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National Grid ESO response to consultation on ESO Roles Guidance

Dear Sir/Madam,

We welcome the opportunity to respond to your consultation on the ESO Roles Guidance and acknowledge the importance of this document in aligning expectations between the ESO, Ofgem and stakeholders. The additional clarity on these expectations that is provided in this draft document is a welcome addition and we have made efforts to provide a detailed review of the full document to ensure the RIIO2 period starts with clear expectations and alignment on what constitutes good performance.

Whilst we recognise that iterations of the Guidance Document have been in place since July 2017, we would welcome further discussion with Ofgem on the interrelationship between the licence and the Roles Guidance. We understand the use of Associated Documents within the licence to provide further information in addition to the licence, however we are concerned that the Roles Guidance could impose additional requirements on the ESO which should properly sit within the licence itself. As noted in the consultation document, we acknowledge that Ofgem plan to map the Roles obligations to licence condition CXX. We would welcome a wider discussion on how these documents work together in practice and whether the mapping exercise is one which should be carried out across the licence as a whole.

Our response to this consultation sets out our detailed views on the expectations within this document and highlights areas where we feel there is both alignment and misalignment. In many areas, we would welcome further discussion with Ofgem to ensure expectations are aligned, working together to ensure that the final guidance document is unambiguous. As such we have graded our response to flag the areas where we would welcome more in-depth discussion. We have provided some key points below on which we would be keen to engage further.

Key points of our response:

- We are concerned about the addition of a ‘near-miss’ frequency boundary within Role 1. We currently set operational limits that are tighter than the statutory limits to ensure we minimise the risk of going outside the statutory limits. Introducing a new arbitrary +/- 0.3Hz boundary effectively tightens the limits we are trying to manage, As the energy system evolves, it is likely that the system frequency will become more volatile and introducing more stringent requirements in this area will consequentially impose increased costs on the consumer.
- Many of the activities outlined within this Guidance document require the ESO to undertake significant coordination and collaboration roles across other industry parties. The ESO is comfortable to take a lead and proactively engage with other parties, but it is important to recognise that there is still a requirement for significant actions from others to ensure this is successful, which is not always within the ESO’s control. We do recognise that it is within our control to set out the requirements needed from others, to support the ESO’s performance and delivery of our ambitions. We therefore welcome further engagement with Ofgem to note areas where this is the case and discuss how Ofgem can support the ESO in achieving the expectations set out in this Guidance.
- We feel there are misalignments in the expectations in Role 3 regarding optimal network recommendations and the NOA processes. We are comfortable with the requirement to make appropriate recommendations, but do not feel our role should be to propose alternative commercial solutions – it is market participants that should be proposing these to us to allow us to reflect these in our recommendations. Furthermore, we do not believe there should be an expectation to continually drive towards maximising the number and type of solutions provided unless this is delivering value to the consumer. We also have concerns about the expectation to combine all approaches into a single assessment process. Whilst we will incorporate learnings from the pathfinder projects, establishing a process that encompasses all network needs across all scenarios creates vast complexities within the process that could lead to inefficiencies and hence a poorer outcome for consumers.

- We note that there is an expectation to complete "*all balancing market reform commitments made for the 2018-21 period (including those contained in the Product Roadmaps for Response, Reserve, Reactive, and Wider Access to the BM)".* Aspirational roadmaps, such as those referenced, are often superseded by experience and developments. We now have a fuller understanding of what is required to transform markets such as the scale of change and market engagement and our updated Delivery Schedule reflects our experience of delivery in a rapidly changing environment and provides a more realistic view. We would therefore welcome a discussion with Ofgem to understand where this expectation can be further aligned.

We would also like to understand how Ofgem intend to consult on the document. Whilst it sets out expectations within the initial 2-year business planning cycle and then further expectations out to the end of RIIO-2, we would still anticipate an annual review process to enable the expectations to be developed and refined as more information and learnings are gained. Furthermore, if new roles are identified over the course of RIIO2, we would like to understand how these would be incorporated into the document.

Should you require further information or clarity on any of the points outlined in this paper then please contact Gareth Davies or Laurence Barrett in the first instance at gareth.davies5@nationalgrideso.com or Laurence.Barrett@nationalgrideso.com.

Yours sincerely

Craig Dyke

Head of Strategy and Regulation

Role 1: Control centre operations

Activity 1a – System Operation

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Balancing efficiently	• Balancing economically and efficiently, in line with the meets expectations benchmark of Performance Metric 1 (balancing costs) Including by: ➢ taking actions that minimise consumer costs irrespective of provider type or size ➢ planning ahead to accurately forecast reserve, foot room requirements and system constraints ➢ using the full range of available balancing services and options (e.g. from both market parties and network companies)	• Implement a comprehensive plan to proactively drive down balancing costs, in line with the exceeds expectations benchmark of Performance Metric 1 (balancing costs) Including by: ➢ acting early and proactively to reduce drivers of higher costs ➢ continually refreshing and upgrading control room processes to deliver a demonstrable improvement in the accuracy of forecasting contingency needs and system constraints (evidenced, for example, through robust backcasting) ➢ exploring proactively, developing and utilising improvements to existing balancing services and new innovative types of services	**ESO high level view – Moderate alignment between expectations, clarification needed** We agree with the wording and expectations detailed in 'meets expectations'. It should be recognised, however, that constraint costs are forecast to increase, as assessed in the NOA. This increase in costs has been identified as the lowest cost option between constraints and network investment costs and in part reflects the ongoing requirements of the Connect & Manage process. While we agree with the requirements under 'meets expectations', the Metric needs to recognise these system changes. However, the requirement within 'exceeding expectations' to '*drive down balancing costs'* through '*continually upgrading processes to improve accuracy of forecasting…system constraints'* should acknowledge the likelihood that constraint costs will increase. Therefore, the ESO will keep these lower than would otherwise be the case, but this may not necessarily constitute a continual reduction. In addition, we would welcome further clarity on the requirement of '*robust backcasting'* and what this involves in practice.
Maintaining security of supply	• Maintain system frequency and voltage within statutory limits (including the SQSS) • No increase in the instances of 'near miss' events, in line with the meets expectations benchmark of Performance Metric	• Maintain stable system frequency and achieve a decrease in the instances of 'near miss' events, in line with the exceed expectations benchmark of Performance Metric 2 (security of supply) • Develop innovative operability solutions to unexpected	**ESO high level view: Misaligned between expectations, further discussion welcomed** System frequency and voltage is a function of the types of generation and demand on the electricity system. Increasing volumes of intermittent and weather-driven generation, and an increase in market liquidity with continental Europe, have meant that both demand and generation are increasingly becoming more variable.

	2 (security of supply) • Respond swiftly to unexpected events to secure the system and minimise costs	events that maintain system security and minimise costs in a fair and transparent way	This means that the system frequency is gradually becoming more volatile, resulting in the frequency being outside of the operational limits (49.8 Hz to 50.2 Hz) more often. More closely constraining frequency, by increasing frequency response held, would increase the ESO's balancing cost spend and conflict with other areas of the ESO's Roles Guidance. While we agree with the expectation to keep system frequency and voltage within statutory limits, we do not believe that Ofgem's proposed "near-miss" band is appropriate. The ±0.3Hz band appears to be an arbitrary layer between operational and statutory limits which could consequentially drive unnecessary costs to the consumer. We currently set operational limits tighter than statutory limits precisely to ensure we remain within statutory limits. However, as demand and generation become more variable it is likely that frequency and voltage may go outside of operational or "near-miss" limits more often without a significant increase in balancing costs. In addition the ESO, alongside industry participants, are already designing a new frequency standard via the Frequency Control and Risk Report to ensure security of supply is maintained. This will provide more information on risks and appropriate management of these. We welcome the engagement to date on this topic and welcome further discussions to identify a solution which meets Ofgem's intent. The same view also applies for the requirements under 'exceeds expectations.
Making trade-offs across time horizons	• Considers the appropriate trade-offs between short-term costs and longer-term market developments in the interests of consumers now and in the future	• Evidence of new processes, or innovative balancing actions, that reduce costs in the short-term and facilitate market developments that provide longer-term cost reductions	**ESO high level view – Moderate alignment between expectations, clarification needed** We agree with the wording and expectations detailed within 'meets expectations'. However, as we have highlighted above, due to changing system conditions, it is likely that balancing

			costs will increase in the future. Therefore, for the 'exceeds expectations', we would propose that the wording "reduce costs in the short term" is amended to reflect the fact that costs will be lower than would otherwise be the case rather than continually reducing.
Ensuring future operability	• Development of plans to ensure known/expected future operability challenges can be managed once the challenges materialise (for example the continued production of the System Operability Framework and Operability Strategy reports)	• Proactive testing of plans to manage future operability challenges and evidence of taking necessary steps to reduce the severity of the challenges before these challenges materialise	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.
Coordinating with other network operators	• Coordinate with other network/system operators to optimise the use of resources Including by: ➢ identifying and progressing the changes to outage plans in order to minimise constraint costs (e.g. through the effective use of System Operator Transmission Owner Code (STC) processes), ensuring the costs put forward by TOs are reasonable ➢ exchanging information and data with distribution network operators (DNOs) to ensure efficient dispatch of distributed energy resources (DER)	• Coordinate with DNOs through ensuring ESO dispatch of DER and DNO network management actions deliver whole system benefits • Facilitate the development and implementation of innovative services from network operators in order to achieve significant reductions to overall operational costs across the whole system Including by: ➢ Providing network operators with a high degree of visibility of the transmission constraint cost savings that can be achieved through enhanced network services and conducting robust analysis on any services offered ➢ Developing new or improved systems	**ESO high level view: Strong alignment between expectations** We broadly agree with the wording and expectations detailed here, and the overarching principle of coordination across networks. Within 'exceeds expectations', we propose that "significant reductions to overall operational costs" should be changed to "lower than would otherwise be the case". Furthermore, it is important to recognise that coordination and collaboration with other requires specific actions from those parties. We would welcome further engagement to better understand what roles and obligations other parties will have to help facilitate this.

		and processes that optimise whole system dispatch decisions	
Minimising outage changes caused by error	• A small proportion of short notice changes to unplanned outages are caused by ESO error, in line with the meets expectations benchmark of Performance Metric 5 (short notice changes to outages)	• No or only a very small proportion of short notice changes to unplanned outages are caused by ESO error, in line with the exceeds expectations benchmark of Performance Metric 5 (short notice changes to outages)	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.
Market surveillance and signals	• Effective systems for surveillance of balancing market activity and monitoring the quality/accuracy of information received from market participants. Effective engagement with Ofgem on any concerns that come to light • Ensures balancing actions do not distort market signals and influence perversely market participants' behaviours or decision making	• Proactive surveillance of market activity and swift engagement with Ofgem to support investigation of any anticompetitive behaviours or actions that may undermine balancing market integrity	**ESO High level view: Misaligned between expectations, further discussion welcomed** We have been engaging with Ofgem on the scope of this role as part of the ongoing discussions regarding future market surveillance). These discussions will help inform the expectations under this activity. We are broadly comfortable with the expectation that the ESO has '*effective systems for surveillance of balancing market activity and monitoring the quality / accuracy of information received from market participants'*. However, we would welcome further detail from Ofgem on what constitutes '*effective engagement with Ofgem on any concerns that come to light*' – i.e. what information is required, with what frequency, how this works in practice etc. We are concerned with the scale of change that would be required in order to ensure 'balancing *actions do not distort market signals and influence perversely market…behaviours or decision making'*. It is not clear from this expectation exactly what this means in practice We would like to discuss with Ofgem further to better understand the required outcome. Subject to the above concerns, we broadly agree with the detail within 'exceeding expectations' detailed but would welcome clarification on what constitutes "swift engagement"?

Maintaining effective and reliable IT systems	• Continual and responsive development of IT systems • High IT system availability and reliability compared to historical averages, with reduced unplanned outages from RIIO-1 • Timely completion of ongoing and incremental upgrades to IT systems delayed from RIIO-1. • Regular engagement with industry on design of ESO IT systems	• Proactive development of innovative IT systems capable of adapting to future operational requirements. • High IT system availability and reliability compared to historical averages, with progressive step change reductions in unplanned outages from RIIO-1 • Proactive engagement with industry on all types of potential IT system solutions. Taking account of stakeholder feedback to inform future IT development.	**ESO high level view: Strong alignment between expectations** We broadly agree with the wording within this activity but believe "*high IT system availability*" should be more clearly defined – as we embed new systems, this may not always correlate to an immediate increase in availability. Within 'exceeding expectations' we believe that "*exemplary IT system availability*" should be more clearly defined. In addition, IT availability is likely to follow a "bath-tub" profile with greater reliability issues at the beginning and end of life. Therefore, there may not be an immediate step change in availability and reliability as we embed new systems. However, the decision to transform to a modular construct should allow us to meet the reliability of historic averages as it will mitigate the impact of a single module failure on overall reliability.
By the end of RIIO-2 **(with evident progress demonstrated by March 2023)**			
Operating the network carbon free	• ESO has the ability to efficiently and economically operate the system carbon free in most situations and scenarios To underpin this ➢ ESO has replaced legacy IT systems with systems that are fit for purpose in the future energy system, shaped through good engagement with industry ➢ The ESO's control centre engineers have fit for purpose training and simulation tools that enable them to efficiently operate a zero-carbon network in most situations	• ESO has the ability to efficiently and economically operate the system carbon free in all situations and scenarios To underpin this: ➢ ESO has engaged extensively with all types of energy industry stakeholders and IT solution providers to deliver high quality, flexible and future proofed IT systems. These are capable of being updated ahead of system developments and interoperating with the digital systems of other related organisations in the sector and in other sectors. ➢ The ESO's training and simulation tools	**ESO High level view – Moderate alignment between expectations, clarification needed** We broadly agree with the expectations for operating the system carbon free but note that the exceeding expectation for this to be "*in all situations*" may not always be feasible. There is a requirement for the market to be able to provide carbon free generation in all situations, which may not always be the case and therefore, this would be out of the ESO's direct control. We would welcome further discussion with Ofgem to define how this would be evaluated. Whilst we agree that the IT and training will underpin the ability to operate the network carbon free, there is a strong link to Role 3 and the activities to unlock the future operability challenges.

		equip highly skilled control room engineers to achieve the outcomes and benefits expected in the RIIO-2 plan.	
Coordinating with other network operators	• ESO ensures its processes and systems facilitates close operational coordination between different electricity network operators To underpin this: ➢ ESO exchanges all necessary real-time operational information with other network operators ➢ ESO has regularly engaged with distribution network operators to inform DNOs' operability plans and process development	• ESO has proactively led the development and implementation of frameworks and processes that ensure the optimal real time operation of the whole energy system To underpin this: ➢ ESO IT systems capable of interoperating with the systems of other related organisations in the sector and in other sectors wherever this would provide overall benefit. ➢ The ESO has shared guidance and expertise (e.g. training) to distribution network operators to ensure common practices (e.g. through joint simulator training) are in place that maximise whole system benefits and facilitate seamless and efficient system operation across voltage levels	**ESO high level view: Strong alignment between expectations** We broadly agree with the drafting of these expectations, but we note that '*necessary real-time information*' will evolve and grow as we move towards a low carbon future. Depending on how this information evolves we may seek Ofgem's support setting out obligations and roles on the wider market to enable efficient delivery. We also agree that as the ESO we should be proactive in pushing for industry change. However, the introduction of new frameworks and processes is not always entirely within our control. We would welcome further engagement to better understand what roles and obligations other parties will have to help facilitate this.

Activity 1b: System Restoration

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Restoration plans and tools	• Maintain fully-tested plans and processes to support incident management and system restoration • Provide transparency on the real-time system state	• Develops and progresses future restoration plans and tools that can continuously adapt to network changes in advance of, and during, real time system operation	**ESO high level view: Strong alignment between expectations** We agree with the expectations detailed here. We assume system state refers to 'normal' conditions and wondered if this should be included elsewhere

		or system restoration.	and not as part of the restoration plan and tools. We note that Grid Code changes are needed to allow some of our transparency ambitions, if this change is not supported via this industry process we will look at other mechanisms to promote our transparency ambitions
Restoration policy	• Build consensus with Government, regulators and industry to drive improvements to the system restoration strategy for the future • If obligated to, determine an appropriate implementation framework to enable a system restoration standard to be met in a fair and non-discriminatory way.	• Activities that lead, organise, convene and build consensus with Government, regulators and industry to drive improvements to the system restoration strategy for the future • If obligated to, implement a system restoration standard by: Leading, organising, and building consensus with industry on the most appropriate implementation framework that enables a system restoration standard to be met, whilst satisfying the majority of stakeholders and ensuring maximum value for money for consumers.	**ESO high level view: Strong alignment between expectations** We agree with the expectations detailed here and agree that we should take a significant role in restoration policy. If further obligations are required, we look forward to aligning with Ofgem on the specifics for the ESO and actions/support required from others.
Restoration services procurement	• Provide accessible information to market participants on system restoration service requirements, costs and current and future needs • Full implementation of RIIO-1 commitments in the Product Roadmap for Restoration • Progress and conclude the ESO's Distributed ReStart project to establish a pathway to	• Actively seeks to maximise the use of non-traditional sources of generation at all voltage levels in restoration plans (and any restoration activities) to minimise restoration times in GB. • Achieves a significant year on	**ESO high level view – Moderate alignment between expectations, clarification needed** We broadly agree with 'meets expectations' but note that to "*establish a pathway to enabling the full participation of DER in restoration services*" will be subject to the outcomes of the project. We have concerns around the requirement for year on year increases in the level of competitively procured restoration services as this

	enabling the full participation of DER in restoration services • Achieves a year on year increase in the level of restoration services that are competitively procured, that are consistent with meet expectations benchmarks Performance Metric [6].	year increase in the level of restoration services that are competitively procured, that are consistent with exceed expectations benchmarks Performance Metric [6]	may not always be achievable. If enough services are procured in one year and no more is required the following year, we would not be able to achieve such an increase. We would propose that this expectation should be "a demonstrable increase in the impact of procurement activities on restoration times". We would welcome further engagement with Ofgem to discuss this. Within 'exceeds expectations' our concern above regarding year on year increases on level of competitively procured restoration services also applies here. "*Actively seeks to maximise the use of non-traditional sources of generation at all voltage levels in restoration plans*" may not be consistent with competitive procurement. We would propose that it be changed to "actively seeks to maximise the ability for non-traditional sources of generation at all voltage levels to participate in restoration plans".
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
Restoration plans and tools	• Plans and processes to support incident management and system restoration that are fit for purpose for a zero-carbon electricity system.	• ESO has dynamic restoration tools that are able to advise control centre engineers on the best route for restoration at any point, enabling them to manage potentially hundreds of restoration providers, and demonstrably reducing potential restoration times To underpin this: ➢ successful development and implementation of the necessary IT to enable such a decision-making tool, in close collaboration with	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.

		other relevant parties.	
Restoration service procurement	• Competitively procure the majority of system restoration services. • Ensures that procurement is fair and open to all market participants and technologies at transmission and distribution voltage levels	• Develop liquid markets for system restoration services such that all providers, from transmission and distribution voltage levels, can be procured competitively at an economic price in all restoration zones.	**ESO high level view: Strong alignment between expectations** Whilst we accept the principle behind procurement that is fair and open to all market participants, it should be noted that it may not always be possible for such procurement to be entirely open. For example, the holders of Restoration service contracts will not be named following a procurement activity given security considerations and the sensitive nature of the service. We would therefore propose adding the phrase "where possible": "*Ensures that procurement is fair and open to all market participants, where possible".* We agree with the wording and expectations detailed within 'exceeds expectations' but would propose adding a reference to the need for providers to meet the technical restoration criteria.

Activity 1c: Transparency, data and forecasting

Output	Meets expectations	Exceeds expectations	ESO comments
Immediate and ongoing			
Provision of market information	• Provide user-friendly, comprehensive and accurate information, including transparency on control room decision making	• Proactive information provision that shares valuable information to market participants and network companies before this is requested, and ensures they have a high degree of understanding of the ESO's operations and decision-making processes	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.
Driving the energy sector digitalisation	• Make available a Digitalisation Strategy and Action Plan, with the strategy updated at least once every two years, and the action plan updated at least once every 6 months.	• Set an example to the whole sector for the pace of change and progress made delivering the Energy Data Task Force recommendations and beyond • The ESO participates in and	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed within 'meets expectations', however we believe that rather than every 6 months, the Digitalisation Action plan should be updated annually. This has also been raised at ENA level by network

	Demonstrate progress against that plan and how it is driven by the needs of stakeholders and market expectations, such as the recommendations made by the Energy Data Task Force.	leads cross-sectoral initiatives for UK infrastructure and Net Zero, such as the Centre for Digital Built Britain's Information Management Framework.	companies. We would be open to further discussion on the scope and regularity of reporting on the Action Plan. We broadly agree with the expectations set out in 'exceeds expectations' but would welcome clarification on how "*setting an example*" will be demonstrated and how this would be evaluated. Furthermore, we would like the opportunity for further engagement on how the Centre for Digital Britain initiative might be taken forward.
Using and exchanging data	• Use of data by the ESO complies with the expectations of Data Best Practice, such as making available robust and reliable processes for exchanging operational information with DNOs • Treating energy system data as open for all to use by default, only restricting access where there is evidence of a good reason to do so.	• ESO actively shapes the development of DNO RIIO-2 business plans to ensure future platforms are fully interoperable • Making data (and its associated methods for data processing) widely available and easy to work with in open collaboration to give market participants opportunity for greater contributions to the decision-making processes related to system operation. • Treating energy system data, the associated processing methods and algorithms as open to all by default.	**ESO high level view – Moderate alignment between expectations, clarification needed** We agree with the wording and expectations detailed in 'meets expectations' but it would helpful to have some clarification around the interpretation of where "*there is evidence of a good reason to do so*" in relation to restricting access. For example, would the Data Triage programme being run by ENA contribute to this? For exceeding expectations, we agree that the ESO should actively shape development of RIIO-ED2 business plans but note that we do not have control over the solutions employed by network organisations. We therefore see our role as collaborating rather than directing standards / systems. We would welcome clarity from Ofgem that this is the intent of this expectation. Opening "decision making process" to other contributors should also consider transfer of accountability and responsibility to said contributors. On Open system data, processing methods and algorithms, still need reference to the data triage programme.
Forecasting	• Provide accurate forecasts with continuous incremental improvements to forecasting accuracy, in line with	• Step-change improvements in forecasting accuracy each year through improvements to forecasting models and processes, in	**ESO high level view – Moderate alignment between expectations, clarification needed** We broadly agree with the wording detailed within 'meeting expectations. We would like to emphasise that

	the meets expectations benchmark in Performance Metric 3/4 • Full implementation of Energy Forecasting Project Roadmap commitments for 2018-21 • Forecasts are accurate at both national and regional level and methodologies used are regularly updated to reflect changes at each GSP • Model and understand developments on the distribution system which impact transmission-level demand	line with the exceeds expectations benchmark in Performance Metric 3/4 • Dynamic forecasting processes which utilise machine learning to ensure forecasts are highly accurate for each half hour period, and both the national at the regional level • Undertakes activities that lead, organise, convene and build consensus to ensure all network operators are sharing and using consistent information to create accurate, whole system forecasts	continuous incremental improvements in forecasting are achievable based on the repetition of advantageous forecasting conditions (baseline was the average performance in the last 3 years). Furthermore, improvements in forecasting accuracy and the ability to model generation at the distribution system depends on the availability of the data on generators connected at the distribution level. We would need additional resources to support this work. We expect PEF implementation to deliver forecast accuracy improvements at national and regional level. We aim to develop bespoke forecasts for individual units where frequency, resolution and forecast horizon can be flexed depending on stakeholder needs, consumer benefit realization, availability of improved data & model performance. In 'exceeds expectations' we note that there are some vague terms used, such as "step change", "highly accurate". We would welcome further detail from Ofgem on how an incremental improvement is defined, vs a 'step change' – what level of improvement would meet a 'step change'?
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
Data use and exchange	• ESO has implemented a data and analytics platform (and an associated data portal) which achieves most of the outcomes in its RIIO-2 plan, but may still require some additional functionality to achieve all planned outcomes	• ESO has integrated all tools and systems within its data and analytics platform, achieving all outcomes set out in its RIIO-2 plan, and receiving highly positive stakeholder feedback • Data and analytics platform enables the seamless real time exchange of information with distribution and other energy system participants to enable efficient whole system operation	**ESO high level view: Strong alignment between expectations** Overall, we agree with the expectations set out for this activity. We would note, however, that whilst our current architecture thinking is for a central data and analytics platform which houses all data and hosts various control systems and market platforms, this is subject to change as we conduct the specification phase and engage with stakeholders on development.

Role 2: Market development and transactions

2a: Market design

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Competitive, market-based procurement	• Procurement of balancing services through market-based competitive approaches, consistent with the meets expectations benchmark in Performance Metric 6	• Procurement of balancing services through market-based competitive approaches, consistent with the exceeds expectations benchmark in Performance Metric 6	**ESO high level view: Strong alignment between expectations** We agree with expectations, acknowledging that benchmarks set in metric 6 are very challenging.
Close to real time procurement	• Procurement of balancing services in timeframes compliant with relevant GB and European policy and regulations	• Clear plans and demonstrable progress towards maximising the procurement of all balancing services at day-ahead, with a clear and transparent explanation of the circumstances in which this is not possible and/or is not in consumers' overall interest.	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.
Delivering accessible markets	• Simplified suite of balancing services with participation requirements that support revenue-stacking, a level playing field, and maximise participation regardless of provider size/type Including by: ➢ Transparent completion of all balancing market reform commitments made for the 2018-21 period (including those contained in the Product Roadmaps for Response, Reserve, Reactive, and Wider Access to the BM). ➢ Ensuring fit for purpose, reliable	• Works extensively with industry to implement a seamless suite of balancing services, with no material barriers to participation and that ensures opportunities for revenue-stacking and ensures a level playing field for participation regardless of provider size/type Including by: ➢ Implementation of a single integrated platform for the ESO markets (in line with RIIO-2 business plan timescales) in a joined up manner with wider system	**ESO high level view: Misaligned between expectations, further discussion welcomed** Whilst the goals set out in previous strategy for balancing services, such as simplification and maximisation of participation, are still valid, it should be noted that aspirational roadmaps are often superseded by experience and developments. We now have a fuller understanding of what is required to transform markets such as the scale of change and market engagement. Our updated delivery plans, as detailed in our Delivery Schedule, reflect our experience of delivery in a rapidly changing environment and provide a more realistic view. We therefore consider that the expectation for "*completion of all balancing market reform commitments made for the 2018-21 period (including those contained in the Product Roadmaps for Response, Reserve, Reactive, and*

	procurement, communications and settlement systems that do not present any material barriers to participation, with the ESO clearly demonstrating how it has (or is) responding to previous issues raised.	changes and with positive user feedback. ➢ A year on year step change in the satisfaction levels of industry parties, with greater numbers and types of parties responding positively about the accessibility of platforms, and fewer reporting issues and delays in market access	*Wider Access to the BM*)" would benefit from revision to reflect the above points and would welcome further discussion with Ofgem on this topic. It would also be helpful to better understand what is meant by the term "*seamless".* Regarding "*regardless of provider size/type"* it should also be noted that there is a limit to the minimum size of service provider that the ESO can efficiently procure services from. Stakeholder engagement suggests that below 1MW the consumer value of the ESO procuring directly from smaller service providers is not cost effective.
Signalling procurement needs	• Transparent and clear communication to market participants on current and future system challenges and ESO balancing service needs, in line with the objectives of System Needs and Procurement Strategy (SNaPS).	• Proactive, transparent development of balancing services markets to solve foreseen future system challenges (before these challenges begin to pinch), with notice of procurement rounds signalled to stakeholders sufficiently in advance to enable maximum participation.	**ESO high level view – Moderate alignment between expectations, clarification needed** It would be helpful to agree with Ofgem what "*transparent and clear communication*" means in practice. In the context of a rapidly changing environment we would appreciate greater clarity on the meaning of developing balancing services markets "*before these challenges begin to pinch*" and how this might be measured. Further clarity on how this expectation aligns with the requirement to provide sufficient notice of procurement rounds would also be helpful.
Coordinated procurement across the whole system	• Collaborates with other network operators to ensure that balancing services procurement is coordinated and where appropriate (e.g. contract terms, service requirements and frequency of procurement) standardised across networks • Active participation in projects and forums that drive improved coordination in	• Proactively inputting into the development of distribution network ancillary services (including actively inputting to DNO RIIO-2 plans) to enable integration with ESO markets and facilitate the future efficient, whole system procurement of balancing/ancillary services • Organises, convenes and builds consensus with other network/system	**ESO high level view: Misaligned between expectations, further discussion welcomed** It would be helpful to discuss with Ofgem what is meant by "*proactively inputting into the development of distribution network services*" and what constitutes good performance to "*organise, convene and build consensus with other network/system operators to drive changes that will optimise balancing service procurement across the whole electricity system*". We understand this activity to be largely about service co-ordination with DNOs and how we will develop

	procurement, including relevant data sharing (such as Open Networks)	operators to drive changes that will optimise balancing service procurement across the whole electricity system, using high quality information/analysis to support the process.	a transparent process for service providers that facilitates efficient service procurement whilst managing operational risk. Much of this work is coordinated through the ENA Open Networks Project. In addition, we are building this approach into ESO service development, such as ODFM. Regional Development Programmes and innovation projects will also be a route to more mature process development and delivery in RIIO-2. Whilst we are fully aligned on the expectation of "collaboration", it should be noted that the outcomes listed are dependent on the actions of multiple parties in addition to the ESO.
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
Competitive procurement	• ESO has introduced market-based, competitive procurement in most balancing services, with few, and only minor, examples of non-competitive procurement remaining	• ESO has introduced full competition everywhere, in all balancing services	**ESO high level view – Moderate alignment between expectations, clarification needed** We recognise our ambition to deliver "Competition Everywhere" and believe it is improved with Ofgem's above clarification: "*with a clear and transparent explanation of the circumstances in which this is not possible and/or is not in consumers' overall interest*."
Delivering accessible markets	• ESO has implemented most service procurement within a user-friendly single market platform. • Few and only minor issues with market access, with the ESO acting quickly to improve functionally and address any issues as they arise.	• ESO has incorporated procurement of all service within a single, highly accessible market platform, which is praised routinely by market participants. In particular, the platform would: ➢ minimise cost and complexity for users, enabling them to easily capture the value they provide to the system across multiple services ➢ maximise participation from all different types and	**ESO high level view: Strong alignment between expectations** We agree with the expectations set out here. It should also be noted that there is a limit to the minimum size of service provider that the ESO can efficiently procure services from. Stakeholder engagement suggests that below 1MW the consumer value of the ESO procuring directly from smaller service providers is not cost effective.

		sizes of participants or business models ➢ be flexible, future proofed and easily adaptable to enable a quick response to feedback or changes in the wider system.	
Coordinated procurement across the whole system	• ESO run markets are coordinated with distribution-level flexibility markets, providing minimal complexity for providers looking to maximise the value from their services	• ESO run-markets are seamlessly integrated with all distribution-level flexibility markets so service providers have a single interface point and set of requirements when looking to provide services to the ESO or DNOs.	**ESO high level view: Misaligned between expectations, further discussion welcomed** The ESO's Single Markets Platform is intended to provide access to ESO run markets. Our aspiration is that ESO run-markets are integrated with all distribution-level flexibility markets, so service providers have a common experience with aligned requirements when looking to provide services to the ESO or DNOs. We would like to better understand Ofgem's views on "*a single interface*" and would welcome the opportunity to explore options with Ofgem and other interested parties including DNOs and market participants.

2b: Electricity Market Reform

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
User experience with the EMR portal	• An evident year-on-year improvement in the user experience from RIIO-1 (e.g. existing issues are resolved, resulting in lower barriers to entry for providers) Underpinned by: ➢ Timely completion of the refreshed EMR IT portal with positive user feedback, and which results in and the ability of the ESO and the IT portal to respond quickly	• A seamless user experience for EMR participants with a highly accessible platforms that facilitate increasingly wide participation Underpinned by: ➢ Extensive engagement with industry to develop of a highly accessible EMR portal.	**ESO high level view: Strong alignment between expectations** We do not believe referring to the portal as a "*barrier to entry*" is accurate. We agree fully that the user experience can be improved, which may drive efficiencies for the user, but limitations of the system are not preventing any parties from participating in the market. We would suggest that improving user experience would be a better factor to consider. This could be captured, for example, through the customer survey, as required by the draft licence. As per the Delivery Schedule, the new EMR Portal will be delivered incrementally through an agile methodology throughout the BP1 period. As a result, user experience

	and cost efficiently to change.		improvements will improve throughout the period.
Implementation of policy and rule changes	• Policy changes, or system workarounds, should be implemented continuously in a timely and cost efficient way to ensure compliance with legal obligations, and no later than 12 months following the relevant rules or regulations being laid, unless otherwise stated by Ofgem.	• Undertaking an annual prioritisation exercise of all expected system change requirements by Delivery Partners, which results in a predictable, transparent and achievable roster of changes to be delivered.	**ESO high level view – Moderate alignment between expectations, clarification needed** We agree with expectations, acknowledging that prioritisation is planned for implementation in 2021/22. In addition, our work programme and how we deliver this successfully will depend to a significant extent on the nature, extent and timeline of regulatory changes required by BEIS and Ofgem, as well as the timing of when these changes are required. We note Ofgem's expectation that policy and system changes should be implemented no later than 12 months following the relevant rules or regulations being laid. This mirrors the commitment Ofgem have made as part of their Five-Year Review of the CM to allow a 12 months implementation period, other than for urgent changes. We welcomed this commitment but note that historically this has not been achieved by Ofgem or BEIS. The EMR Delivery Body has always sought to deliver policy and regulatory change required by Ofgem and BEIS but we have also highlighted the risks and inefficiencies arising from short implementation timelines. In light of the change prioritisation work currently being progressed jointly by Ofgem, BEIS, the ESO and other Delivery Partners, we would suggest that rather than saying "*unless otherwise stated by Ofgem*", this prioritisation work should be acknowledged by stating "*unless otherwise agreed*". The ESO stands ready to deliver on these expectations but would urge Ofgem and BEIS to facilitate this through a coordinated, well-planned change programme.
Providing support to EMR parties	• Supports industry parties through the CfD & CM prequalification and auction processes through provision of accurate & timely guidance to parties	• Delivery of an evidenced step change in query management with demonstrable improved feedback from Capacity Providers	**ESO high level view: Strong alignment between expectations** We agree with expectations in principle. However, it would be helpful for Ofgem to clarify what is meant by "*timely and accurate*". Timeliness will depend to a significant extent of the availability of finalised rules.

	on relevant rules and changes to those rules. • Ensure fair provision of guidance and support. This may require a targeted strategy depending on the type of Capacity Provider to ensure a level playing field. For example, smaller parties should not lose out due to lack of resource, with a variety of communication channels allowing for this.		Historically, we have had to draft guidance while the rules were still emerging, with final rules being available only shortly before prequalification. Timeliness will also depend on the materiality of the change to be delivered as well as the overall change programme and priorities agreed by Ofgem, BEIS, the ESO and Delivery Partners. Timely delivery is also dependent on the availability of BEIS and Ofgem to support co-creation of guidance. Many areas of the Rules are open to interpretation. We rely on Ofgem and BEIS for guidance on interpretation, but this is not always forthcoming. To hold us to account for what is accurate, Ofgem and BEIS need to work with us to define this. Regarding the statement "*smaller parties should not lose out due to lack of resource*", this is largely out of our control. The ESO will of course support parties, including new and small ones, by providing guidance and making our processes as efficient as possible, but it is not in our control whether a party is resourced sufficiently to take part successfully in the CM process.
Making accurate prequalification decisions	• Accurate prequalification and agreement management decision making, based on compliance with the Rules and Regulations.	• Very few errors made or decisions overturned by Ofgem in the Tier 2 process.	**ESO high level view: Strong alignment between expectations** We agree that quality of decision making is an appropriate measure that can be used to inform performance assessments in this area. However, the regulations and rules that the Delivery Body and Ofgem apply in reaching their decisions are complex, evolve continually and leave room for different interpretation. To deliver better outcomes for customers, greater clarity of the rules and an appropriate process between the Delivery Body, Ofgem and BEIS for discussing matters of rule interpretation is required. Where relevant, any joint interpretation could then be updated in associated guidance around the rules and/or taken to the "CM Advisory Group" proposed by Ofgem as part of the forward work plan in the "Consultation

			on Capacity Market Rules change proposals" published 22nd July 2020, to review, prioritise and make future rule change against that interpretation. We proposed an amended version of the performance indicators in our response to Ofgem's RIIO-2 draft determinations consultation. This proposed an updated benchmark, as part of a holistic assessment of performance, rather than a single metric. We would look to the Performance Panel to then use the metric to support their analysis against other supporting evidence and a narrative provided by the ESO in the assessment of overall performance. In determining the updated measures, we have assumed that Ofgem would continue to 'group' any overturns, where multiple Delivery Body decisions are overturned based on the same failure reason as is current practice.
Improving EMR processes	• Readily, regularly and accurately present information demonstrating the ongoing effective operation of the Capacity Market processes with Delivery Partners. • Ensure that auction recommendations assessments are accurate and responsive to recommendations for improvements.	• Evidence of continuous improvement to prequalification and auction delivery, resulting in lower barriers to entry for Capacity Providers. Lessons learned implemented demonstrably and result in an increase in the effectiveness of applicants applying to prequalify and participate in the auctions.	**ESO high level view: Strong alignment between expectations** We agree with expectations, in principle. As explained above, our processes and systems are not a *"barrier to entry*". We do, of course, agree that efficient processes and systems will improve the user experience, and we therefore reinforce our view that "*improving user experience*" is a more appropriate factor to consider.
Monitoring compliance with rules	• Proactive engagement with delivery partners when issues are identified and informs Ofgem any potential instances of non-compliance within a working day from discovery of the issue.		**ESO high level view: Misaligned between expectations, further discussion welcomed** We will proactively engage Ofgem, BEIS and delivery partners when issues are identified and believe the ESO should be transparent in this space. However, we have concerns about introducing an SLA for this kind of communication and would welcome clarity on the requirements of this expectation. There are various scenarios that could come to fruition here, and therefore an element of

			pragmatism may be required. For example, a scenario may occur whereby we identify what may be an issue, but a short investigation resolves this. Similarly, we would welcome clarity on what information would be required within the proposed D+1 SLA. Would a 'heads up' notification that the ESO are investigating be sufficient, or is there a requirement to provide detailed information, impacts and action plans, for example? The information required will depend on how achievable the SLA is and we welcome further clarity from Ofgem on this.
Security of supply modelling	• Endorsement from the Panel of Technical Experts (PTE) on annual modelling approach. • Engages with ENTSO-E and effectively represents GB TSOs in respect to medium and long term security of supply modelling and direct foreign participation in the CM	• Step change improvements in medium term demand forecast accuracy, through the proactive identification of changes to the methodologies and input data.	**ESO high level view: Strong alignment between expectations** We agree with expectations. We would appreciate clarification of what is meant by "GB TSOs".
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
User experience with the EMR portal	• An EMR IT portal with a user-friendly and accessible interface –backed up by feedback with a high degree of satisfaction.	• Seamlessly integrate the EMR portal with other ESO markets within a single market platform, and use the latest data technologies to enable integration with digital infrastructure in UK systems more widely	**ESO high level view: Strong alignment between expectations** We agree with expectations in general but would appreciate clarification on the meaning of "*enable integration with digital infrastructure in UK systems more widely".* Does this mean that the portal should allow other parties to use their own systems?

Activity 2c: Industry codes and charging

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Managing codes changes	• Quality code administration service in line with industry norms	• Exemplary code administration service compared to most other code	**ESO high level view: Strong alignment between expectations** We agree with expectations.

	• Provide a code change process that supports participation of industry participants and integrates effectively with changes to other codes • Provides unbiased, detailed analysis or modelling to support code modifications	administrators (demonstrated through comparative surveys and stakeholder feedback) • Proactively works with Ofgem and government on improvements to energy code governance, including providing robust evidence and thought leadership into the Energy Codes Review •	Given that the input and consultation phases of the Energy Codes Review are complete; it would be useful to understand what further opportunities will exist to support BEIS and Ofgem in this work.
Improving GB rules and standards	• Proactive identification of the most necessary changes to GB frameworks to remove distortions and to ensure a level playing field • Propose and support code modifications that promote the relevant code objectives, in the interests of GB consumers • Contributes views and analysis to aid the development of distribution-level rules and frameworks • Be as open and transparent as possible, sharing insights, comparisons of alternative proposals and robust analysis that can inform workgroup deliberations.	• Continuous and frequent activities that organise, convene, listen and building consensus to ensure the GB electricity market framework develops in the best interests of consumers • Insights, analysis and change proposals that consider the links and dependencies between balancing, wholesale and capacity markets • Ensure change proposals evaluate effectively trade-offs between options, in the context of the broader reform environment (e.g. consideration of changes taking place in other energy codes and the sector more broadly). • Proactively shapes and provides system operation expertise and insights into the development of distribution-level operational frameworks	**ESO high level view – Moderate alignment between expectations, clarification needed** *"Insights, analysis and change proposals that consider the links and dependencies between balancing, wholesale and capacity markets"* could cover a range of activities some of which we do now and some of which we do not. Further clarity on what is expected here would be helpful.

Influencing, implementing and administrating European rules	• Provide a consistent and holistic GB perspective during the development and implementation of European methodologies and processes, via membership of ENTSO-E. • Timely implementation of all GB and European code changes • Administers GB participation in the Inter-TSO Compensation mechanism, meeting the requirements of UK and EU legislation, including through engagement with ITC parties as relevant. Provides accurate and timely GB data for reporting purposes.	• Exemplary stakeholder engagement processes to ensure that GB's shaping of European developments represents a broad cross-section of stakeholders; including by communicating key outcomes and trade-offs to interested GB participants. • Direct influencing of European market developments to ensure changes are in the interests of GB consumers • Monitor, influence and communicate the impact of changes in Inter-TSO Compensation mechanism participation to maximise consumer benefit, such as GB participation post-Brexit	**ESO high level view – Moderate alignment between expectations, clarification needed** It should be noted that our membership of ENTSO-E and our participation in the Inter-TSO Compensation mechanism are subject to the outcome of the final EU exit arrangements and not wholly within the power of the ESO to deliver. It would be helpful if "*timely implementation*" were changed to "*compliance*". This would avoid confusion in cases in which a derogation is granted, where code changes may be implemented at a later date, but GB remains compliant.
Promoting efficient charging and access arrangements	• Competent and responsive development, management and maintenance of the charging process • Providing insight, clarity and transparency through role as Charging Futures lead secretariat • Chair relevant workgroups through Charging Futures • Take a leading role in the Access SCR delivery group	• Undertake activities that organise, convene and building consensus to contribute directly to the development of new approaches to transmission network charging, which maximise long-term benefits for consumers • Undertake activities that utilise the ESO's technical understanding of the transmission system and charging methodologies to provide qualitative and quantitative policy inputs that are beyond simply modelling the tariffs to support the Access SCR	**ESO high level view – Moderate alignment between expectations, clarification needed** Our understanding is that beyond April 2021 the Access SCR will be in delivery phase. We would like to understand what Ofgem sees as the ESO's role in the Access SCR in the future. In particular, we would like to understand what is meant by *"beyond"* modelling the tariffs. We would expect to put forward positions on arrangements at the transmission level. Whilst we would expect to provide input, we would not expect to be leading on arrangements at the distribution level. It should also be noted that *"simply modelling the tariffs"* is not an insignificant volume of work as implied. We believe that the significant amount of modelling that the ESO has provided to date should

			be considered exceeding expectations For further clarity, we don't anticipate providing the level of in-depth quantitative analysis for significant areas of change, such as the access SCR, that Ofgem have historically contracted an independent consultancy to provide.
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
Managing codes changes	• ESO has successfully introduced a single digitalised grid code, with positive user experience. Some discrepancies between transmission and distribution code change processes may remain	• ESO has introduced a single, accessible technical code for transmission and distribution which achieves the user functionality and benefits set out in its RIIO-2 plan. This includes the ESO successfully transforming the Grid Code to incorporate existing transmission and distribution codes into an IT system with AI-enabled navigation and, document and workflow management tools that provides users with a more user-friendly, inclusive and tailored experience.	**ESO high level view – Moderate alignment between expectations, clarification needed** We note that the first year of the RIIO2 period will be used to work with stakeholders to build the detailed scope of this deliverable, which may differ from what Ofgem has defined in this document. We therefore suggest that this expectation may need to evolve over the RIIO2 period.
Improving GB rules and standards	• ESO has progressed a number of key changes to technical standards to facilitate a zero-carbon energy system, in line with government recommendations.	• ESO has proactively influenced, comprehensibly reviewed and (subject to BEIS conclusions) successfully implemented necessary changes to the Security and Quality of Supply Standard (SQSS) and other technical standards to ensure they are fit for purpose for a zero-carbon energy system.	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.

Role 3: System Insight, planning and network development

3a: Connections and network access

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Managing connections	• Competent and responsive development, management and maintenance of the transmission network connections process (including onshore, offshore and interconnector connections) Including by: ➢ Supporting all parties fairly, establishing dedicated account functions for DER where necessary ➢ Provides visibility and understanding of connections process and considerations for all parties, including through well run seminars and events ➢ Planning ahead to consider the pipeline of future connections across the whole electricity network and use this to inform actions today ➢ Develop processes where an accumulation of connection requests in a given area can be considered together rather than processed in isolation, e.g. the development of a regional Connection and Infrastructure Options Note (CION) process. ➢ Process connection requests in a sufficiently timely manner and is able to provide	• Provides and supports a seamless connections experience to electricity networks across GB (including both transmission and distribution networks), in order to facilitate a timely and efficient transition to a Net Zero electricity system Including by: ➢ Developing connections processes and systems in close collaboration with other network operators, industry and developers, that are consistent across networks and flexible to future system changes ➢ Process connection requests in a sufficiently timely manner such that to the rate of connection requests processed by the ESO is at least equal to the rate of incoming connection requests. ➢ Proactively identifying challenges and potential longer-term responses to connection planning issues, particularly in response to offshore transmission, interconnection and implementation of Government policy. ➢ Working with connecting parties to understand early	**ESO high level view – Moderate alignment between expectations, clarification needed** We broadly agree with the criteria in the Meets expectations column. The establishment of a DER support function is categorised as a 'meets expectation' activity but is something that contributes towards supporting a seamless experience for customers across GB which Ofgem has placed in the 'Exceeds expectations' column. We have seen a significant increase in the volume of DER which is set to continue, hence our proposal to meet this demand through a new DER support function, albeit DER are not our direct customers. In Exceeds expectations, we would welcome further clarification as to what Ofgem intends by '*process connection requests in a sufficiently timely manner such that to the rate of connection requests processed by the ESO is at least equal to the rate of incoming connection requests*.' We interpret it as meaning that we process incoming requests efficiently even when the numbers of request rise. We note however that we are not the only party involved in the connections process and therefore the TOs have a role to play in achieving this. With respect to '*planning ahead to consider the pipeline of future connections across the whole electricity network and use this to inform actions today*' we consider that this is something that has been reflected through the Business Plan submitted in December 2019. We would, however, welcome Ofgem's view as to what would meet these criteria. Regarding '*leading industry thinking by developing economic and efficient conceptual solutions for coordinating the development of the NETS in*

	developers with certainty over their respective connection completion date. ➢ Recording all options considered when processing a connection request for an offshore wind farm, including whether the ESO has considered Developer Associated Wider Works.	whether there are services they can provide to the system that would mitigate other system costs. ➢ Leading industry thinking by developing economic and efficient conceptual solutions for coordinating the development of the NETS in offshore waters, whilst taking account of pan-European network development plans	*offshore waters, whilst taking account of pan-European network development plans*' – we would welcome Ofgem's clarification on whether this is related and referring to the ongoing offshore coordination project. If so, we consider its inclusion a positive step but need to ensure that the wording accurately reflects the intended delivery model for offshore co-ordination and the ESO's role, which has currently not been agreed. We will continue to work with Ofgem in the lead up to RIIO-2 to agree the deliverables associated with this, underpinned by the appropriate resources, processes and regulatory framework to achieve them.
Outage and medium-term access planning	• Coordinate with all TOs and significant sources of generation to implement efficient outage plans that minimise costs to consumers • Provide visibility on the costs and benefits associated with changing network outages, through system analysis and cost assessments • Transmission access programmes planned on a whole system basis using open data where appropriate • Works with DNOs to coordinate and collectively optimise network access and planning through exchanging all relevant data in consistent formals	• Facilitates an optimal, whole system approach to network access and planning by coordinating seamlessly with all network operators via common data exchange systems (with use of open data where appropriate) to shape the future development of network access polices • Works with network operators to identify and bring forward innovative, medium term network solutions that drive significant constraints savings for consumers (e.g. through Joint Works projects)	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
Managing connections Outage and medium-term access planning	• The ESO has helped to deliver a high degree of coordination between connections and network access processes across	• ESO has actively extended connection and network access planning approaches across the whole electricity system, with a single interface point, run in	**ESO high level view – Moderate alignment between expectations, clarification needed** Regarding Ofgem's 'exceeding expectations' wording, we are not looking to extend connections approaches across the whole system

	transmission and distribution networks	cooperation or coordination with other network operators, that ensures a seamless experience for all types of parties and facilitates efficient planning across transmission and distribution To underpin this: ➢ The ESO has contributed to the implementation of a central highly accessible hub for connections, which is fully interoperable with the systems of other network operators, and delivers the outcomes described in its RIIO-2 plan (e.g. an enhanced understanding for all parties of the available capacity and the costs of connecting to different parts of the whole network)	– we will look to make experiences similar across different network parties in line with our role to manage transmission connections. It is not clear what is meant by the expectation for a "*single interface point*" for network access planning. Our proposed connections hub will provide an interface point, or landing site, for GB connections customers with linkages to other network companies sites / customer portals. It is not proposed that this hub is used to manage network access planning.

3b: Operational strategy and insights

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Providing energy insights	• Informs the future development of the electricity and gas systems through the production of clear, accessible and timely insight documents, which are informed by robust stakeholder engagement	• Uses expertise to produce trusted and highly valued insights that shape policy decisions on the energy transition and support the UK's 2050 net zero commitment.	**ESO high level view: Strong alignment between expectations** We agree with the wording and expectations detailed here in both meets and exceeds expectations and have no further comments on the drafting.
Producing analytically robust scenarios and forecasts	• Competent and responsive development, management and maintenance of the Future Energy Scenarios (FES) process, with evidence for assumptions and decisions through a	• Monitors and evaluates previous analysis / scenarios, including by performing ex-post analysis of what has happened since the 'forecast' scenarios that has led to a different 'real-world' scenario, to improve	**ESO high level view: Misaligned between expectations, further discussion welcomed** We broadly agree with Ofgem's 'meets expectations' criteria. However, we would suggest rewording the expectation around the long-term forecasts to something like *'provide justifiable and credible long-term scenarios (updated at least*

	record of data inputs and the cross section of stakeholders views gathered • Provide justifiable long-term forecasts (updated at least annually) covering a sufficiently wide range of scenarios, both in terms of future energy system development and the associated costs of operating the electricity system in those scenarios • Continuous stress-testing of scenarios, analysis and assumptions and consideration of whether scenarios and forecasts remain fit for purpose. • High degree of engagement, transparency and justification of decision making to stakeholders throughout the development process • Highlights areas where industry data improvement is necessary to improve assumptions and analysis	accuracy and explain clearly the reasons for deviations between forecast and realised outcomes. • Invites and proactively facilitates collaboration from all interested stakeholders to drive forward the improvement of industry data to achieve more reliable forecasting capabilities • Continually expands the functionality of demand models to provide step changes in accuracy, in particular by better taking into account profiles across the year, changes at the regional level and developments across vectors	*annually) covering a sufficiently wide range of* ***outcomes****...'.* We would also like to understand what Ofgem intends by '*continuous stress-testing of scenarios*' as this could have a varying impact to the work and therefore resources required to fulfil. In addition, regarding '*highlights areas where industry data improvement is necessary to improve assumptions and analysis*' – we will continue to work collaboratively with other parties to improve data where possible and relevant to support development of scenarios rather than highlighting areas where improvement is required. For exceeding expectations, we propose to change the word 'analysis', in the first paragraph, to 'consideration'. We will undertake a consideration of actual outcomes to robustly build the next set of scenarios. We believe there is little benefit to comparing with 'real-world' outcomes due to the number of variables involved in the process. We also look at how to improve modelling methods and data year on year. We would welcome further discussion with Ofgem on this to ensure expectations are aligned.
Ensuring coordinated scenario development	• Engages and coordinates with other licensees (e.g. GSO, DNOs) to ensure regional and cross-sectoral interactions are clearly taken into account in the scenario development processes. • Provides accurate and consistent GB scenario data into European processes via ENTSO-E membership, and contribute to the	• Proactively brings together as many industry parties as possible, both directly and through working with open data, to identify consistent pathways to achieving scenarios that meet decarbonisation targets, across the whole energy system. • All insight and scenarios documents (including the FES, ETYS, Operability	**ESO high level view – Moderate alignment between expectations, clarification needed** We agree with the meets expectations criteria. For exceeding expectations, regarding '*proactively brings together as many industry parties as possible'* – it is important to bring parties together who are interested and relevant to the scenarios process rather than as many as possible. For the expectation of '*consistent pathways to achieving scenarios',* we believe this refers to our deliverable

	development of the ENTSO-E TYNDP.	Reports, and the SOF) work together seamlessly to present a clear, and accessible view of all future needs across the whole electricity system.	to support DNOs to develop their DFES. For clarity, this should be amended along the lines of '*consistent factual data'* as this is key to all parties' processes rather than identifying consistent pathways. For exceeding expectations, the ability to measure whether our publications are seamless is subjective. Instead we can ensure that all insight and scenarios documents are clear, cross reference each other and are accessible for stakeholders, evidenced through stakeholder feedback.

3c: Optimal network investment

Output	Meets expectations	Exceeds expectations	*ESO comments*
Immediate and ongoing			
Making optimal network recommendations	• Make recommendations that lead to the economic and efficient future design and operation of the transmission network (encompassing onshore, connections for offshore wind and interconnection). Including by: ➢ Identifying future network issues in advance of additional costs being incurred ➢ Inviting all types of providers (network and non-network) to provide solutions to these issues ➢ Proposing potential commercial alternative solutions to traditional network reinforcement based solutions ➢ Assessing all options fairly, based on robust and transparent	• Make recommendations that lead to the economic and efficient future design and operation of the transmission network, taking into consideration the system needs associated with Net-Zero (encompassing onshore, connections for offshore wind and interconnection), by demonstrably maximising the number and types of solutions available. Including by: ➢ Identifying all transmission network issues in sufficient time for all possible types of solutions to be developed (including solutions from the distribution network that could solve transmission network issues). ➢ Proactively encouraging	**ESO high level view: Misaligned between expectations, further discussion welcomed** We broadly agree with Ofgem's meets expectations criteria. However, we consider that '*proposing potential commercial alternative solution to traditional reinforcement based solutions'* should be replaced with '***seeking*** *or* ***inviting*** *potential commercial alternative solutions to traditional network reinforcement based solutions*'. We are seeking what the market can offer by way of non-network solutions. Proposing is a very different role and we do not believe this is an activity we should be undertaking. With respect to the exceeds expectations criteria, we agree with the sentiment of '*demonstrably maximising the number and types of solutions available*' but we wouldn't want this to drive pursuit of higher numbers and types of solutions without considering the impact on consumer value i.e. a higher number of possible solutions doesn't necessarily bring greater value. The statement '*identifying all transmission network issues in sufficient time for all possible types of solutions to be developed'* is very

	cost benefit analysis ➢ Producing clear, accessible and timely NOA publications	solutions from all types of parties (network and non-network) by making future opportunities clear and accessible to all technologies. ➢ Where appropriate, identifying additional solutions not proposed by other parties, recommending optimised combinations of solutions to target a known issue, or identifying a solution that may address multiple issues ➢ Keeping network investment options open against uncertainty, through incorporating effectively medium-term market solutions ➢ Assessing all options based on robust and transparent cost benefit analysis, providing a high degree of confidence that the ESO has recommended the optimal solutions.	broad and is suggesting that in order to exceed expectations with immediate effect we need to consider every network issue through a NOA-type assessment and all possible types of solutions. As we have discussed recently with Ofgem, this is not possible and would require significant resource. Further explanation on what '*keeping network investment options open against uncertainty, through incorporating effectively medium-term market solutions'* incorporates would be welcomed.
Improving the network options assessment processes	• Achieving clear coordination between the different assessments of solutions to different transmission network needs (e.g. ensuring coherence between the NOA and 'NOA type' pathfinder assessment processes as well as offshore wind connections.) Including by:	• Setting a clear pathway for (and making demonstrable progress towards) the introduction of a co-optimised assessment of all solutions to multiple transmission network needs (e.g. bringing together all network assessments under one single process) Including by: ➢ Developing a clear future vision and	**ESO high level view: Misaligned between expectations, further discussion welcomed** We mostly agree with the meets expectations criteria. However, it should be noted that offshore wind connections arrangements will be developed through the ESO's Offshore Coordination Project and the BEIS-led Offshore Transmission Network Review. In addition, due to the nature of the pathfinder projects, there may be circumstances where commitments made in previous Network Development Roadmaps change. We therefore propose to change the

	➢ Ensuring that all commitments made in previous Network Development Roadmaps are completed in a transparent, timely manner ➢ Regular engagement with Ofgem, industry and interested stakeholders on NOA methodology development to ensure that the year-on-year system planning process is fit for purpose ➢ Building on past learning to continually improve the models, methodologies and analytical tools underpinning the assessment process of the NOA and NOA pathfinders ➢ Taking the NOA pathfinders out of the 'proof of concept' stage and integrating them with the NOA into an established and coherent set of assessments governed by the NOA methodology. ➢ Setting out a clear and coherent timetable/calendar for when the different assessments are to take place. ➢ Ensuring that it is easily accessible to all that wish to engage with the NOA, NOA pathfinders and any new NOA type processes. ➢ Providing timely and comprehensive submission of	strategy for developing a single, optimal network assessment process ➢ Identifying the key barriers to achieving this vision (both technical and regulatory), making these clear to all parties, and proposing the best way to address these barriers ➢ Extensive and proactive engagement with Ofgem, industry and interested stakeholders to help shape the network planning process in consumer's best interests. ➢ Introducing step change improvements to the models, methodologies and analytical tools underpinning the assessment process against an agreed, transparent and clearly justified timeline.	wording of the second paragraph under meets expectations to ensure that any commitments are kept up to date and relevant in consultation with the industry such that any changes to commitments are transparent with clear rationale. For exceeds expectations, and as we have set out in recent discussions with Ofgem, our intention is not to bring together the pathfinder projects and the annual NOA cycle into a single assessment process. An all-encompassing analysis process that optimises all solution types to all network needs, across all scenarios and timeframes is not possible due to the vast complexity that this creates. Our intention is to undertake further pathfinder projects and incorporate the learnings from these into the NOA methodology. It would not be efficient to undertake a single process. We do, however, propose in our Business Plan to expand the NOA to look at Connections Wider Works and end of life asset replacement decisions. We are therefore not in a position to '*develop a clear future vision and strategy for developing a single, optimal network assessment process*' or '*identify the key barriers to achieving this vision'* if it is Ofgem's expectation that we ultimately assess all network needs in one process. *With respect to 'introducing step change improvements to the models, methodologies and analytical tools underpinning the assessment process against an agreed, transparent and clearly justified timeline*', we assume that the transparent and justified timeline is the RIIO-2 Delivery Schedule commitments, but it would be helpful to understand if Ofgem is referring to something additional. We would welcome further engagement with Ofgem on this area to ensure that expectations are aligned with what is realistically achievable for this output.

	methodologies for key network development documents to Ofgem for approval, clearly highlighting how stakeholder input and lessons learned have been taken into account.		
Procurement of medium and longer term solutions	• Procurement of medium and longer-term balancing/network solutions through well-defined, timely, clear needs specifications • Continual improvements made to the procurement process informed by stakeholder feedback	• Procurement of medium and longer-term balancing/network solutions through transparent, timely, regular, predictable market processes • Extensive engagement with existing participants and potential new entrants ensure the process works for all types of parties	**ESO high level view – Moderate alignment between expectations, clarification needed** It is not clear what is meant by '*procurement of medium- and longer-term solutions'*. We have interpreted it as establishing markets for medium- and longer-term system needs, currently procured via the pathfinder projects, but we would welcome Ofgem's confirmation of this.
By the end of RIIO-2 (with evident progress demonstrated by March 2023)			
Making optimal network recommendations	• The ESO has introduced a network planning process that ensures that all different types of solutions, to all network needs are fully and equally assessed as part of a coordinated set of processes which ensures the efficient solutions are brought forward. In doing so, the ESO has produced, and then continually updated, one overarching methodology and timetable that clearly shows how the different processes interact. • The ESO has also ensured that the network planning process enables a long sighted strategic planning function at the	• The ESO has introduced a network planning process that ensures that all different types of solutions, to all network needs, are fully and equally assessed as part of a single, co-optimised assessment which ensures the optimal solutions are brought forward. Underpinned by: ➢ High quality, fully tested and future-proofed economic and technical assessment tools which are integrated within one platform. ➢ IT systems and models that are capable of establishing a co-optimised set of NOA assessments that simultaneously	**ESO high level view: Misaligned between expectations, further discussion welcomed** Within meets expectations, it is not clear how the requirement to have '*ensured that the network planning process enables a long-sighted strategic planning function at the onshore/offshore boundary*' relates to the output. For the exceeds expectations criteria, and as set out above, we do not propose to introduce a single, co-optimised assessment. It is also not intended that the NOA tools will be integrated within one platform. Our proposed Data and Analytics platform (IT investment 220) will provide the foundational architecture to enable the development of an interchangeable suite of network development tools with a common dataset, and seamless exchange of data between tools. We do propose to integrate aspects of the technical and economic analysis, if it proves beneficial to do so but to integrate all of the technical

	onshore/offshore boundary. • The NOA has been progressively extended year-on-year to include innovative recommendations	identify all future system needs and all energy-related network issues from a wide range of scenarios. ➢ IT system and models that are capable of simultaneously considering solution proposals from all types of network and non-network parties to recommend and/or procure the most economic and co-optimised set of solutions to the system needs	analysis including thermal, voltage and stability with the economic tools in one single platform is not achievable. Nor will the new tools we develop be able to simultaneously identify all future system needs and assess system need solutions. The NOA cycle is carried out annually and there will be further analysis carried out in between NOA cycles to determine any additional system needs.
Consistency with distribution network planning	• The ESO has assisted the DNO's in developing network planning processes which are consistent with those at the transmission level, engaging at regular intervals to share expertise.	• Network planning processes and assessment at the transmission level are fully coordinated with those at the distribution level, with the ESO having proactively shaped the DNO's RIIO-2 Business Plans to ensure optimal whole system network development.	**ESO high level view – Moderate alignment between expectations, clarification needed** The 'exceeding expectations' criteria is highly dependent upon the willingness of external parties and therefore not wholly within our control. The definition of 'fully coordinated' in this context is also subjective so we would welcome some more specific parameters.