Report

Ofgem's mid-scheme review of Electricity System Operator performance in Business Plan 2

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Contact:	Adam Gilham
Team:	ESO Regulation
Email:	ESOperformance@ofgem.gov.uk

This document sets out the mid-scheme performance assessment of the Electricity System Operator ("ESO") over the period 1 April 2023 – 31 March 2024. The assessment considers the ESO's performance holistically over the period. It considers the ESO's delivery against its business plan, the quality of the ESO's outputs, the value for money of the ESO's activities, performance against pre-defined metrics, and the views of multiple and varied stakeholders.

At this point, we consider that the ESO's performance over the first year of its second business plan period has been reflective of: meeting our expectations in its Control Centre Operations role; slightly below our expectations in its Market Development and Transactions role; and meeting our expectations in its System Insight, Planning and Network Development role.

This is a mid-scheme review. The ESO will continue to deliver the remainder of its second business plan ("BP2") activities until 31 March 2025, when the scheme ends. Therefore, this performance assessment provides indicative scores of the ESO's performance at the halfway point of its two-year scheme. Ofgem will conduct a further assessment next year to determine our final views on the ESO's performance across the entire business plan period.

An annex is provided alongside this document to detail our performance assessment of the ESO in its role as the Electricity Market Reform ("EMR") Delivery Body, as required under Regulation 83(a)(ii) of the Electricity Capacity Regulations 2014.

Any enquiries related to the text of this publication should be sent to Ofgem at:

10 South Colonnade, Canary Wharf, London, E14 4PU.

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Context and related publications

Our[1] performance expectations for the ESO are set out within our Roles Guidance[2] and the ESO commits to a programme of delivery within its Business Plan. We assess the ESO's performance across pre-set criteria outlined in our ESO Reporting and Incentives Arrangements Guidance ("ESORI") document.[3] The criteria are: plan delivery; quality of outputs; performance metrics;[4] stakeholder evidence; and value for money.

We consider performance across three ESO roles, which span the full breadth of the ESO's activity. The three roles are: Role 1 – Control Centre Operations; Role 2 – Market Developments and Transactions; Role 3 – System Insight, Planning and Network Development.

Our process

To inform our view on the ESO's performance over this assessment period, we considered evidence from the following activities:

- In our BP2 Final Determinations, we reviewed the ESO's Plan and graded its ambition for each Role with a score (out of 5). This formed the basis for our subsequent assessments. We also assessed the ESO's value for money per Role.[5]
- We commissioned a third-party IT consultant (Coforge) to assess the delivery of each investment within the ESO's IT portfolio. This assessment has informed our views, notably on the ESO's value for money criterion, and is published as a subsidiary document alongside this report.
- The ESO produced biannual performance reports in October 2023 and May 2024.[6] These also included results from a stakeholder survey conducted by the ESO.
- We issued a call for input, seeking stakeholder views on ESO's performance over the period 1 April 2023 – 31 March 2024.[7]

[1] The terms "we", "us", "our", "Ofgem", and "the Authority" are used interchangeably within this document to refer to the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.
[2] Our Roles Guidance publication is available at: https://www.ofgem.gov.uk/decision/decision-amendments-bp2-eso-roles-guidance
[3] Issued under Part C of Special Condition 4.4 of the ESO's electricity transmission licence and is available at: https://www.ofgem.gov.uk/decision/decision-electricity-system-operator-reporting-and-incentives-arrangements-guidance-document-2023-2025
[4] Note that there are no metrics for Role 3.
[5] Details can be found in our BP2 Final Determinations at: https://www.ofgem.gov.uk/decision/business-plan-2-final-determinations-electricity-system-operator
[6] The October 2023 report is available at: https://www.nationalgrideso.com/document/291351/download and the May 2024 report is available at: https://www.nationalgrideso.com/document/318496/download
[7] The call for input and published responses are available at: https://www.ofgem.gov.uk/call-for-input/call-input-electricity-system-operators-bp2-mid-scheme-performance

- The ESO held a stakeholder event via webinar with a question and answer session.[8]

Our assessment is also informed by the recommendations of our independent ESO Performance Panel (the "Panel"). The Panel also considered all available evidence to form a view of the ESO's performance and produced a report which is published on our website alongside this document.

We are grateful to all stakeholders who engaged in this process to inform our views on the ESO's performance. This is vital in ensuring a balanced and fair assessment of performance as well as helping to inform the design of future frameworks and setting of ESO priorities.

Summary of performance assessment

In summary, we assessed that over the first year of BP2 the ESO:

- met our expectations in Role 1,
- slightly underperformed against our expectations in Role 2, and
- met our expectations in Role 3.

More detail on our assessment, and the key themes of performance for each of the ESO's three Roles, is set out in the remainder of this document.

Cross-cutting performance in delivering IT investments

The ESO's portfolio of IT investments accounts for a large proportion of the ESO's overall RIIO-2 costs and cuts across all of the ESO's roles. We therefore closely monitor the ESO's IT delivery using a bespoke Cost Monitoring Framework. In addition, for this mid-scheme review, we also commissioned Coforge to independently assess the ESO's IT portfolio delivery and governance. This built on the previous assessment we commissioned from Zuhlke in 2022.[9]

Our latest assessment tested the ESO's IT capability and maturity using several criteria. The findings from this assessment showed that the ESO had addressed many of our previous concerns and, as a result, we are much more confident that the ESO has the processes in place and ability to deliver its ambitious IT plan. We intend to use the recommendations from this assessment to continue to work with the ESO to drive

[8] A recording of the session is available at: https://players.brightcove.net/6415851838001/default_default/index.html?videoId=6355167803112
[9] Details of this assessment can be found in the Business Plan 2 Draft Determinations – Electricity System Operator: https://www.ofgem.gov.uk/sites/default/files/2022-11/Business%20Plan%202%20Draft%20Determinations%20-%20Electricity%20System%20Operator.pdf

further improvements, for example in further using appropriate modern day best practice.

Role 1: Control centre operations

In Role 1 the ESO is expected to balance the National Electricity Transmission System ("NETS") in a safe, reliable and efficient way. Alongside real-time operation of the NETS, other key control centre functions include: coordinating with other network operators on operational decisions; outage changes and network planning out to one-year; short-term energy forecasting; managing and sharing data; and information and restoration and emergency response.

Over the first year of BP2 the ESO's overall performance in Role 1 met our expectations and was scored as a 3. Specifically against our criteria, the ESO met expectations for plan delivery, quality of outputs, metrics, and stakeholder evidence, and was below expectations for value for money. Our score of a 3 matches the Panel's assessment. There are slight differences in our assessments of performance in plan delivery, quality of outputs and value for money, but we agree with the Panel that the ESO met expectations in Role 1.

The key themes contributing to our performance assessment are set out below.

Control centre systems and investments

The ESO successfully delivered the bulk dispatch component of its Open Balancing Platform ("OBP"), part of the ESO's Balancing Programme. Bulk dispatch has resulted in the ESO being able to dispatch a larger number of batteries and small assets in the Balancing Mechanism. The ESO also showed improved transparency and engagement with industry in this area by working in an agile manner to prioritise releases which delivered most benefit, such as the inclusion of the battery zone within the bulk dispatch mechanism. Furthermore, initial teething problems with OBP were handled in a quick and transparent manner.

The ESO showed effective long-term planning and prioritisation by delaying work on its Network Control investment to re-baseline this activity. This was delayed by 6-months as the ESO identified an opportunity to adopt a new, more modular platform, preventing regret spend and the need for a future large-scale project.

We have concerns with delays to some key deliverables including forecasting improvements, development of a real-time situational tool and development of simulators for control room training. These delays increase the likelihood that the ESO

will fail to deliver against the original business plan for the BP2 period, which could result in fewer consumer benefits and delivery being overall less ambitious.

Management of the system

The ESO performed well in managing a changing system. Balancing costs in 2023-24[10] reduced by £1.7bn from 2022-23[11]. This was largely attributed to the sharp decline in wholesale gas and electricity prices over the past year. However, we have witnessed the ESO being more proactive in attempting to reduce balancing costs, via its balancing cost strategy[12]. This has driven a marked improvement from BP1 in the ESO's engagement with Ofgem and Department for Energy Security and Net Zero ("DESNZ") regarding its work to reduce balancing costs. An example of this was the ESO's work in support of improvements to the accuracy of physical notifications from wind units, where the ESO also evidenced its ability to proactively consider potential market inefficiencies and instigate industry conversation on potential solutions. The ESO's new market monitoring function also operated effectively by sharing expertise and submitting high quality suspicious transaction reports.

The ESO managed system events well during this period and past activities such as the dynamic frequency response products and the Frequency Risk and Control Report enabled the ESO to run the system at a lower level of inertia. However, the ESO could have undertaken more timely and proactive engagement with Ofgem and industry, and shared greater clarity and explanation, on significant system events, such as the sub-synchronous oscillations and the December 2023 frequency event.

The ESO showed effective policy development to support meeting the new Electricity System Restoration Standard by 2026. It successfully concluded its Distributed ReStart project, with findings from this project now being implemented into industry codes and the ESO restoration strategy. The ESO also concluded two restoration tenders for the South East region and wind units. We expect that the ESO will take learnings from these tenders to ensure that restoration is appealing to all types of assets in the future.

Dispatch transparency, forecasting and data

The ESO's performance regarding transparency, industry engagement and progress on high profile issues such as skip rates[13] and operational metering standards was significantly below expectations. Performance in this area notably contributed to our

[10] Covering period 1 April 2023 – 31 March 2024.
[11] Covering period 1 April 2022 – 31 March 2023.
[12] Available at: https://www.nationalgrideso.com/document/288236/download
[13] A 'skip' occurs when the ESO uses a more expensive unit to balance the system, therefore 'skipping' over a cheaper action in the merit order. Skip rate is therefore the frequency of the occurrence of skips.

overall assessment that the ESO was meeting, rather than exceeding, expectations for Role 1.

The ESO took some steps that partially alleviated skip rates concerns; by introducing OBP's bulk dispatch tool, Balancing Reserve ("BR") and revising the 15-minute rule[14] to the 30-minute rule. However, progress towards adequately resolving industry's concerns with the ESO's dispatch decision making has been too slow. The ESO failed to effectively communicate the reasons why skips occurred and the ESO's plan to minimise avoidable skips. The ongoing lengthy delay to the ESO's consultancy project, which was originally due to be published in November 2023, and the inconsistent messaging from the ESO on the dispatch of storage behind a constraint were of particular concern. We expect the ESO to communicate more effectively with industry and deliver tangible progress before the end of BP2.

The ESO's forecasting performance was also considerably below expectations, evidenced by its outturn performance against Metric 1C[15] and also due to delays to implementing improvements to wind, solar and demand forecasting tools. Our feedback at the end of BP1 noted that we expect ESO forecasting to improve through delivery and utilisation of its IT investments. We therefore expect a marked improvement in the second year of BP2, especially post implementation of the new wind power forecasting tool.

The ESO met our expectations in its Data and Digitalisation work. The Data and Analytics Platform ("DAP") is aiding the ESO's internal digital transformation, however there are several milestones that are delayed. Therefore, we are concerned that the ESO may be unable to deliver the full set of benefits in BP2 that the DAP set out to deliver. In order for the ESO to exceed our expectations we would like to see a more strategic and co-ordinated approach in how it will be, a digital leader in the energy sector, especially in regard to aligning data with industry. We believe that the current work being done by the ESO on the Data Sharing Infrastructure and Virtual Energy System is a positive step in this direction.

[14] The 15-minute rule was a control room rule that was used due to the ESO not being certain of the available energy from a storage unit. As a result, battery Balancing Mechanism Units (BMU) could only tell the control room how much power it could import or export in 15 minutes. If an instruction was accepted by a battery BMU the ESO would wait for a Maximum Import Limit / Maximum Export Limit redeclaration before issuing another instruction.

[15] Metric 1C measures Wind generation forecasting by the ESO. Further detail is available on Pages 41-43 of the ESORI Guidance Document which can be accessed at: https://www.ofgem.gov.uk/sites/default/files/2023-03/ESORI%20Guidance%20Document%202023-2025.pdf.

Role 2: Market development and transactions

In Role 2 the ESO is expected to develop and procure balancing services to balance and operate the system in a safe, reliable and efficient way. Additionally, the ESO administers several industry codes, is the delivery body for Electricity Market Reform ("EMR") and has Transmission System Operator ("TSO") responsibilities related to implementing retained European network codes and regulations.

Over the first year of BP2 the ESO's overall performance in Role 2 was slightly below our expectations and was scored as a High 2. Specifically against our criteria, the ESO slightly exceeded our expectations for metrics, met expectations for plan delivery and stakeholder evidence, and was below expectations for value for money and quality of outputs. Our score of a High 2 matches the Panel's assessment, and our performance assessments are similar against each of the criteria.

The key themes contributing to our performance assessment are set out below.

Coordination across ancillary market delivery

The ESO initiated several projects that should deliver value to consumers (for example, Locational Constraint Market, Flexibility Strategy, update of Demand Flexibility Service, annual product development cycles). However, the ESO underperformed in Role 2 over this period in the quality of its delivery, communication of progress / delays, gathering of stakeholder views and buy-in, and maintaining the momentum of key projects.[16]

Important markets workstreams could have benefitted from shared learning and greater interaction between ESO deliverables to improve the quality of end products. For example, the Flexibility Strategy was a positive output in itself, however there were examples where service design was not sufficiently informed by it. Despite some good publications/events and well-considered contributions to the Review of Electricity Market Arrangements ("REMA")[17] programme, there were also examples of delivery that lacked sufficient consideration of future system needs, capabilities, and attributes of market participants. Overall, there remain too many barriers to entry for a range of market participants, and we expected greater pace from the ESO to address to these.

The ESO showed strong competence in some other areas, however. This included the development of cross-border market arrangements, where the ESO drove progress and showed leadership in interactions with EU TSOs despite facing challenges. The ESO was an effective advocate for GB consumer interests in these discussions and took initiative

[16] The ESO recently made attempts to improve on this, such as through the Constraints Collaboration Project.
[17] REMA is the Government's Review of Electricity Market Arrangements. During BP2, ESO became a delivery partner.

to develop projects alongside formal discussions. The ESO also showed through performance against Metric 2X[18] that its market developments, such as the introduction of the Enduring Auction Capability, can have significant beneficial effects on market access and consumer value.

EMR Delivery Body[19]

The ESO showed strong performance in several aspects related to EMR Delivery Body work. It engaged well in Capacity Market and Contracts for Difference policy and was effective in responding to customer queries, showing an improvement on previous engagement. The ESO performed well in making decisions on prequalification applications for Capacity Market auctions, as the few Authority decisions to overturn ESO decision were viewed more as being a consequence of ambiguity within in the Capacity Market rules rather than faults of the ESO.

However, we previously set upfront expectations for the ESO to deliver a new EMR portal (delayed from RIIO-1 and BP1), and for it to show an improvement in user experience compared to the current portal. The delivery of this portal has been delayed again in period.[20] Moreover, the expected costs of portal delivery were high, nearly double initial BP2 forecasts, and the portal design has proven inflexible to subsequent changes in CM rules despite this being a key feature that would improve over the current portal. We consider that a well delivered portal coupled with continued improvements in general performance could see ESO slightly exceed our expectations by the end of BP2.

Management of codes and charging processes

Due to some significant errors in the management of industry code modifications and resultant application into charging processes, the ESO has not met our expectations in this area. Moreover, inconsistent quality of code inputs (examples spanned policy, legal and technical analysis) and a generally passive approach to code change led to increased send backs[21] and slow progression in some areas of codes modifications. We are aware

[18] Metric 2x measures Day-ahead Procurement of balancing services by the ESO. Further detail is available on Pages 45-46 of the ESORI Guidance Document which can be accessed at: https://www.ofgem.gov.uk/sites/default/files/2023-03/ESORI%20Guidance%20Document%202023-2025.pdf.
[19] Annex 1 provides further assessment of the EMR Delivery Body's performance in accordance with Regulation 83(a)(ii) of the Electricity Capacity Regulations 2014.
[20] We understand that an operational version of the EMR portal ready for Capacity Market prequalification has now been delivered but, as this occurred after 31 March 2024, does not form part of this assessment. ESO's progress toward delivery over the first year of BP2 has formed part of this assessment. Performance regarding actual delivery and user experience with the new portal will be included in a subsequent performance assessment.
[21] Send backs a part of the Authority's decision making process where there is insufficient information on which to base a decision on code modification proposal. We can 'send back' the modification to the work group to provide further information.

of steps being taken to introduce better governance and assurance in these areas and these could improve our view of performance by the end of BP2.

In the round, the ESO performed well in the proactive identification of changes to rules, noting some areas of the codes framework where change could lead to improved competition and identifying risks to GB system operations. We think that the ESO exceeded our expectations in this regard when considering their cross-border activities as the ESO generally showed leadership and advocacy on behalf of consumers.

Role 3: System insight, planning and network development

In Role 3 the ESO is expected to perform a variety of insight, planning and network development activities. It publishes key insight documents, including long-term pathways for the energy sector and the annual Network Options Assessment. The ESO is also responsible for the connections process, managing the impact of new connections on the NETS and liaising with Distribution Network Operators ("DNOs") to ensure that both onshore and offshore networks are planned holistically.

Over the first year of BP2 the ESO's overall performance in Role 3 met our expectations and was scored as a High 3. Specifically against our criteria, the ESO exceeded our expectations for plan delivery, and met our expectations for stakeholder evidence, value for money and quality of outputs. We note that our score of a High 3 is higher than the Panel, who scored at a Low 3. The main difference between our assessments arises from our views around the ESO's plan delivery performance, which we considered to have outperformed expectations.

Activity additional to the original plan

The ESO delivered several substantial projects in Role 3 in line with its BP2 plan. In addition, the ESO was asked to react to and perform significant additional Role 3 activities, including preparing for delivery of the Regional Energy Strategic Planner role and for delivery of the Strategic Spatial Energy Plan. Our view is that this allowed the ESO to exceed its original plan ambition.

However, we note that the volume of delivery was not always matched by the quality of the outputs. For example, some outputs delivered by the ESO could have been of higher quality if the ESO had provided greater scrutiny of the details, particularly as provided by third parties. To exceed our expectations at the end of BP2 it will be vital that the high quantity of Role 3 delivery is also matched by quality.

Industry feedback suggested that long-standing outputs such as the Future Energy Scenarios, and the associated Bridging the Gap exercise, did maintain high standards.

Connections

Overall, the ESO progressed longer-term reforms of the connections process well and delivery followed the schedule, even accelerating some activity. This work lays a platform for potential delivery of substantive improvement of connections processes and queue management. To deliver the full benefits of longer-term reforms we expect the ESO to increase engagement on their proposals, particularly at the Distribution level.

Part of reforming the customer connection experience is the continued development of the new connections portal. The portal has aided the ESO in the context of continued high numbers of connection applications, however, the ESO's performance in managing applications was inconsistent and on occasion could not meet the timeframes for providing offers.[22]

Performance in the ESO's nearer-term tactical reforms did not match our expectations as the ESO moved too slowly in delivering these reforms (including requiring an extension to the Two Step offer process, although we believed the original timeline for completion was sufficient).[23] We also assessed that the expected benefits targeted by these tactical actions were not realised, for example, the Transmission Entry Capacity Amnesty reduced the connection queue by many fewer megawatts than projected (at most half of the anticipated reduction was realised). This divergence in performance across the longer-term and nearer-term was also supported by the stakeholder evidence. We have concerns that longer-term reform performance showed signs of deteriorating, including a lack of involvement of key stakeholders in building of firm proposals which led to unnecessary rework and challenges in delivery of CMP376,[24] which was fundamental to delivery of the reforms.

Leadership, proactivity and whole system thinking across network planning

The ESO has a crucial role in delivering consistent whole system signals to industry through longer term planning and effectively indicating system requirements and how

[22] Timeframes for issuing connection offers are set out within the ESO's electricity transmission licence.
[23] The Two Step offer process allowed the ESO to provide an initial interim connection offer to a party requesting to connect to the electricity transmission system within three months, with a subsequent full offer coming later (not later than 9 months later) within the National Grid Electricity Transmission system area.
[24] CMP376 was a code modification raised to the Connection and Use of System Code ("CUSC") for Inclusion of Queue Management process within the CUSC, more information is accessible at: https://www.nationalgrideso.com/industry-information/codes/cusc/modifications/cmp376-inclusion-queue-management-process-within-cusc

these could be met. Some publications over the first year of BP2, such as the Operability Strategy Report, did this well.

However, there were also examples where coherence or coordination across Role 3 outputs could be strengthened. One such example was the ESO's decision to stop conducting CIONs,[25] instead shifting this vital connection assessment work into the Holistic Network Design part of the Transitional Centralised Strategic Network Plan ("tCSNP"). We have not been convinced that this approach has been comprehensive enough nor a suitable replacement. This could leave some connection offers to be made on insufficiently informed decisions and may reduce coherence of network design outcomes.

The ESO could have been a more effective consumer advocate in Role 3 work. For example, through the tCSNP we expected the ESO to lead and further challenge assumptions to push other industry parties to provide higher quality inputs. In this area, the ESO could be more proactive in taking positions that further consumers' interests, having considered all industry views.

Next steps

The ESO will continue to deliver the remainder of its second business plan ("BP2") activities until 31 March 2025, when the scheme ends. This mid-scheme performance assessment provides indicative scores of the ESO's performance at the halfway point of its two-year scheme.

We will continue to assess and feedback on their performance under the established framework. Our final assessment of the ESO's performance for BP2 will be published in August 2025. We expect the ESO to continue to deliver against its RIIO-2 commitments, showcasing consumer value through its activities, including through the transition to NESO.

We are working with the ESO to develop the BP3 framework. You can provide feedback through our ongoing consultation, which closes on 27 September 2024.[26]

[25] CION is the Connection and Infrastructure Options Note which records the optioneering and selection of final option for certain connections against a number of criteria.
[26] The consultation can be found at: https://www.ofgem.gov.uk/consultation/consultation-nesos-performance-incentives-framework-bp3