Public

REMA Dispatch Assessment

Summary of responses to modelling methodology Request for Input

NESO
National Energy System Operator

Public

Contents

Context

This document summarises the Request for Input on the modelling methodology for our assessment of REMA dispatch options. Our response to the feedback received and next steps is also provided.

At our last engagement, we shared with industry seven strawman dispatch models we are considering as part of the REMA dispatch workstream. The models were constructed to address the issues identified in our Case for Change, and to represent the spectrum of different approaches to scheduling and dispatch. The feedback we received largely agreed with the theoretical advantages and disadvantages we had identified, but stakeholders emphasised that quantitative analysis is required to support further understanding of the trade-offs between different designs.

Following this feedback, we commissioned FTI Consulting to assess the advantages and disadvantages of improvements to the BM and Central Dispatch compared to current self-dispatch arrangements. Each model will also be assessed under national and zonal pricing.

On 14 November 2024, we requested stakeholder input and feedback on the key assumptions for this modelling exercise. Further details of this request can be found here.

We are grateful to all respondents for taking the time to provide feedback on the modelling methodology.

REMA Autumn Update

On 13 December 2024, DESNZ published their REMA Autumn Update which provided an update of the policy development within the programme and how their vision for electricity market reform sits alongside Clean Power 2030. In the update, DESNZ said they are not minded to take forward central dispatch under either national pricing or zonal pricing at this stage, but are open to considering the evidence that NESO are gathering on it.

In order to ensure sufficient evidence has been obtained for all proposed dispatch models, this modelling exercise will be completed as planned.

How this work is being considered in REMA

We recognise the importance to investors of stability and confidence to underpin the significant investment required to 2030, particularly in light of our recently published Clean Power report, and through the 2030s and beyond. This modelling is intended to help accelerate evidence-led decision-making on the reforms needed to ensure future markets maximise the opportunities of a decarbonised power sector.

Wider system impacts, such as changes to cost of capital or implementation costs, are not being modelled as part of this work. These factors are being considered by DESNZ in their assessment, our work is intended to complement this broader analysis and to increase understanding of trade-offs between different designs.

Key themes

We have categorised the responses according to five key themes and provided our response to the feedback received.

Theme	Industry feedback	NESO response
Scenario and network background	Overall, respondents did not agree with the use of FES22 LtW and NOA7 refresh for the GB scenario and network background. It was argued that this approach risks overstating the level of network constraints and redispatch required, and therefore could overestimate the benefits of introducing central dispatch and/or zonal pricing. Respondents suggested that the analysis should align with the CP30 scenarios and Beyond 2030 network background.	While difficult to predict, the net impact on the results from updating the scenario and network background (e.g. to FES24 and Beyond 2030) will depend on whether the new assumptions have a greater effect on the volume of transmissions constraints or forecast errors. Holding all else equal, we would expect an increase in transmission capacity to lower the volume of transmission constraints and so reduce the case for central dispatch. However, aligning the model with FES24 will change a number of key assumptions that could move the net results in either direction. For example, FES24 assumes an increase in offshore wind capacity relative to FES22 for the modelled period, which would be expected to increase both the volume of forecast errors and the volume of transmission constraints. FES24 also changes the siting of future capacity (which could increase or decrease transmission constraints). In light of the feedback received, updating the model to FES24 and Beyond 2030 is considered a priority for the sensitivities.
Interconnectors	Respondents emphasised the importance of interconnectors to the REMA debate and asked for clarity on: 1. What interconnectors are modelled (Total capacity in each year), as there was concern that the	1. We recognise the importance of interconnectors to this work; however, we are unable to share details on DESNZ interconnector capacity assumptions at this stage. 2. Under central dispatch, interconnectors are scheduled at day-ahead relative to the shadow

	interconnectors used could artificially inflate constraint costs. 2. How interconnectors are modelled (prices used). Respondents argued that the proposed approach would overestimate the costs of changing the flows of interconnectors.	nodal price. For post-gate closure actions, Interconnectors are treated the same under central and self-dispatch i.e. the cost of changing the flows is based on the estimated cost of the marginal plant in the connected country. How these assumptions impact the case for central dispatch will be made clear in the final report.
Approach to the BM	Respondents did not fully understand the distinctions between the Baseline BM and Augmented BM, as it was not clear why technologies included in the Augmented BM should be excluded from the baseline. It was emphasised that the Augmented BM should reflect all ongoing NESO reforms to the BM. Respondents also sought further detail on how uplifts are considered.	The purpose of modelling the Baseline BM (our view of the BM today) and the Augmented BM, is to understand what the expected benefits are from ongoing reforms to improve the design of the BM. The Baseline BM is not intended to reflect the direction of BM reform. FTI have not been asked to model every specific reform and code modification which have been proposed or in development (doing so would introduce significant modelling complexity). Hence, proxies must be used to change the prices and volumes in the BM model which broadly reflect the impact of BM reforms. It is important to note that the assumptions for the BM (i.e. how costs are calculated from actions post gate-closure) are the same for self and central dispatch.
Skip rates	Respondents asked for clarity on what skip rate was assumed for the Baseline BM. There was disagreement on what the skip rate should be used for the Augmented BM. It was also argued that reforms to reduce skip rates by NESO should be reflected in the baseline.	The LCP Delta report on BM skip rates found the average skip rate for batteries was 83% for offers and 78% for bids in 2024. We used a skip rate of 80% for the Baseline BM. We do not see significant value in modelling a reduced skip rate (i.e. non-zero) for the Augmented BM. By removing skip rates, we can test the maximum benefit of efforts to reduce skip rates, which can be extrapolated to understand a "middle" scenario.

Forecast uncertainty	Respondents were concerned with the accuracy of NESO's day-ahead wind forecast, which may overestimate the costs of central dispatch. It was recognised that the forecast error is a key input for determining the benefits of central dispatch and therefore sensitivities should be considered.	We agree with respondents that this a key assumption and are aware of how this could impact the results. This will be made clear in the interpretation and analysis of the results.

Summary of responses by question

1. **Do you have any comments on the model setup assumptions for displaying the relative merits of different dispatch options?**

Overall, respondents did not agree with the justification to use FES22 LtW and NOA7 refresh for the GB scenario and network background to assess the relative differences between dispatch designs. It was argued that this risked overstating the level of network constraints and redispatch required, and therefore could overestimate the benefits of introducing central dispatch and/or zonal pricing. Respondents suggested that the analysis should align with FES24/CP30 scenarios and Beyond 2030 network background.

Some respondents questioned the use of using a single climate year as this may not capture the impact of weather variation and asked what the rationale was for selecting 2013. It was also said that potential wider reforms to a national market that would impact dispatch incentives, such as changes to CfD design or access rights, should be considered.

2. **Do you agree/disagree with how different technologies participate in the BM (i.e. how the cost to NESO is calculated)?**

A number of respondents generally agreed with the approach to how different technologies participate in the BM, however, there were questions on interconnectors, skip rates and uplifts.

Recognising the centrality of interconnectors to REMA discussions, respondents asked for further clarity on what interconnectors were modelled, and the modelling approach. It was emphasised that the assumed interconnector capacity should be up-to—date and consistent with the scenario and network background. Using NESO estimates of interconnector penalty prices may overstate the cost of changing flows, and the price assumed should reflect intraday equivalent prices.

On skip rates, respondents asked for clarity on what skip rate was assumed for the Baseline BM. Respondents also argued that reforms to reduce skip rates are already being undertaken by NESO and therefore a 'reduced skip rate' scenario should not just be a feature of the Augmented BM; however, it was also suggested that a skip rate of zero could be overly ambitious.

Respondents were unsure on why uplifts were not applied to bids, as well as offers. It was also said that the use of historic data to calculate uplifts may not be entirely representative of future

costs. Respondents argued that changes to BM uplifts would occur through organic market processes, rather than through policy, which may provide misleading results for the Baseline BM.

3. Do you agree/disagree with what technologies are included in the Baseline BM

Respondents mostly agreed with what technologies are included. The main disagreement was the exclusion of some technologies (waste, H2P, and DSR), which were then included in the Augmented BM. It was argued that domestic DSR and waste are mature technologies which should be included in the baseline.

4. Do you agree/disagree with what technologies are included in the Augmented BM?

Similar to the previous question, respondents generally agreed but questioned the inclusion of the technologies in the Augmented BM which were not included in the Baseline BM. It was argued that the Augmented BM should be the central scenario given that the proposed reforms are reasonable and represent the current direction of improvements to the status quo.

5. Do you agree/disagree with the approach to modelling potential improvements to the BM?

There was disagreement among responses regarding uplifts, some argued that a reduction in uplifts to reflect increased competition was reasonable; however, it was also suggested that a reduction was not necessarily guaranteed to occur. Respondents also asked for detail on what uplifts were assumed and how much they are reduced under the Augmented BM.

Respondents emphasised the ongoing improvements to the BM design and access to the BM which NESO has committed to, and therefore must be reflected in the modelling of the Augmented BM. It was also asked whether the introduction of Constraint Management Markets (CMMs) or reforms to redispatching interconnectors were being considered as part of the Augmented BM scenario.

6. Do you agree/disagree with the approach to capturing forecast uncertainty?

Respondents generally agreed with the modelling approach to forecast uncertainty but had some concerns on the data used and how changes to forecast uncertainty in the future are considered.

Respondents were concerned with the use of NESO's day-ahead wind forecast to calculate the forecast error on the basis it is less accurate than other providers. They argued using NESO's forecast could overestimate the benefit of intraday trading under self-dispatch in resolving the forecast error before gate closure and, in turn, overestimate the costs under central dispatch.

On the other hand, it was argued that the scope of change and asset optimisation between day-ahead and real-time that would need to be managed by NESO under central dispatch is underestimated.

Some respondents suggested testing a sensitivity with a lower forecast error to reflect improved information data and technology development. However, some argued that forecasting could worsen over time due to much larger wind capacity and an increase in demand responding to price signals which introduces another layer of variability.

7. Do you agree/disagree with how we've accounted for the principle of cost recovery and firm access, and with the methodology for how they have been reflected in the modelling?

Overall, respondents mostly agreed with the principles to accounting for cost recovery and firm access; however, some respondents questioned the appropriateness of not including uplifts over short-run marginal costs (SRMCs) at day-ahead under central dispatch. It was argued that uplifts that arise from non-SRMCs and competitive market pricing are not definitively different between self- and central dispatch. Similarly, a respondent suggested that a market which incentivises efficient long-term investment should include a scarcity function above SRMC for assets dispatched according to a shadow nodal price. Other respondents argued that the principle of firm access should only apply to existing assets for a limited period of time, and expressed concern that by assuming firm access the assessment could underestimate the benefits of central dispatch.

8. Do you agree/disagree with the treatment of payment flows relative to forecast errors?

It was put forward that the modelling does not take into account other significant contributors to uncertainty between day-ahead and real-time, such as non-renewable plant outages, interconnector availabilities and transmission circuit capacity. There was also concern that lack of flexibility to minimise the costs of imbalance exposure through intraday trading under central dispatch would adversely impact wind assets. A respondent also asked for more detail on the assumptions behind the unconstrained national price and shadow nodal price formation.

9. Do you have any other comments/feedback on the modelling methodology?

Numerous respondents emphasised the importance of considering wider system impacts and how sensitive the results are to such changes. In particular, the sensitivity of the results to:

- Cost-of-capital changes
- Accelerated transmission network build and/or delivery of generation assets
- Transitional costs due to the complexity of implementing central dispatch

The above factors would need to be considered in a full assessment of central dispatch. As such, a set of additional sensitivities should be conducted with the aim of identifying the relative importance of specific areas of the modelling methodology and assumptions used in determining the overall costs and benefits of different dispatch designs.

Next steps

We will continue to progress the modelling work with FTI and will be incorporating the stakeholder feedback into selecting sensitivities and the final report. We will continue to seek stakeholder input and provide updates to industry as this work progresses.

We are committed to accelerating evidence-led decision-making on the market reforms needed to enable a decarbonised power sector and welcome industry challenge as part of this.

To view our programme of work within the REMA dispatch workstream, please refer to Net Zero Market Reform.