Winter Outlook 2026/27
Early View

June 2026

NESO
National Energy System Operator

Welcome

> Welcome to the National Energy System Operator (NESO) early view of winter 2026/27 report, which contains our initial assessment of the electricity security of supply outlook for November to March. Growing global threats, geopolitical volatility and energy market disruption highlight the importance of energy security and whole system resilience, which remain at the forefront of NESO's priorities. We hope that early visibility of our analysis will help support industry stakeholders to prepare effectively for the period.

Global energy prices remain above recent levels as the effective closure of the Strait of Hormuz has constrained roughly 20% of global liquefied natural gas (LNG) flows, affecting approximately 3% of global gas supply. Fundamental differences in European power markets and structural changes in European gas markets mean that prices – while above pre-conflict levels – are currently below the highs observed in 2022 triggered by the Ukraine conflict. However, uncertainties remain and we are working closely with government, Ofgem and National Gas to monitor market conditions, develop a shared understanding of potential challenges and enable coordinated action where and if necessary.

Our initial assessment of the electricity security of supply outlook for this winter is comparable to winter 2025/26, with margins expected to be adequate and within the Reliability Standard under our Base Case scenario. We also anticipate a sufficient operational surplus throughout the winter. As with all winters there may be days when we are required to use operational tools – such as system notices – to balance the system.

We have already begun our preparations for winter, with a range of activities including system operation, market development, network planning and whole energy system resilience. Our planning activities reflect the growing complexity of the energy system and the dependencies between electricity and other forms of energy. We continue to collaborate widely, engaging with stakeholders across the energy industry to ensure Great Britain's system is prepared for a wide range of eventualities and resilient to the various conditions it may face.

We have also published our *Winter Review and Consultation 2025/26* alongside this report. It reviews the forecasts and analysis in our *Winter Outlook 2025/26* report, comparing what we expected to what occurred. National Gas has separately published the *Gas Review of Winter 2025/26*.

The full *Winter Outlook 2026/27* report, including more detailed analysis, will be published in the autumn alongside the *National Gas Winter Outlook*. The information in this Early View may change by the time we publish the full report in October this year.

Kayte O'Neill
Chief Operating Officer
National Energy
System Operator

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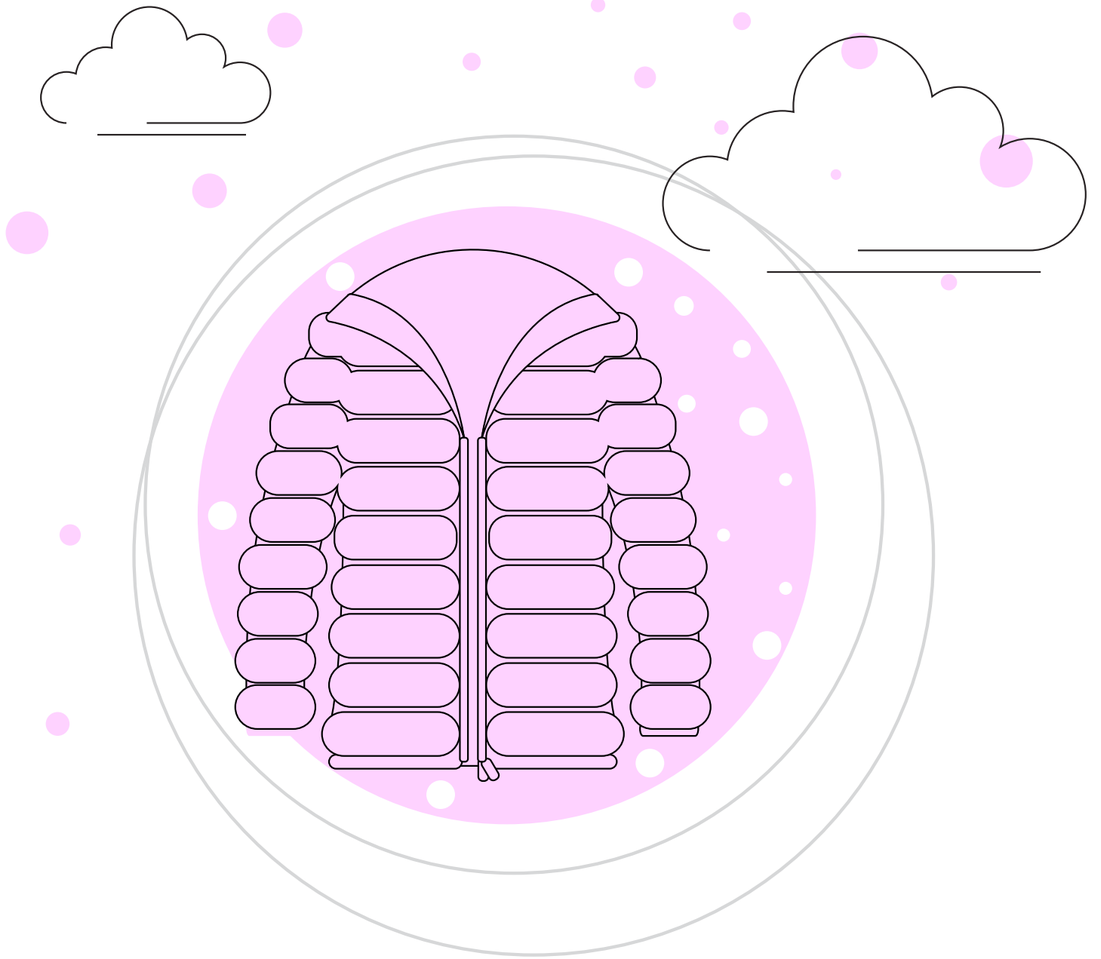

Early View at a Glance

01

Margins

Our analysis indicates that margins will be adequate, within the Reliability Standard and comparable to recent winters.

Our expected Base Case margin for winter 2026/27 is currently 5.5 GW – equivalent to 8.8% of Average Cold Spell (ACS) peak demand. The associated Loss of Load Expectation (LOLE) is below 0.1 hours, which is well within the Reliability Standard of 3 hours.

The de-rated margin remains comparable to winter 2024/25 and 2025/26, as a forecast increase in peak demand is offset by new capacity across a range of technologies including battery storage capacity, gas-fired power generation and wind generation.

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02

Operational surplus

Our analysis shows that demand – and our reserve requirement – can be met under the forecast range of operational conditions expected this winter.

We expect a sufficient operational surplus throughout winter under a wide range of scenarios for demand, wind generation and generator and interconnector availability. We expect Great Britain to be able to regularly support exports to neighbouring markets if required.

The latest market data suggests the daily operational surplus range will be comparable to last winter. There may be days when we are required to use system notices, and market submissions suggest these are most likely to occur in mid-to-late January. A revised surplus, reflecting the latest planned outages, will be included in the full *Winter Outlook 2026/27* report.

03

Markets

Early indicators suggest adequate generation availability in key interconnected power markets, but uncertainties remain.

Power prices remain above winter 2025/26 levels, with conflict in the Middle East affecting global energy prices. We will continue to work closely with our strategic partners to monitor the fundamental factors influencing global energy markets. Where necessary, we will work with partners to build resilience and mitigate risks.

Wholesale prices for Great Britain are currently at a premium to France and in line with other major European markets. This suggests Great Britain will be a net importer across the electricity interconnectors this winter. We will work closely with our neighbouring Transmission System Operators (TSOs) to determine how interconnector flows can be coordinated and optimised. Following short-term changes to interconnector trading arrangements, we are working to enhance cooperation, maintain reciprocal support and ensure security of supply with interconnected countries.

Understanding Adequacy

Interpreting the metrics in this report

De-rated margin

The de-rated margin is our assessment of the expected excess supply after Average Cold Spell (ACS) peak demand (defined below) and reserve requirements have been met. We calculate this figure by taking the total technical capacity of generation connected to the transmission and distribution networks and adjusting (or de-rating) this capacity based on expected availability and technical characteristics. The de-rating factor reflects our assessment of each technology's expected contribution during a period of system stress. The de-rated margin provides a snapshot assessment of adequacy for the season as a whole, meaning it does not consider specific time periods within winter. It should not be interpreted as a forecast of the minimum operational surplus expected this winter.

Loss of Load Expectation (LOLE)

LOLE is a long-term probabilistic assessment of the expected number of hours per year when demand exceeds supply under normal operations – that is, after standard operational tools (including system notices) have been used, but before enhanced or emergency actions are taken. In most cases, such periods would be managed without affecting consumers. The government's Reliability Standard for security of electricity supply is expressed as a LOLE of three hours per year.

Equivalent Firm Capacity (EFC)

EFC is the amount of perfectly reliable baseload capacity that could be replaced by another technology, such as wind or battery storage, while maintaining the same level of system reliability. For perfectly reliable baseload capacity, imagine a generator that is 100% reliable and has no energy duration limits. The EFC is a statistical value, calculated over a wide range of possible demand, weather and operational conditions. As these metrics are long-run statistical assessments, actual interconnector flows, peak demand, wind output and generation availability may vary from the modelled value. Our adequacy calculation accounts for this variability by modelling thousands of scenarios, including low-wind, high-demand conditions and supply-side losses.

De-rating factor

The de-rating factor is the ratio of the EFC to the installed (nameplate) capacity of a given technology. For example, if the installed wind capacity is 28 GW and the EFC is 3.9 GW, the de-rating factor is approximately 14%. This reflects the statistical contribution of wind to system reliability, accounting for its variability and intermittency.

ACS peak demand

The Average Cold Spell (ACS) peak demand is the estimated peak electricity demand – at transmission and distribution level – during typical cold winter weather conditions. As this is an average figure, there is approximately a 50% chance that demand in any given winter will exceed the ACS peak value. This is calculated by simulating 30,000 winter scenarios, each incorporating a different weather contribution. The peak demand in each simulated winter is estimated, and the median of these values gives the ACS. The ACS peak demand forecast used in our de-rated margin assessment differs from the peak demand observed on the transmission system (which is simulated in our operational surplus). Several factors contribute to this, including distribution connected generation meeting demand close to the point of use and demand side response.

Operational surplus

To complement the seasonal view of adequacy provided by the de-rated margin, we also produce a day-by-day view of the operational surplus. This is generated by simulating 30,000 scenarios that incorporate different contributions of weather, National Demand (observed at the transmission level), conventional generation availability, wind output and interconnector availability. For each scenario, we calculate the daily surplus time series across the winter, which provides a forecast range for the operational surplus and highlights where tight periods may occur.

1. De-rated Margin

Margins are expected to be adequate, within the Reliability Standard and comparable to recent winters.

We expect sufficient available capacity to meet demand – and our reserve requirements – this winter. Figure 1 shows our Base Case de-rated margin, which is 5.5 GW – equivalent to 8.8% of forecast Average Cold Spell (ACS) peak demand. The associated Loss of Load Expectation (LOLE) is below 0.1 hours per year, which is well within the Reliability Standard of 3 hours per year. We assume providers with Capacity Market (CM) agreements will deliver in line with their obligations unless we have specific market intelligence to the contrary.

The T-1 Capacity Market auction, for delivery in winter 2026/27, secured 7.2 GW of new and existing capacity from a range of technologies.

Figure 2 shows that our initial assessment of the de-rated margin remains comparable to recent winters. Forecast demand growth is largely offset by increased battery storage capacity, new gas-fired power generation and growth in renewable generation. While our assessment considers the latest market intelligence, the information in this Early View may change by the time we publish the *Winter Outlook 2026/27* report. A revised de-rated margin, reflecting the latest generator availability and our latest assessment of peak demand, will be included in the full *Winter Outlook 2026/27* report.

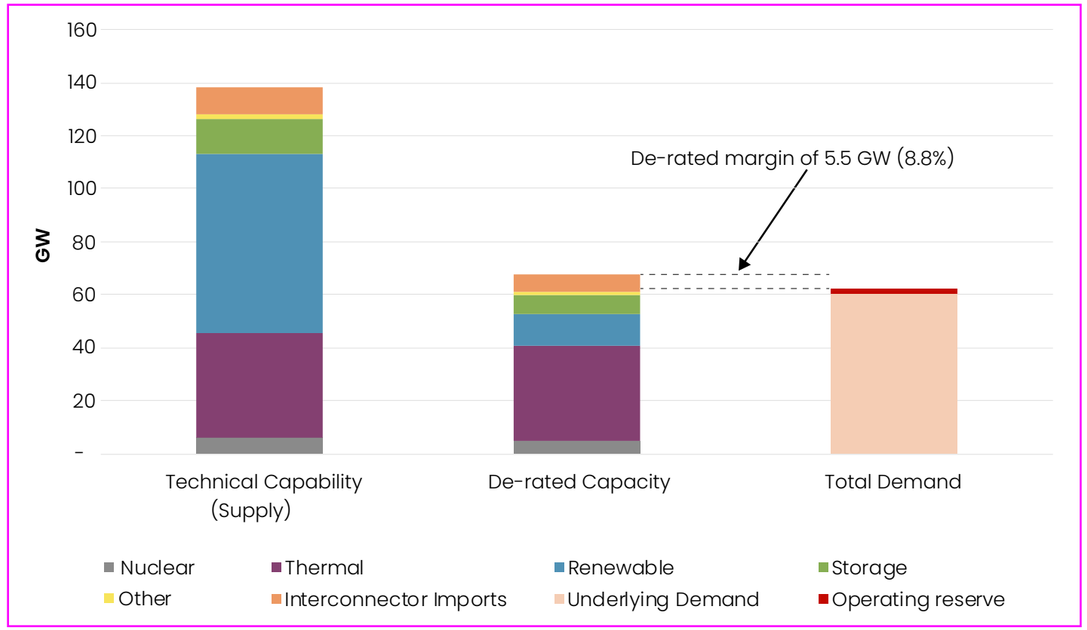

Figure 1: Total technical capacity of transmission and distribution connected supply, forecast Average Cold Spell (ACS) peak demand, reserve requirements and the resulting de-rated margin

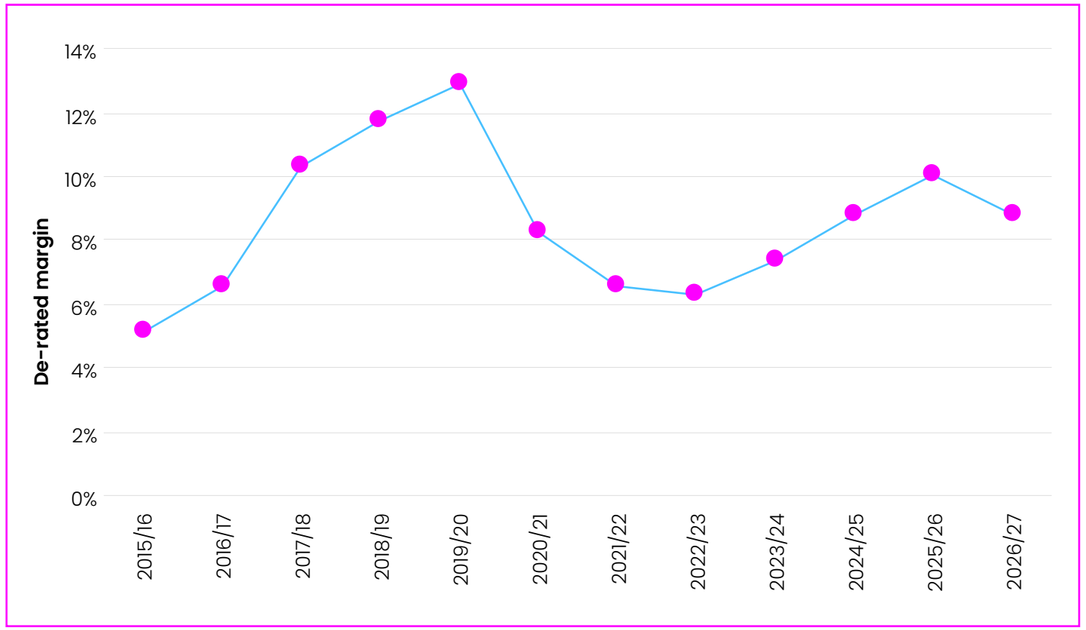

Figure 2: Historical de-rated margin forecasts (as a % of the corresponding ACS peak demand) made ahead of each winter, in the *Winter Outlook* reports, and the provisional Base Case de-rated margin for 2026/27

2. Operational surplus

The forecast range for the operational surplus this winter is comparable to winter 2025/26. Our analysis suggests that demand and our reserve requirement can be met under the forecast range of conditions expected this winter.

Figure 3 shows the forecast range for the operational surplus this winter (the red plume) compared with the corresponding forecast for winter 2025/26 (the grey plume) as published in the *Winter Outlook 2025/26* report. To derive this range, we simulate 30,000 scenarios for weather, demand, conventional generation availability, wind generation and interconnector availability. For each scenario, we calculate a daily surplus time series across the winter. Weather simulations are based on historical data from 1987 to the present, capturing a wide range of possible conditions. Generator availability simulations apply unavailability factors that reflect historical deviations from expected availability by generation type.

As detailed in our *Winter Review and Consultation 2025/26*, we continually review the performance of our analysis, recalibrating models and improving methodologies to forecast the supply and demand variables that determine the operational surplus. As a result of that review, we have further increased our assessment of peak National Demand. Further analysis of peak demand, including a year-on-year comparison in our probabilistic assessment of demand by day will be included in the full Winter Outlook report.

Our operational surplus modelling supports our seasonal preparations by identifying the credible range of operational conditions we might face. It also allows us to identify when potential tight periods are most likely to occur.

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Our latest analysis suggests there may still be tight days that require the use of system notices. Based on current generator submissions, these are most likely to occur in mid-to-late January. However, these submissions are likely to change before we publish the *Winter Outlook 2026/27* report, and our assessment will be updated accordingly. More information on the likelihood of these conditions – and the operational tools available in such circumstances – will be included in the full *Winter Outlook 2026/27* report.

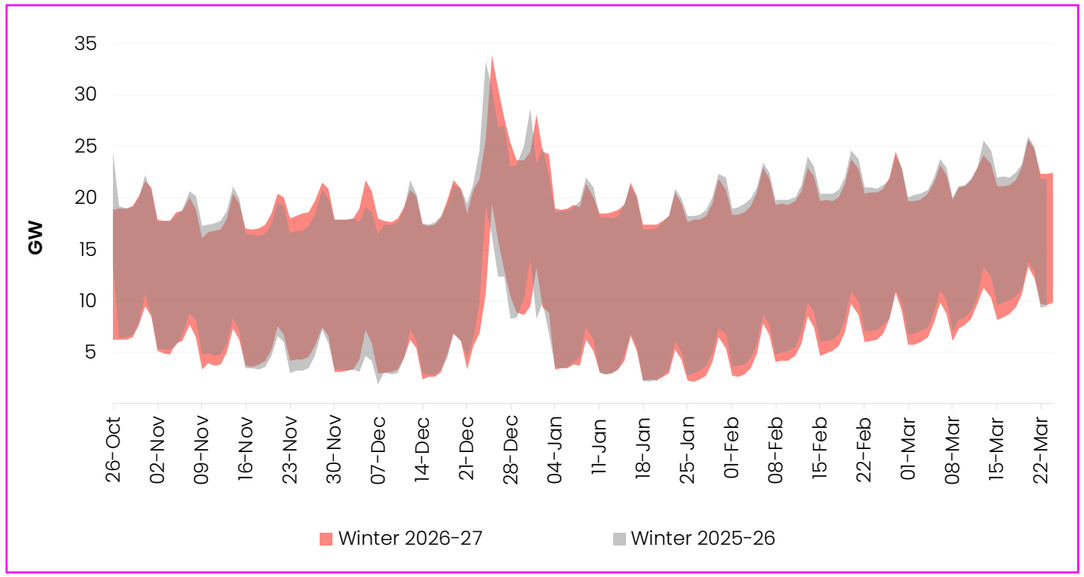


Figure 3: Comparison of the forecast operational surplus range (90% confidence level) for winter 2025/26 (grey) and winter 2026/27 (red)

3. Energy Markets

Gas and power prices remain high compared with winter 2025/26 but are well below the peaks observed in 2022. Early price signals suggest Great Britain will be a net importer across the electricity interconnectors this winter.

We have produced this Early View in the most volatile market conditions since 2022, with the conflict in the Middle East affecting energy prices worldwide. As shown in Figure 4, prices remain elevated compared with 2025 but are well below the 2022 highs. At that time, several factors – including widespread stress corrosion across the French nuclear fleet, low hydroelectric reservoir levels in Norway and low run-of-river hydro across Europe – exacerbated the price response to the loss of Russian gas volumes. A comparison of some of these main fundamentals is shown in Figures 6 and 7 on page 9. The significant growth in renewable generation in Great Britain and across Europe since 2022 continues to affect the seasonal gas-demand for power.

Figure 5 shows the year-on-year change in Great Britain's peak power price premium over selected European markets. Forward power prices suggest that Great Britain will remain a net importer of electricity this winter, as wholesale power prices are trading at a premium to France. Flows from Belgium, the Netherlands and Denmark may be more variable as current prices in key European markets are more closely aligned. While prices in forward markets can indicate expected net power flows for the season ahead, actual flows on any given day depend on short-term prices and prevailing conditions.

Electricity flows across interconnectors are primarily driven by price differentials between markets. When required, we have a range of operational tools available to alter flows. We recently announced short-term measures to restrict our intraday trading volumes. These have been introduced following extensive engagement with EU Transmission System Operations (TSOs) and are expected to be in place until the end of 2026 while more enduring solutions are agreed. We have been working closely with DESNZ, Ofgem, the EU Commission and neighbouring TSOs to ensure the process maintains security in GB as well as interconnected regions. Established processes are in place to ensure open communication between connected TSOs and that support is available when required. Our Winter Outlook 2026/27 report will include additional information on winter preparations and our operational expectations for the period.

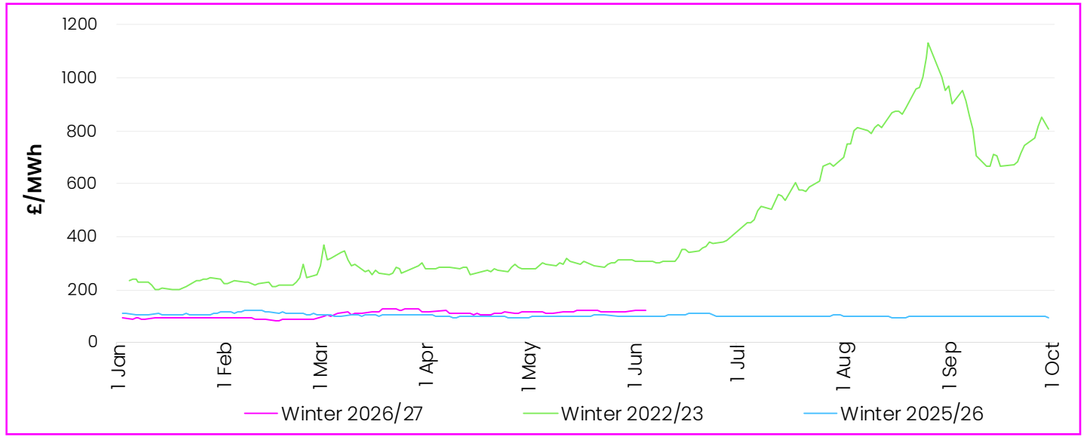


Figure 4: Evolution of winter power price history between January and October for the respective front winter in selected years (source: Argus Media)

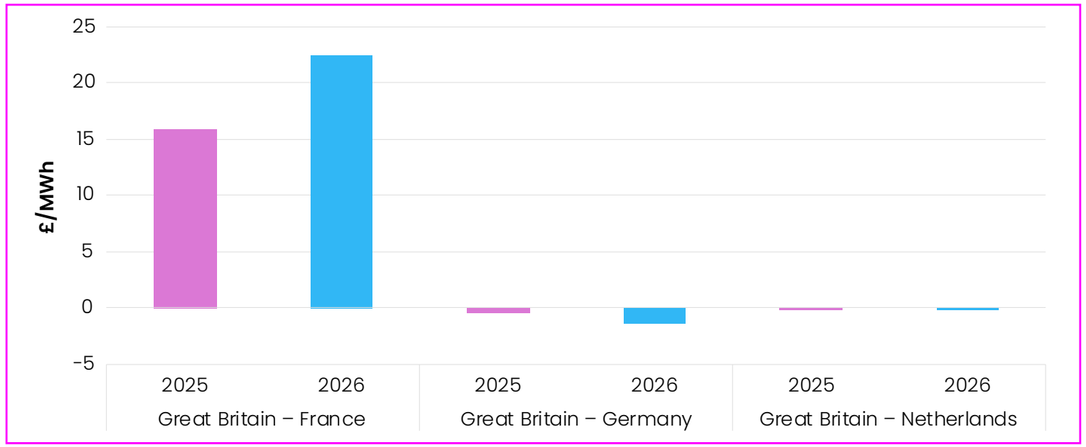


Figure 5: Peak (7am–7pm) wholesale power price differential between Great Britain and selected European markets as of 4 June winter 2025/26 and winter 2026/27 (source: Argus Media)

3.1 Power fundamentals

Early indicators suggest adequate generation availability in main interconnected power markets, but uncertainties remain.

Figure 6 shows scheduled French nuclear unavailability for the coming winter compared with historical availability over the last five years. Allowing for upward revisions, we anticipate unavailability levels comparable to 2025/26 and well below 2022. We will continue to monitor generator availability across all interconnected markets and work closely with our neighbouring Transmission System Operators to identify developments that could affect interconnector flows.

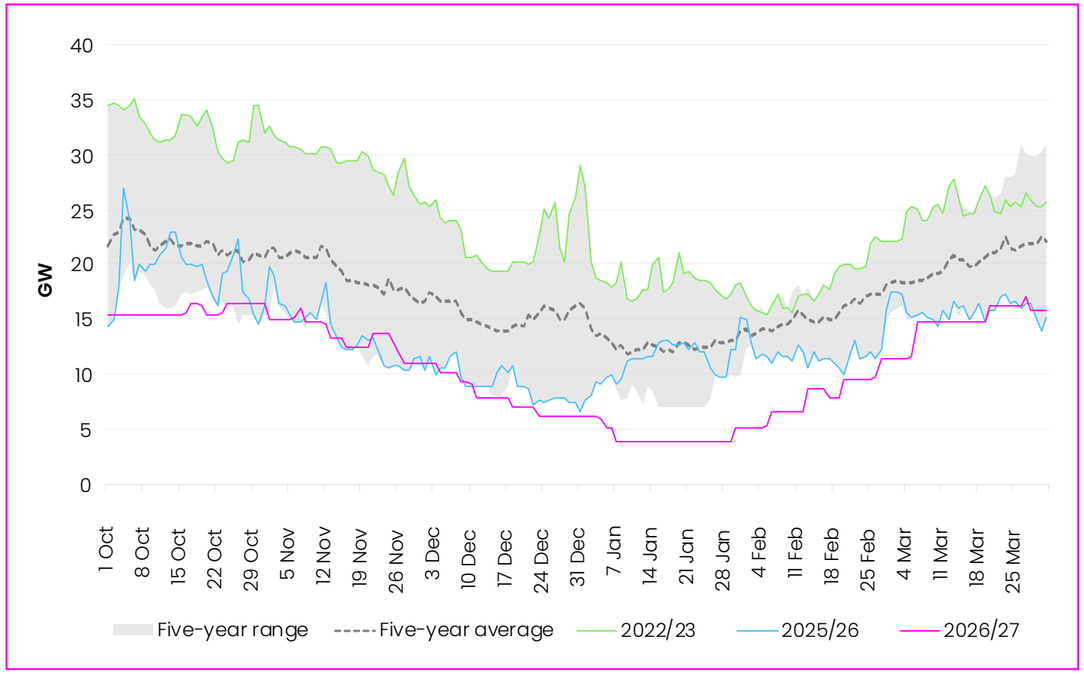


Figure 6: Scheduled French nuclear outages for winter 2025/26 compared with historical ranges

As shown in Figure 7, hydroelectric reservoir levels in Norway are slightly below the 10-year average and roughly 7 percentage points (ppts) above 2022 levels. Reserves in the Southern Norway (NO2) market area – where North Sea Link connects – are lower. There is currently no indication that imports will be affected during tight periods in Great Britain. We will continue to monitor all neighbouring markets to identify developments that could affect interconnector flows. Our Winter Outlook 2026/27 report will include our updated view on the fundamentals of neighbouring markets.

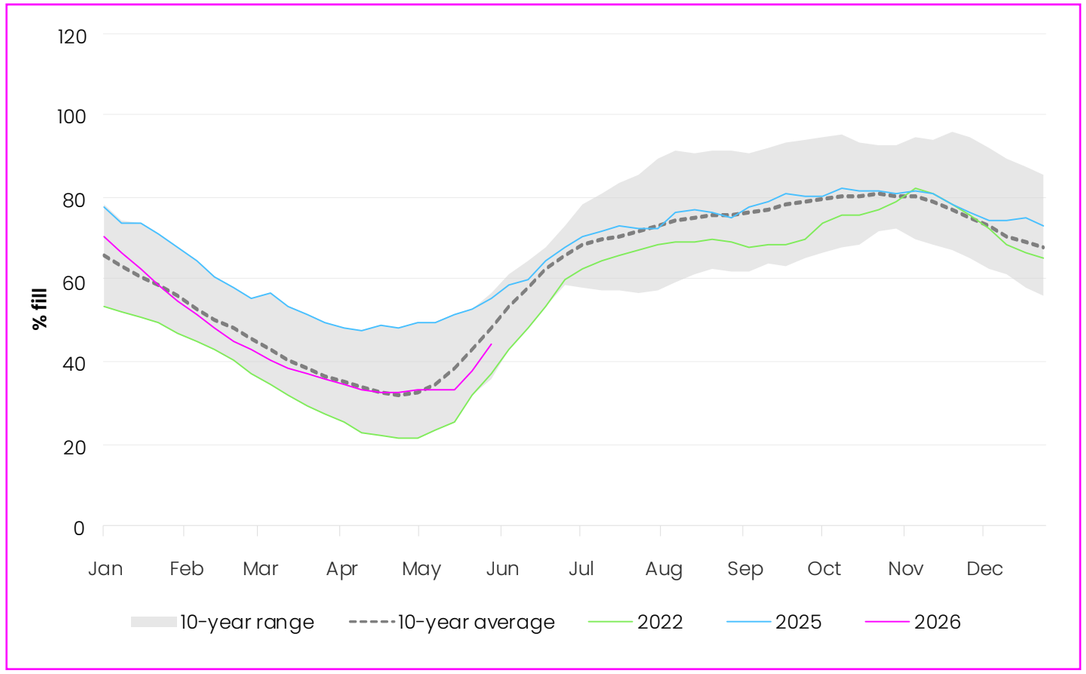


Figure 7: Norwegian hydroelectric reserves

3.2 Gas fundamentals

We will continue to monitor the fundamental factors influencing global energy markets, working closely with government, Ofgem and National Gas to identify, assess and mitigate potential risks.

EU gas storage stocks began the injection season at the lowest level since 2022. As shown in Figure 8, European Gas storage continue to refill ahead of winter with stocks at 41% on 3 June. This is 13 ppts below the 10-year average, 8 ppts below 2025 levels and 7 ppts below 2022 levels. This means injection rates for the remainder of the summer must be high to meet regulatory targets by the start of winter.

Gas prices for winter are higher and more volatile than in recent years following the conflict in the Middle East and effective closure of the Strait of Hormuz. As shown in Figure 9, market conditions have resulted in inverted seasonal price spreads, with the summer-winter differential disincentivising commercial injection. European gas storage levels at the start of winter, and therefore the volume of LNG required during winter, will be influenced by several factors. This includes the duration of the effective closure or ongoing restriction of flows through the Strait of Hormuz, how long production takes to return to pre-conflict levels, any EU policy response and global weather patterns – including potential effects arising from a strong El Niño.

We continue to work closely with government, Ofgem and National Gas to identify, assess and mitigate potential risks. Through our partnership with the Met Office we can draw on advanced forecasting capabilities to understand and monitor global weather patterns that may affect global energy markets and directly or indirectly influence weather in Great Britain. We undertake a range of activities – collaborating widely with partners and industry – to ensure the whole energy system is ready for the coming season and resilient to the various conditions it may face.

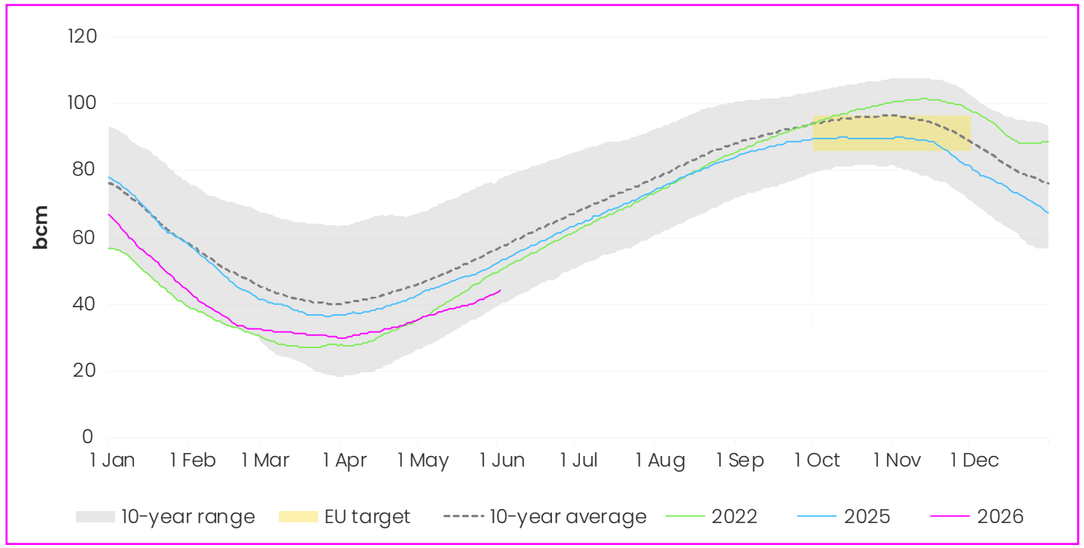


Figure 8: Aggregated EU gas storage(bcm), showing 2022, 2025 and 2026 levels compared with the 10-year average, 10-year range and EU target

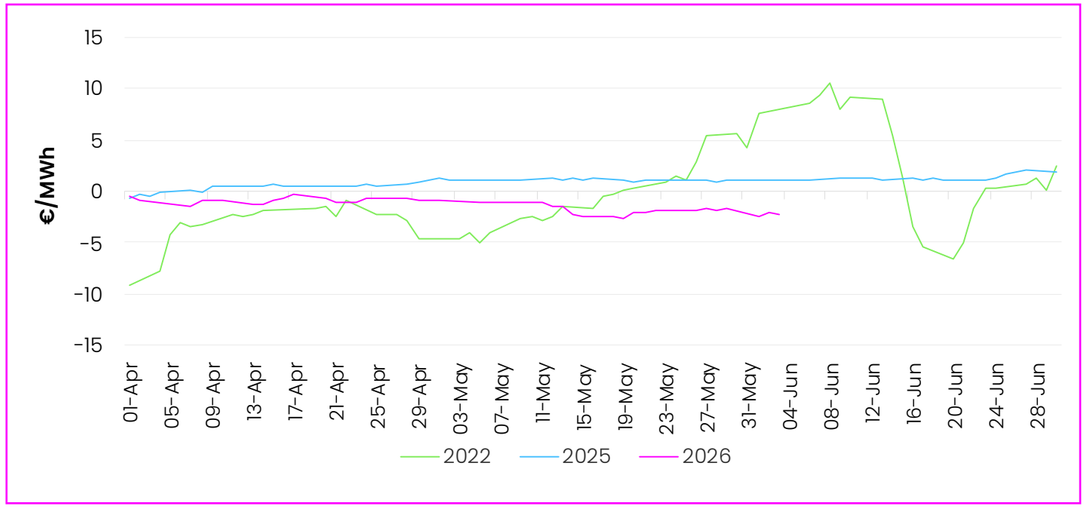
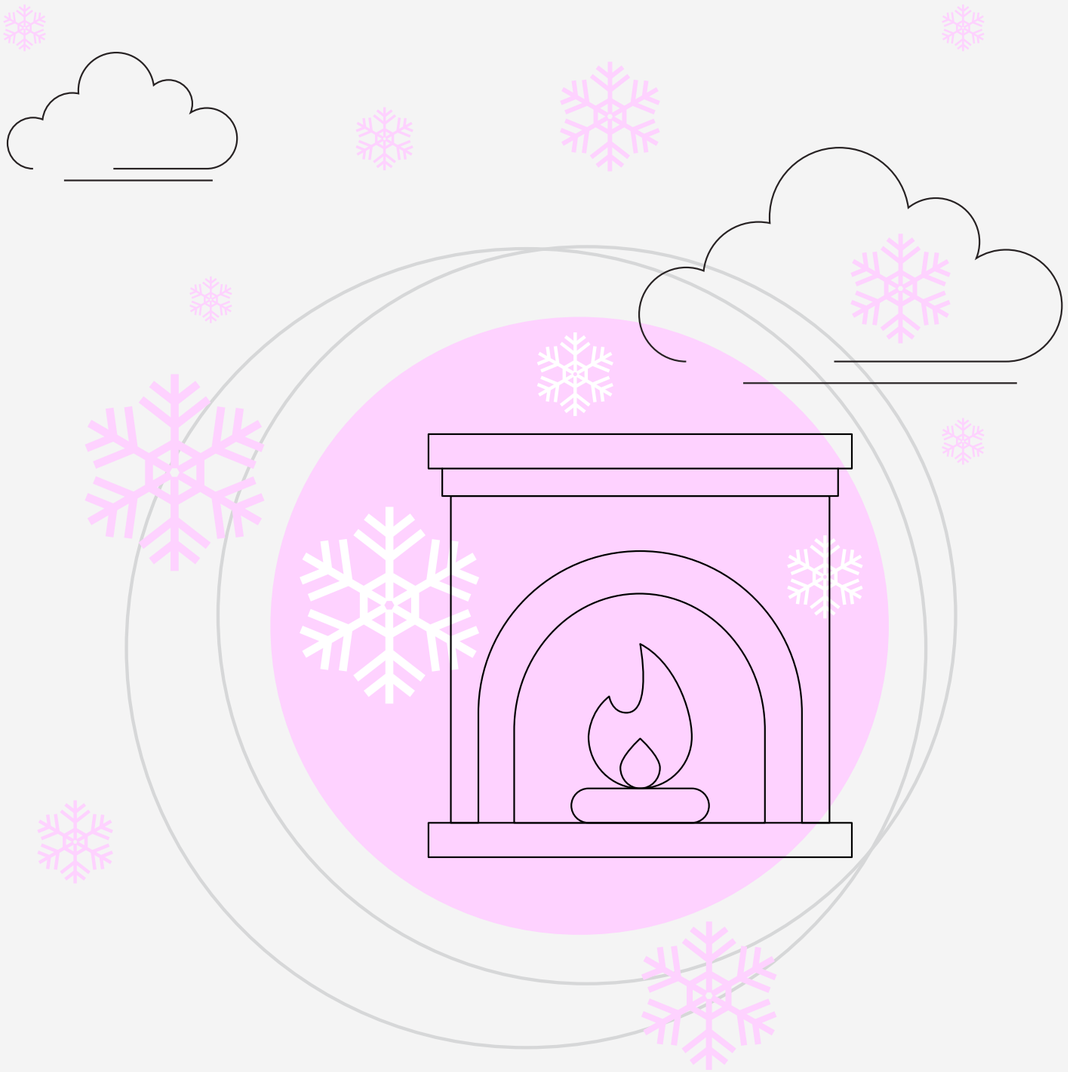


Figure 9: Evolution of price spreads between winter and Q3 Title Transfer Facility (TTF) gas prices (source: ICIS)

Appendices



Appendix A: Capacity Modelling Updates

We regularly update our modelling to reflect changes in the electricity system, ensuring our approach and methodology accurately capture the contribution of different forms of capacity to security of supply. For this winter, we will be updating our Capacity Assessment (CA) Model process and related tools.

The CA Model, which has been used to derive the de-rated margin and Loss of Load Expectation (LOLE), applies an inherently 'time-collapsed' approach. This generates a discrete probability distribution of available capacity, which is then compared with weather-driven demand and variations in renewable generation.

What are the benefits of the new approach being developed?

This year, we have further developed the CA process to better reflect observed dependencies between renewable generation availability and demand. This has been embedded in a standalone alternative process, based on the PLEXOS simulation tool developed by Energy Exemplar.

This new approach, which uses direct pairwise time series sampling of historical demand and renewable observations, remains a time-collapsed calculation. However, it brings our Winter Outlook modelling of demand and renewable dependency for margin assessment more in line with other processes, such as the operational view in this document and the modelling used in Great Britain's Capacity Market.

This approach will still produce the headline metrics of de-rated margin and LOLE. For winter 2026/27, the new modelling process and methodology to result in a de-rated margin of approximately 10.0% of Average Cold Spell (ACS) peak demand – with an associated LOLE below 0.1 hours per year.

Further information on the new approach will be included in the full *Winter Outlook 2026/27*.

Appendix B: Map of Interconnectors Linking with Great Britain

Modelling interconnector contributions

We undertake pan-European market modelling to assess the ability of neighbouring markets to support Great Britain's adequacy during periods of tighter margin. Under our Base Case, we assume that interconnector imports will be available in line with Capacity Market (CM) agreements.

This expected contribution is determined after consideration of a range of sensitivities in which the supply and demand balance in European markets is shifted to assess the impact of potential uncertainties. These sensitivities are run over 34 historical weather years and account for randomly selected plant outages to assess both the plausible range of weather-dependent energy system variables and uncertainties in plant availability.

In total, the full set of modelling results comprises approximately 17,000 full-year simulations and almost a million focused on tight periods. These sensitivities allow us to explore a wide range of credible drivers of tight conditions that influence interconnector flows, including prolonged low-wind periods coinciding with cold spells across Europe.

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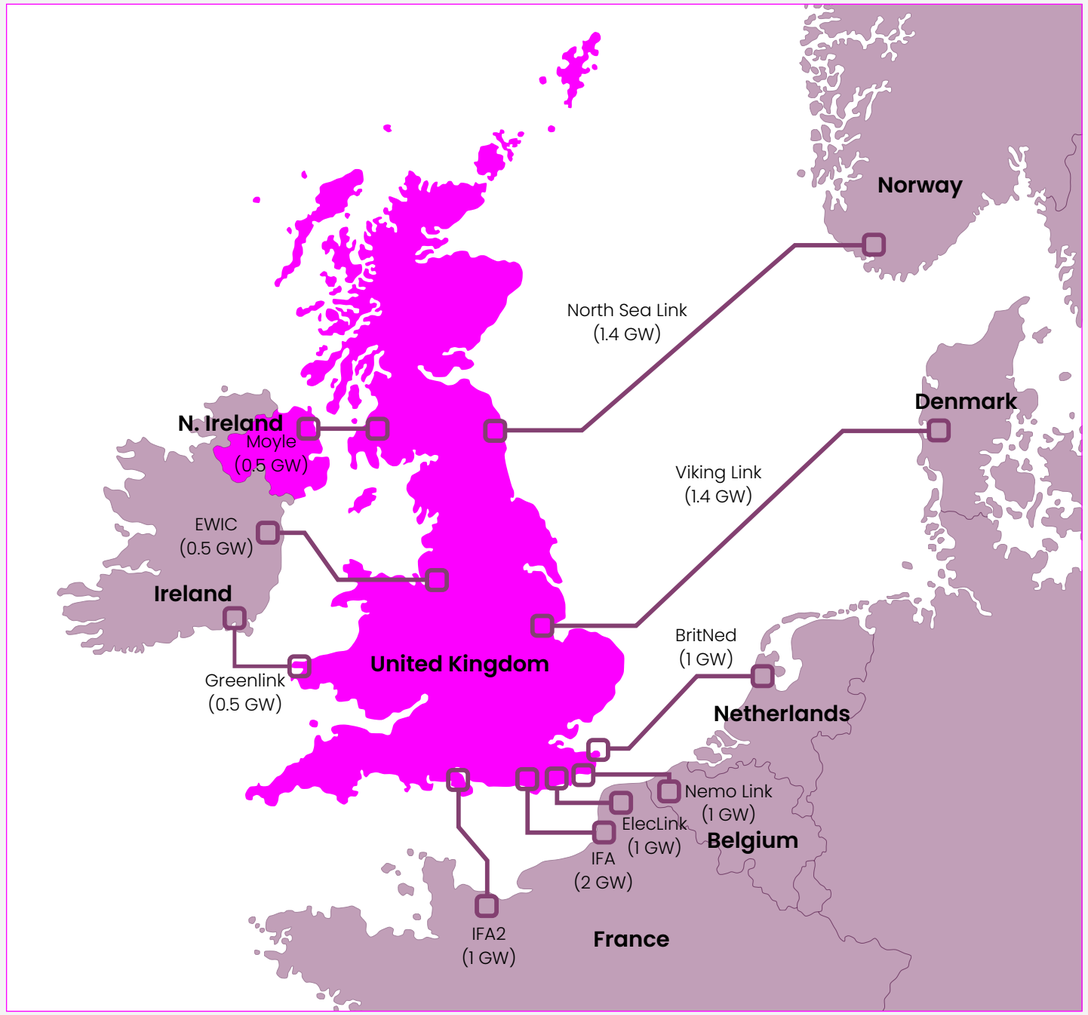

Figure 10: Interconnectors operational this winter

Appendix C: Relationship between Types of Demand

Daily peak demand can vary significantly. Historically, peak winter demand has occurred between the first week of December and the first week of February, but never during the Christmas fortnight or on a weekend. National Demand will depend on weather (temperature, wind speed, radiation), calendar effects (time of day, day of week, bank holidays, school holidays) and – as the role of demand flexibility grows – market factors (from time-of-use tariffs to our Demand Flexibility Service). Observed Transmission System Demand (TSD) will depend on additional market factors, such as price differences between interconnected markets. Figure 11 shows the relationship between types of demand.

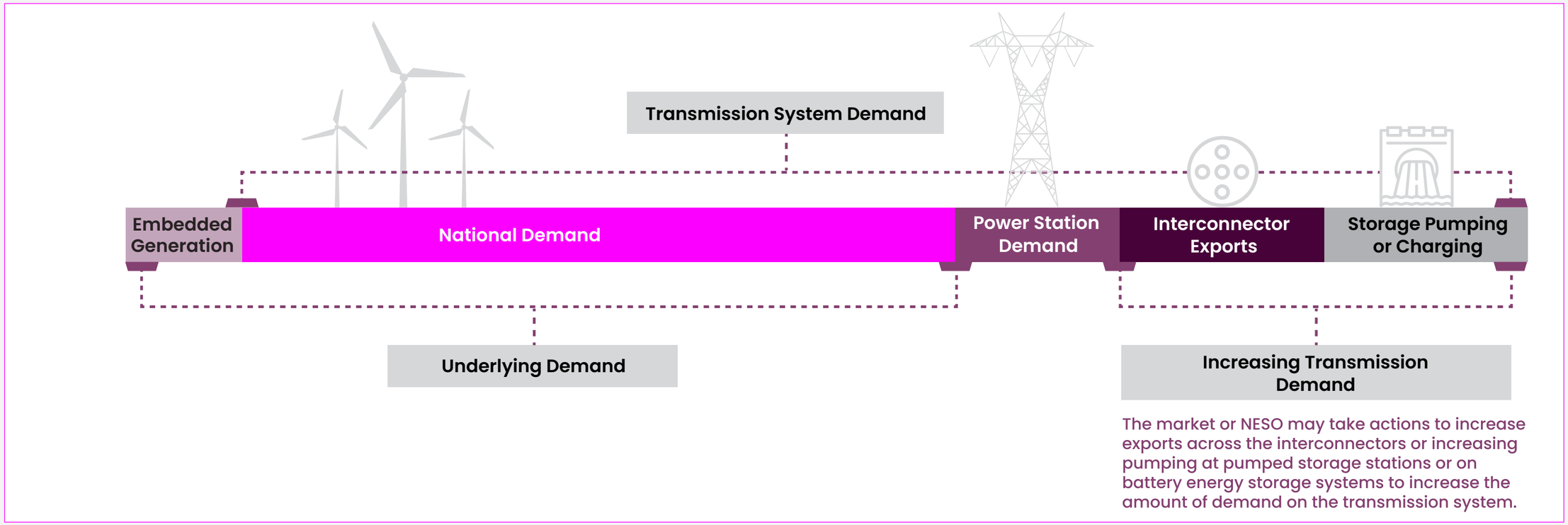

Figure 11: Relationship between types of demand

Note: The published initial transmission system demand outturn (ITSDO) does not currently include charging from battery storage. An updated reporting methodology for ITSDO, reflecting battery storage charging, will be introduced this summer.

Get in Touch

Email us with your views on the *Winter Outlook 2026/27: Early View* at marketoutlook@neso.energy and we will get in touch.

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