Public

Ref: FOI/25/109

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Dear requester

Request for Information

Thank you for your request for information which we received on 3 September 2025.

In your email you indicated that you were submitting a request under the Freedom of Information Act 2000 (FOIA). The exemption at Section 39 of the FOIA covers information that a public body is obliged to consider under the Environmental Information Regulation 2004 (EIR) and has the effect of routing all requests for environmental information via the EIR rather than the FOIA. We have determined that information about wind generation in our Winter Outlook 2025-26 meets the definition of 'environmental information' at Regulation 2(1) of the EIR, and your request has therefore been considered under the EIR.

Request

You asked us:

This is a Freedom of Information request concerning document: Winter Outlook 2025-26: Early View [https://www.neso.energy/document/362976/download]

The De-rated Margin section states: We undertake pan-European market modelling to assess the ability of neighbouring markets to support Great Britain's adequacy during a period of tighter margin. Under our Base Case we assume that 6.9 GW (de-rated) of interconnector imports will be available at such times and that wind generation will contribute 3.9 GW (de-rated).

I seek information about the assumption that wind generation will contribute 3.9GW.

Q1: Does the 3.9GW refer to: a) the wind generator connected to the Transmission Network only; b) the Transmission Network plus metered wind connected (aka embedded) to the Distribution networks; c) something else?

Q2: If b) or c) does NESO have a rule of thumb for estimating the minimum contribution from wind connected to the transmission network: if so, what is it?

Q3: Please would you explain "derating" in this specific context and provide figure for gross value and the reasons why it was derated. For the purpose of the next question, I have made assumptions that the 3.9GW comprises both wind generator connected to the Transmission Network and embedded wind and embedded wind comprises 30% of generation capacity. The minimum transmission contribution is thus 70% of 3.9GW = 2.7GW.

Q4: What happens when the wind falls below its assumed value?

I draw your attention to November 2024 where there were phases where the wind contribution was below 2.7GW for significant durations. One was lasted for 5.5 days; in the other Peak demand was accompanied low wind.

Our response

We confirm that we hold some information in scope of your request.

Question 1

The reference to wind generation contributing 3.9 GW (de-rated) in our Winter Outlook 2025-26 accounts for all wind on the system. This includes transmission-connected, embedded (distribution-connected), and micro-generation wind and encompasses both onshore and offshore wind.

Question 2

We can confirm that we do not hold recorded information in scope of this question.

Question 3

The derating factor refers to the ratio of the Equivalent Firm Capacity to the installed (nameplate) capacity of the wind fleet. This reflects the statistical contribution of wind to system reliability, accounting for its variability and intermittency. We publish the assumed installed capacities for wind as well as the EFC of the resource, in MW and % terms, in our annual Winter Outlook data workbook, which is available here Winter Outlook | National Energy System Operator.

For an example of de-rating factor, if the installed wind capacity is around 28GW and the EFC is 3.9GW, the derating factor is approximately 14%.

Question 4

We can confirm that we do not hold recorded information in scope of this question.

The exception at regulation 12(4)(a) of the EIR allows us to refuse a request or parts of a request where we do not hold the information at the time when a request is received. All EIR exceptions are subject to public interest test (PIT) however the Information Commissioner's Office (ICO) recognises that it is not possible to carry out a meaningful PIT where information is not held.

This concludes our response to your request.

Further information

We have confirmed that we do not hold recorded information in scope of questions 2 and 4 and are not obligated to create new information to response to a request. However, in order to assist you, we would like to provide the following explanation which you may find helpful.

The capacities that we account for are reported each year in our Winter Outlook data workbook, and are aligned with our Future Energy Scenarios publications, which can be found at FES Documents | National Energy System Operator.

The 3.9GW refers to the Equivalent Firm Capacity (EFC) of the transmission and embedded wind capacity. EFC is defined as the amount of perfectly reliable baseload capacity that could be replaced by the wind fleet while maintaining the same level of system reliability, which is measured by our headline metric, Loss of Load Expectation (LOLE) in hours/year.

For perfectly reliable baseload capacity imagine a generator that has 100% reliability at all times and no energy duration limits. EFC is a well-established metric for estimating the capacity contribution of a resource to the electricity system. There are mathematical descriptions of EFC available in the academic literature including in section 3 of the article at the following link https://arxiv.org/pdf/1907.05973. There is also a higher-level description in the methodologies and assumptions booklet of our most recent Electricity Capacity Report (ECR). In this case the EFC calculation is related to interconnection, but the general principles and underlying theory are the same.

We don't typically separate the EFC into transmission vs embedded wind, or onshore vs offshore when assessing the contribution of wind to the winter adequacy margin within the capacity assessment. This is because wind generation is variable and highly correlated across locations in time due to shared weather patterns, and we need to account for its contribution as a fleet overall in this type of study. Analysing subcomponents independently can lead to misleading results because the total capacity contribution of a fleet of variable, correlated resources is typically less than the sum of the capacity contributions of the individual components themselves – formally the contributions of the individual resources are said to be "sub-additive". Given that the aim of the capacity assessment analysis is to assess the capacity contribution of the fleet it is necessary to perform this calculation at the fleet level.

To complement the long run statistical assessment of the Reliability Standard provided by the capacity adequacy assessment, the Early View also presents a forecast range for the daily operational surplus time-series for the upcoming winter. The operational surplus is produced by simulating 30,000 individual time-series of various factors impacting margin, including weather and wind generation. Weather simulations are drawn from historic data from 1987 - present and therefore consider a wide range of possible conditions that could occur in the current climate. For each simulation, we determine the daily peak demand, and the transmission connected wind generation at the time of this peak, which more accurately captures interactions between these variables than a fixed minimum contribution.

The EFC is a statistical value, calculated over a large range of possible demand, weather and operational conditions. It's used in our LOLE calculation to assess whether the system meets the National Reliability Standard of no more than 3 hours LOLE per year. These metrics are long run statistical averages. If wind generation is lower than 3.9GW on a given day, the system may rely more heavily on other resources such as storage, interconnectors, or dispatchable generation. However, the adequacy assessment accounts for such variability by modelling thousands of scenarios, including low-wind conditions.

We assess capacity adequacy of the GB electricity system in our Winter Outlook with respect to the national reliability standard, which targets no more than 3 hours LOLE (loss of load expectation) per year, on average. LOLE (as with EFC) is a statistical value and is assessed across a large range of possible demand, weather and operational conditions. To ensure

reliability, NESO runs the GB Capacity Market, which secures sufficient capacity across a diverse mix of technologies and locations. This market mechanism ensures that even in low wind conditions, the system can still meet demand within the national security standard.

To better understand the statistical nature of metrics such as EFC and LOLE and how these are applied in practice through the capacity market, we would refer you to the resources on EFC linked in the answer to question 1.

You can also find more information including the data workbooks referenced in our answers at the following link Winter Outlook | National Energy System Operator.

Next steps

If you are dissatisfied with our handling of your request, you can ask us to review our response. If you want us to carry out a review, please let us know within 40 working days and quote the reference number at the top of this letter. You can find our procedure here: Freedom of Information and Environmental Information Regulations | National Energy System Operator. The ICO's website also provides guidance on the internal review process: What to do if you are dissatisfied with the response | ICO.

If you are still dissatisfied after our internal review, you can complain to the Information Commissioner's Office (ICO). You should make complaints to the ICO within six weeks of receiving the outcome of an internal review. The easiest way to lodge a complaint is through their website: www.ico.org.uk/foicomplaints. Alternatively, they can be contacted at: Wycliffe House, Water Lane, Wilmslow, SK9 5AF.

Thank you for your interest in the work of the National Energy System Operator (NESO).

Regards,

The Information Rights Team, National Energy System Operator (NESO)