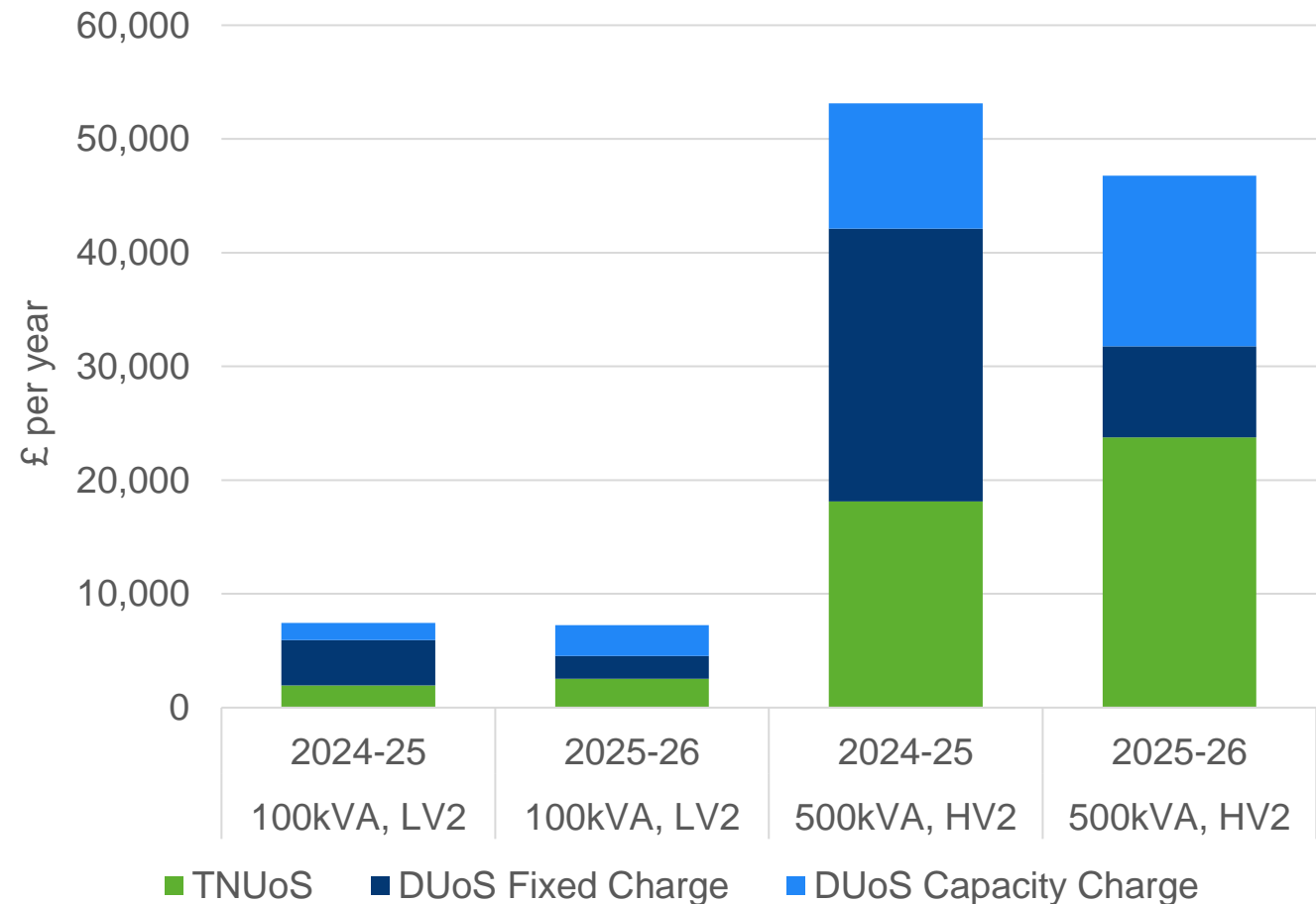


Electricity non-commodity charges

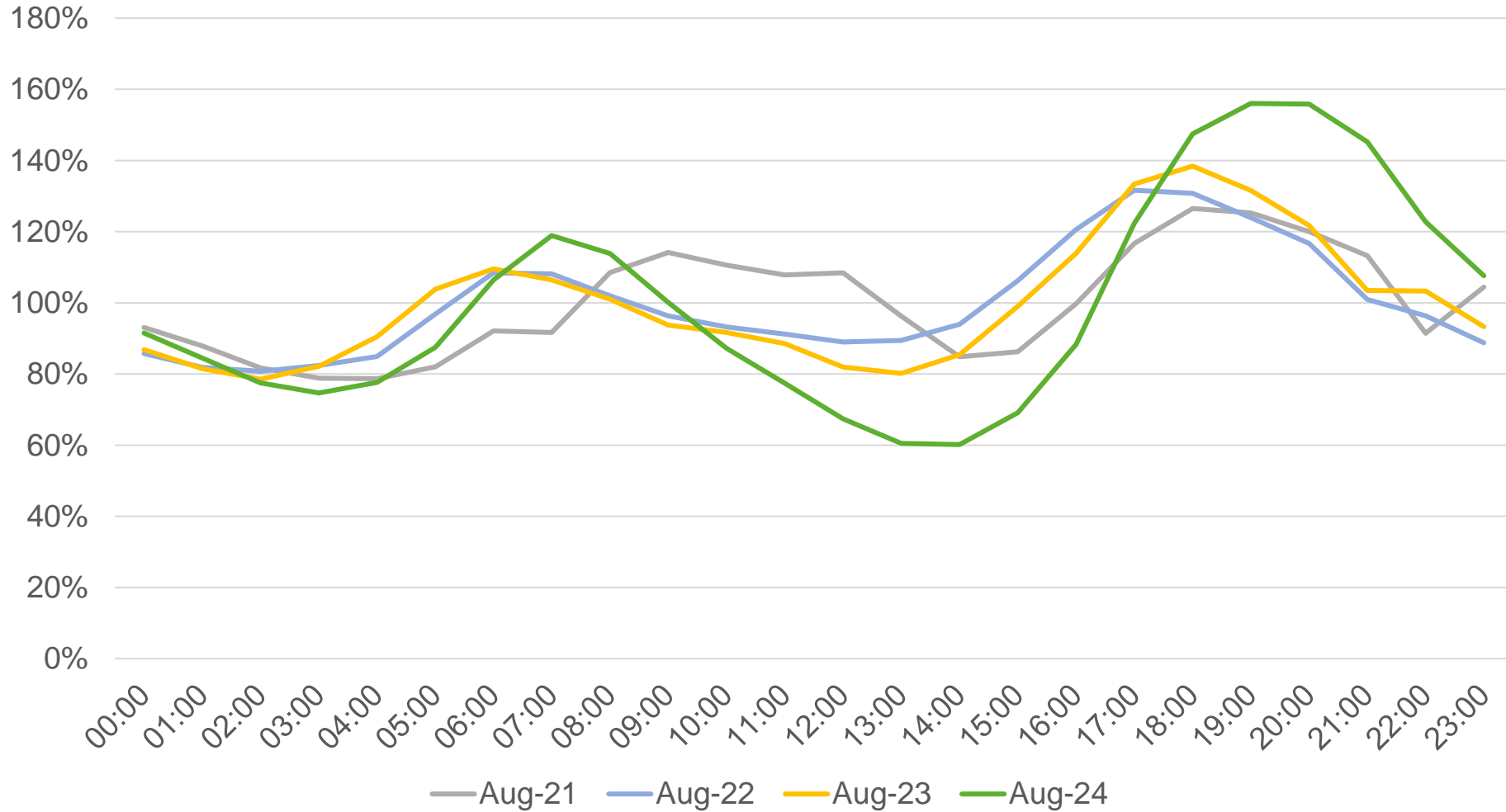
Big increase in DUoS fixed charge in April 2024

Weighted more towards capacity charge from 2025

TNUoS fixed charge forecast to increase 50% by April 2028



Within-day price variance



Hedging strategies



Hedging strategies

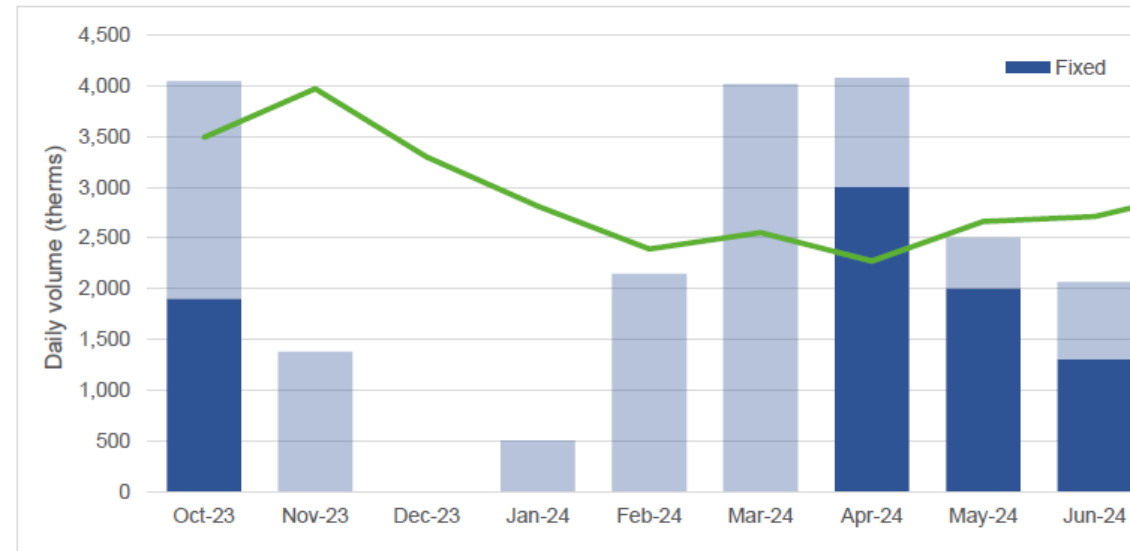
Pre-2021: Procurement-led

Usually only larger companies under pressure to forecast costs and demonstrate strategic procurement

Method: Set a target volume and gradually chip away at it

Gas position report

Gas position as of 20 January 2024



Month	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24
Budget volume	4,048	1,378	0	500	2,146	4,018	4,076	2,500
Volume fixed	1,900	0	0	0	0	0	3,000	2,000
Volume floating	2,148	1,378	0	500	2,146	4,018	1,076	500
Price fixed (p/th)	79.31	0	0	0	0	0	55.45	69.7
Price floating	105.4	105.9	88.0	75.0	63.8	68.1	75.0	76.0
Average price	93.1	105.9	88.0	75.0	63.8	68.1	60.6	71.0

Hedging strategies

Post-2021: Input cost-led

Fix cost of the energy that goes into the product

Fix at the same time as price for product
...in multiple clips to suit

Hedging strategies are unique to each business

There's no one-size-fits-all approach

Attitude to risk is key



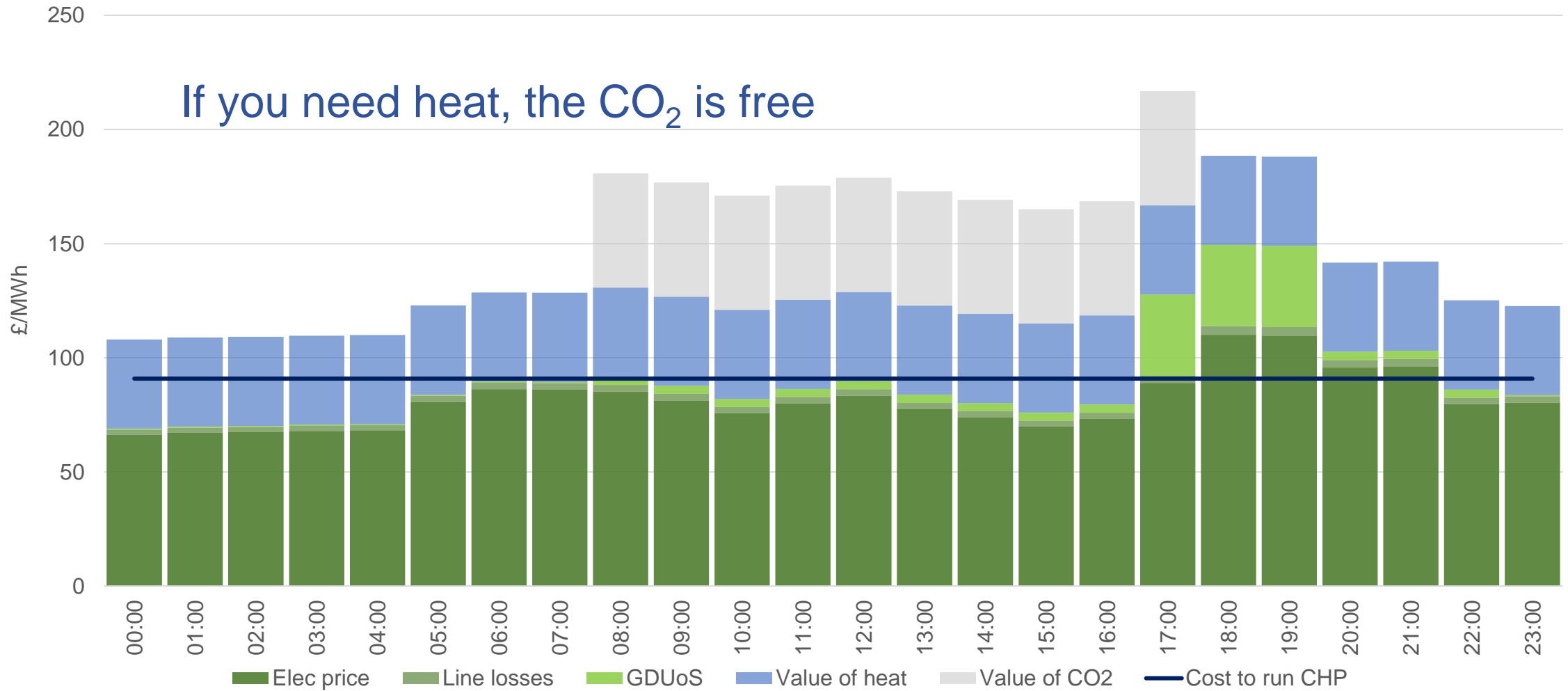
CO₂ production



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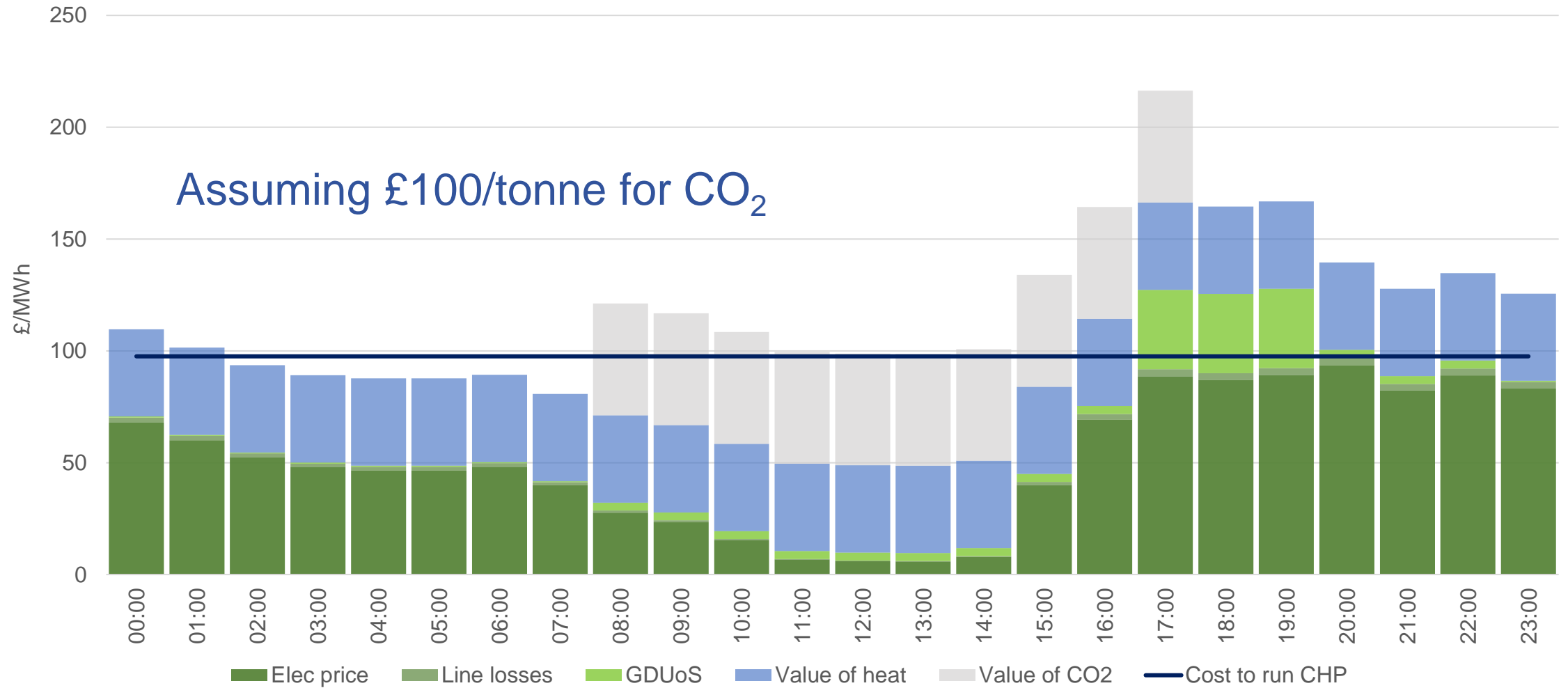
CO₂ from CHP

8th July 2024



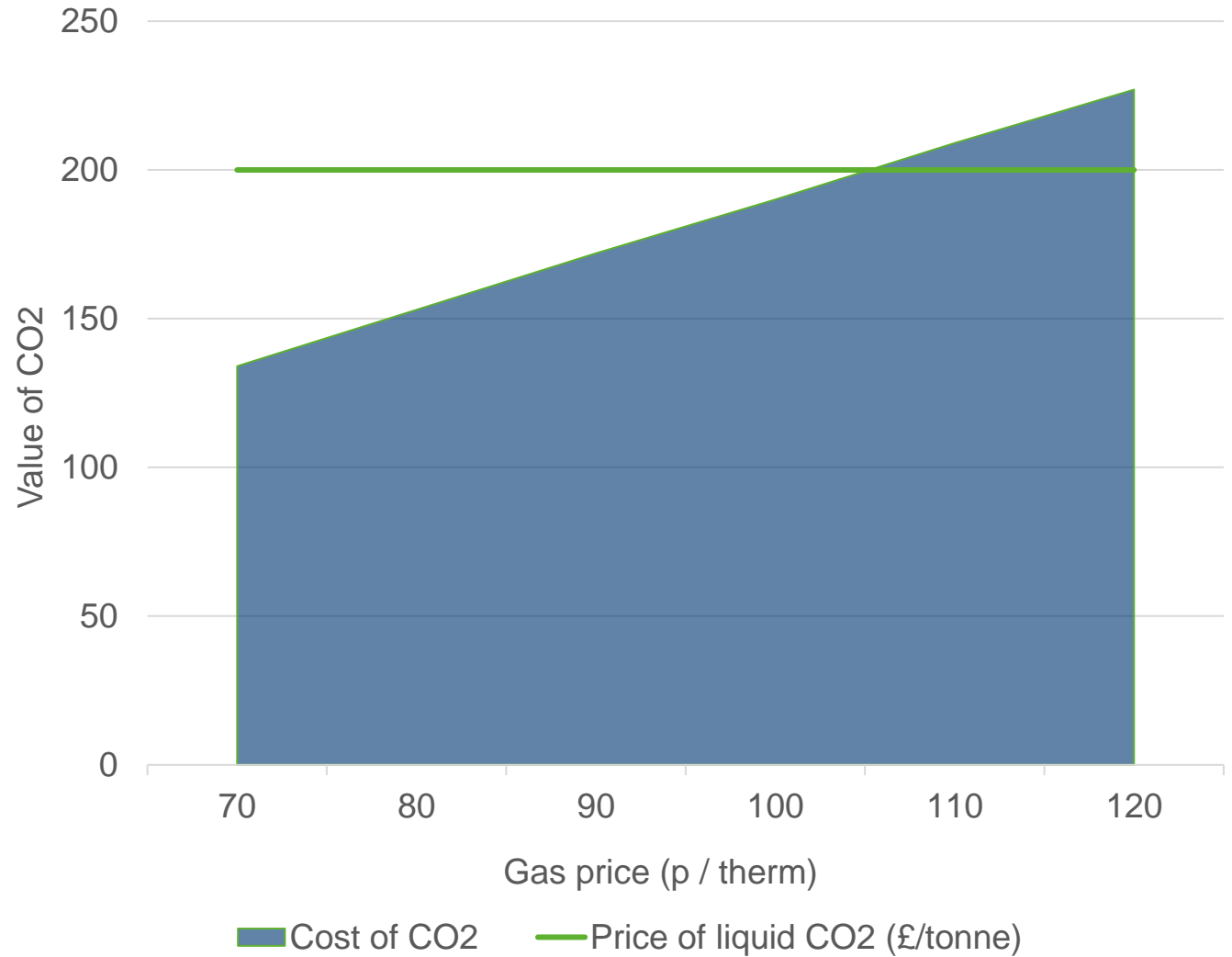
CO₂ from CHP

23rd August 2024



CO₂ from boiler

Cost of CO₂ from gas boiler if you don't need heat...



CO₂ from boiler

If gas costs £1/therm, what's the cost of CO₂ from a gas boiler?

Preferred heat source	Gas boiler	Biomass tier 1	Biomass tier 2	Heat pump tier 1	Heat pump tier 2	Heat not required
Cost of CO ₂ £/tonne	£0	£196	£145	£234	£68	£190



Technologies



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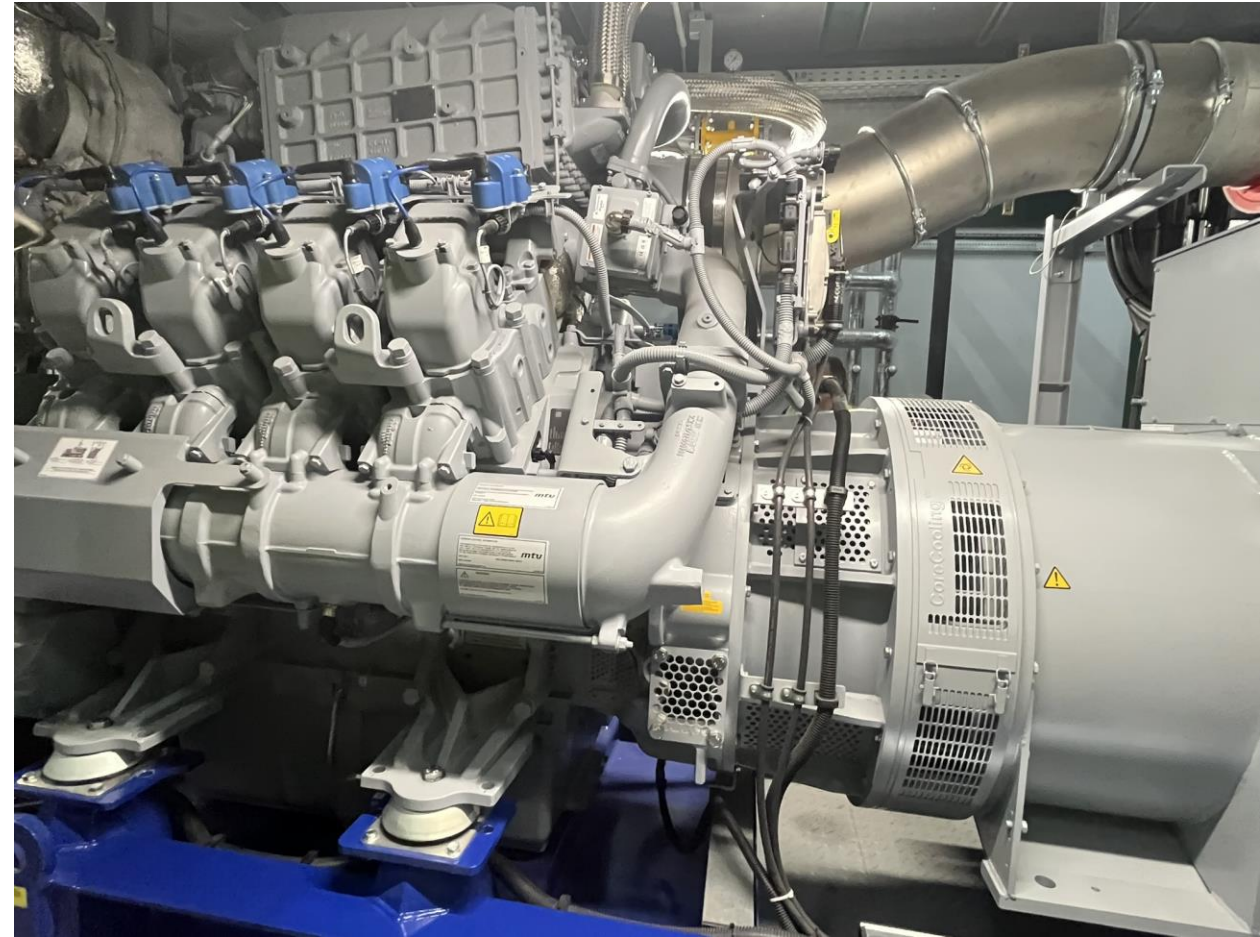
Future of CHP

5 years?!

Role could change

- Reflecting spark spread
- Grid support

Hydrogen ready?



Other technologies

Solar: better than buying power from the grid

Wind: planning could still be challenging

Batteries: still not cheap enough, might work in conjunction with renewables



Other sources of CO₂

Direct air capture

- Aimed at vertical farms
- Small scale

4kWh elec per kg CO₂ = £640 / tonne

Could be 2 kWh elec & 2 kWh heat
With free biomass heat = £320 / tonne

Gas @ £1/th into boiler = £185 / tonne



Hydrogen

- £22bn Government investment in 3 regional projects – H₂ and CCS
Not producing excess H₂ for grid
- Possible support from CfD-like scheme
- NGN pipeline project might benefit a few growers
- H₂ makes sense for peaking plant and hard-to-decarbonise sectors



Questions?