LCPDelta

The GB Power Market Outlook 2026

From gas exposure to system resilience: the real impact of Clean Power 2030

June 2026

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Foreword

The Clean Power 2030 target may now be out of reach, but it is driving positive change for the system and consumers

Welcome to the third edition of LCP Delta's "GB Power Market Outlook", sponsored by SSE, providing a regular and independent assessment of the journey to a decarbonised power sector in Great Britain.

The previous edition focused on how we can reach a Clean Power 2030 system in light of the announcements at the time by the government. With that target now 2 years in, this report provides a detailed assessment of whether we are on track to hit Clean Power 2030, what the government can do to continue to make progress towards a Clean Power system and what all this ultimately means for the system and consumers.

Our report finds that by 2030 under our current trajectory, only 83% of GB electricity generation will be produced by clean power, below the 95% Clean Power target. However, we find that it is possible to increase this with the right interventions. Under the LCP Accelerated Build scenario, the clean power % could increase to 90%; with 95% reached by 2032, just two years later than targeted. To get closer to achieving CP2030, we are urging the government to move faster on the policies that matter most: boosting renewable deployment, fixing grid connection delays, ensuring delivery of network upgrades and implementing constraint management measures. Swift action in these areas will help unlock investment, lower consumer bills and keep the GB power system on track for a secure, clean energy future.

Even if the 95% target is missed, our report highlights that the CP2030 target is driving positive change for the system. Importantly a near clean power system will significantly protect consumers from gas price shocks. Our analysis shows that a gas price shock in 2030 similar to current levels would limit the customer electricity bill impact to just a 4% increase, compared to 24% without CfD-backed renewables on the system. Additionally, gas use for power would fall by 52% by 2030, which could reduce our current LNG imports by half.

Overall, our analysis highlights that Great Britain is firmly on the path towards a power system dominated by clean generation, which protects consumers from gas price volatility. But there are actions the government should take beyond current policy to accelerate renewable deployment, tackle grid constraints and unlock the full benefits of a clean power transition.

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Progress towards Clean Power 2030

Executive Summary

Will we reach Clean Power 2030?

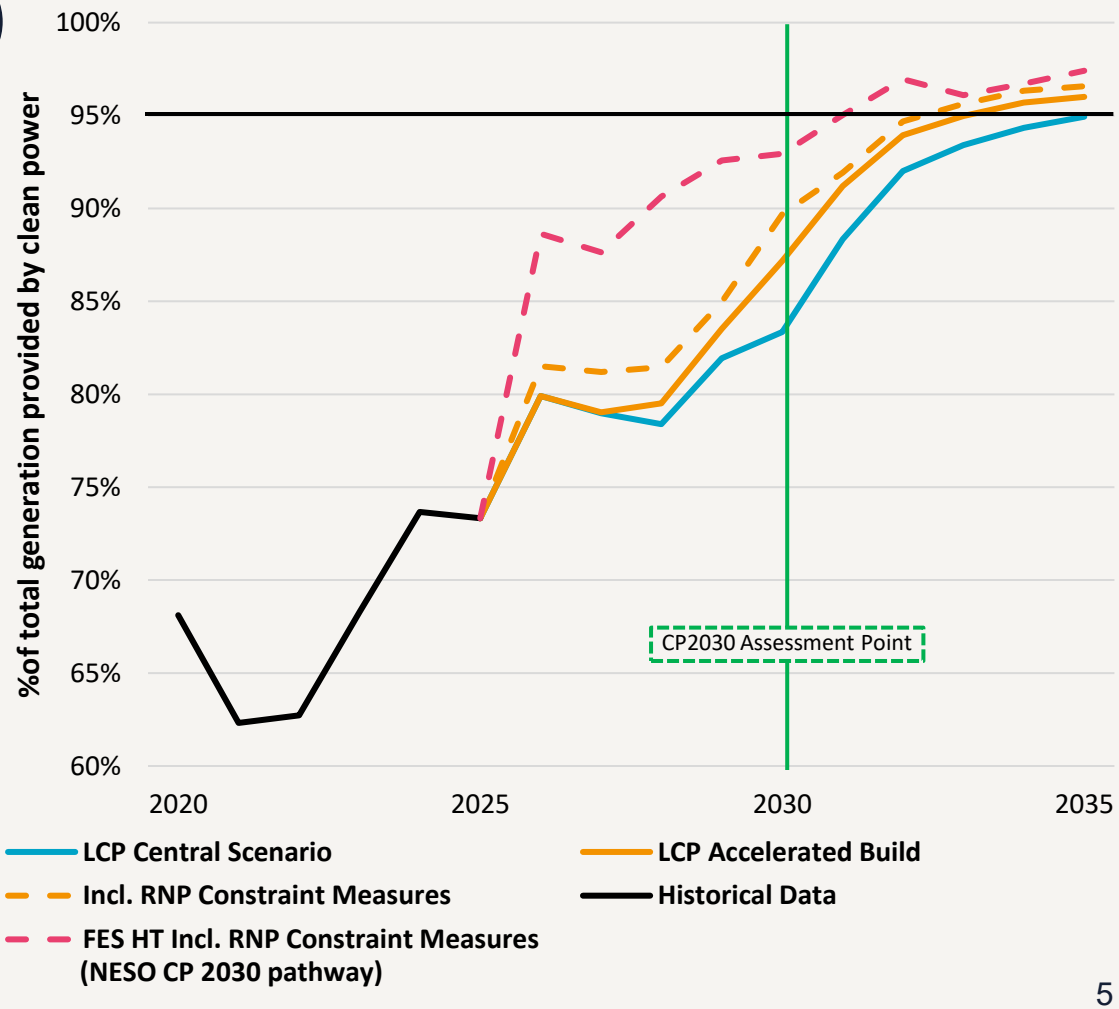
We are not currently on track to hit the CP2030 target, but actions can be taken to get us closer

LCP Delta have undertaken a detailed assessment of whether we are on track to hit the government's Clean Power 2030 target for the GB power sector.

Our assessment finds:

- On our current trajectory, we are making progress towards the Clean Power 2030 target, but it will not be fully achieved. The resulting cleaner power system will nevertheless provide meaningful benefits for consumers.
- By 2030, we are not on track to achieve the main CP2030 metric of 95% of generation from Clean Power sources. Under LCP's central scenario, we are currently on track for 83%.
- Only four of the eight key technologies are currently on track to meet the ambitious CP2030 capacity targets, with offshore wind, onshore wind, solar and batteries unlikely to meet their respective targets without additional intervention.
- It is possible to accelerate 2030 build out in most areas to reach the target ranges, although it is unlikely for offshore wind given longer lead times. Under the LCP Accelerated Build scenario, the proportion of generation from clean power sources increases to 86%, still short of the 95% target.
- A key barrier to the target is use of gas to deal with network constraints. Targeted measures to improve constraint management and accelerate network build can increase the % of generation from clean power sources to 90% under the LCP accelerated build scenario.
- While this is still below the 95% target, achieving the 90% level would still represent a significant milestone, as gas usage is substantially reduced and consumers would be better protected from gas price shocks. Emissions would fall to 37gCO_2/kWh, achieving the CP2030 target of emissions well below 50gCO_2/kWh.

% of GB generation from clean power sources under LCP scenarios



What will the CP2030 target achieve?

The CP2030 target will still drive positive improvements to the system even if the target is not met

Under the LCP Accelerated Build scenario with reduction in constraints:

Renewable Build increase by 2030
(compared to 2025 levels)
117%
60GW

Reduction in power sector gas use by 2030
(compared to 2024)
52%
73TWh

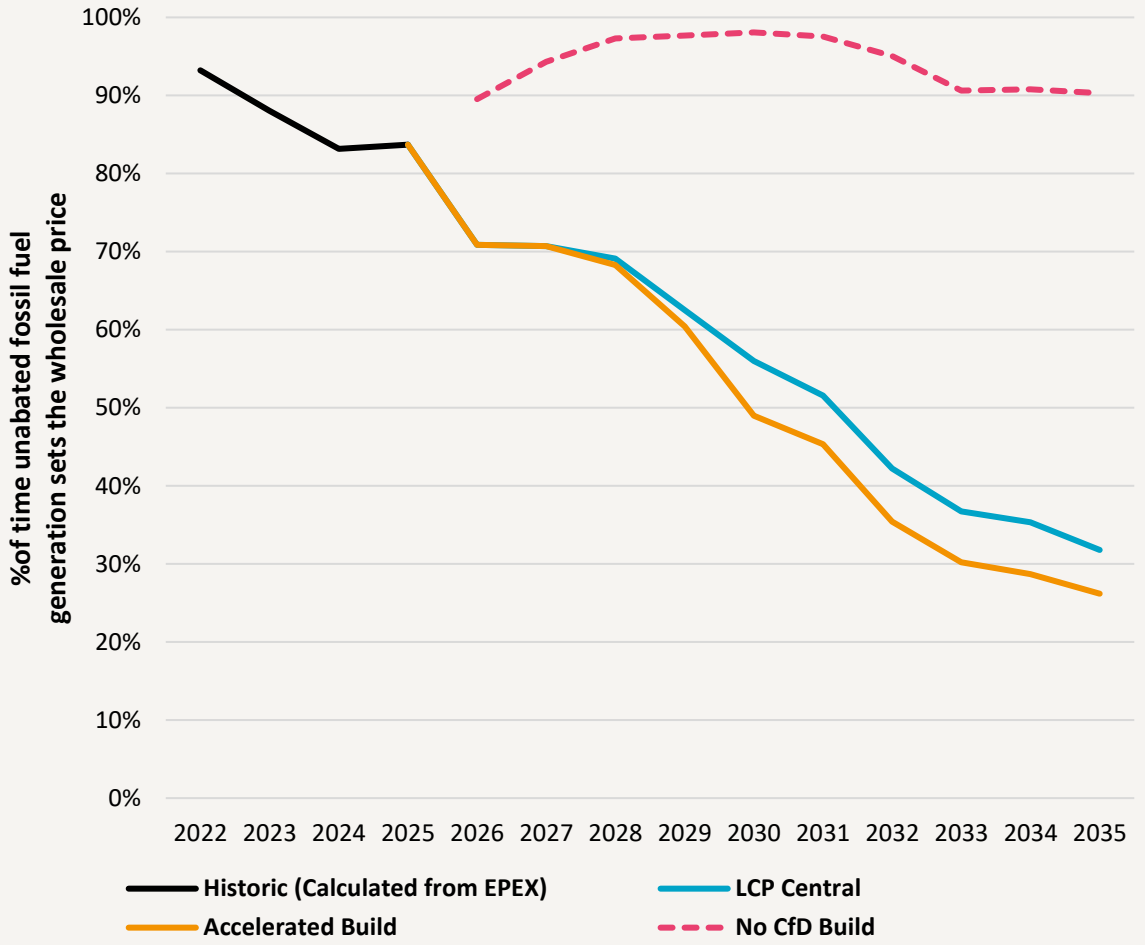
LNG gas imports could decline by:
(from 2024 levels, assuming all gas decline is from LNG)
53%

In 2030, fossil fuels sets the price in:
(compared to 84% of hours in 2025 and nearly 100% without renewables)
49%
of hours

Reduction in power CO2 emissions by 2030
(compared to 2025)
46%
16MTCO$_2$

Emissions intensity in 2030 reaches:
(compared to the CP2030 target of well below 50gCO$_2$/kWh)
37
gCO$_2$/kWh

How often does unabated fossil fuel generation set the wholesale price in GB



Note that the CO2 emissions aligns with greenhouse gas accounting so includes EfW, but emissions intensity aligns with CP2030 metric so excludes EfW.

What does a clean power system mean for consumers?

A clean power system would reduce bills for a typical household, with greater savings for electrified households

Clean Power leads to a decrease in the average bill

Under our accelerated scenario, the average household electricity bill (based on an annual consumption of 2,700 kWh) will decline by around £40 in 2030 compared to 2026. While wholesale costs and policy costs from older renewable schemes (ROCs and FITs) decline, this is partially offset by increases in CfD costs and network costs leading to a small decrease overall.

Households with higher levels of electrification see the largest savings

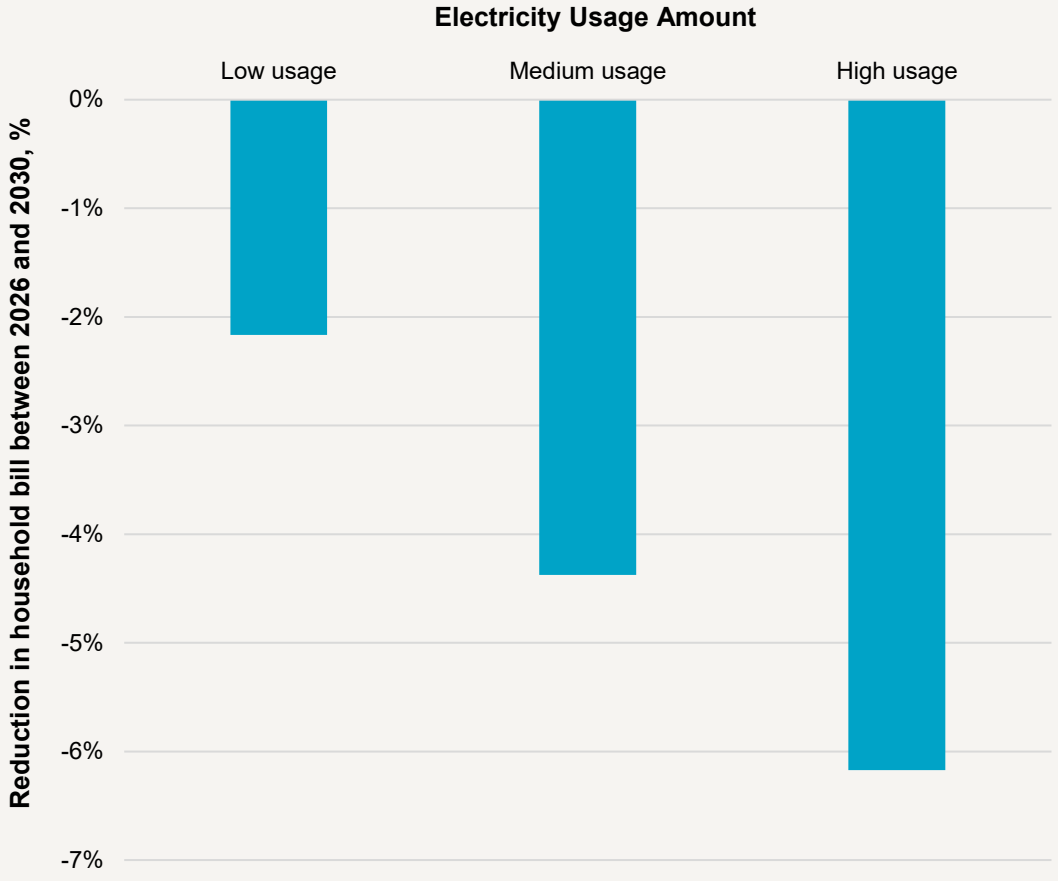
The savings will be greater for households with greater electricity consumption (e.g. due to greater electrification) as the average cost per kWh decreases. This is driven by reductions in elements of the bill that are charged per kWh such as wholesale costs, and balancing costs, while standing charges are expected to rise.

Electrified homes, such as those with heat pumps and electric vehicles, are therefore likely to benefit the most.

Reducing the bill further is possible if costs are moved to taxation

Household bills could be reduced by another £65 in 2030 if the rest of ROCs and FITs costs are removed from the bill to general taxation and VAT is removed from the bill. This would reduce the average electricity bill by a total of £104 compared to 2026 levels.

Reduction in annual household electricity bill for households with different amounts of consumption between 2026 and 2030



What does a gas price shock look like under Clean Power?

Clean power provides greater bill certainty and strong protection from gas price shocks for consumers

Clean Power will help deliver more stable household energy bills

The amount of CfD supported renewable generation will greatly increase from 55TWh (18%) in 2026 to 130TWh (40%) in 2030 under the LCP Accelerated Build scenario.

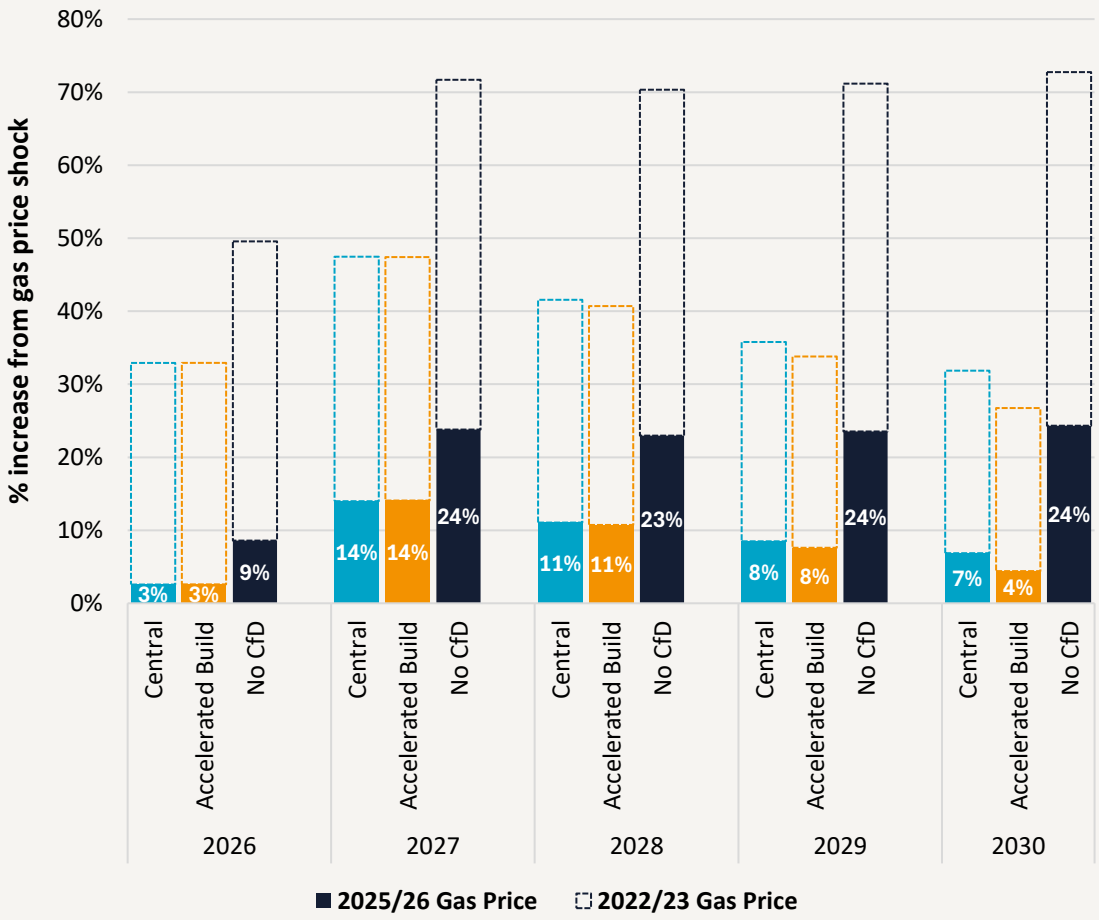
The cost of this generation will be covered through the Contracts for Difference (CfD) support scheme, with generators receiving a fixed strike price per MWh of generation. Because strike prices are fixed, the CfD payments component of the bill will move inversely to wholesale electricity prices and help provide greater certainty over the overall electricity bill and reduce consumers' exposure to wholesale market price volatility.

Clean Power provides significant protection against gas price shocks

Importantly a clean power system significantly protects consumers from gas price shocks. In 2030, a gas price shock in line with what we have experienced due to the closing of the Strait of Hormuz leads to household bills increasing by just 4%. This compares to an equivalent increase of 24% under a scenario with no CfD backed renewables on the system.

If there is a gas price shock is in line with 2022 levels, then the difference is even greater with 2030 bills increasing by 22% under the LCP Accelerated Build scenario compared to 72% in a scenario with no CfD renewables.

Increase in the typical household electricity bill due to a gas price shock under LCP Central, accelerated build and no CfD scenarios



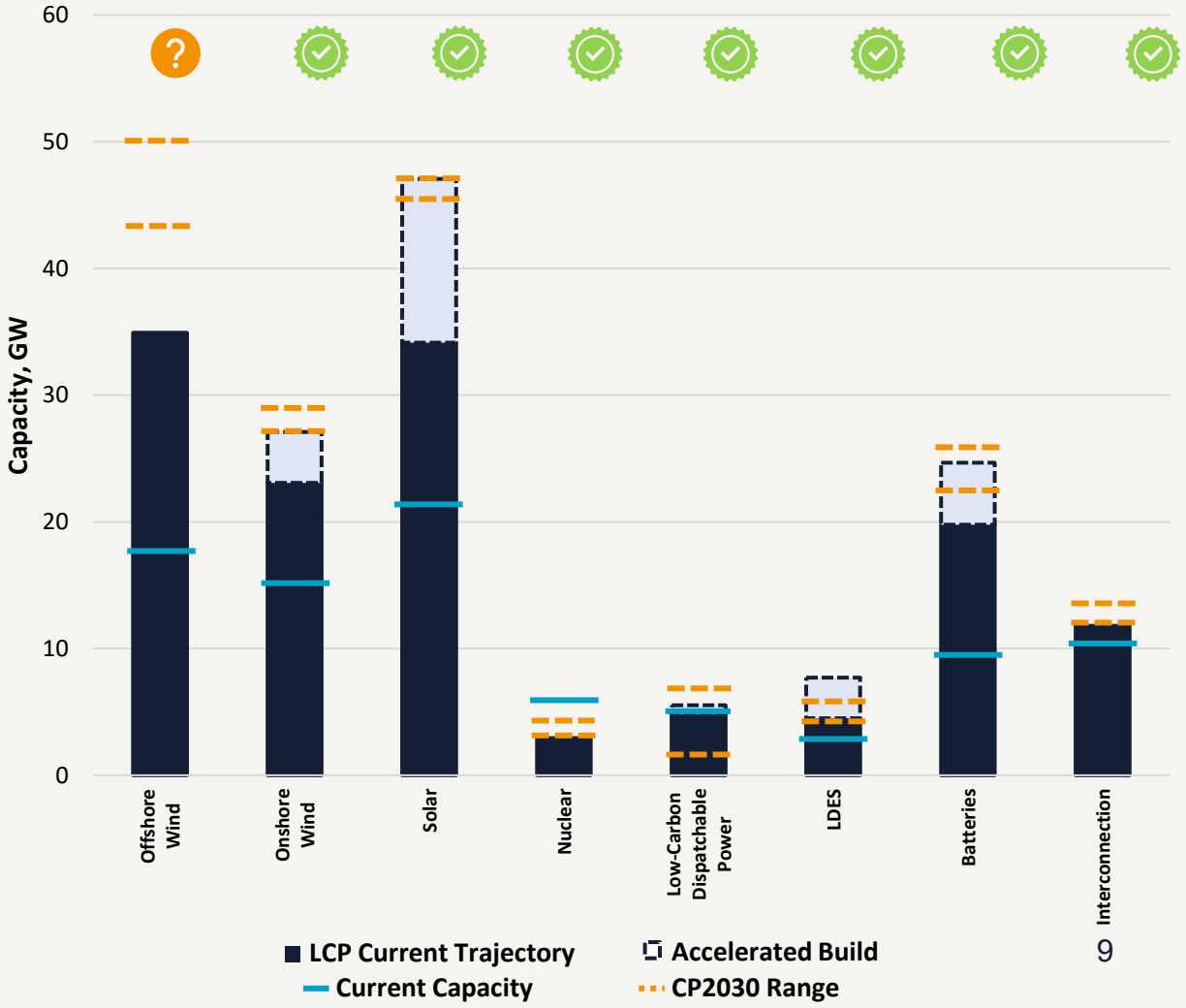
Note that the 2026 change is limited by the already elevated gas price we are currently seeing

How to get closer to CP2030?

Our analysis has identified 8 priority areas that could be done to get closer to the CP2030 target cost effectively

1. **Increase delivery through the CfD –** Increase procurement of solar and onshore wind in the next two CfD auctions to allow these to reach their CP2030 target capacity and increase offshore wind in 2031/32.
2. **Timely grid connections –** Decisions on grid connections reform need to be made more quickly with key techs (e.g.: those that have a CfD or LDES C&F) prioritised within the queue
3. **Maximise LDES deployment in the Cap and Floor scheme –** Given the number of projects that entered, Ofgem should increase the capacity given contracts for Window 1 and/or open a second window as soon as possible.
4. **Encourage consumer flex –** Encouraging uptake of flexibility products to shift demand from periods of lower renewables/higher demand to higher renewables/lower demand, reducing gas usage and costs of consumers.
5. **Enable rooftop solar delivery –** Consider targeted measures to accelerate small-scale solar deployment, such as introducing/maintaining targeted support mechanisms. But this needs to be aligned with system needs.
6. **Ensure network upgrades delivered within scheduled timelines –** It is essential to ensure timely development of the network in line with regional increases in renewable capacity to reduce gas turn-ups to deal with constraints.
7. **Implement measures to reduce constraints –** Improved management of constraints is needed to reduce use of gas including making more efficient use of our current network and reforms to the balancing mechanism.
8. **Ensure a stable investment environment –** Decisions on key policy areas, such as network charging, balancing reform and CfD reform, need to be made much faster and a clearer direction provided.

Possible acceleration in build compared to current levels and trajectory



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Will we reach Clean Power 2030?

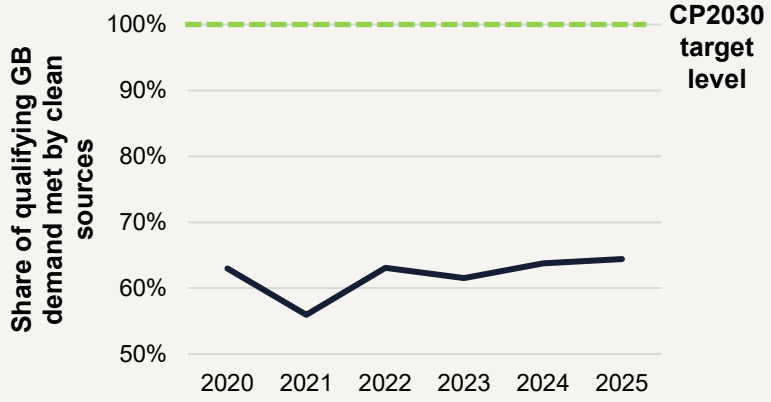
What is Clean Power 2030?

The UK Government's Clean Power 2030 Action Plan set three primary metrics to measure the progress of decarbonising Great Britain's electricity system

Metric 1a: Clean power sources produce at least as much power as GB consumes in total

This metric states that in a typical year, by 2030 GB's total generation from clean power (excluding EfW and CHP) will equal annual consumption. This requires GB to be a net exporter of renewable energy to interconnected countries.

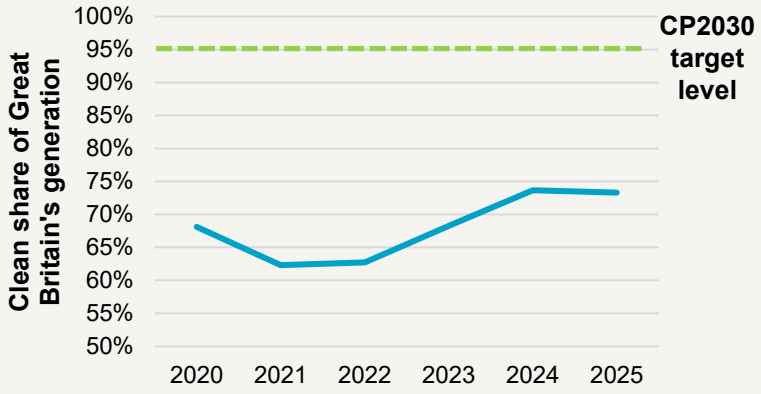
In 2025, 64% of GB demand was produced by clean sources.



Metric 1b: Clean power sources produce at least 95% of Great Britain's generation

This metric is the most challenging and requires clean sources to produce 95% of GB's generation (excluding EfW and CHP) . This will require both an increase in renewable generation and less frequent use of gas generation.

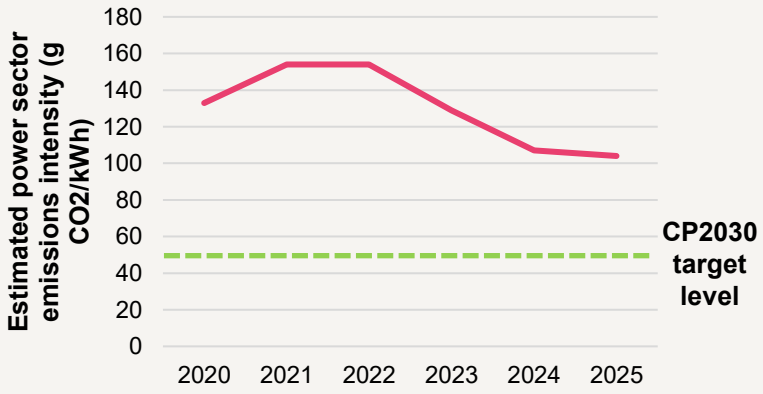
In 2025, 73% of GB's total generation was from clean sources.



Metric 2: Carbon emissions intensity of electricity generation is well below 50gCO2e/kWh

This metric requires GB to reduce emissions by moving away from gas as a baseload generator to being used to meet peak demand and provide security of supply.

In 2025, emission intensity was 104gCO2e/kWh. Note this excludes EfW which is included in greenhouse gas accounting of emissions.



Which is the primary metric?

We have used metric 1b from the Clean Power 2030 Action plan as the primary metric to assess whether the target is reached. This is because this target is more challenging to reach than metric 2 and does not rely on GB becoming a net exporter of electricity like metric 1a, which will be dependent on other countries.

Reaching Clean Power 2030

Most technologies require significant increases in capacity from today's levels to reach the CP2030 target ranges

The government's Clean Power 2030 target is an ambitious and world leading plan to decarbonise the GB power sector.

In its 2024 Clean Power Action plan, the government set out capacity 'target ranges' for key technologies. To reach these requires significant buildout across several key technologies. While some technologies, such as Nuclear and interconnectors are already close to the 'target range', others still need significant levels of deployment from 2025 levels. In particular:

Wind

Offshore wind needs to triple (additional 26-33GW) and onshore wind double (additional12-14GW) from 2025 levels.

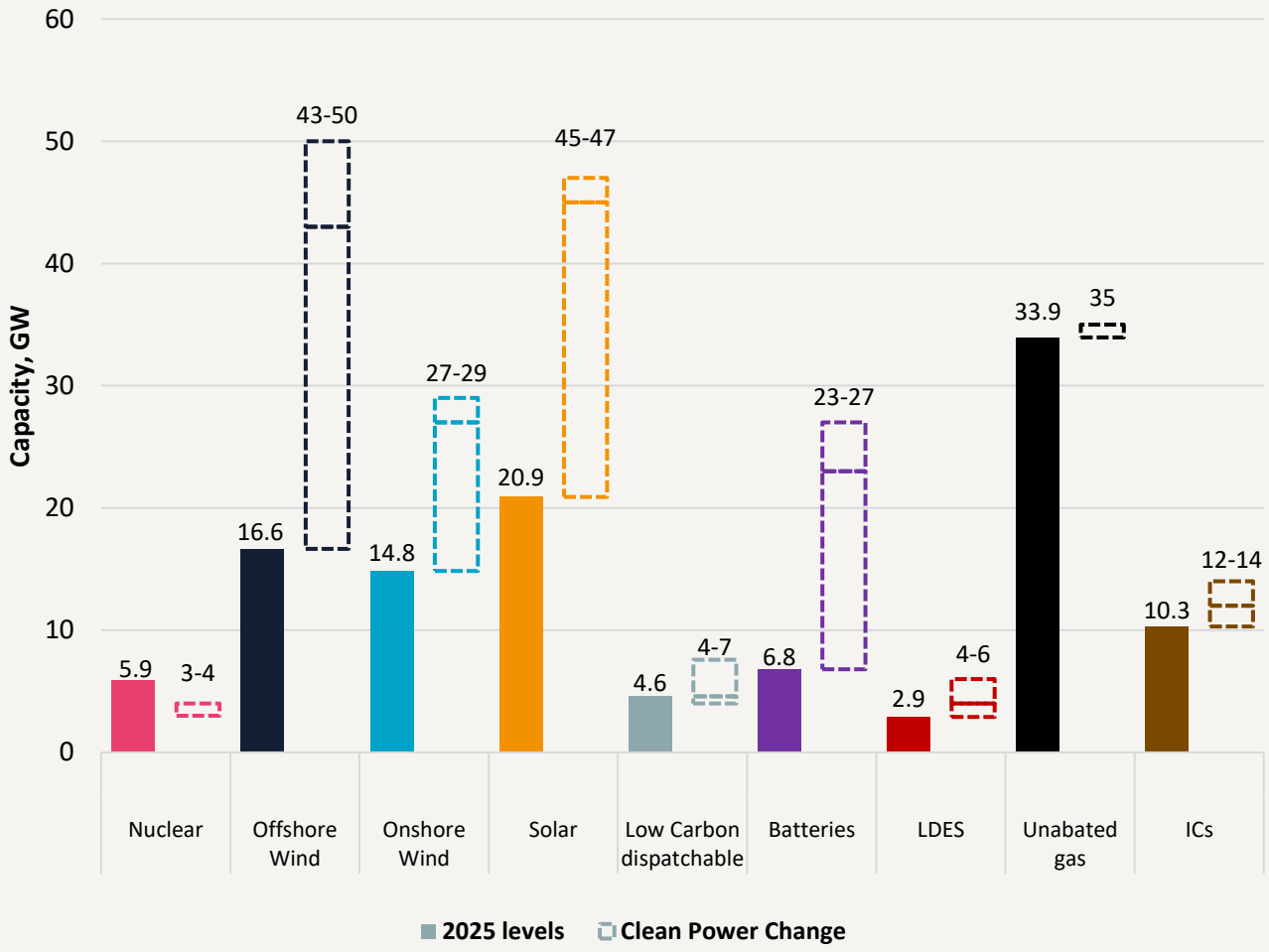
Solar

Solar needs to double with an additional 24-26GW required from 2025 levels.

Storage

Short duration storage needs a 16-20GW (4x) and long duration storage (LDES) a 1-4GW increase from 2025 levels

Clean Power Action target capacity ranges compared to 2025 capacity levels



Build rate is currently not fast enough

The rate of build across 2025 was far below the build that is required to reach Clean Power in 2030

While progress has been made in some areas, except for interconnectors, no technology was built in 2025 at the rate required to reach the CP2030 'target ranges':

Offshore wind increased by 1GW in 2023 to a total capacity of 16.6GW. This is significantly below the average of 5.3GW per year rate needed to reach 43GW by 2030 and is the lowest yearly build since 2021.

Onshore wind increased by 0.2GW to a total of 14.8GW, way below the 2.4-2.8GW yearly build needed for CP2030. This continues the stuttering growth for onshore wind which has grown by just 1.7GW since 2021.

Solar increased by 2.9GW to 15.8GW in 2023. This is the highest yearly growth in solar since 2015 but is still below the 4.8-5.2GW yearly build needed to reach CP2030 levels.

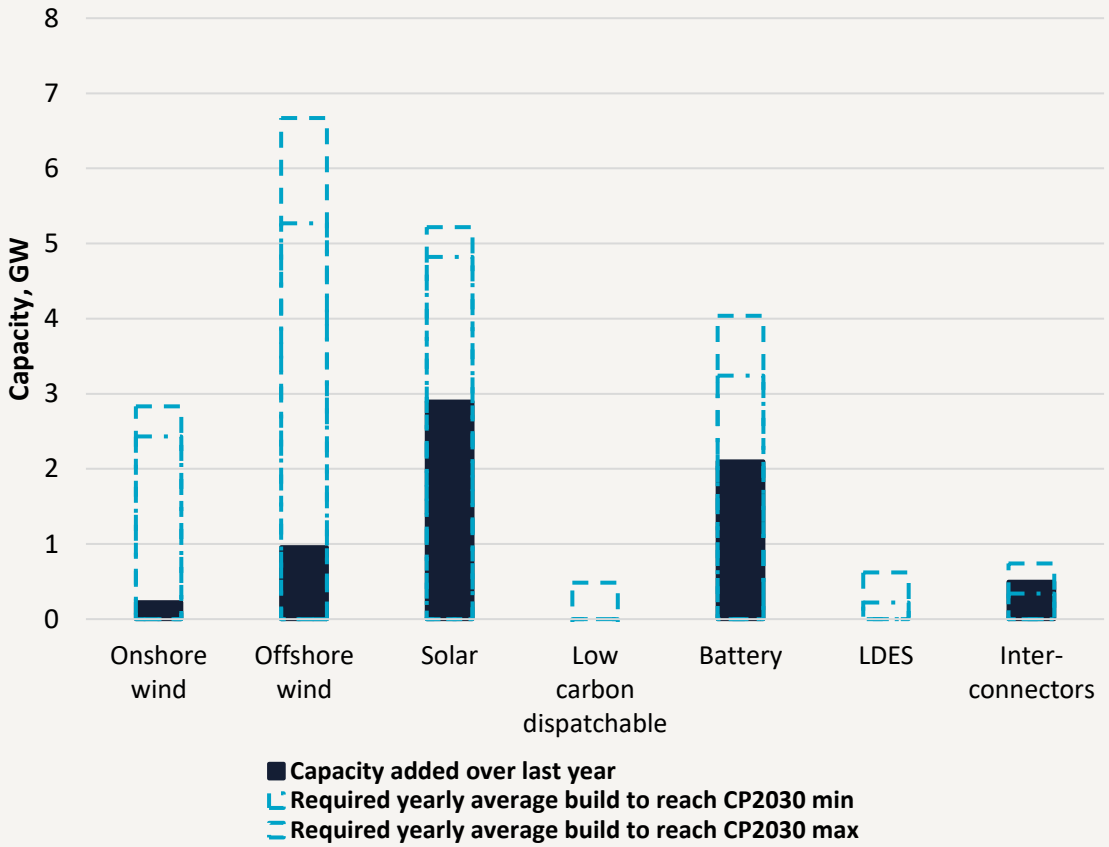
Low Carbon Dispatchable & LDES saw no additions in 2025. Neither of these technologies are expected to grow until later in the decade

Battery storage increased by 2.1GW in 2025 to reach a total of 6.8GW. This is the highest yearly growth in batteries to date but is still below the 3.2-4GW yearly growth needed to reach CP2030 levels.

Interconnector capacity increased by 0.5GW with the opening of the Greenlink interconnector to Ireland to reach a total of 10.3GW. This keeps interconnectors on track to meet the CP2030 'target range'.

Across all major technologies, build needs to rapidly accelerate if the CP2030 targets are to be met

GB capacity change in 2025 vs required yearly average build to reach CP2030



For renewables, 2025 data is Q3 2024 to Q3 2025 as this is the latest government data available

Current Trajectory

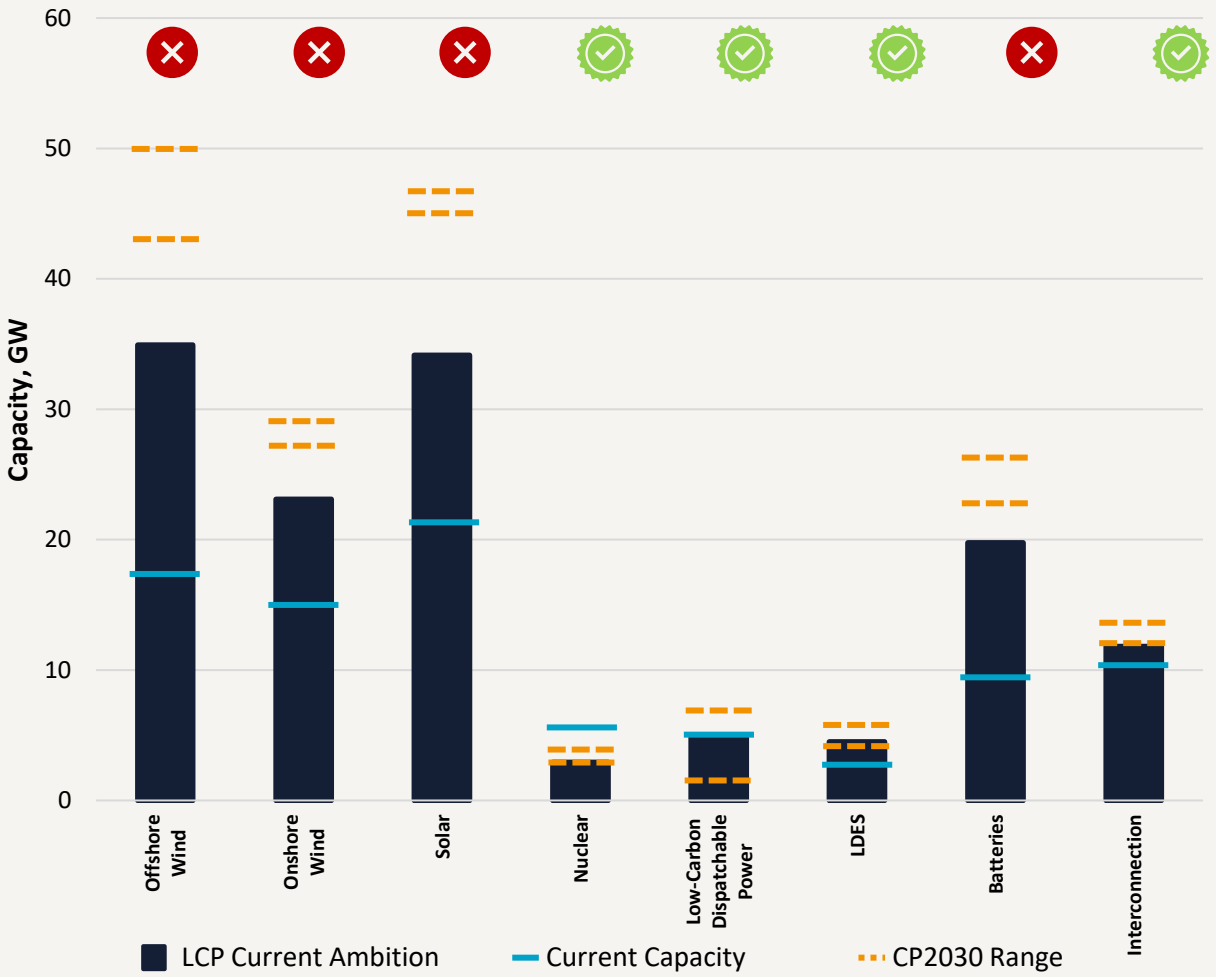
Our assessment of the current trajectory shows only 4 out of 8 key technologies reach the CP2030 target levels

What is our LCP Central Scenario?
The LCP Central Scenario represents LCP Delta's independent view of the current trajectory of the GB power sector. In the development of this scenario, we undertake a detailed assessment of the pipeline of each technology to project the future capacity.

Our assessment using the LCP Central scenario highlights that 4 out of the 8 key technologies are currently on track to reach their CP2030 target range. These are:

- **Nuclear** – With the first reactor at Hinkley Point C due to come online in 2030 and the lifetime extension of some of the older Nuclear plants, Nuclear is on track for an average of 3.5GW* in 2030 within the CP2030 range
- **Low Carbon Dispatchable** – Overall capacity does not change from current levels due to the Drax and Lynemouth biomass plants now having CfD contracts to 2031.
- **Interconnection** – With Neuconnect (1.4GW connection to Germany) due to come online before 2030, this takes total interconnection to 11.8GW in line with the lower end of the interconnector range.
- **LDES** – Ofgem have published their minded-to position on which projects they are 'minded-to' award LDES Cap and Floor contracts to. Of the 7.6GW successful projects, 4GW are due to come online in or before 2030 pushing overall capacity to 6.8GW by the end of 2030. This means that LDES is likely to be comfortaby within the CP2030 target range even if not all that capacity is online by 2030.

Current build trajectory vs CP2030 range



*Torness and Heysham 2 are due to stay open until March 2030 so only a quarter of their capacities are included

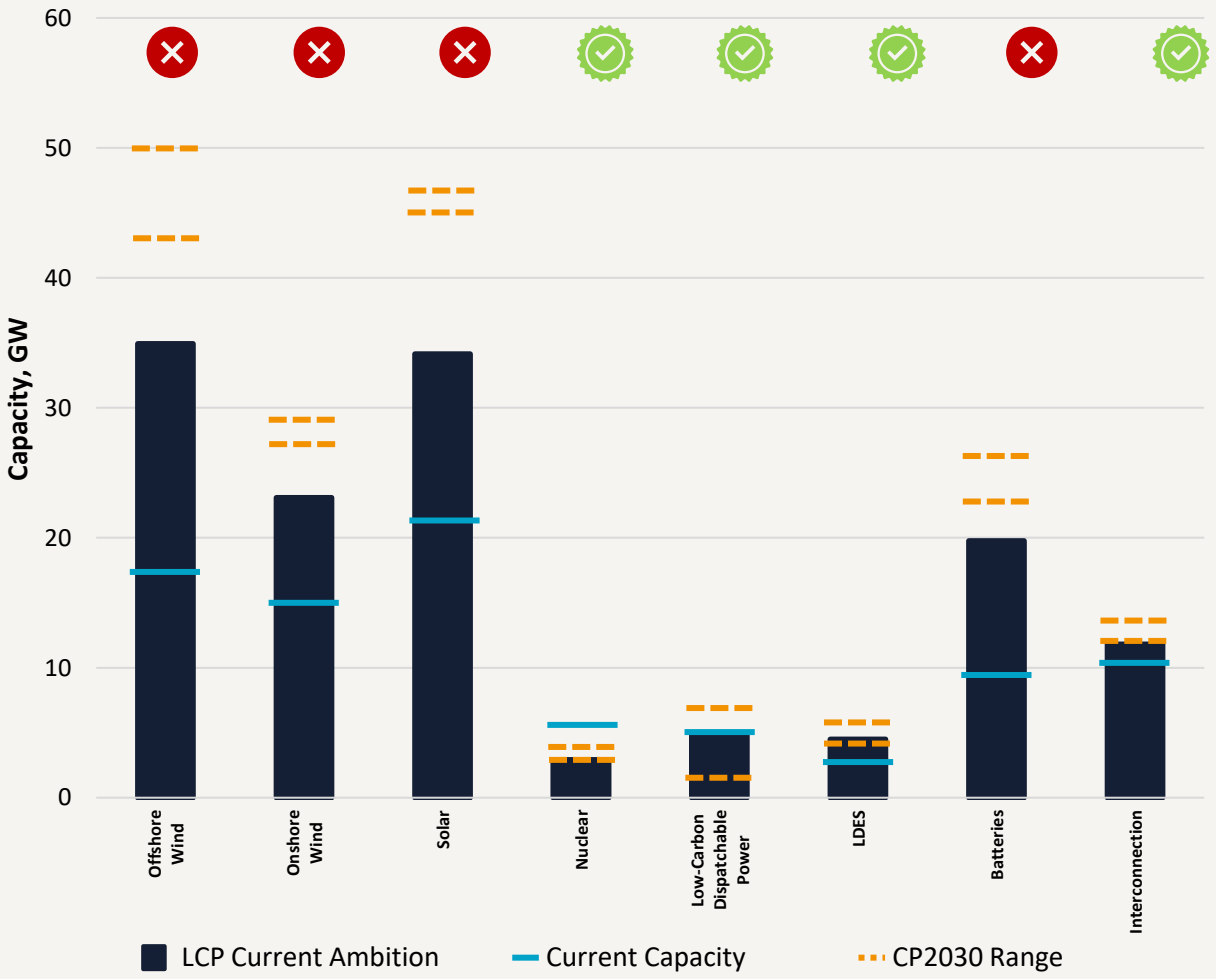
Current Trajectory

Our assessment of the current trajectory shows only 4 out of 8 key technologies reach the CP2030 target levels

Our assessment highlights that the other 4 key technologies are currently not on track to reach their CP2030 target range and face significant delivery challenges.

- **Offshore Wind:** The recent AR7 auction awarded 8.4GW of offshore wind projects a contract, a record for CfD auctions. However, a proportion of this capacity is expected to be delivered post 2030. While AR8 could allow for some more projects to come online by 2030, reaching the 43-50GW is unlikely with our assessment expecting around 35GW in 2030.
- **Onshore Wind:** Onshore wind growth has stuttered in recent years with capacity growing by just 1.7GW since 2021. While some issues (such as the de facto ban in England) have been overcome, AR7 still only awarded 1.4GW of capacity to take the current pipeline (including existing) to 19GW. A similar rate in the next 2 CfD will increase onshore wind to around 23 GW, 4GW below the lower end of the target range.
- **Solar:** 2025 was a good year for solar with small-scale deployment increasing, the announcement on plug-in solar, and strong CfD procurement, which all provide grounds for optimism. However, the scale of build required (tripling installed capacity in under five years) means delivery risk remains significant. At the current rate of growth for small scale solar and large-scale delivery through the CfD, the current trajectory for solar falls of the 45-47GW target range.
- **Battery Storage:** There are more than enough batteries in the pipeline to meet the CP2030 target range, but there are significant risks to deployment and investment. Grid connection delays are a major risk for batteries while lower renewable growth and uncertain policy create risks for investors which means that deployment and investment is currently on track to fall short of the 2030 target range by 3GW.

Current build trajectory vs CP2030 range



Current Trajectory

% of total GB generation from low-carbon sources – LCP Delta Central Scenario

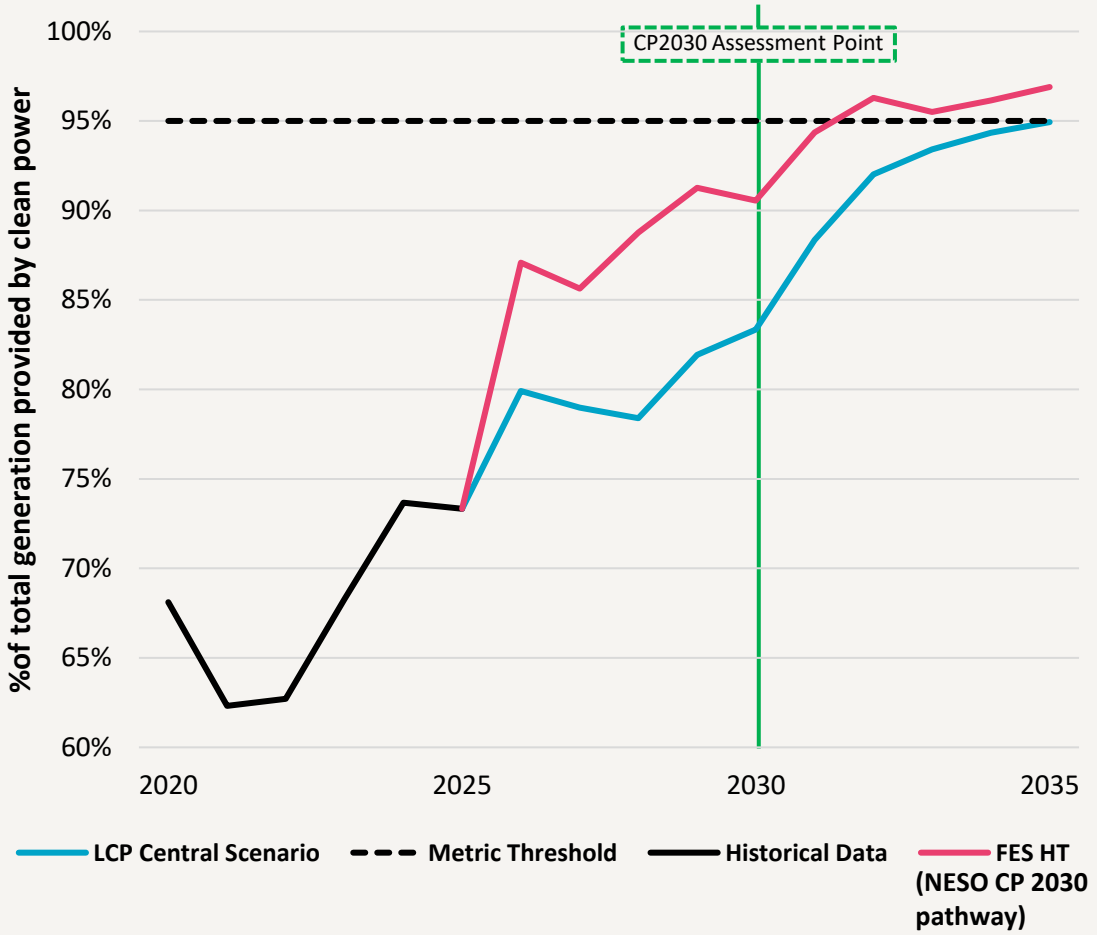
Under our current trajectory scenario, progress is made towards the Clean Power 2030 target, but it is not fully achieved. The current trajectory (LCP Central) scenarios shows:

- By 2030, 83% of generation is produced by clean sources; increasing from 73% in 2025 and 62% in 2021.
- While this appears to be a small increase from current levels, this is still significant progress given demand is expected to increase by 12% and some of the existing low carbon fleet is planned to retire before 2030.
- On the emissions intensity metric, emissions intensity reaches 61gCO2/kWh so is also above the CP2030 target of 50gCO2/kWh.
- On the current trajectory, the Clean Power target is on track to be met in 2035 as renewable and other low carbon build starts to increase and the network build accelerates (meaning less gas is needed to deal with constraints).
- To provide a benchmark for a Clean Power system, we have included our modelling of NESO's Clean Power 2030 consistent scenario (FES25 Holistic Transition). This shows 90% of generation from clean power sources and does not reach the target primarily due to gas turn-ups to deal with constraints.

Why does the Clean Power share dip in 2027 and 2028?

Four factors converge: older nuclear stations close, reducing dispatchable zero-carbon output; the Drax and Lynemouth biomass CfDs impose a generation collar reducing their output compared to current levels; total electricity demand and peak demand increase; and increases in network constraints lead to higher gas turn-ups. The share recovers from 2029 as more renewable capacity continues to come online.

% of GB generation from clean power sources



Acceleration is still possible

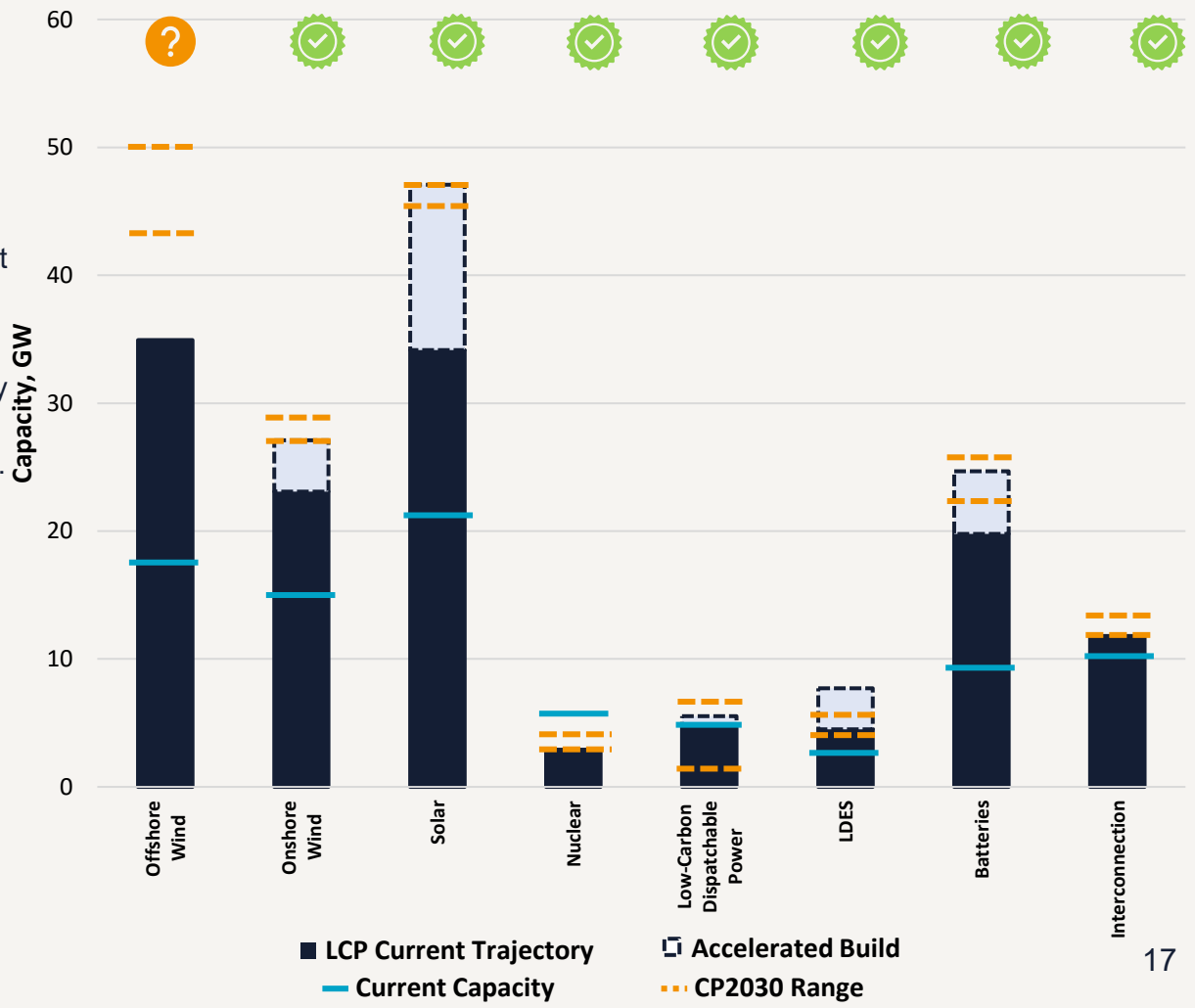
Some technologies could still accelerate compared to the current trajectory and reach their CP2030 'target range'

For several technologies, the pipeline of projects is sufficient to reach the CP2030 target ranges, but there are barriers preventing deployment. Changes to the policy environment could accelerate deployment so that the CP2030 target ranges are technically achievable for 7 of the 8 key technologies:

- **Planning reform:** The UK's planning system has long been a significant bottleneck for energy infrastructure. Recent reforms, including the removal of pre-application consultation requirements for NSIPs, limiting legal challenges to a single attempt, and the introduction of the Nature Restoration Fund could cut up to 12 months from consenting timelines. This could unlock new projects that can meet the CP2030 target particularly for onshore wind and solar.
- **Grid connection reform:** The connections queue has become a critical bottleneck, with over 739GW of generation capacity awaiting connection as of early 2025. The shift to a 'first ready and needed, first connected' approach aims to prioritise shovel-ready projects, but significant delays to the reform process remain. Improving this could unlock more capacity, particularly for storage.
- **CfD auctions:** The upcoming auctions are most consequential for onshore wind and solar, where procuring larger levels than AR7 could make the CP2030 target ranges more achievable. Offshore wind build-out timelines means that capacity procured in AR8 or AR9 is unlikely to be operational before 2030 but procuring capacity for 2031 and 2032 is vital and stable auctions are needed for investors.
- **LDES cap and floor:** With the final decision due later this year, higher levels of capacity are possible depending on whether Ofgem adjusts the overall target capacity.

LCP Delta have undertaken a detailed assessment of the pipeline of projects in each technology and what is needed to ensure that these projects are investable and can come online by 2030. This finds that onshore wind, solar, LDES and batteries can accelerate.

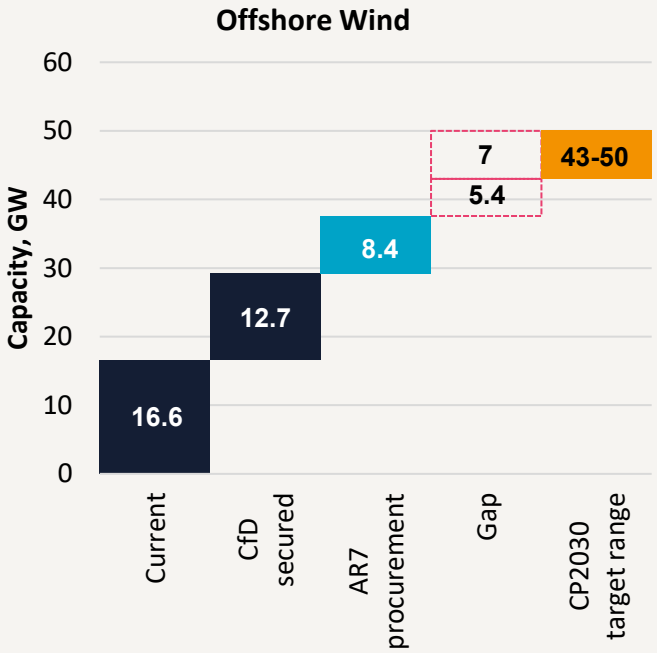
Possible acceleration in build compared to current levels and trajectory

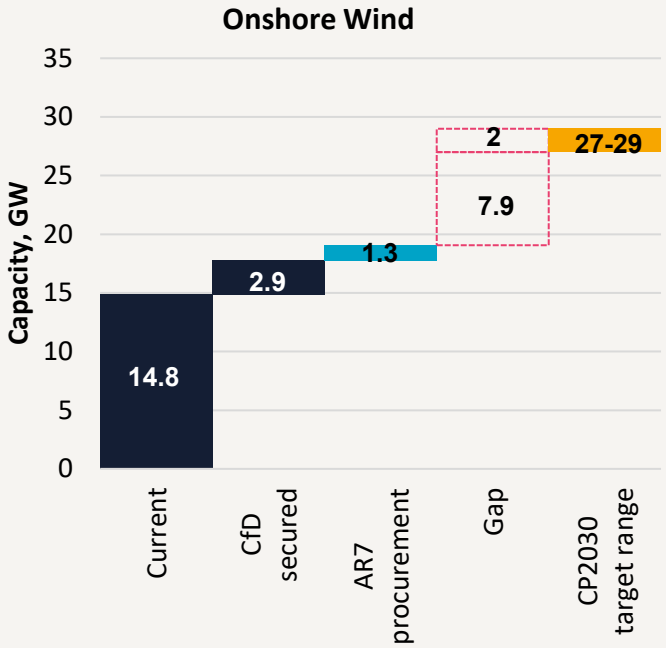


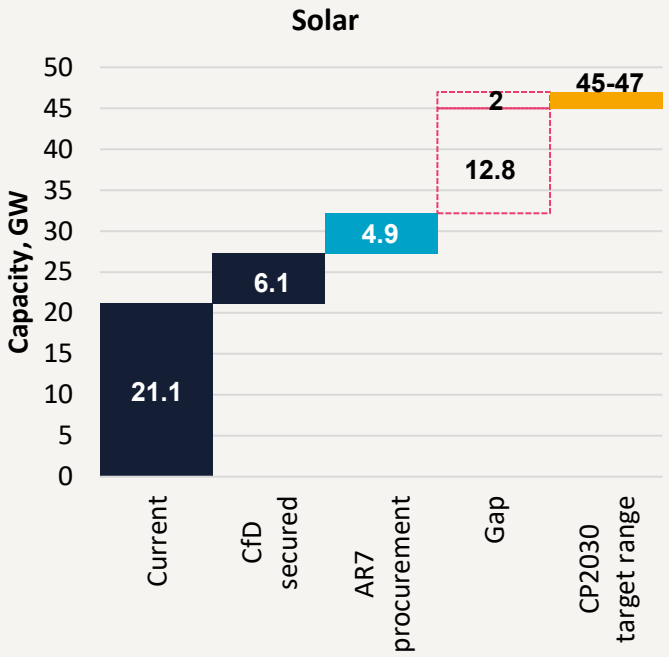
Acceleration of renewables

Reaching the offshore wind target is unlikely but CP2030 targets for onshore wind and solar are technically possible

Current and CfD secured capacity for renewables compared to CP2030 target range







Partial acceleration possible and very challenging

The AR7 auction procured a record breaking 8.4GW of offshore wind by 2030. However, only the first phase of development will be completed by 2030, meaning the full capacity won't be online before 2030.

AR8 may lead to some additional capacity delivered by 2030. But even including this, acceleration of offshore wind is limited. Any remaining shortfall can be met by AR8 soon after and make the CP2030 target achievable in the early 2030s.

Acceleration possible but very challenging

Current and planned onshore wind totals 19GW. AR8 and AR9 could deliver some additional capacity by 2030, but the CfD build needs to triple in the next 2 auctions compared to the 1.3GW procured in AR7.

Projects outside of the CfD could be delivered given recent government announcements on small turbines. This means the lower end of the target is technically achievable but very challenging.

Acceleration possible and achievable

Current and planned solar totals 32GW. AR8 and AR9 can deliver more large scale solar. Falling technology costs, plug-in solar and the growing use of Corporate PPAs can enable more small- and large-scale projects to be built outside the CfD.

This means solar build could accelerate and meet the target range. But any slowdown in planning approvals or grid connections could jeopardise this.

Acceleration of flexible capacity

Most flexible technologies could also increase beyond the current trajectory to reach CP2030 target ranges

Low Carbon Dispatchable

The CfD agreements provided to the Drax and Lynemouth biomass plants mean that the low carbon dispatchable target range is already on track to be reached. However, it is important to note that these agreements mean that the generation from these plants will decrease from current levels.

Building Gas CCS and/or hydrogen plants by 2030 is challenging but it is possible that the Net Zero Teesside Gas CCS plant will be completed by 2030. This could increase the low carbon dispatchable capacity on the system by 0.7GW.

Battery Storage

There is more than enough battery storage projects in the pipeline to be able to reach the CP2030 target range of 23-27GW. To date battery build has been held back by connection agreements but with the ongoing connections reform the battery build rate could increase.

Battery build may also depend on whether the system can sustain the Clean Power 2030 levels of capacity and give the returns that investors require. Faster build of renewables combined with some government incentives to for storage will make the CP2030 range more achievable.

LDES

Based on the LDES projects that entered the Cap and Floor process, there was over 20GW of LDES capacity (assuming 8-hour lithium-ion is counted as LDES) in track 1 which assumes delivery by 2030. Ofgem's minded to position is to award 4GW of these contracts, but this is open to consultation.

Ofgem could decide to increase the amount of capacity awarded contracts on their final decision increasing the 2030 capacity. They have also announced a second window of the scheme will open in 2027. Given these two factors, then it is possible that the 2030 LDES capacity could go above the Clean Power 2030 target range. However, this is very dependent on these projects getting enough certainty this year to be able to deliver by 2030, including getting connected to the grid in time.

Consumer led flexibility

Residential Consumer led flexibility is expected to fall short of CP2030 ambitions, but has potential to grow faster

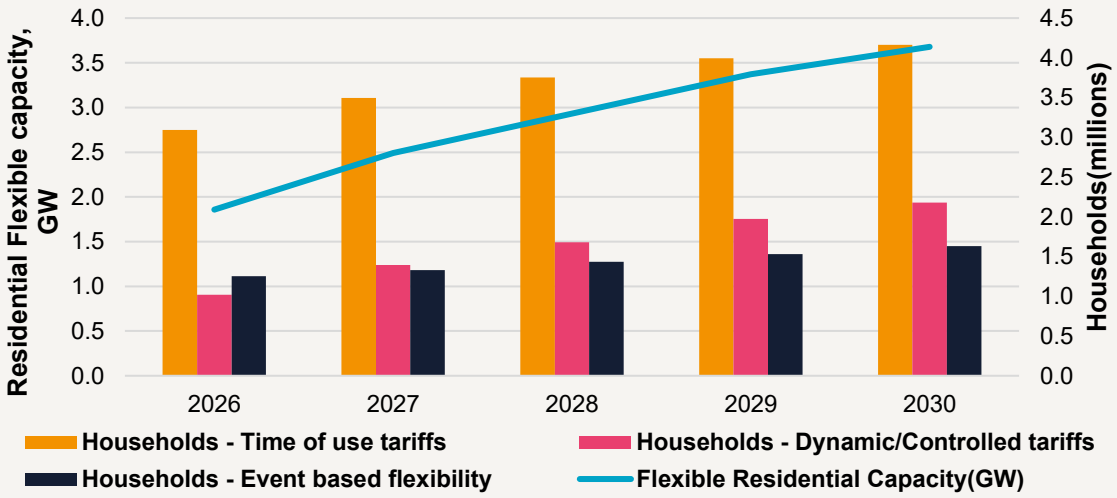
The CP2030 outlines consumer-led flexibility as a key enabler as it can allow consumers to flex their demand to flatten peaks and reduce use of gas. The CP2030 Action plan sets a target of 10-12GW, compared to 2.5GW in 2024 with most of that flexibility (7-9GW) to come from residential households.

There are multiple ways that residential energy consumers can participate in electricity flexibility including through time of use of tariffs, dynamic tariffs, 'controlled tariffs'[1] and event based flexibility[2]. This is also linked to consumers uptake of large capacity assets (EVs, heat pumps, domestic batteries), which enable consumer greater volumes of flexibility. Based on a detailed assessment of domestic asset installations and how flexibility product uptake will evolve, our analysis shows that:

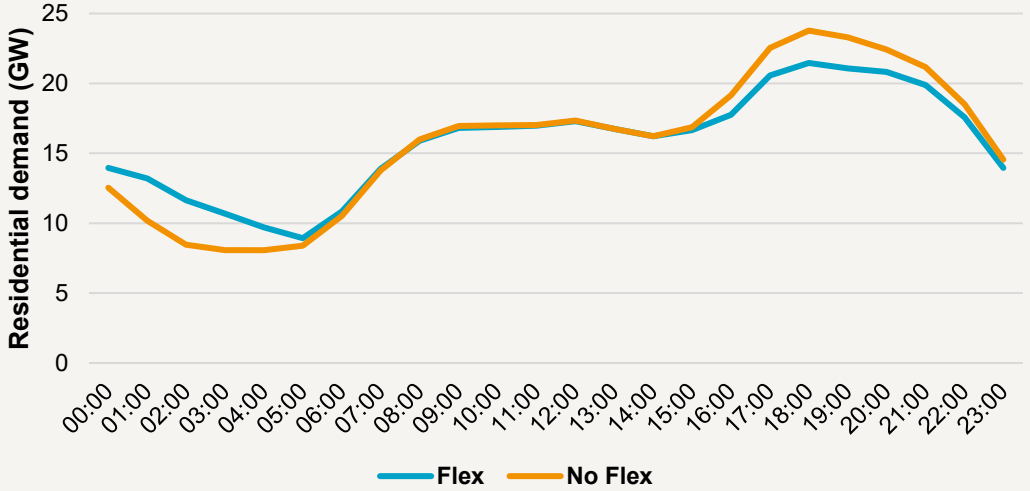
- Peak residential consumer led flexibility capacity will increase from 1.9GW in 2026 to 3.7 GW in 2030. This falls short of the 7-9GW of residential flexibility ambition defined in the action plan.
- However, significant progress is still likely to be made with 2.6 million new households taking up new flexibility tariffs/products between 2026 and 2030; an increase of 50%.
- This flexibility could lead to demand during peak periods to be significantly reduced with our modelling of demand flexibility showing a maximum reduction in demand of 5GW by 2030 and an average reduction in daily peak demand of 2GW per day with demand shifted to the middle of the night.

There is potential to go further and faster with additional interventions by government and others to increase uptake, however this needs to be considered carefully. This is because any increase in EV and Heat pump uptake will increase overall demand on the system making the CP2030 target harder to meet even if that demand is highly flexible. Given this uncertainty, we have not included any additional consumer led flexibility in the accelerated scenario.

Residential flexibility proposition uptake and capacity growth to 2030



Change in average demand profile in 2030 due to residential flexibility



[1] Controlled tariffs are autonomously controlled assets for retailers to optimise their energy procurement.
[2] Event based flexibility products are short duration periods, like the demand flexibility service or saver sessions

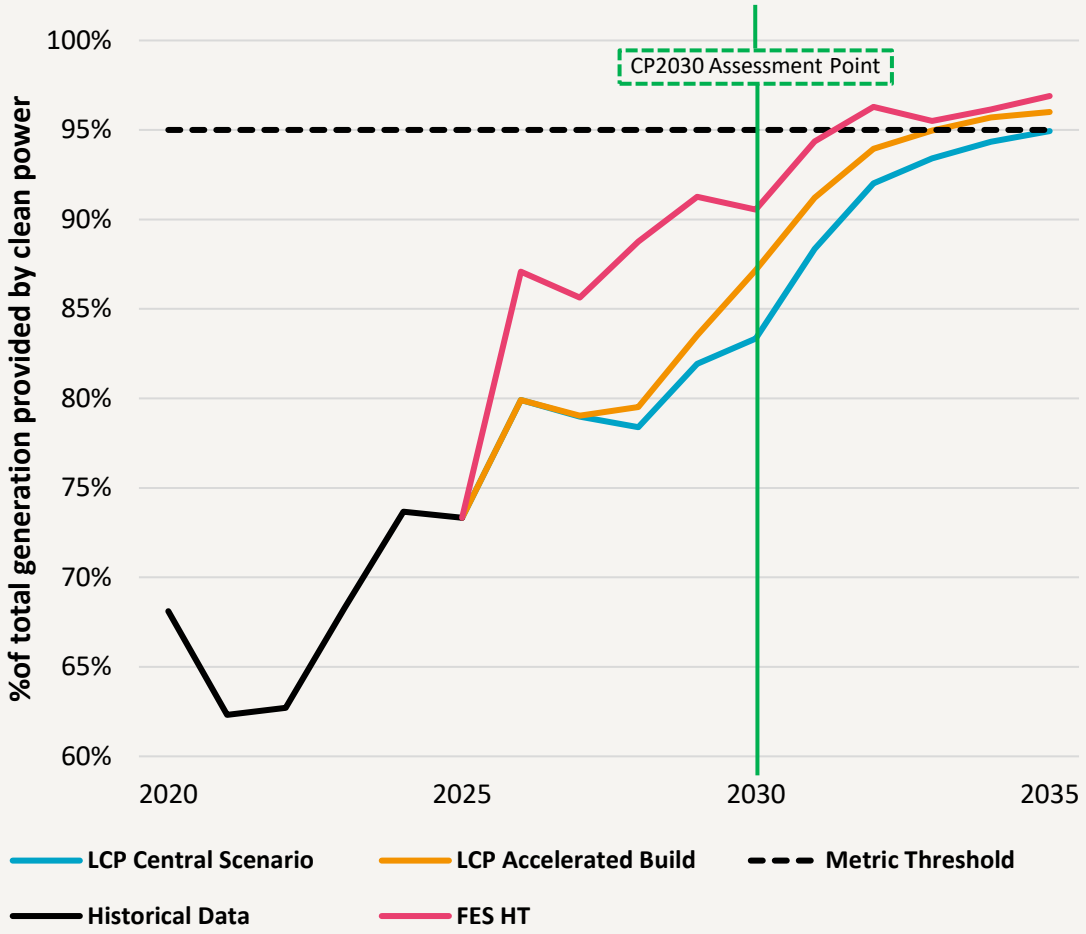
Accelerated build scenario

Even if some technologies do accelerate, this is unlikely to be enough to reach CP2030 on its own

Under the LCP Accelerated Build scenario, progress is improved towards the Clean Power 2030 target, but it is not fully achieved. This scenario shows:

- In 2030, 86% of generation is produced from clean sources. This is a 3pp improvement on the current trajectory scenario but still does not reach the 95% target.
- This is primarily due to the offshore wind capacity still being significantly below the CP2030 target range and relatively large amounts of gas generation being needed to deal with constraints on the network.
- Compared to the NESO HT scenario which includes 47GW of offshore wind in 2030, the accelerated build scenario is 4pp lower.
- The 95% target is now hit in 2033, although this could be achieved earlier with increased renewable deployment in the early 2030s.
- The emissions intensity target of below 50gCO2/kWh is now met in this scenario, however, with the emissions intensity (excluding EfW and CHP) dropping to 47gCO2/kWh. However, this is probably not 'well below' 50g as per the metric wording.

% of GB generation from clean power sources



Network constraints

Constraints on the network are a barrier to reaching the CP2030 target

Network constraints on the system often mean that generation in certain parts of the country cannot be transported to demand centres. For example, some renewable generation produced in Scotland cannot be transported to demand centres in England and Wales due to network constraints between Scotland and England.

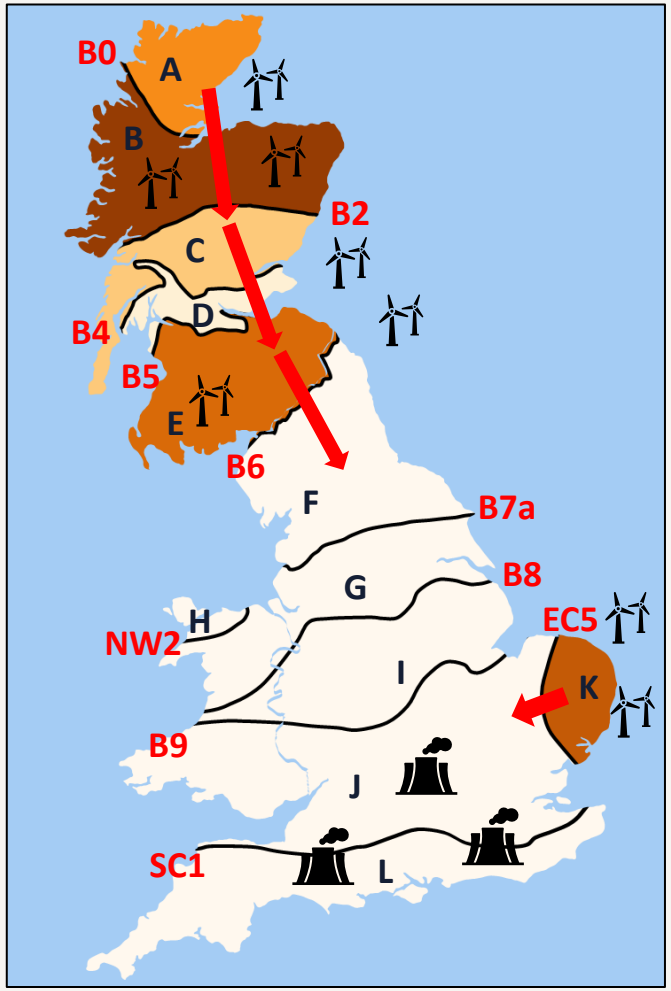
On these occasions, NESO uses the Balancing Mechanism (BM) to ask generators behind the constraint to 'bid' to reduce their output (turn-down) and generators closer to demand centres to 'offer' to increase their output. This ensures that supply equals demand across the country. The cost of redispatching assets is then passed onto consumers through constraint costs (via BSUoS* charges).

Constraints on the system have increased as renewable generation, particularly wind, has grown faster than network capacity. This has led to significant amounts of wind being turned down in constrained areas and gas being turned up in non-constrained areas, increasing overall emissions on the system. If this continues, then this makes the CP2030 target much harder to meet

To capture this, we model the GB energy system as 12 distinct zones, determined by the key transmission network boundaries as shown in the map opposite, we have shown representative constraint volumes which we outline further in the following page of the report. We see that zones B and K experience the highest level of constraints, with the B2 and EC5 boundaries being located between wind generators in Scotland or East Anglia and demand centres in England and Wales.

Constraints impact our Clean Power 2030 ambitions because fossil fuel intensive generation is called upon to replace the lost renewable generation which is forced to turn down due to network constraints.

Representative map of 2030 constraints



* Balancing Services Use of System Charges

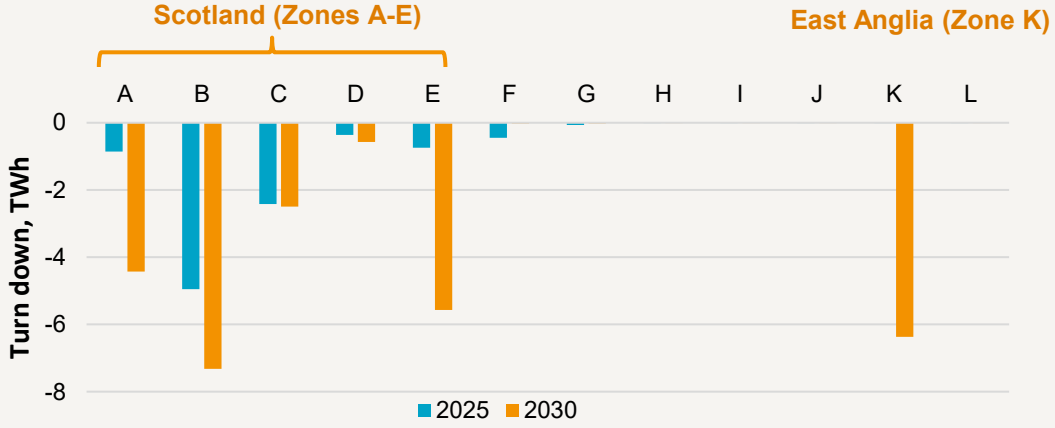
Using gas for constraints

Use of power from gas to deal with network constraints must reduce to get closer to CP2030

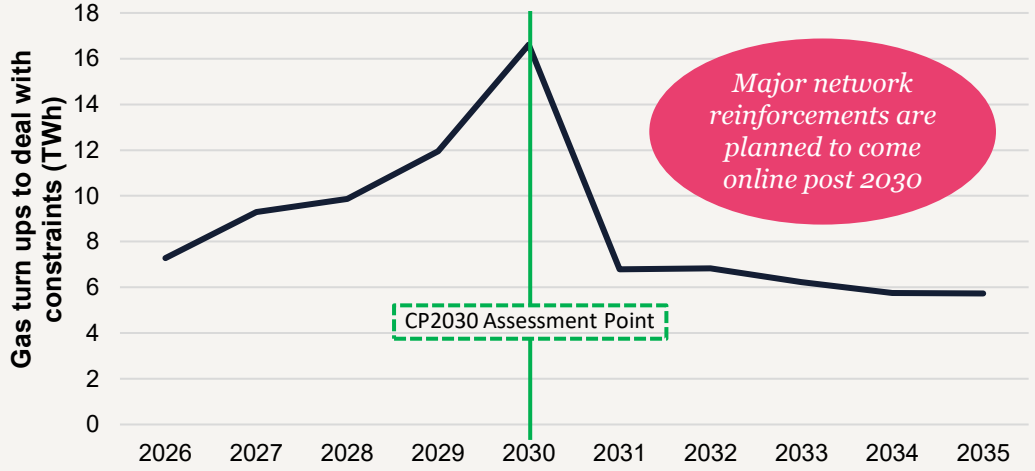
- Assuming network build is in line with published NESO plans and use of the network and the Balancing Mechanism operate in the same way as today, we see high levels of constraints on the system in 2030. This increases both emissions and costs for consumers.
- This can be seen through the volume of constrained generation (typically Scottish renewable generation) that is forced to turn down because of network constraints. Total volumes of renewable turn-downs increase from 10TWh in 2025 to 27TWh in 2030 under the LCP Central Scenario.
- To replace this turn-down generation, unabated gas generation in England is increased highlighting the reliance on gas to deal with system constraints. In 2030 16TWh of gas generation is turned up to manage system constraints, up from 7TWh in 2025. Overall, this increases the total gas generation on the GB system in 2030 to 47TWh - meaning that that gas generation due to constraints is 35% of the total gas generation.
- It is therefore important that we find a way of minimising how often gas is turned up to increase the chances of meeting CP2030. This can be done either through reducing the amount of volume that is turned down due to constraints (therefore requiring less turn-ups) or finding alternatives to gas for turn-ups. In our recent multi-client study From Bottlenecks to Balance, we examine various measures that could be introduced under RNP to reduce constraints and their associated costs
- Gas turn ups greatly decrease post 2030 as reinforcement works on the network are expected to be completed and operational.

To make the Clean Power target more achievable targeted actions to reduce volumes of constraint and replace gas turn-ups are needed.

Constraint volumes of renewable generation in 2025 and 2030



Annual gas generation turn ups to manage system constraints



Improving constraints management

Measures to improve constraints increases the low carbon percentage to 90% in 2030 and hits the target by 2032

The From Bottlenecks to Balance report looked at a combination of potential measures that could be implemented as part of RNP that aim to reduce constraint volumes or the use of gas for turn-ups. These are:

1. **Accelerated network capacity upgrades** – Bringing forward construction timelines for two key network projects in East Anglia from 2031 to 2030 and ensuring others delivery by 2030. This significantly reduces constraint volumes in this area meaning less turn-ups of gas are required.

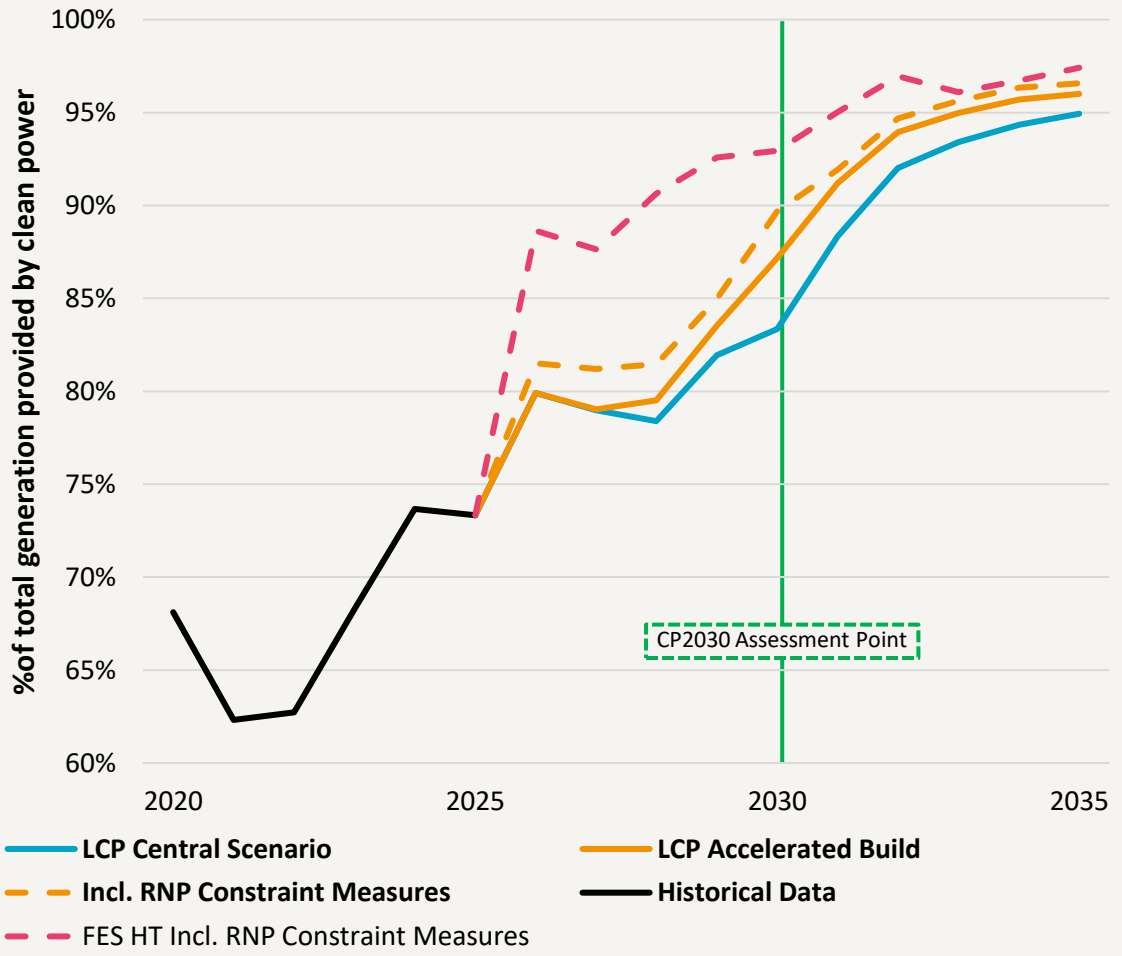
2. **Improvements to existing network carrying capacity** – Measures to make better use of the current network such as dynamic line rating, use of intertrips and improvements to network outage management. This will allow the network to operate at closer to 100% of its capacity and reduce constraint volumes.

3. **Improvements to system balancing and constraint management** – for example, many smaller, embedded assets do not currently participate in the Balancing Mechanism. This measure increases the pool of providers that can provide alternatives to gas for turning up such as smaller flexible assets.

Together these measures reduce the total gas generation for turn-ups from 16TWh to 9TWh. This increases the percentage of generation from clean power sources in 2030 to 90% under the Accelerated Build scenario. This is an increase of 4pp from the Accelerated Build scenario without constraint improvements and allows the 95% target to be met in 2032.

While the 95% is still not quite reached, this scenario does get close with 90% of generation from clean power sources up from 80% in 2025 and is close to the FES HT benchmark of 93%, which includes some network improvements. Additionally, emissions intensity drops to 37gCO2/kWh which is 'well' below the 50gCO2/kWh target. This shows that measures to improve constraints are key to reaching a Clean Power system.

% of GB generation from clean power sources



How to get closer to CP2030?

Our analysis has identified 8 priority areas that need improvement to get closer to the CP2030 target

Increased delivery through the CfD

Increased procurement of solar and onshore wind is needed in the next two CfD auctions to allow these to reach the CP2030 target capacity. However, this needs to be at the right price for consumers. Offshore wind still needs to be procured through the CfD, but this now for post 2030 delivery.

Timely grid connections

While the process to reform grid connections is the right approach, implementation to date has been too slow causing delays to investment, particularly for storage. Decisions on grid connections need to be made more quickly with key techs (e.g.: those that have a CfD or LDES C&F) prioritised within the queue.

Maximise LDES deployment in the C&F

With the high levels of capacity that entered the LDES Cap and Floor scheme and clear system benefits of LDES, Ofgem could increase the overall target capacity for Window 1 to maximise LDES deployment and open a new wind. However, it must be ensured that this does not impact the build of shorter duration BESS.

Increase consumer flexibility

Encouraging uptake of day-ahead price linked flexibility products, especially for customers with EV chargers, electric heating and batteries. Ideally autonomously controlled products that will shift demand from periods of low renewable to demand to higher renewable demand, reducing gas usage and costs of consumers.

Enable small scale solar delivery

Consider measures to accelerate small-scale solar deployment. This could include introducing/ maintaining targeted support mechanisms (e.g. grants, low-interest financing or tax incentives) which reduce upfront cost barriers and improve payback times. However, the level of build will need to be aligned with system needs.

Deliver network upgrades

It is essential that timely development of the network in line with regional increases in renewable capacity to avoid use of gas to deal with network constraints. This includes bring forward in East Anglia and ensuring that plans in Scotland deliver in line with NESO plans

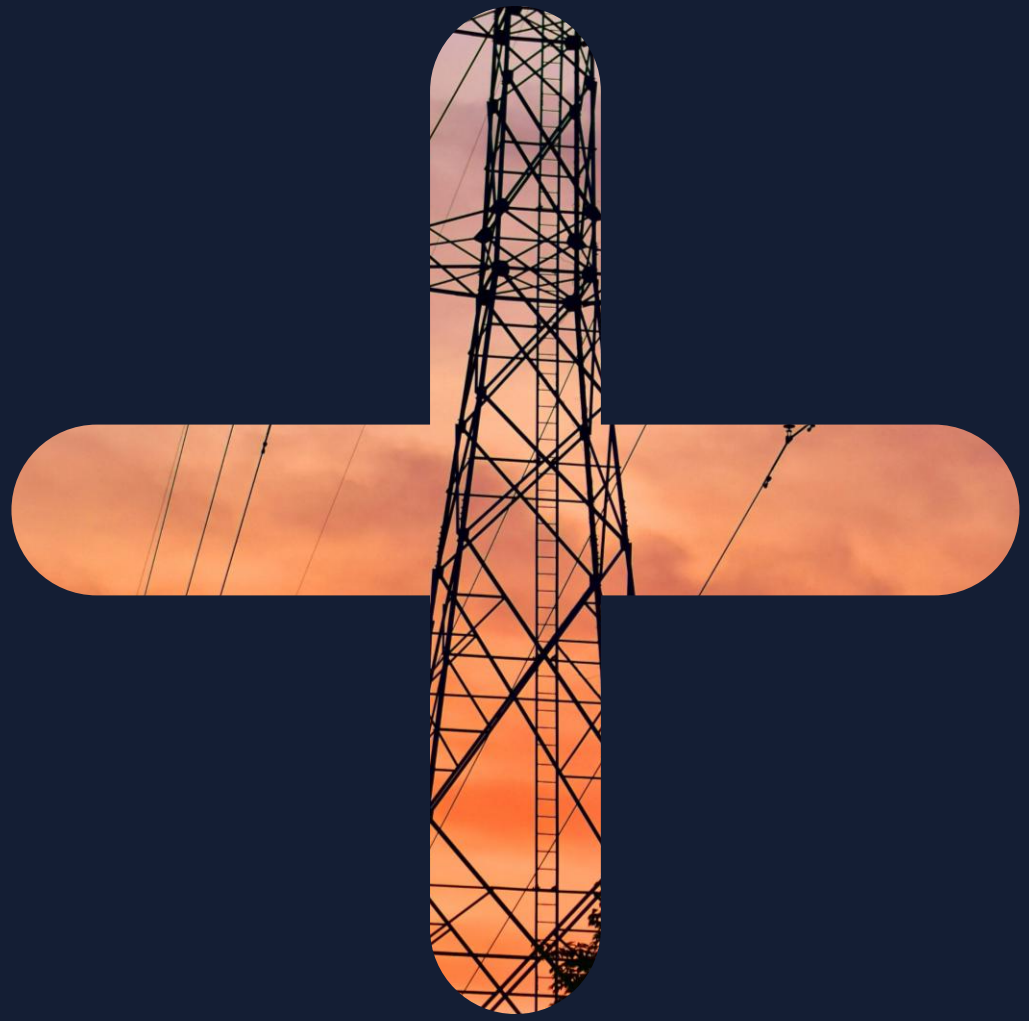
Implement measures to reduce constraints

Measures to improve constraints need to be brought in quickly. This includes making better use of our current network to reduce constraint volumes and reforms to balancing (e.g.: increase participation of small assets) to allow other technologies to replace gas for turn-ups.

Ensure a stable investment environment

Uncertainty in the policy/regulatory environment over the last 4 years is causing delays in investment and increasing costs. Decisions on key areas, such as network charging, balancing reform and CfD reform, need to be made much faster and a clearer direction given rather than just outlining reforms to be ‘explored’.

LCPDelta



What will a Clean Power system look like?

Generation in a Clean Power system

Reliance on unabated thermal generation drops over time as share of generation from renewables increases

A Clean Power system will look fundamentally different to the system we see today due to increased renewable capacity on the system

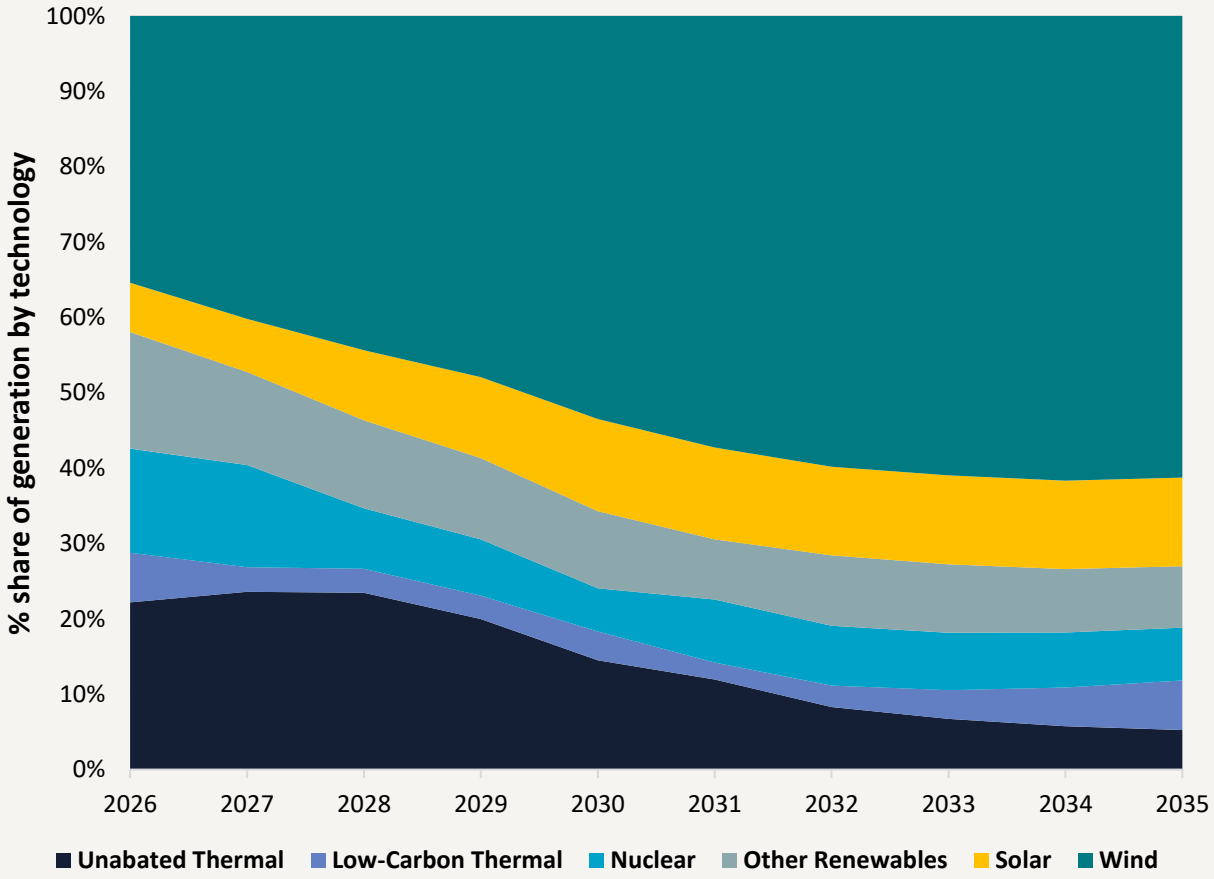
Wind generation makes up 35% of today's domestic generation mix. In 2035 we see this increase to over 60%.

Solar generation makes up 6% of the generation mix in 2026, this increases to 12% by 2035. This means that solar and wind account for over 70% of GB domestic generation by 2035.

Low Carbon Thermal, Nuclear & Other RES: While we see the overall share of generation met by these technologies decrease from 35% today to around 25% in 2035, they are very important for providing baseload and flexible to complement renewables.

Unabated Thermal generation is set to decrease from over 20% of total generation today to 7% of total generation by 2035. This is larger than the previous sections suggest as we include Gas CHP as unabated thermal generation.

Generation share by technology under the accelerated scenario

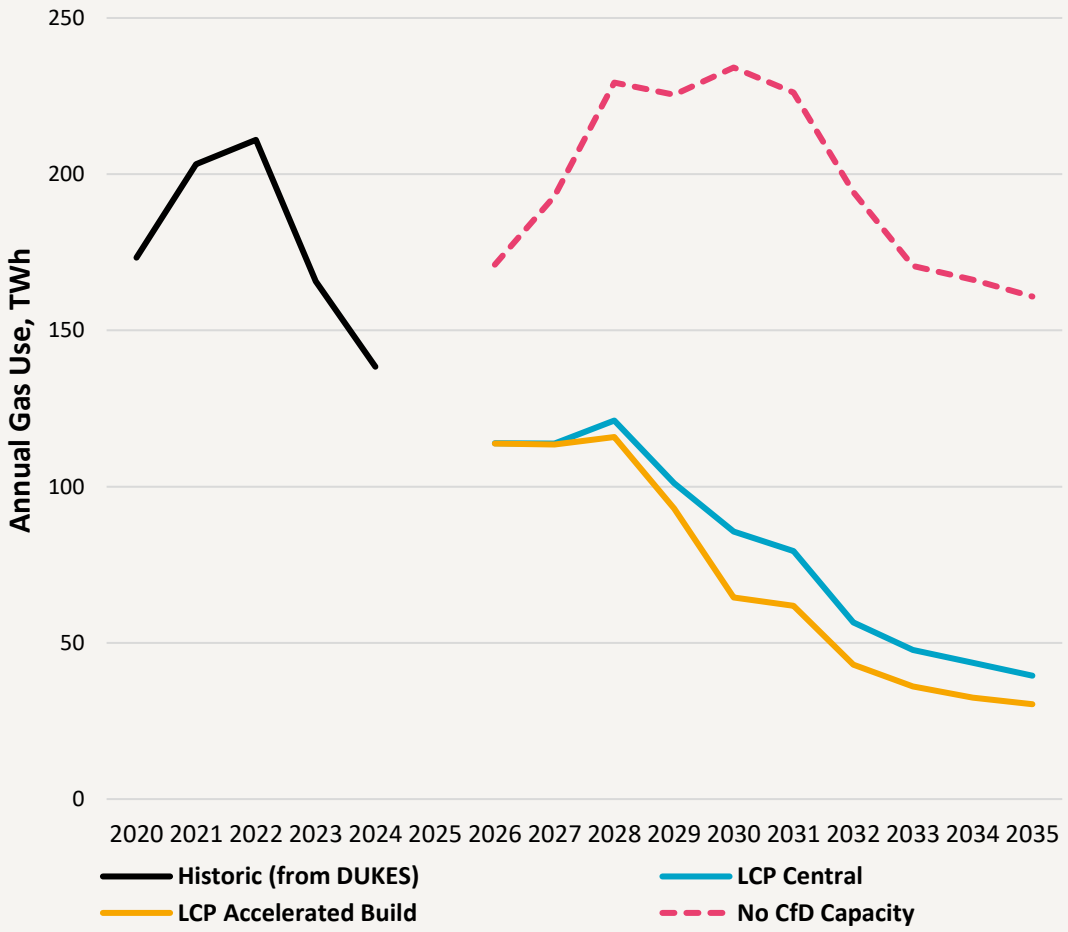


How much gas is used in a Clean Power system?

Gas used for electricity generation drops by 52% in 2030 compared to 2024 levels

- As we transition to a Clean Power system, the role of gas will change significantly. Currently, it is used in most hours across the year to provide baseload generation and respond to peaks but in future its primary function will be responding to peaks when the wind isn't blowing or sun isn't shining.
- Under the accelerated build scenario, total gas used in the power sector (i.e.: used by gas plants to produce electricity) drops from 138TWh in 2024 (latest historical data available) to 64TWh in 2030.
- This drop of 73TWh is equivalent to 16% of gas imports in 2024 highlighting how the reduction of gas use in power leaves GB - reducing GB's exposure to international gas markets.
- To provide a comparison to a non- decarbonised system, a scenario with no CfD renewables (including those already on the system) has been modelled. This represents a scenario where decarbonisation targets were never set.
- Under this scenario, gas use in the power sector in 2030 is 234TWh, around 4x higher than the accelerated build scenario. This highlights the important role renewables play on the system in reducing gas use.
- In emissions terms, total GB power sector emissions (including EfW) drop from 34MTCO2 in 2025 to 18MTCO2 in 2030 in the accelerated build scenario (22MTCO2 in the LCP Central). This compares to 55MTCO2 in the no CfD renewables scenario.

Gas fuel used in the GB power sector across scenarios

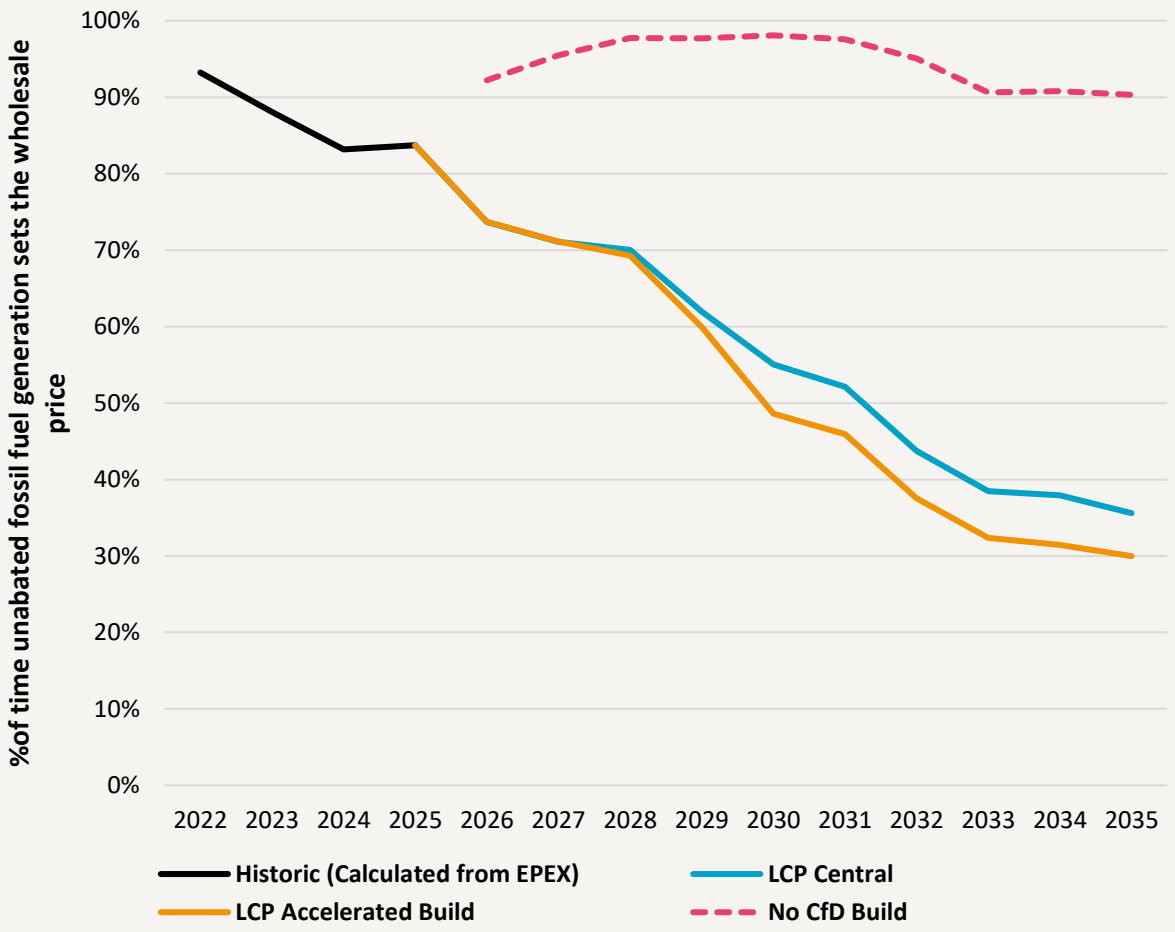


How often does gas set the price in a Clean Power system?

The proportion of the time that gas sets the price is an important indicator of gas price insulation

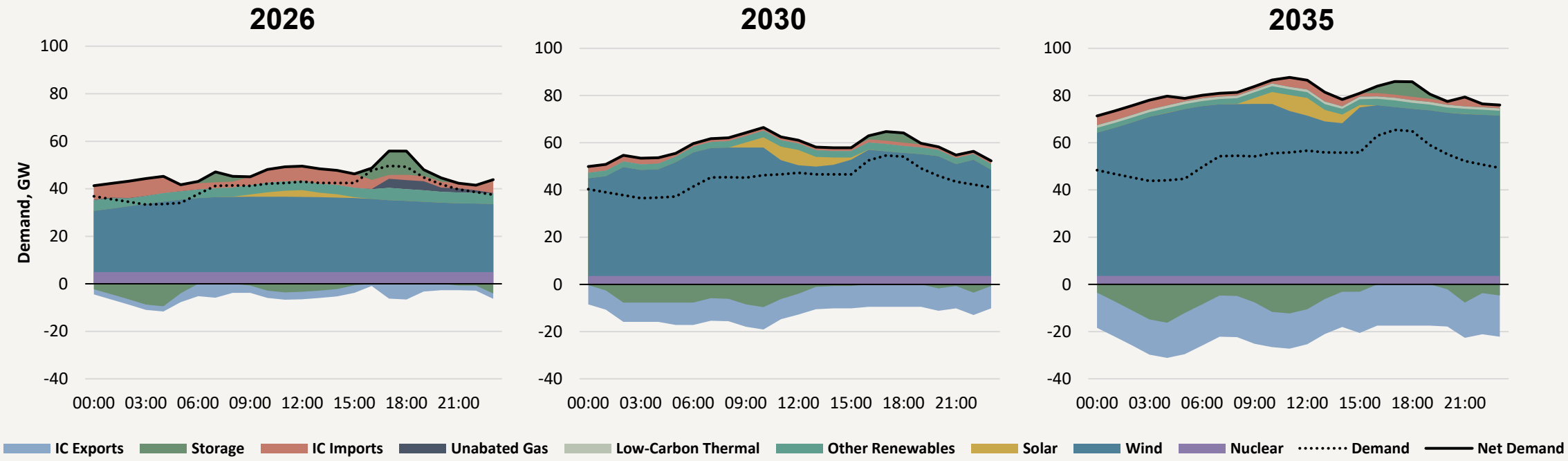
- The 2022 energy crisis was a stark reminder of how exposed GB consumers are to global gas markets. Russia's invasion of Ukraine sent European gas prices to record levels, wholesale electricity prices followed, and household bills roughly doubled within a year. This now happening again (although to a lesser extent) due to the closing of the Strait of Hormuz.
- The root cause was simple: because gas-fired generation so frequently sets the wholesale electricity price in GB, a spike in gas costs feeds almost immediately through to consumer's electricity bills. This means that understanding how often gas sets the price in the future is central to understanding how protected consumers will be from future shocks as it is a direct indicator of how insulated the system and consumers are from gas price volatility.
- As the renewables fleet grows, gas is displaced from the margin across a greater proportion of hours. Under the LCP accelerated build, the share of hours in which unabated gas sets the wholesale price falls materially between 2025 and 2035. In 2025, fossil fuels (gas in GB or foreign fossil fuels via interconnectors) set the prices in over 84% of hours. By 2030 this falls to 49% and to 30% by 2035.
- In this scenario, even though gas is still at the margin on a regular basis, consumer bills are better insulated from shocks to the gas price as gas is setting the price less often and the increase in CfD renewables as a share of generation means a higher proportion of the bill is predictable in advance.
- In comparison, under the no CfD renewables scenario, unabated fossil fuels would set the price nearly 100% of the time if there were limited renewables on the system. This shows that a system without these renewables would be significantly more exposed to gas price shocks.

% of time unabated fossil fuel generation set the wholesale price in GB



High Renewable Winter Day in a Clean Power system

Reliance on unabated thermal generation disappears from high-wind days as renewable penetration increases



By 2030, no unabated gas is needed on a high renewable days as demand is often exceeded by renewable generation

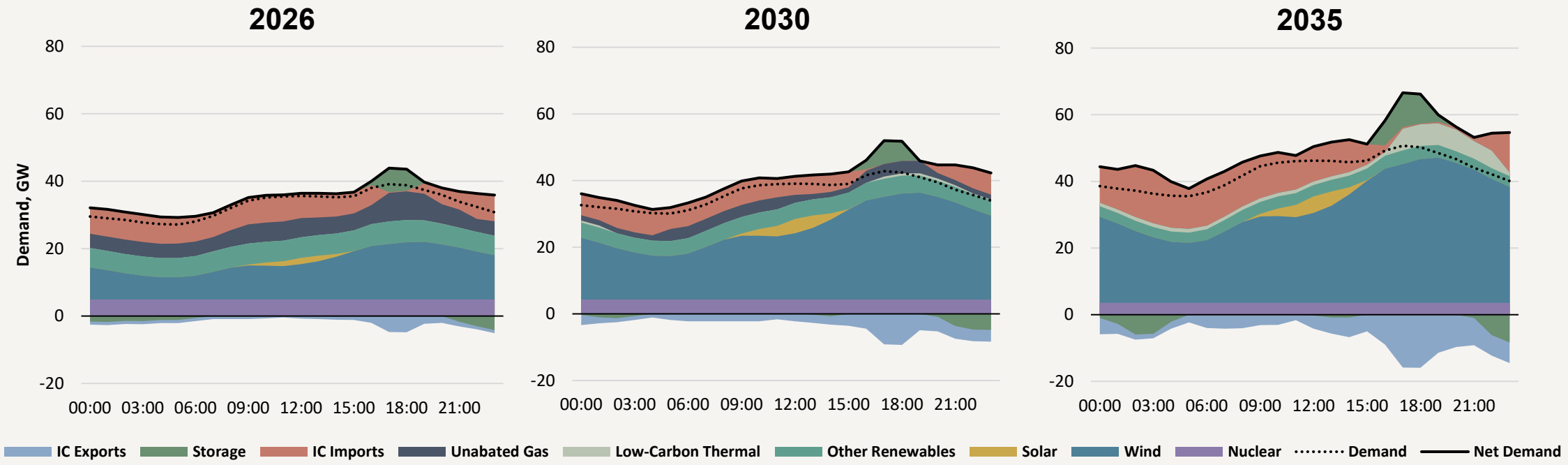
Across a high renewable winter day in 2026, 2030, and 2035, wind dominates the generation mix in all three years, but the daily stack differs significantly:

- In 2026, renewable generation broadly matches demand but by 2035, it substantially exceeds it with total generation reaching up to 70GW against a peak demand of 65GW.
- This excess wind generation results in significant growth of interconnector exports in 2030 and 2035, which grow significantly from today's levels to up to 17GW by 2035, reflecting the system's need to offload surplus renewable generation.
- Unabated gas and Interconnector imports, which provide meaningful top-up capacity even on days with high renewable output in 2026, particularly during the evening peak, shrink to zero generating hours in 2030 and 2035 as renewables dominate the electricity system.

* Net Demand refers to demand including storage and interconnection

Medium Renewable Winter Day in a Clean Power system

Reliance on unabated thermal generation drops over time as share of generation from renewables increases



On a medium renewable day, unabated gas is pushed off the system by 2035 but is still needed in 2030.

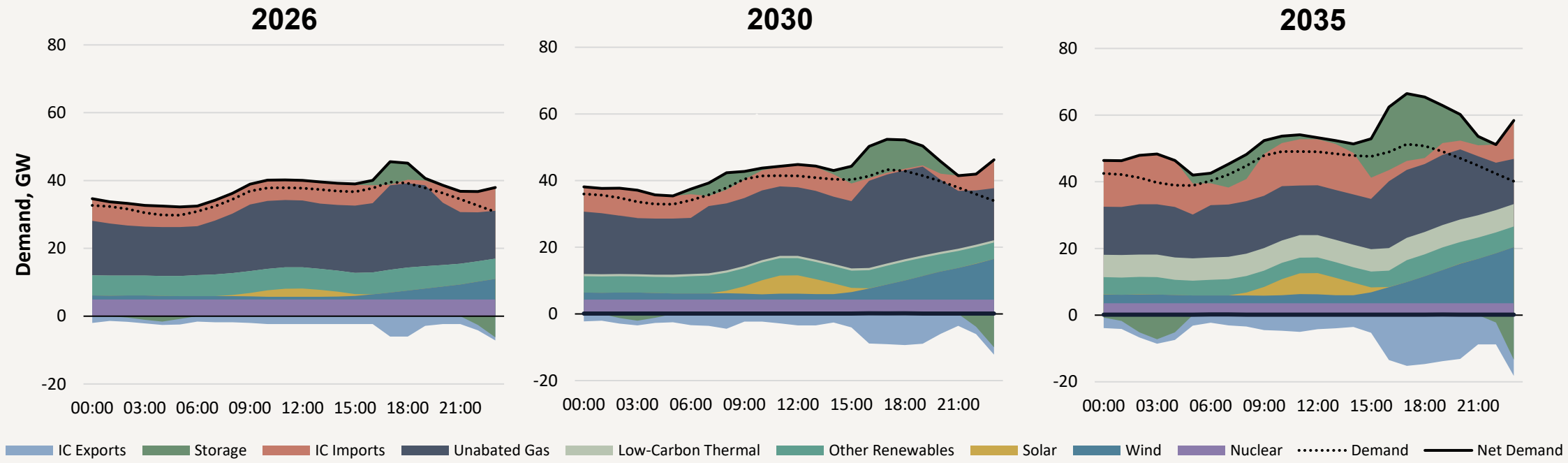
On a medium renewable winter day across 2026, 2030, and 2035, the contrast in how the system meets demand helps demonstrate the transition to a Clean Power system:

- In 2026, the mix is still reliant on unabated gas and IC imports, which make up a large portion of the generation stack throughout the day, with wind and other renewables playing a supporting rather than leading role.
- By 2030, wind has grown to become the dominant source, with unabated gas - in the form of gas CHP plant - and Interconnector imports shrinking to a supplementary role.
- By 2035, the picture has changed substantially: wind generation is now the dominant form of generation, driving unabated gas completely off the system on these days.

* Net Demand refers to demand including storage and interconnection

Low Renewable Winter Day in a Clean Power system

Reliance on unabated thermal generation remains on low-renewable generation days



On a low renewable day, significant amounts of unabated gas generation are still required in the long term:

On a low renewable day across 2026, 2030, and 2035, unabated gas dominates the picture to a degree not seen in the other day types, but the three years reveal how the system's vulnerability to low renewable output evolves over time.

- In 2026, the stack is mostly gas and IC imports, and this continues to be the case in 2030 where the overall generation requirement has grown but storage and renewables play a greater role.
- In 2035, there is still a continued reliance on firm thermal generation when there are periods of low-renewable output but low carbon thermal (CCS and hydrogen) begin to play more of a role. Storage now plays a large role throughout the day and especially across the evening peak, but even with this, the demand is mostly met through unabated gas and interconnector imports demonstrating that these still have an important role to play in a Clean Power system

* Net Demand refers to demand including storage and interconnection

System costs under a Clean Power system

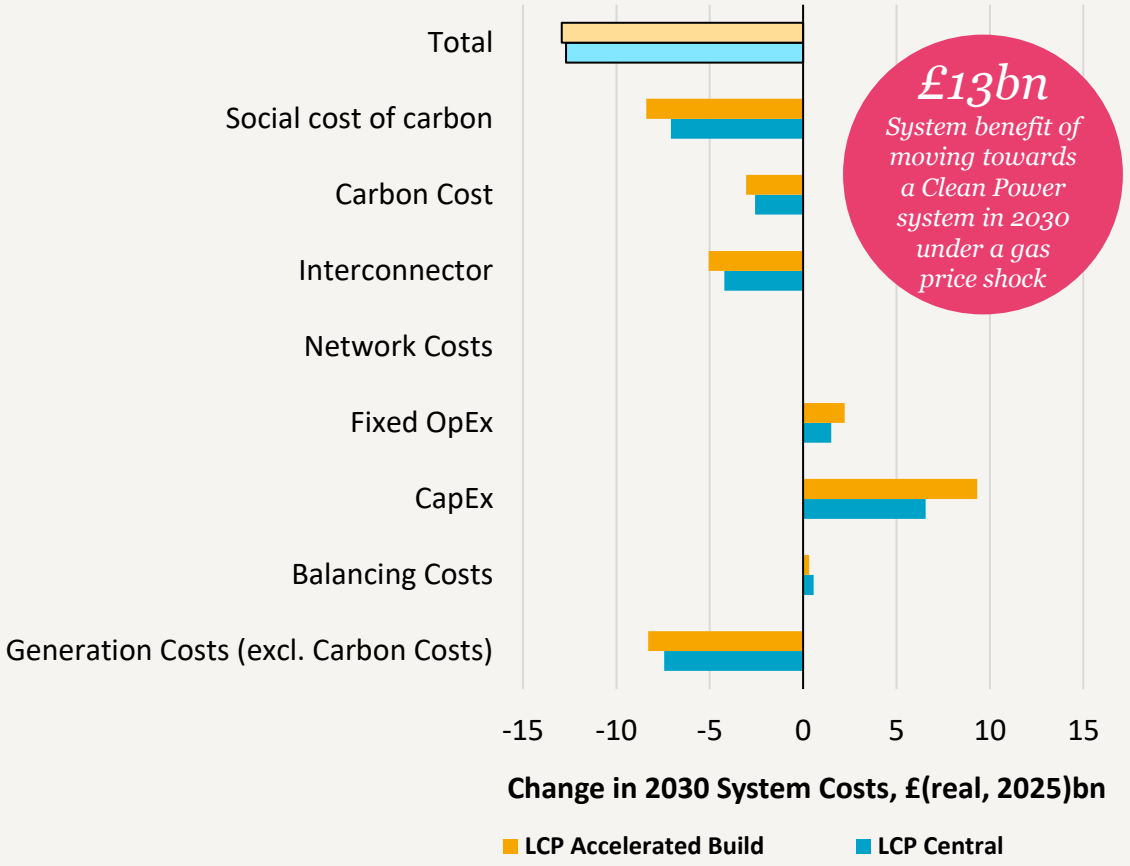
Under a gas price shock, a Clean power system has the lowest system costs in 2030

There has been significant debate as to whether a Clean Power and moving to Net Zero produces overall benefits for the system and consumer.

Given one of the major ambitions of Clean Power is protect the system and consumers from gas price shocks, we have assessed the total system costs of the LCP Central and LCP Accelerated build scenario in 2030 under a gas price shock similar to the what we have seen this year due to the closing of the Strait of Hormuz (gas price of 130p/therm). This is compared to the No CfD scenario to show the benefits of decarbonising vs a scenario where we did not support renewables. This shows:

- System costs represent the costs of building, operating and maintaining the power system for both consumers and producers. Key cost components include generator fuel and operating costs, the social cost of carbon, and the Capex required to develop new generation assets. Further details on the components of system costs can be found in the Annex..
- Both the LCP Central and LCP Accelerated Build scenarios deliver system cost savings of around £13 billion compared with the No CfD scenario, with the Accelerated Build scenario providing a slightly greater benefit. This is still a benefit even if carbon costs are excluded.
- These benefits arise from lower generation, carbon and interconnector costs. Higher levels of renewable generation in the LCP Central and Accelerated Build scenarios displace expensive gas-fired generation and reduce interconnector imports. These are partially offset by the Capex required to build renewable capacity.
- Compared with the LCP Central scenario, the LCP Accelerated Build scenario delivers further reductions in generation, carbon, and interconnector costs, although these are accompanied by higher capital investment requirements.

Change in 2030 System cost under LCP Accelerated Build and LCP Central compared to the no CfD build scenario under a gas price shock



Challenges within a Clean Power system

Clean Power 2030 is not the end point for power sector with different challenges to overcome post 2030

Reaching Clean Power by 2030 is not the end point for the power sector. There are a number of post-2030 challenges that need to be considered now to ensure the system continues to decarbonize, the sector attracts the investment required, and the best outcome is achieved for consumers. Some of these challenges are:

Rising Demand?

Demand is expected to increase as other parts of the system electrify, such as heat and transport. A significant rise is expected between 2030 and 2035 when EV and heat pump adoption ramp up significantly. Demand across 2030 to 2035 increases by 100TWh in our scenario, double the increase seen from now to 2030.
However, if electrification take up is low, then demand could be lower than expected and lead to higher costs for consumers as fixed power costs are spread over less consumption.

Decreasing emissions

Even once the CP2030 target is met, power sector emissions will need decrease further to reach Net Zero. Unabated gas must continue to decline while generation from gas CHP and Energy from Waste (which are excluded from CP2030 metrics) must also drop. Power sector emissions in 2025 were 34MTCO2 and in 2030 (including EfW) are set to be around 18MTCO2. By 2050, emissions need to be below 2MTCO2.

Aging Gas fleet

Much of GB's existing gas fleet will be reaching the end of its life in the 2030s/2040s without any repowering or upgrades to CCS/hydrogen. This coupled with rising demand could lead to a security of supply challenge in the 2030s that need to be considered now. The current gas fleet is 41GW with most of these due to reach the end of their life before 2040 without refurbishment.

Renewables Domination

With renewables the backbone of a decarbonised system, this can create challenges. Prices will be set close to zero on a more regular basis increasing opportunities for flexible demand. This can create risks for storage if the price is zero for long periods. Under LCP's accelerated, day-ahead prices could be below £10/MWh in 19% of periods by 2035 compared to 5% in 2025.

Looking beyond CP2030

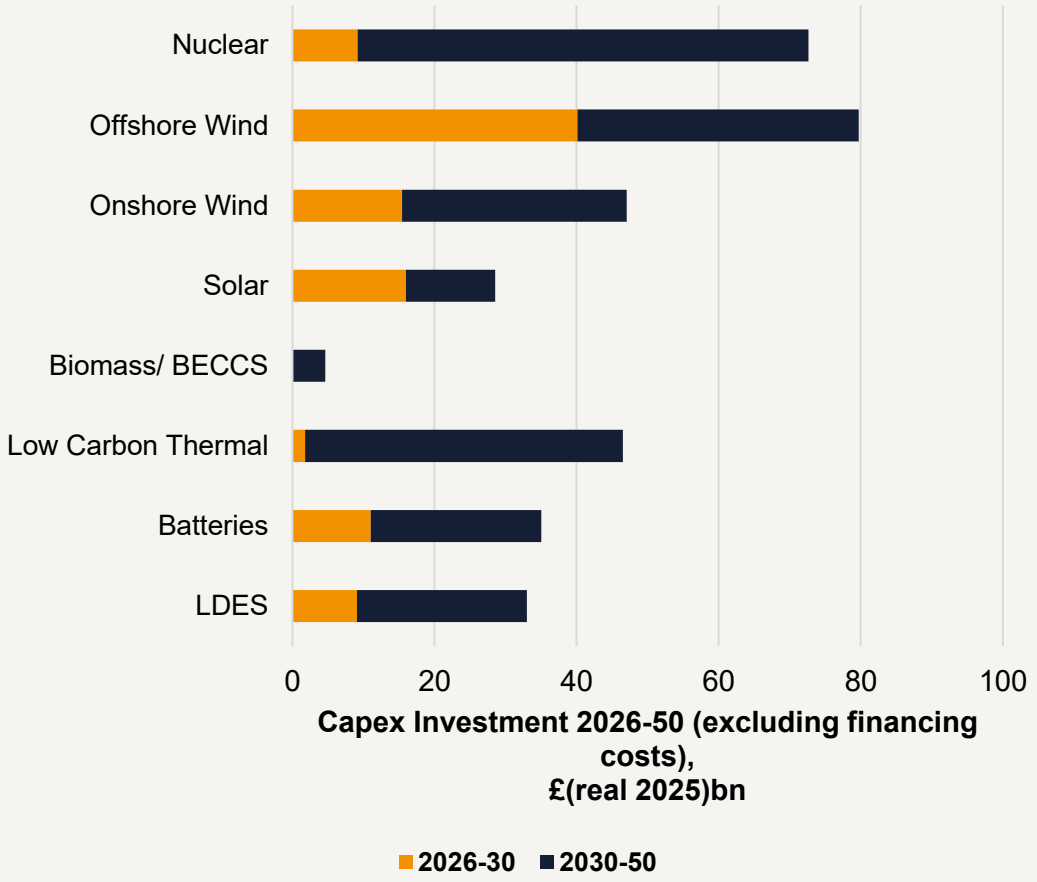
Significant investment is needed post 2030 to overcome these challenges

To overcome these challenges will require significant investment. Under LCP's accelerated scenario, £350bn investment is needed in generation and storage technologies with more required for the supporting infrastructure, such as networks. Under LCP's accelerated scenario, £350bn investment is needed in generation and storage technologies, with more required for supporting infrastructure such as networks. Of that £350bn, £245bn (70%) is investment that is required post-2030 to meet the post-2030 challenges.

To achieve the level of investment required will need:

1. **A clear and stable policy framework –** There is currently too much uncertainty in the future regulatory and policy environment which is putting long term investment in the GB power sector at risk. Decisions on key areas, such as network charging and the future of CfD, are needed quickly. Additionally, stable and regular auctions through the CfD are needed to ensure continued build of wind and solar.
2. **Continued investment in supporting infrastructure –** Network build needs to continue to increase into the 2030s to support continued renewable build as demand increases from greater electrification. This will need to be coupled with ensuring the right signals are given for assets to locate where they are most needed through network charging and the SSEP.
3. **Possible Changes to the Capacity Market to ensure security of supply -** Rising demand in the 2030s could lead to potential issues for security of supply. Changes may be needed to encourage investment in low carbon thermal assets and refurbishment of current gas assets are likely needed to keep our system secure. This may require changes to how the capacity market works in the long term as well as looking at whether other technologies such as interconnectors and DSR can provide enough system security.
4. **Incentivise flexibility to ensure its rewarded for its system value –** Flexible technologies are essential in our future system as renewable build increases as they can help balance the system when the wind isn't blowing and sun isn't shining. Making sure these technologies are financially rewarded for the benefits they provide to the system will

Capex investment in LCP Delta Accelerated scenario (2026-2050), excluding financing costs



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How does a Clean Power system impact consumers?

Key components of household bills

Each of the components of the household bill will evolve as we transition to a clean power system

The GB power market is expected to undergo a rapid transition as it decarbonises. Over the same period, consumer bills will also evolve, with different components rising and falling in cost and changing in relative importance. Non-wholesale price elements of bills are expected to become increasingly prominent, driven by policy schemes that support renewable generation, such as Contracts for Difference (CfDs), and mechanisms that ensure security of supply, such as the Capacity Market (CM). In addition, the transition will require substantial investment in new infrastructure which will be funded through household bills.

1. Wholesale Price

As the GB power system decarbonises, wholesale prices are expected to see fewer periods where gas sets the price and more frequent zero and negative pricing, as renewables increasingly set the marginal price.

2. CfD Costs

The volume of generation supported by CfDs is expected to increase significantly over the next decade. However, the impact on overall costs will depend on wholesale price movements, and CfDs are expected to help reduce volatility in total costs.

3. Network Costs

The expansion of renewable capacity will also require substantial evolution and expansion of the transmission network. This will be financed by a significant increase in the cost to consumers outlined in RIIO-3.

4. Balancing Costs

The growth in renewable generation, particularly wind, has outpaced transmission network capacity, leading to increased system constraints. As a result, constraint costs have risen from 2020 levels and are projected to continue increasing until 2030.

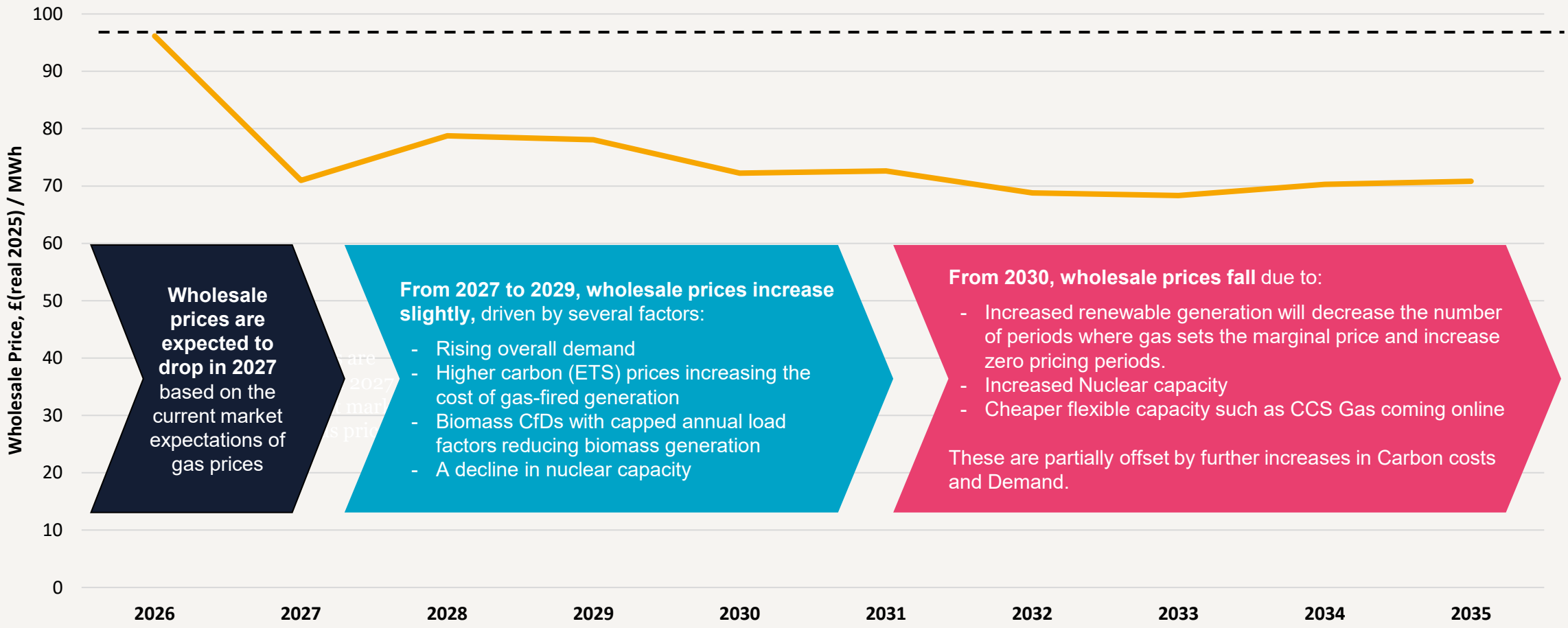
5. Other policy costs

This covers the costs of RABs, the CM, ROCs, FITs, and other renewable subsidies. As RO and FIT contracts expire, these policy costs are expected to decline.

Wholesale Costs

Wholesale prices are expected to fall over the next 10 years

Annual Wholesale Price under the LCP Accelerated Build scenario



Wholesale prices are expected to drop in 2027 based on the current market expectations of gas prices

From 2027 to 2029, wholesale prices increase slightly, driven by several factors:

- Rising overall demand
- Higher carbon (ETS) prices increasing the cost of gas-fired generation
- Biomass CfDs with capped annual load factors reducing biomass generation
- A decline in nuclear capacity

From 2030, wholesale prices fall due to:

- Increased renewable generation will decrease the number of periods where gas sets the marginal price and increase zero pricing periods.
- Increased Nuclear capacity
- Cheaper flexible capacity such as CCS Gas coming online

These are partially offset by further increases in Carbon costs and Demand.

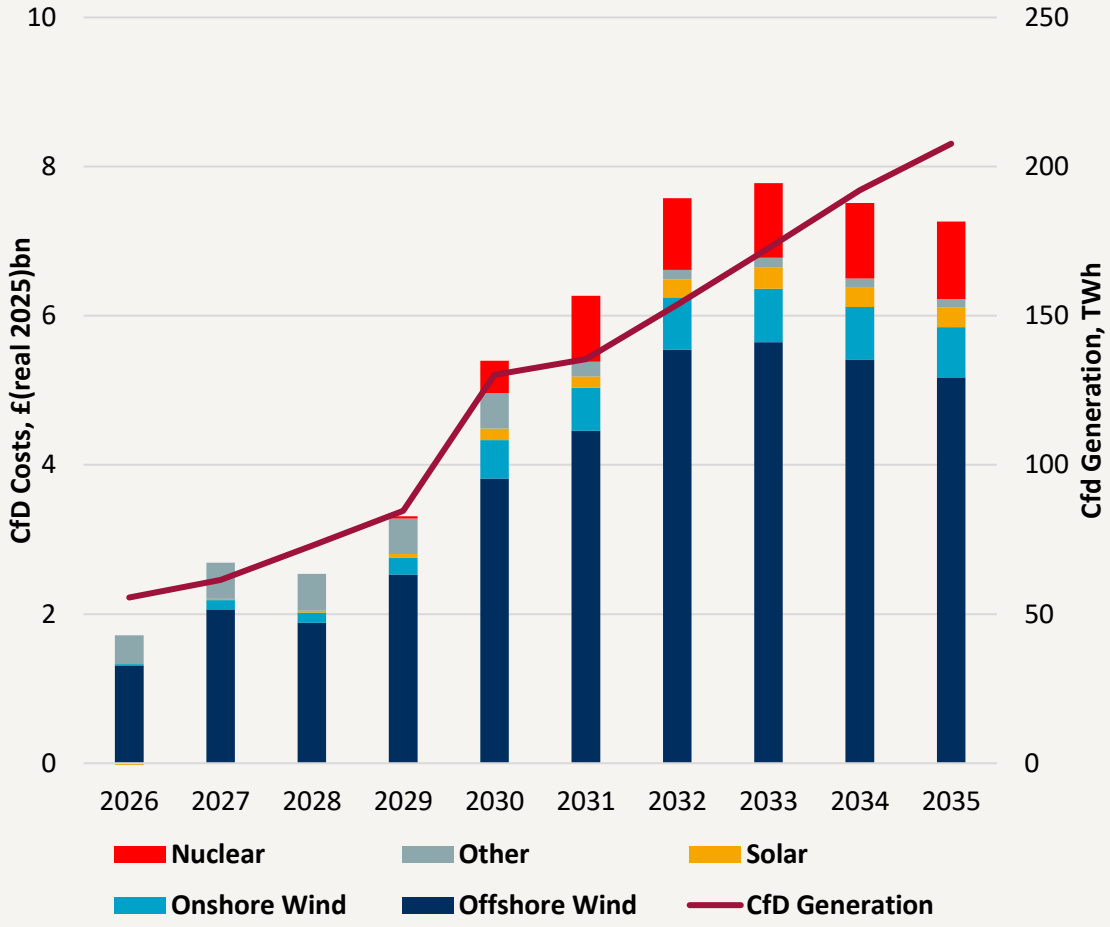
CfD Costs

CfD costs will act as a hedge against wholesale prices, helping to stabilise household bills

A significant amount of CfD supported renewable capacity from AR4 and subsequent auctions is expected to come online between now and 2035. This capacity increase leads to:

- CfD supported generation increasing from 56TWh in 2026 to 130TWh in 2030 under the LCP accelerated build scenario.
- CfD costs for consumers increasing from £1.7bn in 2026 to £5.4bn in 2030.
- Although CfD generation and associated policy costs are expected to rise, demand is also projected to increase over the same period. This will mean that costs will be spread out across more consumers.
- CfD costs are dependent on the wholesale price and will move in the opposite direction. If wholesale prices are higher than expected, then CfD costs will reduce.
- As a result, CfDs act as a natural hedge against wholesale price movements. As strike prices are fixed, this will help add certainty to overall bills as it helps hedge against movements in wholesale price and will help reduce volatility in consumer bills.
- In addition, CfD plants will reduce the average wholesale price. They are incentivised to bid a price of £0/MWh and to always generate. This can displace higher-cost generation leading to lower prices and, in some periods, result in the market being supplied entirely by CfD plants at a wholesale price of £0/MWh.
- The lower wholesale prices will increase CfD support payments, but consumers ultimately benefit because the total costs are reduced.

CfD Generation and Costs under the LCP Accelerated Build scenario



Other key Costs

Network costs are expected to rise with other policy costs likely to decrease

Network costs

- The GB transmission and distribution network needs to increase significantly in size over the next 10 years due to increasing demand from greater electrification and renewable generation on the system.
- This combined with the fact that network capacity has not kept pace with renewable build in recent years has meant that in the recent RIIO-T3 final determinations, Ofgem approved a portion of over £70 billion of transmission network upgrades over the next five years.
- Network costs are fully recovered through consumers and largely recovered through a standing charge. Low-usage customers are likely to be disproportionately impacted while consumers with higher electricity demand, such as those using heat pumps or electric vehicles, are likely to see their average p/kWh decrease.
- For a typical annual household electricity bill, network costs are expected to increase from £215 in 2026 to £248 in 2030.

Balancing costs

- Balancing costs arise from the actions taken to ensure grid stability. These are undertaken to ensure that supply equals demand at both a national and locational level.
- In 2024/25, total balancing costs were £2.7bn which equated to around £36 per year on the typical consumer bills. The bulk of the balancing cost is due to network constraints with 70% (£1.7bn) of the 2024/25 costs.
- Increasing network builds can help reduce constraints, therefore balancing costs and network costs will generally move in opposite directions.
- Without improvements to constraint management then the total constraint cost could more than triple leading to total balancing costs of more than £6bn, which would equate to around £102 on typical consumer bills.
- If measures to improve constraints management, such as those we recommended, are implemented, then balancing costs are likely to remain close to current levels.

Other policy costs

- This covers the costs of RABs (for Nuclear plants), the Capacity Market and older renewable subsidies such as ROCs and FITs.
- Capacity market (CM) costs depend on the amount of capacity with a CM contract and the clearing price in each auction. The cost of the CM through to 2030 is largely known because the T-4 auctions up to 2029/30 have already been held. With the 2029/30 auction cleared at a price significantly lower than in previous auctions then this will lead to a slight decrease in the CM cost for consumers.
- The costs of ROC and FIT schemes are expected to decrease as plants on these schemes reach the end of their contracts. This also reflects the lower costs resulting from biomass plants transitioning from ROCs to CfDs, subject to a cap on load factors. In addition, in 2025, the government committed to taking 75% of domestic share of RO into general taxation.
- Overall, this means other policy costs are likely to see a small decrease to 2030.

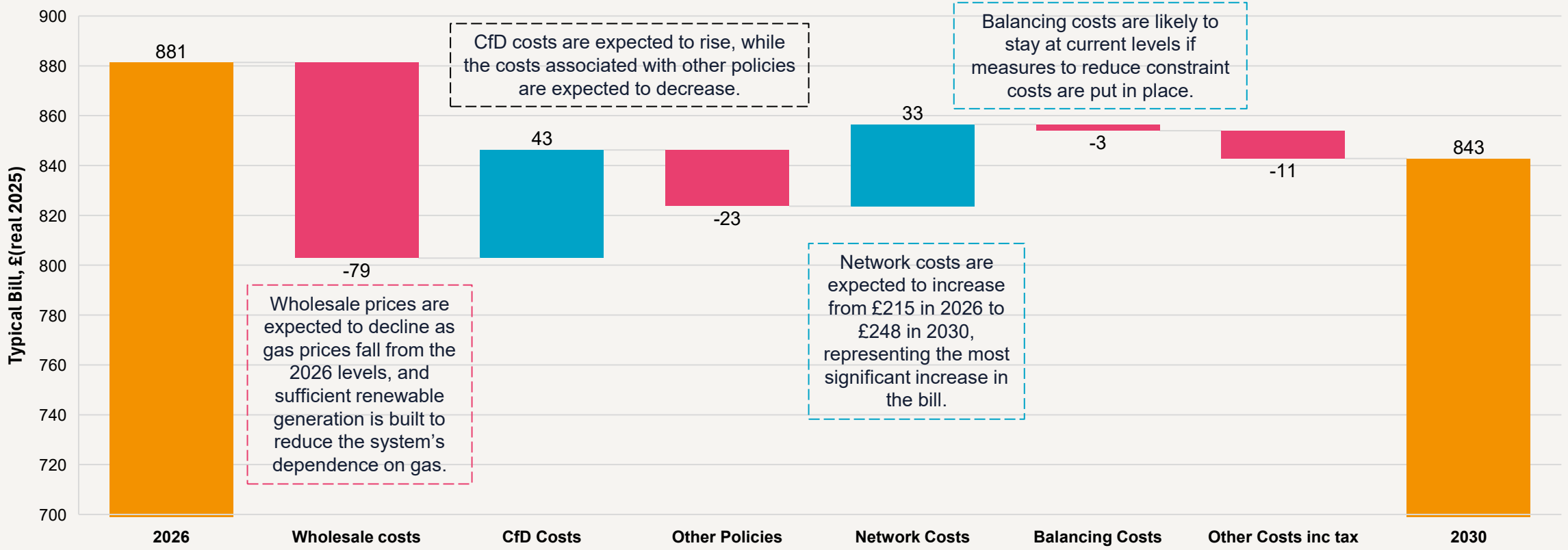
Typical Household bill under LCP Accelerated Build

Changes across the different components offset one another leaving the total household bill similar in 2030

By bringing together wholesale costs, CfD costs, network charges, balancing costs, policy costs, and additional elements such as supplier costs and VAT, we can project how a typical household electricity bill is likely to evolve over the next decade. Some components of the bill vary with energy consumption, while others are fixed daily charges. These estimates are based on an assumed annual consumption of 2,700 kWh.

This shows that the bill decrease in 2030 under the LCP accelerated build scenario; this is a result of various components of the bill moving in different directions as shown below.

Change in typical household electricity annual bill between 2026 and 2030



How can bills be further reduced?

While the bill is expected to decrease under the LCP Accelerated Build scenario, further actions could be taken to further reduce the typical household bill.

Fund legacy support schemes via general taxation

Additional savings for consumers can be achieved by removing legacy UK government support schemes from energy bills entirely. The government has already taken steps in this direction by shifting up to 75% of the domestic share of the Renewables Obligation (RO) into general taxation. Building on this approach, the government could fully fund 100% of the RO through taxation and also absorb the costs of the FiTs scheme.

Removing VAT on energy bills

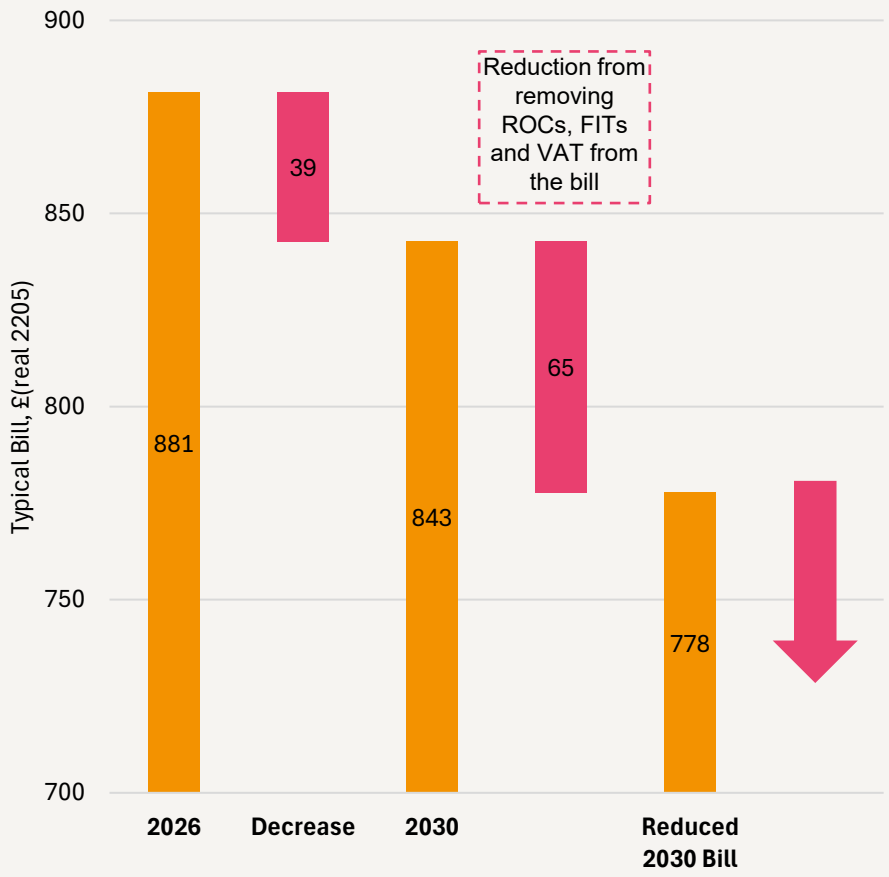
Energy bills are currently subject to a 5% VAT. Removing this charge would help lower consumer bills and ease the financial burden on households.

Other ways to reduce or insulate energy bills

There are other ways to reduce or insulate bills such as:

- More effective use of demand flexibility to shift electricity consumption away from periods when gas-fired generation sets prices and towards times of excess renewable output, lowering wholesale prices.
- Additional measures to tackle and reduce constraints costs as set out in the RNP delivery plan, such as improved interconnector redispatch, could lead to further reductions in the balancing costs passed onto consumer bills.
- In addition, the recently proposed Wholesale Contracts for Difference (WCfDs) could improve bill certainty and provide greater protection against volatility driven by fluctuating gas prices.

Typical household electricity bill in 2026 and 2030 under the LCP Max Potential Scenario



Gas Price Shock Insulation

A Clean Power system will significantly protect consumers from gas price shocks

One of the key benefits of a Clean Power electricity system is the protection that it can provide in the event of a global gas price shock. The 2022 energy crisis demonstrated starkly how exposed GB consumers are to global gas market shocks. Russia's invasion of Ukraine sent European gas prices to record levels, wholesale electricity prices followed, and household bills roughly doubled within a year.

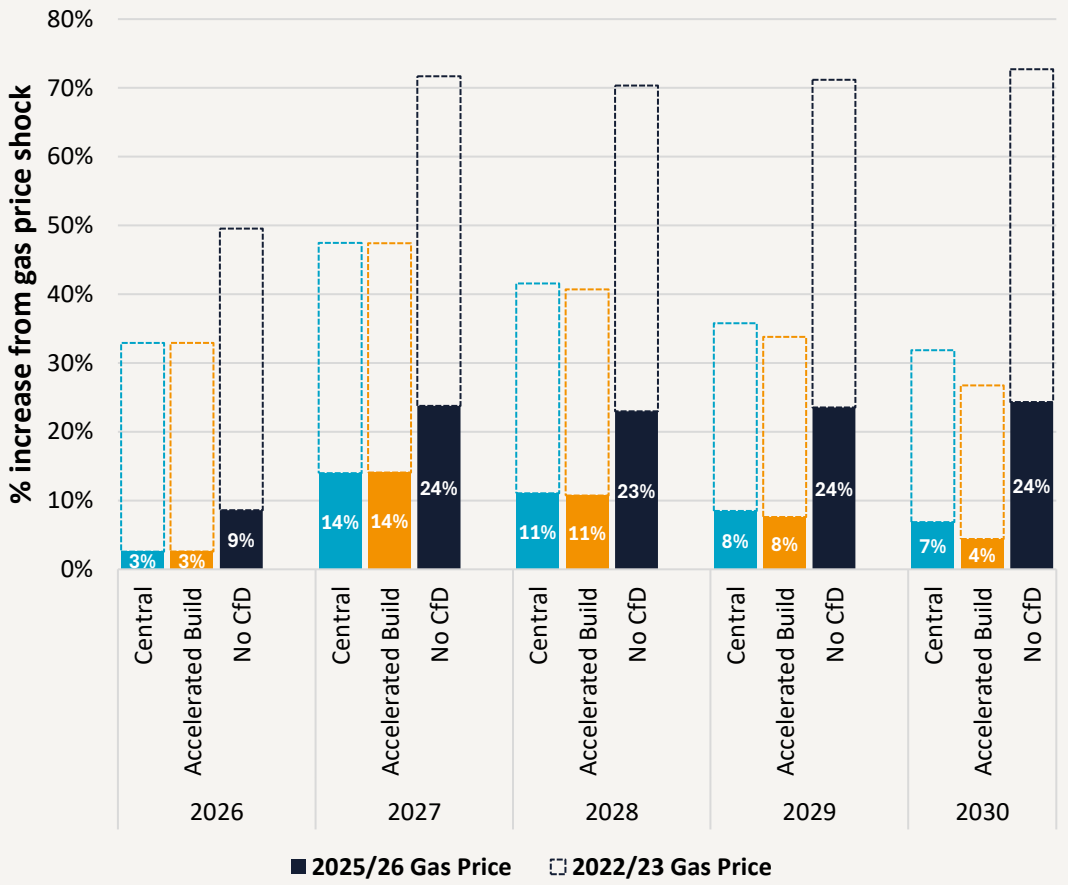
The government's Energy Price Guarantee provided emergency relief, but at a cost of tens of billions of pounds to consumers and taxpayers. The experience underlined a fundamental vulnerability: in a system where gas frequently sets the wholesale price, consumers have little protection from events entirely outside the UK's control.

CfD-supported renewables change this dynamic materially. Because CfD generators are contracted at a fixed strike price, their output is largely insulated from wholesale price movements and by displacing gas from the margin, they reduce the frequency and severity with which a gas price spike feeds through to bills.

This is shown through our modelling of a gas price shock:

- In 2030, a gas price shock in line with what we have experienced due to the closing of the Strait of Hormuz (increase to 130p/therm) leads to household bills increasing by just 4%. This compares to an equivalent increase of 24% under a scenario with no CfD renewables on the system.
- If a gas price shock is in line with 2022 levels, then the difference is even greater with 2030 bills increasing by 22% under the clean power (accelerated build) scenario compared to 72% in a scenario with no CfD renewables
- Overall, this shows that as we move closer to achieving Clean Power and decoupling gas and electricity bills, that we are demonstrably more protected from increases in the global gas price.

Increase in the typical household electricity bill due to a gas price shock under LCP Central, accelerated build and no CfD scenarios



Note that the 2026 increase is limited by the already elevated gas price we are currently seeing

Impact across different household usage profiles

Households with greater energy usage will see a greater reduction in their energy bills

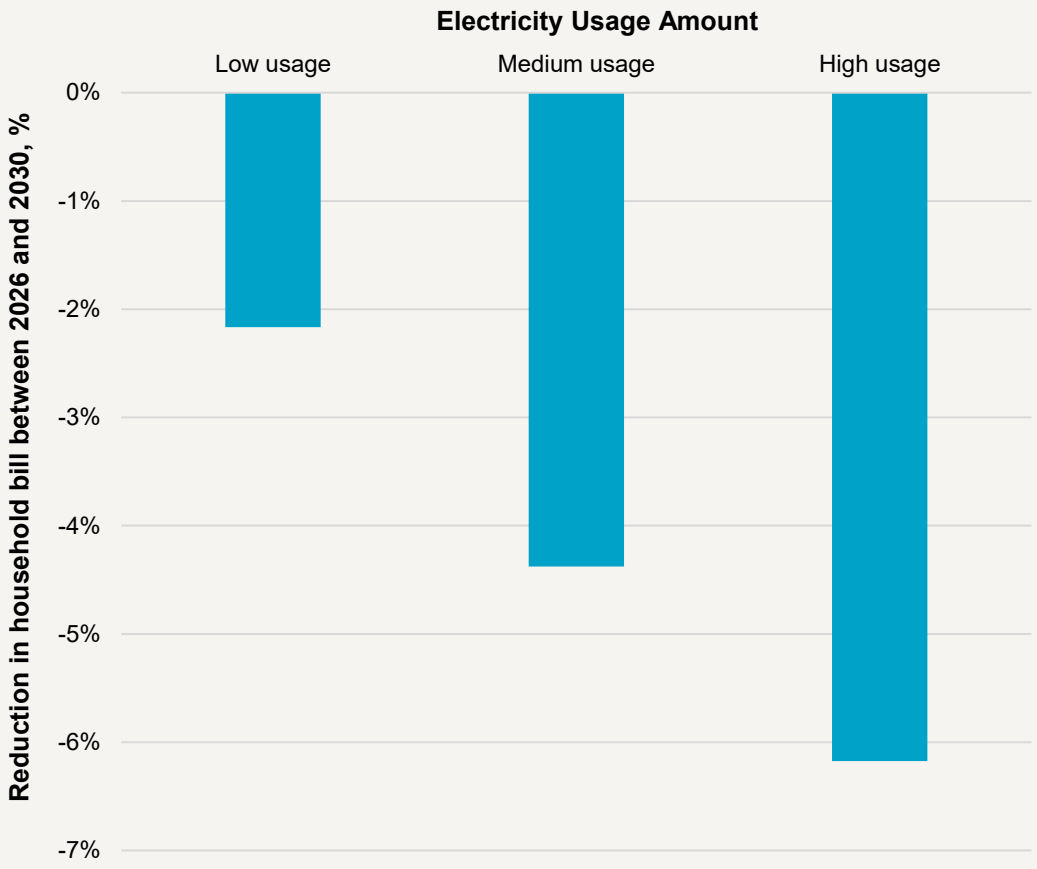
The impact on the annual household bill will depend on the household's electricity usage.

- Several key elements of the bill that are charged per kWh are expected to decline, including wholesale costs, policy costs, and balancing costs. While standing charges, applied as a fixed daily cost per household, are expected to rise primarily due to increases in network charges.
- The chart on the right illustrates the savings in the electricity bills across households with different levels of electricity consumption, with assumed annual usage levels set out in the table below based on OFGEM assumptions*.

Electricity Usage Amount	kWh per year
Low	1,800
Medium	2,700
High	4,100

- Higher usage households will see greater savings, with bills falling by over 6% by 2030 under the LCP accelerated build scenario. As a result, households with higher levels of electrification, such as those using heat pumps and electric vehicles, stand to benefit the most.
- This analysis does not include the impact of changes to gas heating costs or ICE vehicle running costs, which could further increase the overall savings for households with greater electrification.

Reduction in annual household electricity bill for households with different amounts of consumption between 2026 and 2030



*Review of typical domestic consumption values

Impact on different types of consumers

A clean power system could benefit some consumers more than others if not designed with households in mind

With a clean power system looking fundamentally different to the system today, the benefits of that system will impact households in different ways depending on the assets they have and engagement.

LCP Delta's "3Ms" segmentation framework based on customer research* captures the complexity of the residential customer base across three key segmentation dimensions (the "3Ms"):

1. **Motivation:** how responsible/confident the customer feels to act on reducing emissions and adopting sustainable energy solutions
2. **Means:** how much the customer's demographic characteristics impact their practical ability to adopt sustainable energy solutions
3. **Momentum:** how far the customer is on their personal energy transition journey, based on engagement and adoption behaviour.

Without considering the impact of Clean Power on all types of consumers, it is likely those with high motivation, means and momentum are the primary beneficiaries but this risks missing out 90% of consumers. This means the clean power benefits could disproportionally fall on those consumers with higher means, greater engagement in energy and with home assets such as EVs, heat pumps and home batteries.

Most customers sit in the middle ground of the market, with one or more "missing Ms" holding them back from transitioning their home energy. To unlock value from all customer segments and maximise the benefits to consumers of a clean power system requires designing propositions to help them with their incremental next step on their home energy management journey.

Customer Segment	Description	Motivation	Means	Momentum	% of consumers *
Trailblazers	Early adopters' - Advanced on the transition with high motivation & means.	High	High	High	9%
Ready Followers	Motivated, capable and ready to electrify, but something is holding them back.	High	High	Low	11%
Constrained Greens	Motivated customers held back from engaging and acting by their means.	High	Low	Low	13%
Cautious Capables	Want to be sustainable but lack confidence in energy decision-making	Mixed	High	Low	5%
Pragmatic Adopters	Have high-means and are electrified, because it is pragmatic; but not motivated	Low	High	High	7%
Pragmatic Engagers	Engage with energy, as it is pragmatic, but not yet convinced to electrify.	Low	High	Low	8%
Capable Sleepers	Uninterested and unmotivated by ustainable energy, but means are high	Low	High	None	4%
Enabled Indifferents	Despite low motivation and means, have managed to electrify	Low	Low	High	4%
New Energy outsiders	Low motivation, means, and momentum so are at risk of being left behind.	Low	Low	Low	12%

Those with higher motivation, means and momentum are more likely to benefit from CP2030 without specific propositions to help customers in each segment

*Source: LCP Delta 'European energy transition customer readiness study' 2024-25 (n=7,015)

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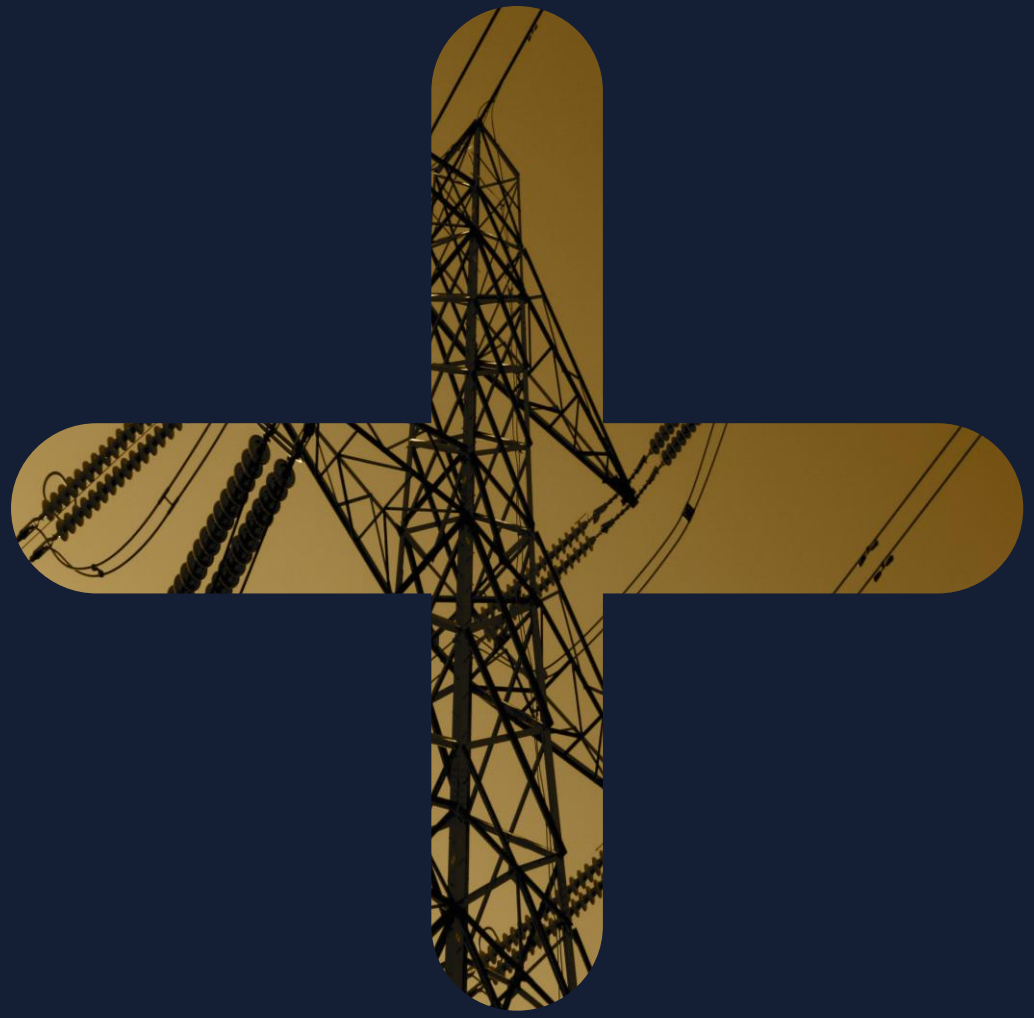

Annex

System Cost Framework

LCP Delta's system cost framework is used to assess the system benefits of a clean power system

- To assess the system impacts from a Clean Power system under a gas price shock, the analysis measures the system costs in a no CfD scenario, LCP Central Scenario and LCP Accelerated build scenario.
- System costs include the costs of building, operating and maintaining the power system for both consumers and producers. They are broken down into various components as shown in the graphic opposite.
- The approach to system costs uses the framework developed in 2015 between LCP, Frontier Economics and UK Government.
- This approach aligns with UK Government value for money (VfM) guidance as set out in the Green Book and continues to be used by the UK government for power sector impact assessments and VfM assessments.

LCP Delta system cost framework

Generation costs

- Fuel and variable operating costs (VOM) costs of plants associated with meeting electricity demand hour to hour, i.e. wholesale market dispatch

Carbon costs

- Carbon costs based on carbon emissions priced at social cost of carbon.
- The carbon cost can be split into two parts, carbon costs at the market price (carbon price plants pay) and unpriced carbon costs (additional carbon costs valued at DESNZ carbon appraisal price)

Capex Costs

- Capital costs include pre-development, construction and infrastructure costs (all £/kW) for building new plants.
- For system cost, this is cost of financing these investments, so are spread over the economic lifetime of the plant based on the assumed hurdle rate for the technology.

Fixed Opex Costs

- Fixed operating costs of plants, any operating costs that do not vary with output, and represented in £/kW terms.

Interconnector costs

- Costs associated with building, maintaining and operating interconnectors.
- We have assumed a 50:50 split when considering whether the interconnectors are part of the GB system or the foreign market's system.

Network costs

- Cost of maintaining, reinforcing and extending the transmission network

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Across the value chain

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- Asset & infrastructure owners & developers
- Governments & regulators
- Product manufacturers
- Power traders

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Market insights	Policy & regulation	Whole system modelling	Training & masterclasses