Winter Outlook 2023/24: Early View

Helping to inform the electricity industry, and prepare for the winter ahead.

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ESO

Welcome

Fintan Slye
Director, Electricity System Operator

Welcome to our early view of winter 2023/24. This document includes an early view of the electricity security of supply outlook, to help the electricity industry prepare for the winter ahead.

The ESO will publish a full Winter Outlook Report in September or early October. That report will include our full detailed analysis that will be developed over the coming weeks and months, and be published alongside a data workbook.

This early view report sets out our developing Base Case view for winter 2023/24 as well as the actions we are taking to build our resilience to the continued risks and uncertainties arising from Russia's illegal invasion of Ukraine. We continue to monitor its impact on both global and UK markets, working closely with Government, Ofgem and National Gas Transmission.

It is possible that the information presented in the early view could change by the time we publish the Winter Outlook Report. Nonetheless, we hope that industry stakeholders will find our early view helpful and that it will allow them to prepare for winter.

We welcome input from stakeholders on the outlook for winter, including perspectives on the uncertainties and the market conditions. Alongside our early view of winter 2023/24, we have also published our 2022/23 Winter Review and Consultation here, which reviews last winter.

For more information, or to provide feedback, you can email us at: marketoutlook@nationalgrideso.com; join us at the ESO Operational Transparency Forum; or use social media via LinkedIn and Twitter.

This document only covers our early view of the electricity outlook for the winter ahead. An early view of the gas outlook can be found here.

Key Messages / Early view of Winter 2023/24

1. Margins

Our current analysis shows that margins are expected to be adequate and within the Reliability Standard under normal market conditions.

Our current Base Case margin is 4.8 GW / 8% with an associated loss of load expectation (LOLE) below 0.1 hours, which is broadly in line with recent winters.

We expect there to be sufficient operational surplus in our Base Case throughout winter.

There may be some days where we need to use tools in our standard operational toolkit, including use of system notices.

2. Reciprocal support with neighbouring countries

We expect to continue working closely with our neighbours in Europe, adopting a coordinated approach providing reciprocal support.

Close cooperation between European system operators through reciprocal support has played an important role in helping maintain secure supplies for customers in Great Britain and Europe.

We expect this to continue this winter leading to periods when imports flow from Europe when we need them, provided by the market and / or ESO trading, which is an important operational tool for us.

We expect it will also lead to periods when exports flow from Great Britain to Europe, including over some peak periods, when we have sufficient operational surplus.

3. Preparing for winter

We are continuing to build resilience ahead of winter to mitigate the impact of risks and uncertainties due to Russia's illegal invasion of Ukraine.

We are actively engaging with Government, Ofgem, National Gas Transmission and industry stakeholders to ensure we understand and mitigate emerging risks for the upcoming winter.

We believe it is prudent to maintain our Demand Flexibility Service for next winter, and the service terms are now out for consultation, reflecting feedback from industry stakeholders.

We are continuing to have discussions on the availability of having two coal units in contingency contracts this winter. One of the units held in contingency last winter has returned to the market. The other two units have now closed.

System margins / Base Case

Margins are expected to be within the Reliability Standard under normal market conditions. Our current Base Case margin is 4.8 GW / 8% with an associated loss of load expectation (LOLE) below 0.1 hours, which is broadly in line with recent winters.

Our current assessment shows that we expect there to be sufficient available capacity to meet demand in our Base Case, with a de-rated margin of 4.8 GW (around 8%). This assumes normal energy market conditions with no disruptions to fuel supplies and that electricity interconnectors continue to respond to market prices. The associated LOLE is below 0.1 hours, which is within the Reliability Standard of 3 hours.

We assume peak average cold spell demand of 60.3 GW (including operating reserve). This assumes there is no reduction in customer demand on the coldest days of winter, as we saw in winter 2022/23 (see the 2022/23 Winter Review and Consultation).

Our assessment assumes all providers with Capacity Market (CM) agreements deliver in line with their obligations unless we have specific market intelligence otherwise (e.g. notified outage on REMIT).

Available generation includes one of the coal contingency units from winter 2022/23 operating back in the market. It assumes an additional 0.9 GW (de-rated) generation from units that were partially or fully unavailable last winter. It also assumes over 2 GW (de-rated) more battery storage and demand-side response (DSR) since last winter, reflecting delivery through the CM and improved data quality of our data sources.

We assume 5.1 GW net imports will be available via interconnectors at times when needed which is in line with CM agreements held by interconnectors. Should it be required the ESO can also step in and seek to trade* to deliver the operational flows required to secure the system – this is an important operational tool available to support security of supply.

While the Base Case margin is slightly higher than last winter, it is still broadly in line with those of recent winters. We are continuing to monitor risks and uncertainties for winter, arising from Russia's illegal invasion of Ukraine, and we have outlined some of the steps we are taking to build additional resilience as part of our winter preparations on page 7.

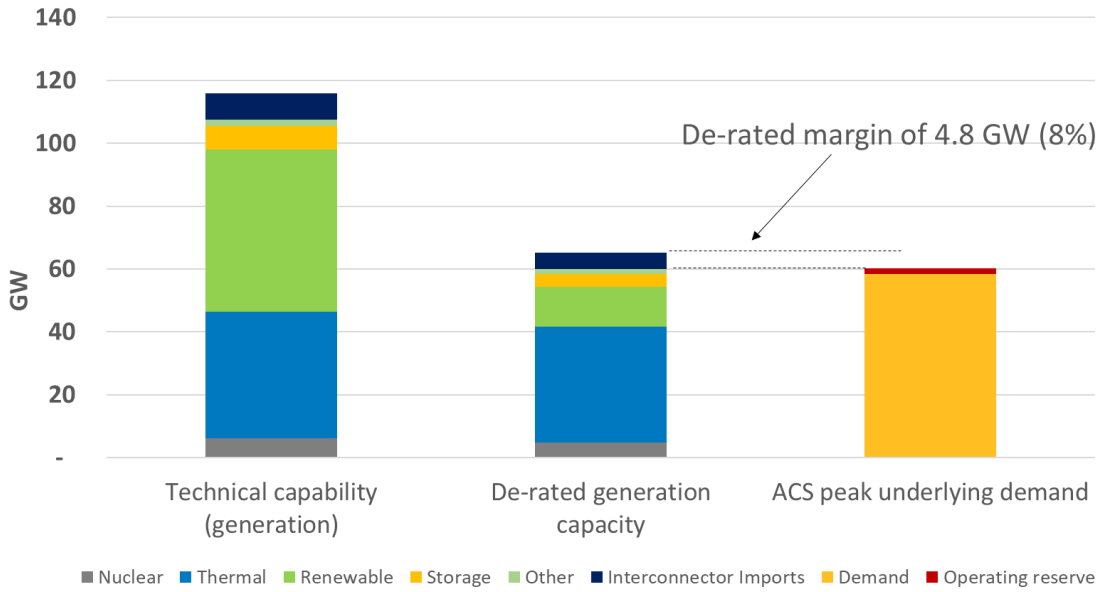

Figure 1: Supply margin in relation to generation capacity and demand

***Note*: our Base Case does not assume any contribution from enhanced actions or out-of-market services such as the Demand Flexibility Service.**

* Please see the Spotlight in our 2022/23 Winter Review and Consultation for further information on ESO trading and its impact last winter

Operational surplus / Base Case

Our base case operational view shows sufficient operational surplus for each week of winter. There may be times when we can support exports at peak, providing reciprocal support to neighbouring markets if needed.

Figure 2 shows the day-by-day view of operational surplus (also referred to as margin).

Our operational modelling includes notified plant outages and average weather conditions. Generation is de-rated through a breakdown rate to reflect outages that are not notified yet. We assume wind at its Equivalent Firm Capacity (EFC), which for transmission-connected wind in this assessment is around 3 GW. It is based on transmission demand and generation, and therefore represents the perspective from our control room based on what the market is currently intending to provide (i.e. before use of our operational tools and excluding transmission constraints).

Our operational modelling helps to identify when tight periods are most likely to occur, and to indicate when we may need to use our operational tools to manage margins. These periods do not necessarily occur at times of peak demand. This view will change throughout winter, based on weather and changes to plant outages.

This winter we expect normalised peak transmission demand to occur in early January, based on our latest forecasts and this demand can be met in the Base Case before using any operational tools.

The minimum operational surplus is currently projected to be lowest in early January when these forecasts are combined with current generator submissions.

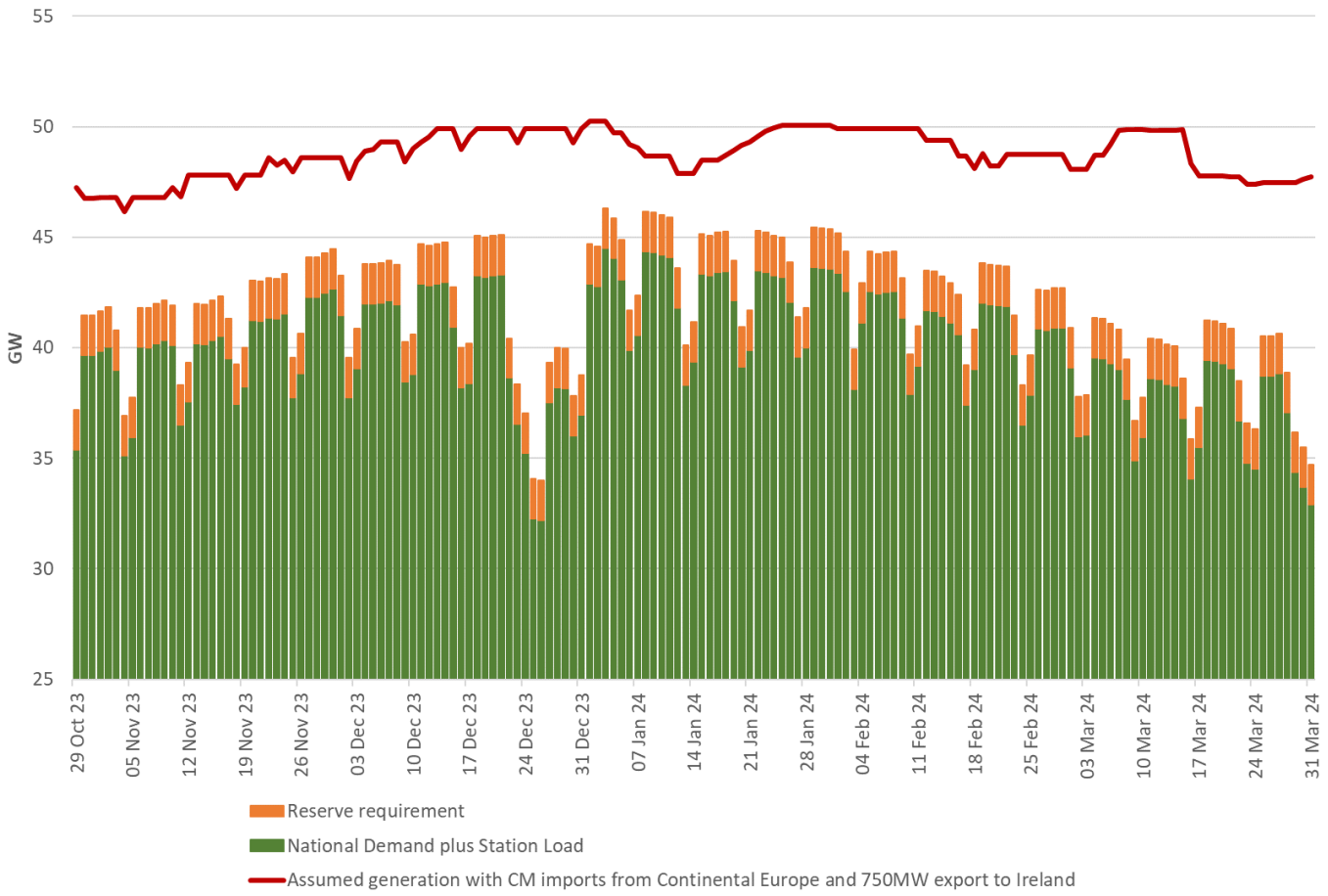

Figure 2: Day-by-day forecast view of operational surplus for winter 2022/23 for our Base Case

Operational margins / Base Case

We expect to have sufficient operational surplus throughout winter in our Base Case, even when we consider the expected natural variation of demand, wind and outages. There may be some tight days, and based on the current available information, these are most likely to be in January.

Figure 2 (on page 5) shows a particular view of generation and demand from which you can extract a single view of operational surplus. However, a single view is not appropriate in assessing the potential risk due to natural variation in demand, wind, outages etc.

Figure 3 shows the daily operational margin under typical conditions, together with a credible band within which the margin can fluctuate because of these factors.

When the shaded region dips close to 0 GW, there is a risk that the system may become tight, and operational tools, including market notices, could be used to increase margin.

Our operational modelling indicates sufficient operational surplus throughout winter in our Base Case, even when we consider the expected natural variation of demand, wind and outages. There could still be days where the operational surplus falls below this range (up to 5% of days) and we may need to use our standard operational tools to manage these periods, which may mean issuing Market Notices*.

We expect there to be sufficient available capacity to respond to these market signals to meet consumer demand.

The outturn surplus will ultimately be determined by market positions which could lead to us providing exports to Europe at peak times.

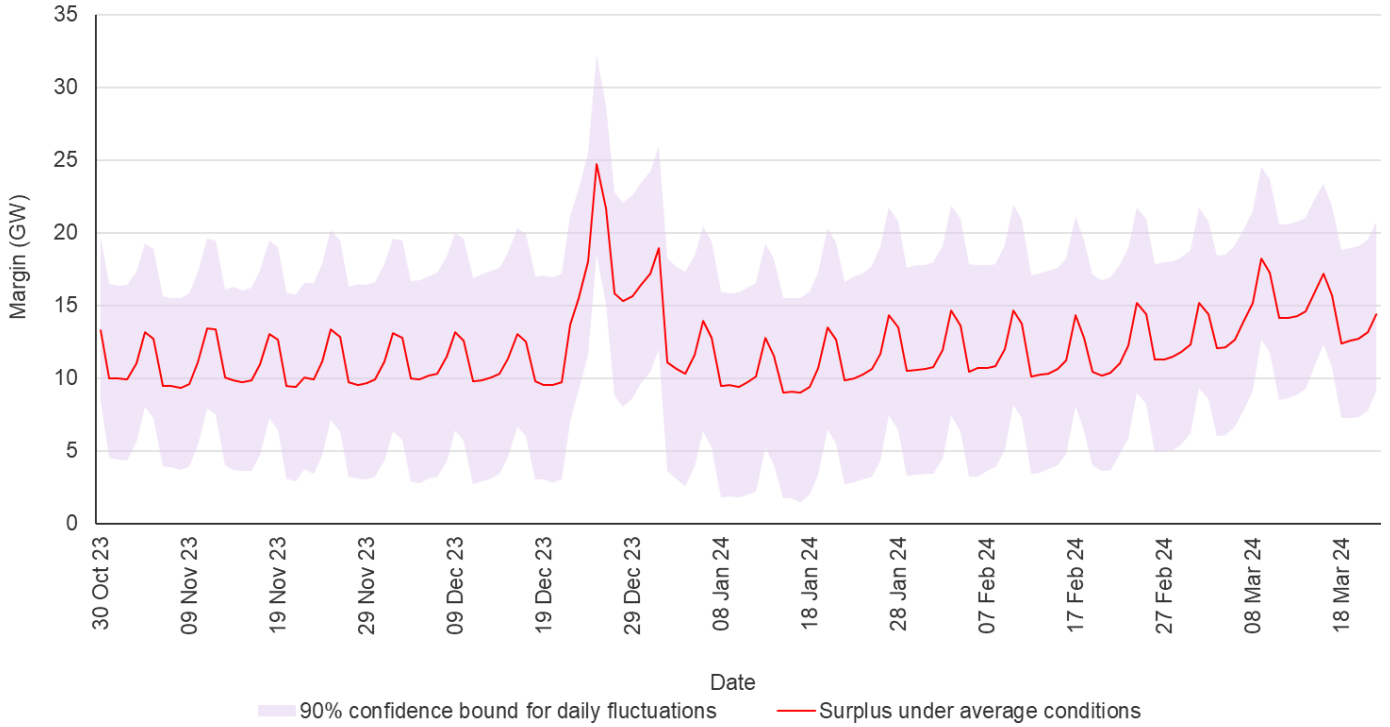

Figure 3: Central forecast with range of credible outcomes for daily margin during Winter 2023/24 using our Base Case assumptions

Note on the methodology: the central case in Figure 3 considers a situation under typical conditions, using average weather conditions for demand, average availability for conventional generation and average wind conditions when margin is tight. To explore the variation around this central view, we simulate many possible scenarios for weather, demand, conventional generation availability, wind generation output and interconnector availability and, for each of these scenarios, we calculate the daily surplus time series across the entire winter for that scenario.

* Including Electricity Margin Notices (EMNs) and Capacity Market Notices (CMNs)

Preparing for Winter

We are working closely with Government, Ofgem and National Gas Transmission to assess potential risks and uncertainties for this winter, arising as a direct result of Russia's illegal invasion of Ukraine and its subsequent impact on both global and UK energy markets. While markets have now had longer to respond to the crisis, lessening the market risks since last winter, as a prudent system operator, we remain vigilant, continuing to monitor developments that could change quickly and taking steps to build our resilience and minimise the potential impact to electricity customers in Great Britain.

1

Industry engagement

We are engaging with industry stakeholders to ensure we understand and can mitigate any emerging risks as they materialise.

This includes working closely with Transmission Owners to minimise the impact of network outages over winter to maximise the amount of energy available for customers.

It also includes discussions with neighbouring Transmission System Operators in Europe. This helps us better understand risks and uncertainties in neighbouring markets enabling a coordinated approach with reciprocal support* to meet the needs of all electricity customers.

We are also actively monitoring market developments to ensure we have access to the latest market intelligence in our assessments. This will underpin our detailed modelling for the full Winter Outlook Report, and the analysis that we continue throughout winter to monitor any potential changes. This is used to keep industry stakeholders informed on developments to the security of supply outlook during winter at the weekly Operational Transparency Forum

2

Demand Flexibility Service

We launched our new Demand Side Flexibility service for last winter. This innovative service incentivises consumers to voluntarily flex the time when they use electricity allowing the ESO access to additional flexibility when demand is highest.

We have been engaging with industry stakeholders since last winter to review the service and to consider how we can make further developments for the coming winter.

We believe it is prudent to maintain the DFS service for this winter and have taken industry feedback on board to improve the design in order to grow volumes in this market.

The service terms for DFS are now out to consultation until 17th July. For more information please see our website here.

3

Coal contingency contracts

As reported in our Operational Transparency Forum in March, we received a request from Government to explore the extension of the coal contingency contracts that were available last winter.

We expect one of the five units to be commercially available in the market having secured a Capacity Market agreement in the recent T-1 auction.

The units at West Burton A have now closed and will be unavailable. There is less certainty on Drax and discussions are ongoing. These discussions are commercially sensitive and so we are unable to report on the outcome until they have reached their conclusion.

We will expect to inform market participants when we can on any updates through the weekly Operational Transparency Forum and / or the Winter Outlook Report in the autumn.

* Providing reciprocal support can mean flows on electricity interconnectors can be importing or exporting from Great Britain delivering mutual benefits for us and our European neighbours