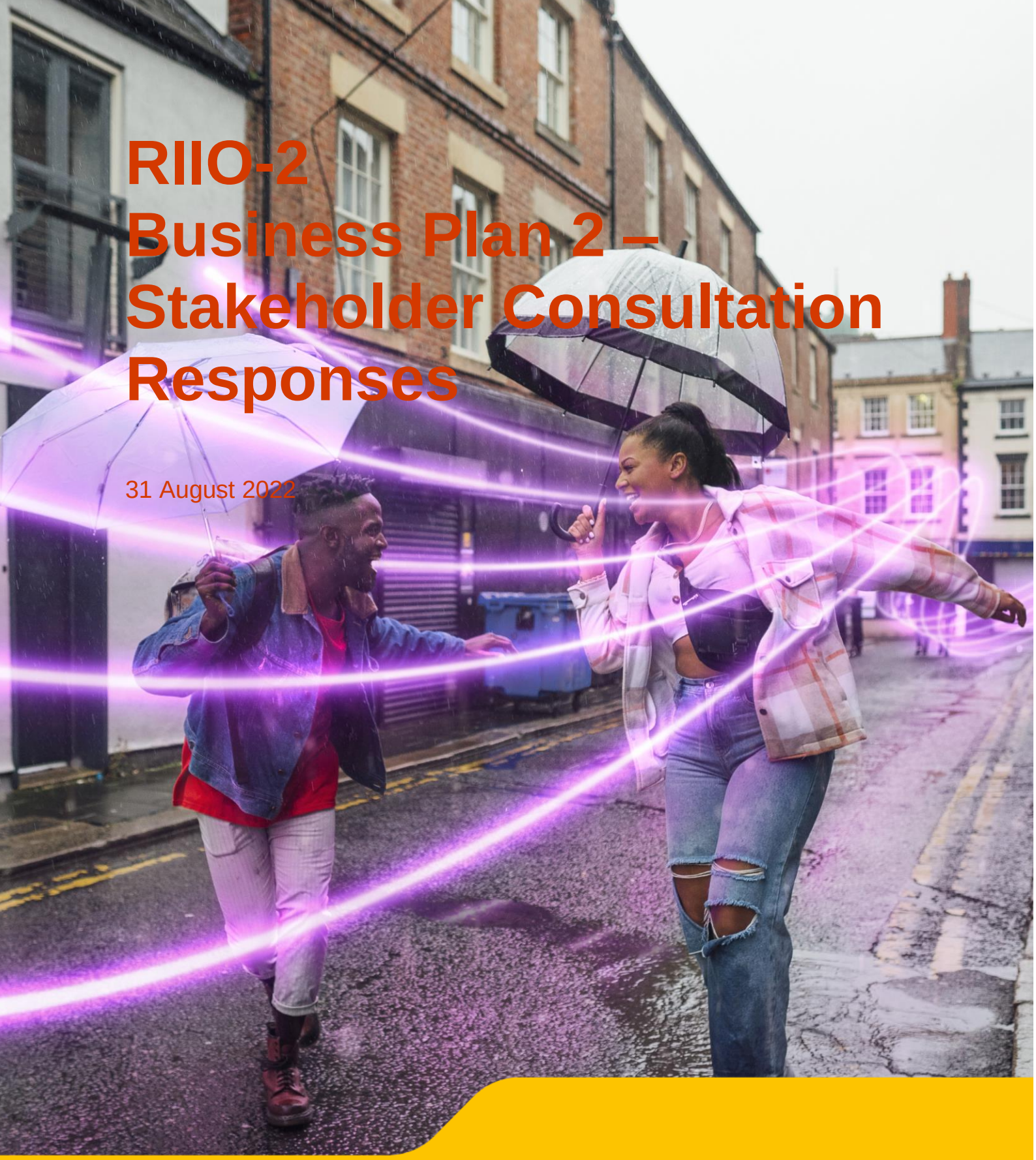

RIIO-2 Business Plan 2 – Stakeholder Consultation Responses

31 August 2022

nationalgridESO

Table of Contents

The BP2 consultation ran for a period of six weeks between 29th April and 10th June 2022.

This document contains copies of the stakeholder responses we received, to our draft BP2 proposals. We have not included in this publication one response, which was submitted within our online proforma and for which full contact details were not provided. However, this response has been summarised within our stakeholder annex and included in full in our submission to Ofgem.

BP2 Stakeholder Consultation Response:

The Association for Decentralised Energy (ADE)

ESO draft RIIO-2 BP2 Consultation questions proforma

Our BP2 consultation questions are set out below. We have grouped these in alignment to our main Business Plan document as follows:

- Role 1: Control centre operations
- Role 2: Market development & transactions
- Role 3: System insight, planning and network development
- Cross-cutting and overarching questions (including IT, Innovation and cross-role activities)
- Additional feedback

How to respond to our consultation

To assist stakeholders in responding to our consultation, we have developed this consultation proforma which contains all the questions and a corresponding space for you to provide your feedback.

Please send your response electronically to **box.ESO.RIIO2@nationalgrideso.com**

Alternatively you can fill out this response via MS forms at https://forms.office.com/r/JS0J63vXuH

About you

Name: Sarah Honan

Position: Policy Officer

Organisation: Association for Decentralised Energy

Role 1: Control Centre Operations

New and materially changed

1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
1	The ADE welcomes efforts to diversify sources of restoration including from distributed assets following the long ReStart project.

2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?
2	
3	At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online. Do you have any comments about our proposed plans for A19 - Data and analytics operating model?
3	•

Activities that are not new or materially changed

4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
4	**A17 Open Data and Transparency** The ADE supports the continuation of this activity. We note, however, that transparency does not equate with accountability and although stakeholder feedback has consistently highlighted the issue of skip rate, improvement has not materialised. While we appreciate the complexities of running a system dependant on far more distributed assets, the Dispatch Transparency Tool has not yielded the clarity of decision-making hoped for. The size of the dataset demands considerable resources to analyse that goes beyond the capacity of many smaller actors. Therefore, summary reports or greater industry consultation would be welcome. There has been no reported improvement in levels of dispatch of smaller, in-merit actions. The ADE appreciates efforts to further explain the reasons for decisions being taken out of merit but this has not led to any increased confidence from industry as to the robustness of or checks on these reasons. Greater transparency of ENCC policies, and visibility of dispatch data would enable stakeholders to minimise inefficient dispatch decisions.

Role 2: Market development & transactions

New and materially changed

5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
5	The ADE welcomes the ESO's ongoing reform of balancing and ancillary service markets. The ADE supports the key drivers for market reform identified by the ESO, including increased competition, zero-carbon operation, changing system conditions and increased transparency. However, the designs of certain products have presented significant barriers to market participation for segments of industry, and further reform is required to enable the ESO to achieve its vision of liquid balancing service markets. These are outlined in the sections below. The ADE has called for a more consistent and engaged approach to consultation on balancing service reforms from the ESO. Like BEIS and Ofgem, the ESO's decisions have a significant impact on the market, and like these organisations, the ESO should therefore have a clearer and more consistent approach to industry consultation. The ADE notes that this is an area that it has raised directly with the ESO and hopes that productive discussions around future consultation approaches can be going forward. The ADE welcomes the ESO's ambition to reform frequency response services to support a system with less inertia in 2025. However, the designs of DC, DM and DR have posed barriers to entry for many flexibility providers, particularly around the issues of baselining and locationality. The ADE welcomed the ESO's decision to move the locational boundary for aggregation from GSP to GSP group for the launch of DM and DR, and to reinstate GSP Group aggregation for DC, intended to take place before the close of 2022. The ADE very much appreciates the ESO's receptiveness to industry feedback and encourages the continuation of this trajectory. It has been accepted by the ADE and its members that sub-1MW assets cannot be processed by the ESO until its planned IT reforms (due to be completed by 2025), and although the GSP group compromise has abated some issues, the ADE encourages the ESO to continue to progress the IT reforms as fast as possible. Likewise, the ADE has had very productive engagement with ESO on the issue of nominated baselines being the default parameter for FR products, and by all expectations also new Reserve products. The alternative approach using derived data, as proposed by the ADE and its members, has been well received by the ESO. However, pace of progress is slow and given that any terms of services changes will have to undergo a formal consultation, this is disappointing. It undermines the objective of the markets reform to remove barriers, increase participation and create competitive markets. The longer

certain types of aggregation are precluded from the market, the longer it will take to fulfil these objectives, including getting more low carbon assets on the system.

Further issues with the product designs of DM and DR involve the initial volume requirements, stacking and auction approach.

As said in our consultation response on the product designs, the initial volume cap of 100MW appears slightly low, although the ADE appreciates the ESO's desire to mitigate oscillation concerns. However, we appreciate that the required studies into understanding these issues are being undertaken. Furthermore, it is unclear why oscillation concerns persist since it has been confirmed that an arming/disarming function will be built into the product design. It seems that such a capability assuages any oscillation risks. Studies into the efficacy of this mitigation measure should be shared with industry promptly.

With regard to stacking, the ADE is concerned by the proposal to only allow stacking with the Balancing Mechanism. This approach limits market access and participation by disallowing the simultaneous use of assets. Inhibiting the efficient use of flexible assets is incongruent with the objectives of FES and the Smart Systems Flexibility Plan. While we appreciate that the ESO is seeking to alleviate such issues with the implementation of their Enduring Auction Capability, the progress of this project is slow and thus continues to create inefficient market conditions for flexibility providers, despite continuing acceptance from ESO of their necessity for system decarbonisation.

Linked to the above is the auction approach which disallows providers merely from offering products simultaneously since the auctions will run concurrently on the same platform. This could lead to certain auctions being flooded and others being under-offered. Again, this impedes healthy market activity and participation. Pre-consultative communication on this decision was lacking with post-consultation explanation again pointing to the Enduring Auction Capability. Of course, all market stakeholders look forward to its introduction but a lack of sequential auctions in the interim will negatively impact the growth of low carbon FR markets as intended by ESO and the regulator.

The ADE appreciates the ESO's approach to monthly performance reporting for new FR products. Likewise, we appreciate the post-consultation change to the performance tolerances for DR from 3%-7% to 5%-25%. However, recalling the tolerance parameters for Firm Frequency Response, it appears that the 3- 7% tolerance for DC and DM is relatively narrow.

6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.
6	The ADE supports the proposed plans for A5 especially with regard to an improved EMR portal. We also support dedicated studies to examine the capacity mix needed in the 2030s. We would encourage such work be undertaken promptly, given the continued issuance of long-term capacity market contracts to new gas plant and their conflict with 2035 goals.

7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform
7	**(New): A6.7: Fixed BSUOS tariff setting** The ADE supports the shift to fixed BSUoS tariff setting. **(New): A6.8: Digitalisation of codes** The ADE supports the work of the DWSTC group and encourages close communication with the ECR team at Ofgem. **(New): A6.9 Whole system codes reform** The ADE supports the broader ECR work being undertaken by BEIS/Ofgem.
8	We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem. Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?
8	
9	The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs). Do you have any comments about the plans we are proposing relating to our Role in Europe?
9	

Role 3: System insight, planning and network development

New and materially changed

10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?
10	
11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?
11	The ADE supports these proposals. We consider that greater stakeholder engagement regarding the modelling methods used in FES would be welcome, especially around flexible capacity and heat networks and storage.
12	A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years. Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?

12	

13	A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

13	

Activities that are not new or materially changed

14	Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3. A7: Network Development A8: Pathfinders A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works A11: Enhanced analytical capabilities A12: SQSS Review with regard to proposed deliverables and timeline A15.1: System operability framework A15.2: Provide technical support to the connections process A15.4: Manage operational data and modelling A15.7: EFC capability A16: Network Access Planning Please provide us with any feedback you have on these proposals.

14	**A15.1: System operability framework** Similar issues to those addressed elsewhere are relevant here, namely: skip rate issues, increased access for DER, baselining, and operational metering. **A15.2: Provide technical support to the connections process** The ADE supports increased technical support during the connections process, especially as an extension of the aim to better facilitate DER access to NGESO markets. **A15.4: Manage operational data and modelling** The ADE reiterates the points above regarding the Dispatch Transparency Tool and greater explanation as to how operational decision-making is conducted as opposed to mere data provision.

Cross-cutting and overarching questions:

IT

15	Do you have any feedback on our IT proposals?
15	The ADE supports the proposed plans for IT reform, especially relating to control room capabilities and advancing sub-1MW or integer bids. We would welcome any acceleration of this process, especially given ESO's continued concerns over allowing aggregation at GSP group level for new ancillary services.
16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
16	

Innovation

17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
17	

Offshore coordination

18	Offshore Coordination is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?
18	

Network Planning Review

19 Network Planning Review is a new area of work for BP2.

Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

19

Facilitating Distributed Flexibility

20 Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan.

A1.5: Operational coordination with DER and DSO

A4.5 Facilitate whole electricity system market access for DER

A15.8 Facilitate distributed flexibility and whole electricity system alignment

Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?

20 **A1.5: Operational coordination with DER and DSO**

While we appreciate the need for more coordination between transmission and distribution systems in order to facilitate the transition to a largely decentralised system consisting of thousands of DER assets, there remain concerns around conflicts of interest. While the ESO will transition to a fully nationalised FSO, DSO governance arrangements are far more oblique. Furthermore, the divide between the system operator and market competitor functions of DSOs/DNOs are belied by initiatives such as CLASS and expanded Active Network Management. Conflicts of interest arising from an outsized influence of DSOs on ESO while they simultaneously participate in balancing services with CLASS must be avoided.

A4.5 Facilitate whole electricity system market access for DER

The ADE fully supports initiatives to facilitate whole electricity system market access for DER. In particular, we support proposed changes to operational metering standards in order to better include aggregated assets and appreciate their different needs. We emphasise the need for equal weight to be given to demand side DER as well as distributed generation, and the many non-dedicated assets that comprise DSR portfolios.

A15.8 Facilitate distributed flexibility and whole electricity system alignment

The ADE supports these proposals and reiterates the above concerns regarding timelines for IT upgrades and operational metering reform.

Other feedback

21 Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?

21 Overall Evaluation

The ADE supports the tenor of the Draft Business Plan, especially the commitment to increase participation of distributed flexibility resources. We also support the introduction of the Balancing Capability Strategic Review and the stakeholder engagement that has flowed therefrom.

Timelines remain an issue of concern for industry especially regarding the issue of skip rates in the balancing mechanism and reforming the barriers to entry for certain small assets in the new ancillary service product suite. While engagement has been constructive, implementation of solutions remains out of sight.

On the issue of engagement, we very much appreciate improved transparency but would are important. Smaller industry actors often do not have the resources to attend or respond at short notice.

BP2 Stakeholder Consultation Response:

ESO Performance Panel

Making a positive difference
for energy consumers

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Faraday House, Warwick Technology Park,
Gallows Hill, Warwick, CV346DA
Email: box.ESO.RIIO2@nationalgrideso.com

Email: ESOPerformance@ofgem.gov.uk

Date: 10 June 2022

Dear Gareth Davies,

The RIIO-2 price control for the Electricity System Operator (ESO) covers the period 2021-26. The ESO's business plan period and incentives framework runs over a two-year period. As part of the incentive framework for the ESO's RIIO-2 price control, the ESO Performance Panel (the 'Panel') assess the ESO's performance every six months.

In this letter, the Panel have commented on the quality, ambition and value for money of the two-year business plan proposal, as required in the BP2 Guidance document.[1]

We are publishing this letter as the Secretariat for the ESO Performance Panel, detailing the Panel's feedback on the ESO's draft business plan for 2023-25. This report contains the views of the Panel, not Ofgem.

Yours sincerely,

Maryam Khan on behalf of ESO Performance Panel
ESO Regulation Team, Secretariat for ESO Performance Panel

[1] Paragraph 2.11: Ofgem BP2 guidance document: https://www.ofgem.gov.uk/sites/default/files/2021-11/Business%20Plan%20Guidance%20document%20final%20v3.pdf

Feedback from the ESO Performance Panel

Overarching messages

The Panel welcomed the opportunity to review the ESO's draft business plan. Overall, the Panel thought the plan was broadly ambitious but needed to be focused in several areas.

In particular, the Panel would like the ESO to explain more fully the outcomes it is driving towards and set out the key indicators of success at the end of the 2023-25 period. The Panel would also like greater emphasis and clarity on the ESO's priorities in the plan. There are a number of activities and associated deliverables for each role, but it is not apparent which ones are the most important to deliver the outcomes, why and what trade-offs have been made. The Panel also reflected that 'how' the plan is delivered (for example, people, IT etc.) is as important as 'what' the ESO delivers. The Panel would like more assurance that the controls around how the plan outcomes will be delivered are robust. The Panel would also like to understand what the risks and dependencies are to delivering the plan outcomes.

In addition, the Panel reflected on the large volume of information provided in the business plan and the supporting annex documents, some of which was duplicated and highly detailed. The Panel questioned whether the large volume of information reduced the accessibility of the plan for stakeholders and whether the business plan could be more concise (for example, providing more detail than is currently in the executive summary while avoiding the need for a 200-page business plan).

More detail on the overarching messages is provided below:

- Balancing costs: Balancing costs are at unprecedented levels and the ESO has a key role to play in limiting these costs in the future. The Panel would like to see the business plan have a greater focus on proactively targeting and delivering the lowest possible future balancing cost outcomes.

- Priorities: At present, the business plan contains a list of deliverables, but it is not clear which ones are the key areas of focus/priorities for 2023-25. What are the things that must be delivered compared to the nice-to-haves? The Panel would like the ESO's priorities clearly set out for each role, indicating what will deliver the most impact. The ESO should also explain how and why projects have been prioritised, especially if they deviate from plans set out in the first RIIO-2 business plan.

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- People: The ESO's ambition is to be the 'net zero employer of choice'. While the Panel welcomes this commitment, it is not clear what this means in practise and what additional capabilities the ESO expects to be required. In particular, the Panel would like the ESO to provide more visibility on how it intends to develop existing capabilities within the organisation through training and development. The Panel also would like to understand how outsourcing will be managed to bring down costs, particularly regarding IT buildout, as well as ensuring that external consultancy costs are adding value and are carefully managed.

- IT: the Panel considered IT deliverability to be the biggest concern in the ESO's draft plan. The delay of certain business plan 1 IT projects to enhance balancing market liquidity was of concern as the development of key IT projects in Role 1 will be an important enabler for activities associated with Roles 2 and 3. The Panel noted the ongoing Balancing Capability Strategic Review and would like to see an update on this in the final plan and what this means for IT development. At present, it is not clear what can be expected in terms of project delivery in this area, especially given large increases in IT costs compared with the first two years of the RIIO-2 period. It is also not clear what the ESO is doing to ensure that proposed deliverables are cost-effective and future-proofed to accommodate changing markets. The Panel also seeks to clarify when the ESO expects the large, planned increases in capital expenditure during the 2023-25 period to drive down operating, and ultimately consumer, costs.

- Value for money: The Panel is not fully convinced that the draft business plan, as currently drafted, represents value for money for consumers. While the Panel recognised the difficulty in estimating consumer benefit, the Panel questioned some of the assumptions behind the Net Present Value calculations. A clearer delivery plan is required to assess whether proposed projects are likely to represent value for money for the consumer. In particular, the Panel would like to see the overarching priorities for each Role, corresponding deliverables and importantly, how outcomes are expected to result in net benefits for the consumer.

- CBA benefits: The Panel noted that the CBAs prepared by the ESO were dominated by balancing savings apparently resulting from ESO proposed network investment plans. The Panel were unconvinced by the analysis in justifying ESO activities and prioritisation/trade-offs and would like to see a clearer way of explaining how value for money is to be delivered.

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- Additional funding: The Panel were not persuaded that the ESO requires additional funding for managing the fixed BSUoS charges or for taking on the proposed additional roles. The Panel noted that the majority of the ESO's activities remained unchanged from the first business plan. For example, the Panel questioned whether additional resources were needed for the ESO's 'role in Europe' given that this role has not increased.

- Innovation: The Panel support the work the ESO is planning on increasing innovation and facilitating change management but would like to know more about what the ESO's strategy is with regard to pursing innovation opportunities (for example, what is the vision, outcomes and strategy to deliver these).

- Stakeholder engagement: The Panel welcomed the fact that the ESO has significantly improved its engagement with industry stakeholders, taking on a wider system coordination role since the start of the RIIO-2 period. The panel would like to see the business plan reflect the need to maintain and further enhance this key aspect of the ESO's role.

- Future System Operator: The Panel was unsure when the plan will converge with the FSO plan, and the impact of additional resources needed beyond the business plan to deliver an FSO. The Panel was unsure where shared services will sit in the future/how governance is going to change for IT systems. While accepting that this will become clearer as the FSO model is developed, the Panel considered that the plan could usefully provide more information in this regard.

- The Panel noted the deliverability risk associated with the transition to the FSO, especially for the management team trying to meet all their plan deliverables and creating a new independent organisation, whilst retaining key staff. The business plan could both acknowledge the risk and be clearer as to how this risk will be managed.

Role 1

Overall, the Panel noted that the ESO remained uncertain about its new leadership role across Role 1 activities, particularly where ESO and DSO functions overlap and regarding its IT strategy. Several members of the Panel expressed concern that there are high risks associated with the ESO's new approach to developing IT capabilities and have requested more information regarding specific projects, what they were going to deliver, how they will be managed, as well as the drivers of cost. It is also unclear why the delivery of Balancing

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Scheme 180 had been halted and was being reassessed as part of the Balancing Capability Strategic Review. The Panel would like more information on this as it is a major driver of the cost increase.

The other key points on Role 1 were:

- Restoration: The Panel felt this should be a priority for Role 1 and would like to see the ESO provide greater focus on the implementation of the Electricity System Restoration Standard (ESRS) and other restoration activities. The Panel noted the importance to overall security of the system of the ESRS and that the ESO must comply with its provisions by the end of 2026.

- Coordination with DSOs: The Panel questioned how the ESO will achieve operational coordination with the DSOs, especially as DSO functions are still unclear and DNO plans for local flexibility are varied with different maturity levels. The Panel would like the ESO to define its system coordination role and the associated benefits more clearly. The Panel also questioned why an additional 22FTE would be required to ensure that markets at national level will coordinate with markets at a sub-national level. The Panel reflected that the outcome market participants want to see is more DERs and access to markets. The Panel sought further information on how the ESO was coordinating with DNOs to develop local markets (for example, for voltage).

- Balancing and constraint cost management: The Panel noted that the ESO's Net Zero reform highlights an expectation that constraint costs will fall back to historic levels by the 2030s. The Panel would like to understand what actions the ESO proposed to take in 2023-25 to minimise balancing costs to achieve this outcome.

Role 2

Overall, the Panel considered that the ESO is broadly on the right direction of travel on Role 2. The Panel consider that the key outcome that ESO should be driving towards on Role 2 is the creation of a single, easy to access platform for ancillary services so participants can provide all the services the ESO needs. The Panel was particularly interested in ancillary service reform and requested that timelines be set out transparently for market participants. The Panel discussed the sequential/phased approach to ancillary service reform and agreed that frequency response and reserve reform were prioritised, followed by creating robust markets for stability and reactive power, which would deliver more local markets. Ultimately, the ESO should prioritise activities that feed into lowering balancing costs under Role 1. In the final plan, the Panel would like to see more information on how

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the ESO would ensure its single markets platform would interact effectively with DSO markets.

The other key points on Role 2 were:

- The Panel recognised that the objective of 'competition everywhere' has been redefined to 'competition where it delivers value for consumers'. The Panel agreed with this change.

- Code reform: The Panel noted that the ESO is proposing to progress 8-to-10 code changes over 2023-25, many of which are sizeable and strategic. The Panel questioned if this was realistic and achievable but accepted that some of the changes and timings are driven by Ofgem and/or BEIS. The ESO could demonstrate leadership by prioritising which ones need to be reformed first. The Panel noted improved code administration performance but were unsure whether this would be impacted by the significant scale of code reform currently planned.

- Frequency management strategy: The Panel reflected on the ESO's progress thus far with its suite of frequency response products (dynamic moderation, dynamic regulation and dynamic containment), but were concerned that the ESO would be starting from scratch again, instead of building on the markets it has already developed with industry.

- Pathfinders: The Panel responded positively to seeing Role 3 pathfinders turn into prospective markets under Role 2. The Panel urged the ESO to address the challenges with the pathfinder processes when designing these markets, to ensure problems are not bedded into markets, (for example, by cheaper longer-term solutions being crowded out by short-term markets).

Role 3

The Panel noted that there were many deliverables listed under Role 3 and questioned what its priorities were and whether the ESO would be able to deliver all those listed. The Panel recognised that many of the Role 3 deliverables have resulted from government (Ofgem/BEIS) initiatives, but questioned whether it was feasible and economically efficient for the ESO to be expected to deliver all of this work (for example, early competition, network planning reviews etc.) at this point in time. The Panel would like the ESO to demonstrate leadership in this area by considering what the current priorities are and

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proposing a credible plan to Ofgem and BEIS in order to effectively manage the workload and avoid the risk of overcommitting and under-delivering.

The key points on Role 3 were:

- Connections: The Panel questioned whether the ESO had a robust process in place to effectively manage the challenge of the increasing volume of connection applications. The Panel recognised the role of network operators in managing connections but felt that the ESO could do more to be an effective 'gatekeeper' of the connections process. Furthermore, the connection process for distributed assets needs to be improved.

- NOA process: The Panel questioned whether the existing network planning process was fit for purpose or whether fundamental change was needed. The Panel reflected that this process (which is bound in the licence and revisited every year), does not effectively take account of non-network solutions. ESO leadership is needed to reform this process more broadly, but the Panel recognised that input from the Regulator would also be needed.

- Constraint management plan: The Panel reflected that the constraint management 'Five Point Plan' has been mentioned previously but is not built upon in the ESO's draft business plan. The Panel would like to understand how this work is evolving in 2023-25, given its focus in previous years.

- DNO and DSO engagement:
    - Regional Development Plans (RDPs): The Panel struggled to understand the outcome the ESO is driving towards with the RDPs. The Panel would like to see tangible benefits coming out of this work, particularly as the Grid Code requires the ESO to coordinate with DNOs on this activity.
    - DNO flexibility: The Panel questioned how benefits from DNO/DSO and other distributed flexibility would be captured. The Panel would like to understand how the expected joint benefits will be realised.

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BP2 Stakeholder Consultation Response:

ESO RIIO-2 Stakeholder Group (ERSG)

The Electricity RIIO-2 Stakeholder Group's (ERSG) Report on National Grid Electricity System Operator's (ESO) Draft Business Plan 2 Submission

Contents

Executive summary

The Electricity System Operator's (ESO) RIIO-2 Stakeholder Group (ERSG) provides National Grid ESO with challenge and scrutiny on its second business plan 2 (BP2). A wide range of stakeholders sit on the ERSG, providing insight and expertise. Stakeholders include: consumer bodies, customers, energy generators, academia and network organisations.

The Group wishes to provide the ESO with feedback at this stage in the process, on its draft BP2 submission, to allow the organisation to consider amendments in advance of its final BP2 submission in August 2022. As such, this report encapsulates feedback based on the ERSG's review of the ESO's draft BP2 alongside the topics discussed at the six ERSG meetings to date. The main body of this report focusses on the 'deep dives' presented during the ERSG sessions. These have focussed on the areas which are notably new and materially changed from the ESO's BP1. It also includes commentary on milestones, ambitions and priorities with a specific focus on areas where the ERSG feels change is required at this stage in the process. Below provides a summary, focussing on the main areas where ERSG would like to see changes in the final BP2 submission.

The general areas where change is required the most are:

- Prioritisation: how and why the ESO prioritises specific deliverables over others, and the factors driving this prioritisation.
- Plan deliverability: how the ESO will meet all of its commitments set out in BP2, particularly given delays to certain BP1 delivery timescales, and how this will feed into future prioritisation. This includes specific consideration of project risks, external dependencies and 'golden threads' within the BP2 commentary.

Referring to 'deep dives':

- Consumer: clarity is needed on how ERSG feedback will be captured in the consumer strategy work, and how this feedback will drive action, including developments from the most recent ERSG meeting on the ESO moving away from its traditional 'utility style' view to engage with consumers further
- Connections: further assurance that the connections team understand the level and speed of change going into BP2 is required, as well as the need to be a strategic leader in this space.
- Data and digitalisation: upskilling and talent retention were key elements of feedback from ERSG on this topic, alongside working with industry to develop coordinated solutions in this field

Other areas:

- Future System Operator (FSO): the Group wishes to see further evidence regarding how BP2 aligns with the ESO building the FSO. This includes both how BP2 will capture FSO transition activity and how FSO development may impact BP2 activity.
- People and capability: the ERSG seeks further clarity on how the ESO plans to attract and retain staff, particularly with reference to new IT capabilities that will be required to undertake digital transformation. This, alongside significant cultural change, will be essential to the success of the FSO.

The ERSG look forward to continuing to work with the ESO in the run up to its final BP2 publication, and wish to thank the organisation for their receptiveness and responses to ERSG feedback to date on BP2.

About the ERSG

Purpose of the group

The ESO established the ESO RIIO-2 Stakeholder Group (ERSG) in July 2018 to provide formal, independent scrutiny as part of an enhanced engagement approach during the development of the ESO's RIIO-2 Business Plan 1 (BP1) submission. The ERSG for the ESO's second Business Plan (BP2) launched in September 2021. The Group continues to provide scrutiny to the ESO's use of engagement, and to challenge whether the ESO has considered stakeholder and consumer priorities in its BP2 proposals.

The ERSG's main aims are:

- To constructively challenge how effectively the ESO's stakeholder and consumer engagement is influencing the development of the RIIO2 BP2.
- To provide the ESO with feedback from a stakeholder perspective on the ambition and proposals for the upcoming business plan.
- As the ESO begins to deliver its second business plan, periodically check in to help critique whether plan changes and course corrections are in line with stakeholder and customer expectations of the ESO. However, the group remains predominantly forward looking and will not be expected to replicate the role of the Performance Panel.
- To provide views on alignment of ESO priorities to the stated ambition and interests of consumers and stakeholders. As appropriate, share expertise and critically review the development of the ESO's position on new policy areas and legislation.
- To provide an independent viewpoint at open hearings and answer any questions on the enhanced engagement process from stakeholders, Ofgem or the Performance Panel.

To date, members have attended six ESO-led ERSG meetings to provide feedback on the ESO's BP2 proposals. Noting the above focus areas for the Group, the following were established as key themes for the meeting agendas to address:

1. ESO stakeholder and consumer approach.
2. Material changes from the BP1 RIIO-2 plan.
3. The strategic context and ambition in which BP2 operates.
4. The ability of the ESO to deliver BP2.

Membership

The ERSG comprises of members from a wide range of backgrounds who collectively represent the views and interests of customers, service providers, consumers and other stakeholders. The group is representative of the ESO's role and the wider industry. Members have been selected based on their expertise across a broad range of energy issues and their ability to provide constructive challenge.

Sector	**Representative**	**Organisation**
Chair	Andy Manning	Acting in an independent role
Generator	Stuart Cotten	Drax
Large supplier	Gregory Edwards	Centrica
Medium supplier	Elizabeth Allkins	Ovo
Small supplier	Rachel Fletcher	Octopus
Transmission owner	Patrick Hynes	National Grid

Scottish TO/DNO	Aileen Mcleod	SSEN
Distribution network owner	Peter Emery	Electricity North West
	Barry Hatton	UKPN
OFTO/ Interconnector	James Dickson	Transmission Investment
Existing service provider	Marko Grizelj	Siemens Energy
Consumer	Ed Rees Eddie Proffitt	Citizens Advice MEUC
Stakeholder expertise	Natascha Engel[1]	Public First
Wider interest	Simon Roberts Nina Skorupska Nick Molho	CSE Renewable Energy Association Aldersgate Group
Academic	Prof Robert Lowe	UCL Energy Institute, University College London

The ESO is represented by Fintan Slye (Director, National Grid ESO), Matthew Wright (Head of ESO Strategy and Regulation), and Gareth Davies (Head of ESO Regulation) with additional ESO representation as required to support the meeting.

Chair

Andy Manning was appointed by the ESO as ERSG Chair. Selection of the Chair was carried out in consultation with Ofgem, in an open and transparent manner. The Chair acts as an individual and does not represent any particular organisation.

The Chair will attend National Grid ESO's Board meetings at least once a year to provide an update on the Stakeholder Group. In addition, the Chair may be asked attend occasional meetings with Ofgem and the Chairs of equivalent groups to discuss the progress of the group and to share any challenges or best practice examples.

Dependent on Ofgem's guidance, the Chair, supported by the Technical Secretary, may be responsible for providing Ofgem with formal reports on the group's views on the ESO's proposals at relevant points in the process, including the draft determinations and on future business plans.

The purpose of the document

The Group wish to provide the ESO with feedback on its draft BP2 submission to allow the organisation to make necessary amendments in advance of its final BP2 submission in August 2022. As such, this report encapsulates feedback based on the ERSG's review of the ESO's draft BP2 alongside the topics discussed at the six ERSG meetings to date. The main body of this report will focus on linking the draft submission to the 'deep dives' presented during the ERSG sessions. It also includes commentary on milestones, ambitions and priorities with a specific focus on areas where the ERSG feels change is

[1] Natasha left Public First in December 2021 and so has not attended ERSG meetings since this point.

required at this stage in the process. The Group intend to provide an updated report upon the publication of the ESO's final BP2. This will present a full reflection on the ERSG meetings from September 2021 to July 2022, and provide feedback and commentary on the changes the ESO have made between the draft and final BP2.

Meeting summary

Below provides a high-level summary of the ERSG meetings and topics discussed to date. The Minutes from these can be found on the ESO's ERSG webpage.

Meeting	Date	Key topics discussed
ERSG 1	22 September 2021	Terms of reference of ERSG BP2 guidance and stakeholder approach FSO consultation ERSG look ahead
ERSG 2	2 December 2021	Role 1 – what's new and changed? Role 2 – what's new and changed? Role 3 – what's new and changed? Cross role activities BP2 IT guidance update
ERSG 3	12 January 2022	The strategic context and ambition BP2 operates in ESO stakeholder approach, including consumer update Deep dive: early competition Deep dive: enabling the DSO transition Current BP1 performance Deep dive: ways of working (digital)
ERSG 4	9 February 2022	Priorities between now and 2035 Current BP1 performance – key challenges Customer and stakeholder – CSAT/SSAT highlights New and materially changed – introduction Deep dive: customer connections Deep dive: offshore coordination and network planning review Deep dive: Net zero market reform
ERSG 5	16 March 2022	Finalised strategy refresh and update on direction of BP2 Consumer update Deep dive: data Deep dive: codes Delivering and tracking of planned deliverables
ERSG 6	11 May 2022	Q&A session on draft BP2 submission Role 1: new and materially changed, including data and analytics hub and balancing capability review Role 2: new and materially changed, including role in Europe Role 3: new and materially changed, including facilitated distributed flexibility, offshore coordination, network planning review and early competition FSO IT Innovation Finance, costs and benefits of the plan People and capability

Alongside these meetings, specific members of the ERSG participated in regular ESO-led 'consumer sub-group' sessions to provide further feedback to the ESO on its consumer strategy in BP2[2]. The ESO also arranged separate meetings based on ERSG appetite for further information on specific topic areas. This included 'net zero market reform', and a BP2 walk through of costs and benefits ahead of the draft submission.

Challenge log summary

The challenge log has been introduced in ERSG 2 to capture specific actions that were seen as key and ongoing . Most of the challenges recorded in this log are reflected in the ERSG feedback within the document.

[2] Members of this sub-group are: Ed Rees (Citizens Advice), Elizabeth Allkins (OVO), Rachel Fletcher (Octopus) and Simon Roberts (CSE)

Challenge log

Date raised	Topic	Nature of challenge
2 December 2021	Resilience and optionality in BP2 plan	Uncertainty over future roles and inevitable uncertainties creates the need for additional assurance, possibly through overlays to and optionality within the plan and in-built resilience. ERSG to support.
2 December 2021 and 12 January 2021	Consumer	There is expertise across the group in consumer insight and the ERSG wish to have further input in this area for challenge and review. **Further action:** the ESO are still required to provide clarity on their ambition in this space.
2 December 2021	Strategic Narrative	How is the ESO's vision for future developing, what is the strategic narrative and how does this get reflected in the business plan
2 December 2021	Start point BP2	ESO to explain what the starting position is for BP2 and how the expected performance in BP1 is influencing BP2
9 February 2022	Customer connections	Is the level and range of action proposed by ESO regarding connections appropriate? • is a more holistic plan required (potentially joining up with Net Zero Market Reform and covering network planning, access, charging and system operability components)? • should a whole system approach be taken to determine where connections should be made? • what action is the ESO taking to move into a strategic, leadership position that meets the needs of current and future consumers and system users?

Assessment of the ESO's draft Business Plan 2

The ESO has been both flexible and receptive to feedback in ERSG meetings to date, fulfilling various actions as they arise from these meetings. The Group have provided a short letter to the ESO on 29 April, putting forward ERSG feedback from the sessions so far to allow the ESO time to act on this feedback. The main areas of feedback from the letter are summarised below, and expanded upon in this report

At a high level, the two interacting areas the ERSG would like to see developments on are:

- Prioritisation: how and why the ESO prioritises specific deliverables over others, and the factors driving this prioritisation.
- Plan deliverability: how the ESO will meet all of its commitments set out in BP2, particularly given delays to certain BP1 delivery timescales, and how this will feed into future prioritisation.

At a thematic level:

- Consumer: clarity is needed on how ERSG feedback will be captured in the consumer strategy work, and how this feedback will drive action, including developments from the most recent ERSG meeting on the ESO moving away from its traditional 'utility style' view to engage with consumers further.
- Connections: further assurance that the connections team understand the level and speed of change going into BP2 is required, as well as the need to be a strategic leader in this space.
- Data and digitalisation: upskilling and talent retention were key elements of feedback from ERSG on this topic, alongside working with industry to develop coordinated solutions in this field.

The ERSG were pleased to hear that the ESO will be explicitly responding to the feedback from this letter in the ERSG 7 meeting scheduled for 29 June. This report captures, and builds upon, the feedback provided in the letter.

Strategy and vision refresh

From early in the process the ERSG has been keen to emphasise the importance of a strategic narrative that captures the rapidly changing landscape that the ESO is operating in and how the ESO's role may need to develop – to 2035, and beyond to 2050, to ensure the correct balance is met between near-term objectives and long-term perspective. The ERSG have been pleased with the ESO's strategy review and believe that its refreshed mission and ambition provide the organisation with strong direction for the coming years (notwithstanding FSO developments). The ESO has actively taken on board the ERSG's feedback within this process, which has been appreciated. Feedback from the ERSG has included:

- A request for the strategy to have a longer-term focus, beyond 2025 (to 2035), but without losing the 2025 operability ambition.
- Challenge on the phrasing of 'competition everywhere' as one of the ESO's ambitions. Whilst recognising the sentiment, some ERSG members noted that this may be an oversimplification and needed to be more explicitly linked to consumers and cost. It may also be impractical in meeting the UK's net zero ambitions. Others liked the existing phrasing and noted that sub bullets may help to clarify the statement.

- Clarification on whether the ESO is targeting a sustainable, low or zero carbon electricity system in its next mission. Members were supportive of the whole system strategy, noting minor changes to the wording.
- Most of the group agreed with the new theme of 'reliability' with some requesting this to be at the forefront of the strategy. This operability focus, alongside market reform and innovation were seen as the main drivers and areas of accountability for the ESO.

Recommendation: The ESO has displayed a thorough grasp of the strategic context in which it works in in previous ERSG meetings but is not as detailed in the draft BP2. Consequently, this could be better articulated in the final BP2 submission. The final BP2 should also clearly articulate how the strategy and vision refresh translates into BP2 i.e. what plans have changed as a result.

Level of ambition

The ERSG has consistently challenged the ESO to be more ambitious in its BP. This is particularly pertinent to the leadership role the ESO should be looking to take in future – both from a short- and long-term perspective (and in the area of 'consumer' which is covered below).

The group discussed the ESO's ability to influence and be influenced by the external energy landscape. The ERSG challenged the ESO's role in this context, alongside its ability to facilitate agile practices given the current industry structure and rapidly changing practices. The Group emphasised the need for effective collaboration and observed there were gaps in the regulatory framework that the ESO could potentially show thought leadership in to encourage greater regulatory clarity.

Recommendation: To deliver the transition to net zero, there is a need for greater clarity over the roles of the various different parties in the industry and how the prioritisation of reform will be coordinated and achieved between them. The ERSG believes there is scope for the ESO to lead these discussions and provide strategic, whole system direction.

Stakeholder engagement approach

The ERSG identified that the sheer amount of change, and so consultation, across the energy industry presented an engagement challenge given the limited resources of relevant stakeholders. This means a proportionate approach is required. So, during ERSG 1 and 2, members established that the ESO should engage with stakeholders for BP2 using existing channels, with ongoing review to ensure this did not exclude some stakeholder groups. Members are pleased to see that this seems to be the case to date based on section 5.3 of the draft BP2, and will elaborate further on this during its final report on the ESO's BP2.

Activities and deliverables

There has been good progress in the development of activities and deliverables in the Business Plan thus far. This section of the report focusses on areas of specific improvement that the ERSG would like to see for the ESO's final business plan. Due to the differing nature of BP2, the Group decided to focus ERSG sessions on the specific areas that have or will change the most since BP1. These were known as 'deep dives.' Below provides a summation of the Groups' feedback to date, along with what members would like to see from the ESO in its final BP2 as a result.

Prioritisation and deliverability

Whilst the ERSG have already had positive engagement with the ESO on the topics of prioritisation and plan deliverability, there are still concerns within the Group regarding these two areas. Below provides further detail on these two areas:

Prioritisation

The Group has consistently stated that they would like to see more on how the ESO's refreshed strategy gets translated into ESO prioritisation of its workload. Whilst the ERSG appreciated the meeting 5 discussion on the ESO's portfolio management tool, the ERSG still believe that questions remain on the fundamentals of when or how a project gets prioritised, or indeed deprioritised and what any change means in terms of resourcing and management attention. As such, the ESO seems to be committing to (and/or already working on) a wide range of projects in BP2 without clarity on relative priorities. A key aspect of prioritisation will be inter-dependencies between projects. The ERSG acknowledges the ESO's extensive remit, particularly given its central role in the energy transition. It also acknowledges that prioritisation of specific projects or tasks is not always entirely within the ESO's control. Nonetheless, the Group believes the ESO needs clear internal prioritisation methods to ensure the direction is in line with the organisation's strategic ambitions for the BP2 period. This will be even more important when forming the FSO. The ERSG recommends the ESO aligns its commitments closely to its strategic mission and ambitions and provides additional detail around prioritisation in its BP2 submission (if this is not already the case). The inward transformation of the ESO to ensure its employees are engaged with this prioritisation process will also be vital and should be a key focus area.

Deliverability

The ERSG welcomes the ESO's item during meeting 4 on providing additional detail around the delays to current projects and programmes under its RIIO-2 Business Plan 1 (BP1) activity. Whilst this discussion highlighted some of the high-level reasons behind current delays, the Group were not yet satisfied with the ESO's level of detail and clarity on how these projects will get back on track, assuming the projects remain in the consumer interest, and still deliver to the agreed BP1 timetable and budget. The Group wish to underline that this is not to suggest the ESO is incompetent, but rather that it could do more to portray the (suspected) externally driven complexities and uncertainties that have led and will continue to lead to project blockers and delays if not properly considered from the outset. By extension, the ERSG are concerned by what this means for the ESO in BP2 as the pace of change in the industry continues, and complexities inevitably grow and intensify. The ERSG therefore believes it to be beneficial for the ESO to provide more detail on, and thoroughly consider, the upcoming complexities they foresee in the RIIO-2 BP2 price control; both to ensure that Ofgem have an explicit appreciation of the ESO's working climate, and for the ESO itself to appreciate the potential barriers to projects and make reasonable proactive adjustments where needed. As part of this, the ESO should be clear about the degree to which it believes it can influence the external environment to address potential barriers, and its approach to doing so. The ERSG expects this will already exist, to some degree, in terms of tracking perceived risks and planned mitigation actions in relation to delivery. Sharing this with the ERSG would provide greater comfort that the ESO is better prepared to manage future "shocks" to its delivery plans.

Furthermore, the ERSG welcomes the ESO's aspirations to utilise agile ways of working. The ERSG recognises the huge cultural shift required in the ESO to fulfil this approach throughout the business. From recent ERSG discussions, the Group notes the disconnect between agile IT delivery and departments such as codes and connections which do not utilise this approach. The ERSG recognises the ESO's core role of keeping the lights on. This means the ESO needs to ensure 'learning by doing' approaches to existing projects and programmes do not present a risk to this core role. The ERSG recommends the ESO provides further detail on what an agile delivery model for the organisation would look like, and the steps required to get there, including how it will ensure employees are informed and upskilled to carry out agile ways of working.

In addition, despite the ESO having so far articulated well the risks and dependencies associated with specific deliverables during ERSG meetings, this has not been highlighted strongly enough in the draft BP2 submission. These elements will be even more crucial in BP2 as the ESO transforms into an FSO in parallel.

Recommendation: The ERSG wish to see an enhanced focus in the ESO's final BP2 submission on dependencies, risks and planned mitigation associated with the BP2. This will ensure that external and internal influences are adequately understood and risks can be remedied where possible. The ERSG believe that this is also extremely important given the deliverables in BP1 that have not been met. The Group also highlight that dependencies and 'golden threads' need to be addressed in further detail in the final BP2 submission to help the energy industry, including BEIS and Ofgem to gain an appreciation of externalities influencing the ESO's plan deliverability.

Deep dives:

Consumer:

The ERSG welcome the ESO's aspirations in the consumer field and have appreciated the time spent on this in ERSG sessions to date. Initial discussions were had around the consumer insight that already existed across the industry and the need for actionable insight from ESO activity. The Group were pleased to see the ESO's pivot away from the traditional 'utility style' view in the draft BP2 to one that encapsulates all energy actors to benefit the consumer. Noting that the ESO's consumer strategy is still under development, the Group wish to reinforce the following feedback:

• The ERSG consumer sub-group would like to see how and when their feedback will be captured going forward as the ESO's consumer strategy is confirmed for the BP2 submission

• In particular, the ERSG consumer sub-group has voiced concerns around ESO's definition of consumers, and approach to improving understanding of consumers especially at the grid edge. The ERSG recognises the importance of the ESO better understanding consumers as it moves beyond a "utility style" approach, but it needs to consider how this change in approach applies to the information gathering too. The ERSG is concerned that a "command and control" approach to the consumer strategy will not adequately consider the complexity of gathering information about consumers at the grid edge, nor the wealth of information already available in the sector. The ERSG welcome more detail on how the ESO will put their ambitions for the consumer strategy in to action, in a way that leverages talent across the sector rather than duplicating it.

• Furthermore, the Group would like to see some recognition and planning to acknowledge the significant mindset shift that is required within the ESO on the theme of consumer and how the ESO expects this to be achieved both within the business and across its stakeholders.

Recommendation for final BP2: The group is looking for the ESO to set out an approach or process to utilising evidence of consumer interests and preferences which will, at a high-level, inform the ESO's objectives, priorities and targets when seeking to change and reform the electricity system to reach net zero. This will show how the ESO is championing an optimisation of the electricity system development to meet consumers' evolving system needs. This requires demonstration in the final BP2 document that the ESO understands the need to move away from the traditional 'utility style' view when thinking about consumer, and an appreciation of the scale of change – both externally and within the organisation itself – to become an organisation with a strong and important consumer lens.

Early competition

The ERSG recognise the value in the ESO playing a central role in facilitating early competition. During ERSG 3, the Group acknowledged the inherent uncertainty in this field, given that a number of the programme's enabling factors were dependent on other parties, including government. The Group are pleased to see that, despite these uncertainties, early competition features heavily in the BP2 draft. In ERSG 6, discussion focussed on early competition under the FSO. The ERSG were pleased to see the ESO state that they are already establishing the resource for the anticipated scaling up of this role in BP2. The ESO confirmed that they are awaiting legislation as a trigger to continue with this body of work.

Recommendation: the Group would like to see explicit links to early competition and what this means in an FSO context in the final BP2.

Enabling the DSO transition

During ERSG 3 the ESO presented its plans to support the DSO transition. The Group discussed alignment with DNO BPs in this area and the impacts of timings of reforms such as the development of effective market mechanisms. The Group also sought clarification of the ESO's perceived role in working with DSOs during and following its transition to an FSO role. With this in mind, and with reference to the recently published 'future of local energy institutions and governance' call for input, the ERSG notes there is wide range of options regarding DSO governance. The option finally selected will have a significant impact on the ESO's plans for enabling the DSO transition and may well not be resolved by when BP2 is submitted.

Recommendation: noting the ERSG's comments on the ESO's consumer strategy, the Group would like to see further how this links to the components of the DSO transition. The Group believes the ESO should provide as much clarity as it can over how it believes the ESO and DSO roles should develop and interact with regards to local system operation. The ESO should outline how plans can adapt to handle the uncertainty in this area.

IT/data and digitalisation

The ESO has presented to the ERSG a number of times on IT, given the complex and wide-ranging nature of the topic. The ERSG believes that the ESO has a sound plan in place to develop the organisation's data and digitalisation deliverables in BP2. However, the Group wish to put forward the following reflections:

• The ESO still has limited technical expertise in this field. The Group are concerned about whether there is a concrete plan in place to upskill and attract and retain talent in this important area going into BP2.

• The ERSG would like to see more explanation of how the ESO is leading the way across the energy industry in the data and digitalisation space, noting the need for cross-industry collaboration.

Recommendation: the Group would appreciate the ESO's view on its role in the data and digitalisation space in its final BP2 submission, plus visibility of a strong plan to upskill and prepare the ESO for this transition.

Customer connections

The ERSG appreciated the presentation on customer connections during ERSG 4 which explicitly showed the reasoning behind the growth of the team into BP2. Noting the Groups' customer

connections challenge on the ERSG challenge log, the members wish to put forward the following feedback:

• The increase in distributed energy resources (DER), and thus connection requests, could have been more accurately predicted. The Group urge the team to make greater use of its own resources (i.e. its Future Energy Scenarios (FES) publication) during the BP2 planning process to ensure that resource constraints and delays to connections does not occur again in future.

Recommendation: There is a need for greater clarity in the final BP2 submission of the role of the TO, DNOs and the ESO in the connections process and how these can work together in future. There is scope for the ESO to lead these discussions and provide strategic, whole system direction.

Offshore coordination and network planning review

During ERSG 4 the Group heard from presenters about the offshore coordination project and network planning review and the interlinkages between the two areas. Similar to early competition, the Group note the uncertainty in both of these areas ahead of the BP2 submission (i.e. they are awaiting legislation). In ERSG 6, the Group welcome further detail on the ESO's future role as a central strategic network design planner. The Group welcome this in the context of providing direction to industry on strategic infrastructure decisions.

Recommendation: The ERSG note that although the plans are necessarily engineering orientated, the role must encapsulate other areas, such as economic and social factors that need to be considered.

Net Zero market reform

The ERSG welcome this work from the ESO and see this as an example of the organisation showcasing its thought leadership. The ERSG foresee this role becoming increasingly important as the ESO transitions into the FSO role.

Recommendation: The ERSG believe that plans are required to show the next steps for what happens next and how it aligns for the Review of Electricity Market Arrangements should be included in the final draft. The ERSG would also appreciate further detail on how the ESO's balance of priorities will be maintained and resourced throughout the transition between the system's shorter-term security requirements and achieving the UK's longer-term net zero goals.

Codes

The ERSG are generally in agreement of the ESO's approach to BP2 for this topic area, acknowledging the complexity in this field of work - for example the outcomes of the Energy Codes Review. The ERSG is keen to see the ESO acting as an effective and ambitious code manager.

Recommendation: Plans need to be reviewed following the Energy Codes Review decision.

Balancing capability review

The Group were pleased to hear about the stakeholder driven nature of the ESO's balancing capability review during ERSG 6 and understood the ESO's rationale in its draft BP2 regarding including the costs of the review for the period, but not the benefits (this will be included in the final BP2 submission) due to the complex nature of the programme.

Recommendation: the ERSG awaits further clarity on the balancing capability review based on the ESO's updates to ERSG in June and July.

Cost benefit analyses

The majority of ERSG members believe that the ESO has so far achieved the right balance between costs and benefits at a high level in its BP2 submission (i.e. in the context of savings on consumer bills). The ERSG welcomes further transparency in future ERSG sessions and the final BP2 submission on the costs and benefits associated with the BP2. This is particularly important for the deliverables associated with IT and the balancing capability review, which are currently presented as a range or partially included in the CBA.

The Group is keen to understand any critical assumptions underpinning benefits that are not within the ESO's control. This will the ERSG, at a high-level, to remain comfortable that benefit cases remain robust across a range of scenarios.

Recommendation: Whilst the ERSG understands the uncertainty in providing these costs to Ofgem at this time, the Group wish for further clarity, once the numbers are pinned down, on the reasoning behind the IT and balancing capability review costings.

People and capability

The ESO's resourcing, recruitment and retainment strategy has been a subject that the ERSG has covered extensively in previous meetings. The Group wish to highlight the importance of a comprehensive strategy in this field. This is particularly vital in new and growing areas of the business such as IT where talent is required to enact major changes to the ESO's existing control system architecture which will have ramifications for the whole industry. The Group's concerns are underlined by the recent confirmation of the FSO to be established by 2024 and as such resourcing considerations need to be better understood throughout BP2 – both from a resourcing and capability perspective – to ensure that the FSO delivers from day one

FSO

The transformation of the ESO into the Future System Operator (FSO) by 2024 is of great interest to the ERSG, due to the obvious overlap between BP2 and the significant transformation of the organisation during the same period. The ERSG recognises the overlap with the ESO's existing ambition in its BP2 and journey to become the FSO. This will impact certain BP2 deliverables more than others such as, data and digitalisation, early competition and people and capability.

Recommendation: The ERSG would like to understand how the FSO will affect BP2 and how this will be addressed for the final BP2 submission.

The future role of ERSG

The ERSG have been in regular discussions with the ESO about the role of the Group and how it can best support the ESO in providing feedback on its BP2 submission. The Group recognises the complexity of providing timely feedback to the ESO for a number of reasons, including the ESO's unique regulatory framework (i.e. BP2 is a 'refresh' of BP1, under the same price control). The nature of this framework has meant that the ESO has already determined its direction in a number of key areas in BP1. The members of the group appreciate the change of the ERSG's remit to reflect this and wish to continue with a flexible approach to the Group's remit going forward – with support from the ESO and Ofgem – to ensure that it continues to provide constructive and useful feedback to the ESO's upcoming regulatory price control. Following the final submission of BP2, the Chair will develop a proposal for the future of the ERSG, engaging with key stakeholders such as the ESO, Ofgem and the Performance Panel.

BP2 Stakeholder Consultation Response:

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10 June 2022

Dear ESO Team,

ESO draft RIIO-2 Business Plan 2 (BP2) Consultation

Thank you for the opportunity to contribute to the ESO draft Business Plan. This response is on behalf of National Grid Electricity Transmission plc ("NGET"). Below we have provided a few overarching points, alongside this we have provided our views on the detailed questions attached to this cover letter.

We recognise that the NGESO working collaboratively with National Grid Electricity Transmission and other transmission / distribution network owners jointly have a critical role to play in the decarbonisation of the economy to reach net zero, whilst continuing to ensure security of supply at an efficient cost to consumers.

We are committed to working collaboratively to ensure a smooth ESO/FSO transition and a successful RIIO-2 for end consumers. The wide range of change initiatives the Electricity System Operator (ESO) is developing now and in the future rely heavily on input from Transmission Owners (TOs); to this end there are a few broad considerations in place in order to ensure the FSO is set up for success.

Collaboratively Managing Resource Constraints and Prioritisation

Across the energy and infrastructure industries, and within energy networks more specifically, we see significant constraints on key specialist skills. As the ESO looks to transition to the FSO this could put increasing pressure on these limited resources. There is the need for cross industry engagement on how to build the right skills and capabilities, we think the ESO could play a key role in this. More pressing though, there is a need to prioritise the scarce specialist skills, such as Power System Engineers, on developing projects essential to delivering renewable energy targets.

If not coordinated and managed carefully, there is a risk that NGET and other TOs are unable to extensively engage on initiatives being developed within the ESO as a result of being spread thinly over multiple projects and initiatives. This will risk consumers benefiting from the full potential of these initiatives.

We look forward to working with the ESO to discuss how we can help deliver the necessary policy initiatives in the face of constrained key specialities skills to achieve the overarching ambitions set out

in the British Energy Supply Strategy, including the new 50GW deployment ambition for the offshore wind sector as we deliver a clean, fair and affordable energy transition.

We hope these comments are useful in your consideration. Please do not hesitate to contact me if you require any further information.

Yours sincerely,

[By email]

Patrick Hynes

New Infrastructure Regulation Manager,

National Grid Electricity Transmission

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Gallows Hill, Warwick CV34 6DA

Role 1: Control Centre Operations

New and materially changed

Q1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
A1	We support the plans under A3 for ESRS. We note there is considerable coordination and investment across the industry to meet the ambition and therefore we think this should be a particular priority for the ESO.
Q2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?
A2	We agree that ESO have the data to monitor BS markets, although as the counter party to BS agreements we would question the independence in terms of any investigations. Therefore we suggest that the ESO's role should be limited to identifying anomalies and providing data to Ofgem.
Q3	At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online. Do you have any comments about our proposed plans for A19 - Data and analytics operating model?
A3	We support making ESO data more readily accessible to all stakeholders, except where for commercial confidentiality reasons it would not be in the interests of end consumers.

Activities that are not new or materially changed

Q4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
A4	No comment

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Role 2: Market development & transactions

New and materially changed

Q5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
A5	Whilst we support the need to reform balancing and ancillary services. These are vital services and end consumers ultimately face the consequences of market failing, as has been seen in the Supplier market, and therefore we believe that lessons from the recent pathfinders need to be addressed and that future initiatives are robustly planned and understood before launching.
Q6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.
A6	No comment
Q7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform
A7	We generally support these activities. The focus should be on simplification but recognising the need for clarity in codes. In terms of the governance of future code amendments we support the ambition to speed this process up, recognising the need for appropriate check and balances.

Q8	We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem. Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?
A8	The focus over the next few years needs to be on enabling the transition to Net Zero, and in particular, meeting recently announced Government ambitions for 2030. Therefore, we caution against reforms that introduce broader market uncertainty. Whilst we support the ESO being a thought leader in this area, it must retain a level of impartiality to ensure a balanced industry debate on major market reforms. A change to real time dynamic locational pricing signals could take many years to implement. During this time there would be increased uncertainty which could inadvertently pause investment decisions on the build of new carbon free generation. We note and share the concern around the increase in constraints, however the focus to address this should be to remove uncertainty in network investment and deliver the required reinforcements.
Q9	The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs). Do you have any comments about the plans we are proposing relating to our Role in Europe?
A9	We support greater coordination that ensures we are all working toward the same purpose.

Role 3: System insight, planning and network development

New and materially changed

Q10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?
A10	Once the CSNP is introduced we question the need to further develop a separate NOA in light of clear Government targets and priorities. In the meantime the focus should be on delivering a fully functioning CSNP fit to support delivery of the network required to meet Government ambitions.
Q11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?
A11	We believe improvements could be made that ensure that FES focuses on real uncertainty. We support FES work that is focused on improving the demand side modelling. On generation, with the recent publishing of the British Energy Security Strategy, we would suggest a need more focused on delivering the decarbonisation ambition- tighter scenarios or even a single scenario with sensitives.

Q12 A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years.

Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?

A12 We support an industry wide review of the connection process and believe this should be made a priority. The current system was not devised to deal with the volume and variety of connections we now see. Improvements in the connection process would support efficient coordination and delivery of targets, as well as reduce developer uncertainty and so overall cost of delivery. We note the outcome of a review could have significant implications for TO processes and on confidence of deliverability and therefore we are keen to be actively involved.

Q13 A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

A13 Whilst we believe early competition model is the preferred model for introduction of competition where this can be demonstrated as in the best interests of end consumers, our focus now needs to be on delivering Government ambition and removing uncertainty. Therefore effort spent here needs to be focussed and carefully balanced with the need to deliver infrastructure rapidly, particularly in light of the BESS and ongoing work around the timely delivery of strategic network. The priority needs to be about 1. the consumer case and 2. Delivering decarbonisation targets (linked to energy security) and any introduction of competition needs to be cognisant of the impact on both. We think there is value in re-visiting the benefits case around this to ensure efforts are focused on where competition can add overall value.

Activities that are not new or materially changed

Q14 Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3.

A7: Network Development

A8: Pathfinders

A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works

A11: Enhanced analytical capabilities

A12: SQSS Review with regard to proposed deliverables and timeline

A15.1: System operability framework

A15.2: Provide technical support to the connections process

A15.4: Manage operational data and modelling

A15.7: EFC capability

A16: Network Access Planning

Please provide us with any feedback you have on these proposals.

A14	As per our response to Q13, we question the prioritisation where these divert scarce industry resources away from focusing on meeting government ambitions for 2030/35. A number of these introduce additional uncertainty for investors, which in turn increase costs to end consumers. On A9 we would like to reiterate that whilst constraint implications of asset replacement are an important consideration, safety and reliability of personnel and assets are paramount. The existing NOA process already includes assessment of reconductoring and uprating, which will also inform timing decisions. Therefore it is not clear what additional benefits further development will provide.

Cross-cutting and overarching questions:

IT

Q15	Do you have any feedback on our IT proposals?
A15	We understand that IT is a critical enabler for a safe, secure and economical transmission system, therefore we broadly support the proposals.
Q16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
A16	No comment

Innovation

Q17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
A17	We support the level of ambition related to innovation plans as these largely support delivery decarbonisation targets.

Offshore coordination

Q18	Offshore Coordination is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?
A18	We agree with the pace of change, overall greater coordination is required to deliver a fully integrated offshore and onshore network. We will continue to work with BEIS, Ofgem and the ESO to deliver this.

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Network Planning Review

Q19	Network Planning Review is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?
A19	We agree that the Network Planning Review should be a new and is an important area of work for the ESO in BP2. In progressing this work we must recognise that the pool of both ESO and TO skilled resource that this draws upon is also supporting the delivery of high priority investments to meet Government targets. Given these skills are limited across the industry there needs to be coordination and prioritisation, with the need to deliver networks for 2030 to take the priority.

Facilitating Distributed Flexibility

Q20	Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan. A1.5: Operational coordination with DER and DSO A4.5 Facilitate whole electricity system market access for DER A15.8 Facilitate distributed flexibility and whole electricity system alignment Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?
A20	We support work that enables better coordination and whole system solutions, although the ESO needs to ensure there is clarity of responsibility between ESO and DSOs. Where this work is already taking place in DNOs it is not clear that ESO need to duplicate or take on the responsibility.

Other feedback

Q21	Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?
A21	See cover note

BP2 Stakeholder Consultation Response:

Northern Powergrid

ESO draft RIIO-2 BP2
Consultation questions proforma

Our BP2 consultation questions are set out below. We have grouped these in alignment to our main Business Plan document as follows:

- Role 1: Control centre operations
- Role 2: Market development & transactions
- Role 3: System insight, planning and network development
- Cross-cutting and overarching questions (including IT, Innovation and cross-role activities)
- Additional feedback

How to respond to our consultation

To assist stakeholders in responding to our consultation, we have developed this consultation proforma which contains all the questions and a corresponding space for you to provide your feedback.

Please send your response electronically to **box.ESO.RIIO2@nationalgrideso.com**

Alternatively you can fill out this response via MS forms at https://forms.office.com/r/JS0J63vXuH

About you

Name: Sophie Corbett

Position: DSO Transition Lead

Organisation: Northern Powergrid

Role 1: Control Centre Operations

New and materially changed

1	**In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS.** **Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?**
1	• We are supportive of the ESRS as it will help to ensure supplies to our customers are restored as soon as possible in the event of a partial or total shutdown. • There is a need to ensure that there is a common understanding with industry and BEIS regarding the terms included in the BEIS direction, including for example ‘demand’ and ‘region’, so that the industry changes being developed will meet BEIS’s expectation. • There is a need for clarity of the various tools in the ‘restoration’ toolbox including what they can do, when would they be used and who has the responsibility for making them available and subsequently implementing them.

- There is a need for clarity on who is responsible for each stage of the ESRS process and where they involve DNOs, how this fits with the current concept of Distribution System Operation (DSO) functions.
- There is a need to better understand the NGESO ESRS proposals and how they impact on all DNOs. We expect that NGESO will help to guide us as the ESRS processes and tools are developed.
- We would welcome NGESO assistance to help us understand the implications of Distributed Restart for our distribution network, including:
    - Which are the part(s) of our networks where Distributed Restart may help compliance with ESRS or help restore supplies to customers more quickly than at present.
    - What additional plant we may need to install and where.
    - What additional protection systems / settings may be required.
    - The extent to which dedicated control engineer(s) may be required e.g. one new control engineer per Distribution Restoration Zone (DRZ).
    - The size of the DRZ load blocks and the extent to which automation of load block switching is required for implementation.
    - The realistic lead time required to: design and commission any new assets, including the DRZ controller; make the required arrangements with restoration service provides and agree all the contractual details. Based on our current understanding the lead time for introduction could be a minimum of two to three years.
- We understand that cost recovery by DNOs is currently being considered by Ofgem as part of the ED2 project; we will need to be confident that there is an appropriate cost recovery mechanism in place e.g. a re-opener to cover costs.
- The technical and commercial industry codes will need to be updated to support ESRS and Distributed Restart. Given that these processes and the Distributed Restart functionality is new and are still being developed, we need to make sure that the technical and commercial industry codes are written with sufficient flexibility to accommodate all types of DRZ and that they don't bind DNOs into specific arrangements that prove to be sub optimal.
- We recognise that a there is a need for assurance / compliance testing and training, and are of the view that these should be coordinated with other tests and training activities to reduce overall costs and importantly to reduce the system risk / risk to customers during testing.

2	**In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate.** **Do you have any comments about our proposed plans for A18 - market monitoring?**
2	We are supportive of this activity and are keen to further understand the impact on DNOs and distribution connected customers.

3	**At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online.** **Do you have any comments about our proposed plans for A19 - Data and analytics operating model?**

3	No comments.

Activities that are not new or materially changed

4	**Do have any comments about our proposals relating to the following activities which remain unchanged for BP2?** **A2 Control Centre Training and Simulation activity** **A17 Open Data and Transparency**
4	We are supportive of the moves to develop open data and transparency. This priority is complementary to our own actions and we will be interested in understanding where we can combine our initiatives for customer or stakeholder benefit through bilateral discussion or collaborative actions in forums such as the Energy Networks Association.

Role 2: Market development & transactions

New and materially changed

5	**For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero.** **Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?**

5	We are supportive of the proposed deliverables and would be keen to understand whether the ESO envisages these impacting DNOs or DNO customers. In particular regarding 'Frequency Management Strategy' • We have participated in the industry peer review of the FRCR report and proposals. As we've fed back to the NETS SQSS Review group we are keen to ensure that the team considers further the risks that may result in the operation of the LFDD scheme, as this directly impacts customers. • Please also see our ESRS comments in our response to Question 1.
6	**Do you have any comments about our proposed plans for A5?** **We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.**
6	No comment.
7	**Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2?** **A6.1: Code management / market development and change** **A6.3: Industry revenue management** **A6.4: Transform the process to amend our codes** **(New): A6.7: Fixed BSUOS tariff setting** **(New): A6.8: Digitalisation of codes** **(New): A6.9 Whole system codes reform**
7	A6.1.3 – Enable major net zero programme – System restoration • We have a proactive representative on the Grid Code GC0156 workgroup, and are currently working to clarity the role of the working group and how it aligns with that of the ESRS Steering group. • Please also see our ESRS comments in our response to Question 1. A6.1.4 – Enable major net zero programme – stability • We are keen to understand further the technical code changes envisaged, in order to understand the potential implications for distributed connected generation. We recognise that as the volume of distributed generation increases, the technical performance of such plant becomes increasingly important. We think that there is a need to consider who drives changes to such technical requirements. For example if one of the options being considered in GC0117 is implemented (ie large power stations >10MW are considered to be large), then a significant number of new distributed generators would need to comply with the requirements of the Grid Code in addition to the Distribution Code – and hence will need to comply with additional stability obligations. A6.1.6 – Support market wide half hourly settlement

- We are keen to support market wide half hourly settlement (MHHS) as it is one of the system changes that should promote flexibility and thereby release customer benefits. Our own business plan estimates £108m of price-driven flexibility benefits where the whole system actions of energy suppliers could reduce the need for network reinforcement by reducing the peak demand on our network.
- MHHS could encourage customers to participate in demand side and flexibility markets and that this could influence our customers' consumption and generation behaviour and consequently change the net demand on our distribution system and consequently on the transmission system. Without visibility of the customers changing behaviour, it may be difficult to understand the changes to the power flows on distribution and hence transmission systems.

A6.3 – Industry revenue management

- We recognise the need for NGESO to ensure that charging and settlement systems cater for code modifications such as Ofgem's Targeted Charging Review (TCR) and MHHS. Our experience suggests that NGESO's systems can be inflexible and generally prohibitive to change due to time needed to implement it. We support actions to mitigate against this risk, which should not delay implementation of key industry change.

A6.4 – Transform the process to amend industry codes

- We recognise that NGESO have made improvements to the change process e.g., via the Critical Friend process and agree that there is a need to make the code change process as accessible as possible.
- We would be interested in learning more about NGESOs plans for making it easier to change industry codes.

A6.4.1 – Implement no regrets actions from the ECR

- We note that NGESO plan to prepare themselves for the role of Code Manager. If this relates to technical Code Manager with responsibility for transmission and distribution systems, we are interested in the ESO's plans to increase their knowledge of the design and operation of distribution systems.

A6.5 – Work with all stakeholders to create a fully digitalised, Whole System Technical Code by 2025 (Whole System Technical Code side)

- We have a proactive representative on NGESO's Whole System technical Code Steering Group.
- Our understanding is that the WSTC Steering Group have agreed to progress with workstream to i) digitise the codes, ii) align, simplify and rationalise the codes, and iii) develop guidance and training.
- We are supportive of the current proposals to digitise the Grid Code (and also the Distribution Code managed by ENA), and we would support digitisation of the CUSC (and also DCUSA managed by Electralink). We understand that this project is in the early stages of development and that the WSTC team is looking to better understand stakeholder's requirements and expectations from a digitised code. It is important to be clear about the governance of the digitalised codes, and we assume that whilst the WSTC team is helping to develop the initial thinking, responsibility for creating and maintaining the digital codes will fall to the appropriate code administrators.
- We would be interested to better understand NGESOs proposal for removing the complexity and barriers to participation of the code change process, as, apart from the improved code access associated with digitisation, it's not clear how the other WSTC initiatives will help the code change process.
- We do have concerns with the limited details of the WSTC proposals to align, simplify and rationalise the codes, which we have shared with the WSTC team. There is a need to work up

and consult on the detail of the changes and demonstrate that the benefits from making the changes outweigh the costs.
- We are mindful of the potential interaction between the WSTC activities and the Ofgem / BEIS Energy Code Reform.
- We share NGESOs concerns about the availability of industry resources to assist NGESO developing this project.
- The stakeholders' need to consolidate the industry technical codes is still to be proven and therefore the value of such activity cannot be confirmed at this stage. We are concerned that scarce industry resources could be distracted from developing codes to more tangibly facilitate Net Zero. In the meantime, we continue to proactively support the digitisation of the codes.

Key Points to make re A6.7 – Fixed BSUoS tariff setting

- We support reducing volatility in charges for customers, and we would be interested to better understand how an increase in headcount is needed to enhance the ability to forecast and then set BSUoS tariffs.

Key Points to make re A6.8 – Digitisation of Codes

- Please refer to our response to A6.5 above.

Key Points to make re A6.9 – Whole system code reform

- We agree with the need for a more holistic view of electricity frameworks to achieve net zero. We believe that efficiencies should be delivered through the role as Code Manager to minimise costs to customers, and we welcome clarity as to how the proposed whole electricity system market policy team would work alongside this role.
- We are interested to understand how NGESO proposes to work with DNOs to facilitate DSO and whole system outcomes.

8	**We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem.** **Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?**
8	We agree overall that this sounds like the right step forward, but more work is required to understand any unintended consequences, including impact on distribution networks and customers connected to distribution networks. We would appreciate a more detailed discussion on the topic of central dispatch (down to domestic DER), on the interaction between DSO/ESO and how best to co-ordinate and optimise from a whole systems perspective. Phase 4 onwards of the NZMR programme, needs to include DNOs to delve into the options and detail for any aspects that impact DNOs, such as the information provision from across DNO networks (noting that fully granular data may not be appropriate, and instead aggregated data-sets provided by DNOs may be most appropriate). We are committed to Open Data and will remain open to recommendations following further work; however, there is a need to ensure that data published adds value and that any material additional costs of collecting and sharing the data will deliver customer benefits. It may be too early to comment on specifics and we would appreciate further engagement in this area. The suggested market reform is likely to increase the volatility of generation and demand from customers connected to distribution networks and without visibility it will become increasingly difficult to understand the changes to power flows on the system and understand whether the distribution network

	is sufficient or whether reinforcement is needed. There will also be increased interaction between the 'net zero' market and DNO-contracted flexibility. We will continue to engage throughout on NZMR.
9	**The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs).** **Do you have any comments about the plans we are proposing relating to our Role in Europe?**
9	No comment.

Role 3: System insight, planning and network development

New and materially changed

10	**Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation.** **Do you have any comments on these proposals?**
10	We support the ambition and will engage as needed throughout.
11	**A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24.** **Do you have any comments on these proposals?**

11

We are in favour of the ongoing development of the new energy demand model and the timescales appear to be reasonable. We will need to work closely with NGESO to keep abreast of the development of the FES energy demand model so as to accurately reflect these within our own modelling tool.

We wish to emphasise that the development of a NGESO regional FES should not duplicate the significant work done by DNO on DFES models and therefore enhancements should be scoped to concentrate on transmission only, or to enhance DFES models rather than to duplicate or replace them.

12 A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years.

Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?

12 The integration of ESO information on transmission headroom and constraints should be considered as an input into regional DNO heatmap development and the ongoing Ofgem LTDS reform project to inform DER connections decisions. A whole electricity system approach to connections should consider the information needs of distribution connection energy resource that is impacted by transmission access constraints.

The process for connections would benefit from further collaboration between ESO and DNOs to achieve whole systems outcomes. At present, there is waiting period after the submission of project progressions relating to embedded generation applications to NGESO that limits our ability to optioneer for ourselves or for our customers.

There is a need to consider a range of changes to the connections process to improve the timely delivery of a range of connection options to our customers that offer different access, cost and time to connect possibilities. This is needed to ensure that we continue to offer the most timely and efficient connections to an increasingly congested system.

Whilst we are supportive of the Regional Development Plans (RDPs) which have been triggered, we suggest that these should be offered as part of the modification offers we receive. We would like to see a more collaborative approach and one which allows the DNOs to manage the power flows from (and to) a Grid Supply Point within the limits prescribed by NGESO (akin to a virtual power plant).

We are currently in the early stages of initiating RDPs in a number of areas of our network and would offer these scenarios as system examples that could be used to redesign certain processes at a national level, perhaps through joint innovation projects, subject of course to further exploration.

13 A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

13 No comment.

Activities that are not new or materially changed

14	**Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3.** **A7: Network Development** **A8: Pathfinders** **A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works** **A11: Enhanced analytical capabilities** **A12: SQSS Review with regard to proposed deliverables and timeline** **A15.1: System operability framework** **A15.2: Provide technical support to the connections process** **A15.4: Manage operational data and modelling** **A15.7: EFC capability** **A16: Network Access Planning** **Please provide us with any feedback you have on these proposals.**
14	No comment.

Cross-cutting and overarching questions:

IT

15	Do you have any feedback on our IT proposals?
15	We think you have identified a good and relevant set of proposals and that you have laid them out in a much clearer way than in your Oct 2019 version. We think clearly identifying those investments that are specific to ESO and those that are delivered for the combined benefit of the National Grid group is useful. Whilst you have kept some of the narrative for the “case for change” for each proposal, this is not as well signposted as in your Oct 2019 version. We liked the way you have laid the cost tables out in Part 2 of the document showing where the delta between BP1 and BP2 exists. However, we think there is a need for some more explanation as to the reasons for the changed view of costs. Particularly since the previous costs were “within range” in the prior document. There is narrative on the need for data sharing and interoperability of systems between ESO and DSO either directly or implied. Whilst we acknowledge your propositions will be good for all stakeholders concerned and we would support working with you to achieve the outcomes, you have identified the need for engagement with DNOs. We would support engagement at the IT/IS level or technical

	architectural level sooner rather than later to avoid duplication of effort, to achieve standardisation and to ensure a common approach for DNOs/DSO functions. We recognise the complementary nature of your BP2 Technology Investment plan of May 2022 and parts of our plans. An example of this might be the opportunities presented by data, data exchanges, data analytics and cloud services for example and that the challenges you are looking to address are similar to our own. We note your narrative on the subject of "Productising" your approach to your digitalisation strategy to deliver outcomes rather than focussing on technology solutions and the inclusion of the architectural conceptual model and the architectural subsystem are a positive step forward and we watch with interest. We also note your adoption of Technology Business Management (TBM). The inclusion of the TBM delivery roadmap adds value to the document. We would be interested in knowing more about data best practice and governance and the use of a common data standard for your open data.
16	**Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?**
16	You have previously used Gartner extensively to provide guidance on your data and digitalisation strategy and its direction of travel when compared to the industry and you used them to benchmark your proposed technology investments with an assessment of being "within range". You may wish to consider a further round of benchmarking due to the change in costs between BP1 and BP2.

Innovation

17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
17	We agree with the need for innovation across industry to accelerate the decarbonisation process and the transition to Net Zero. We would be keen to explore opportunities through formal routes or through BAU for joint innovation projects where value could be added for consumers.

Offshore coordination

18	**Offshore Coordination is a new area of work for BP2.** **Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?**
18	No comment.

Network Planning Review

19	**Network Planning Review is a new area of work for BP2.** **Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?**
19	We are keen to understand what, as a DNO we will see change as a result of the proposed processes, and to understand to what extent our involvement is needed in shaping them.

Facilitating Distributed Flexibility

20	**Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan.** **A1.5: Operational coordination with DER and DSO** **A4.5 Facilitate whole electricity system market access for DER** **A15.8 Facilitate distributed flexibility and whole electricity system alignment** **Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?**
20	From an Information Systems/Operational IT point of view we consider that the ESO's plans are complementary to our own. The ESO focus remains on DER and the ability to issue control instructions via DNOs, which is aligned with the original business plan. We would be keen to enter into dialogue with the ESO to further discuss what the technical architecture will look like as you deliver against your plans. A1.5 – Operational co-ordination with DER & DSO We see the need for this to link in with work being done in the ENA Open Networks project (WS1B P6 and P7), where much is still to be agreed. P6 is concentrating on what information should be provided from a DER's systems **(**likely to be less about current state (amps/volts) and more about available energy (KWh), availability etc.), and we note that it is likely that IOT style and/or API communication solutions will be more appropriate for smaller units. This may well require expenditure by DNOs on implementation of additional equipment to provide the required data relating to customers connected to distribution networks before then passing it to ESO via ICCP. However, the details of this are not finalised and it is not yet clear what the funding mechanism is for this. We think further work is required to demonstrate the justification of visibility by ICCP links; this does not seem to be equivalent to the provision of operational data from aggregators in the BM as per the supporting paper on visibility of DER (e.g. the accuracy and read frequency of DNO SCADA data for DER doesn't meet the proposed BM operational metering standards). A4.5 - Facilitate whole electricity system market access for DER

Whilst this sounds reasonable, we recognise that this will require significant interface and agreement with the DNOs as to how best to enact any changes. Where such changes are not currently funded and / or will not be funded in ED2, a mechanism for agreeing funding for these will be required.

A15.8 - Facilitate distributed flexibility and whole electricity system alignment

As above (A4.5).

Throughout this section there are references to building on developments in the flexibility market and in RDPs. We are expecting to secure our first flexibility contracts this year due to the rising demand on our EHV network requiring invention. Also, we are in the early stages of initiating RDPs to support customers in connecting to the distribution system where there are transmission system export constraints.

We support continued engagement with the ESO to ensure that our developments in the North East and Yorkshire build on the previous work in the South of England. It is important that we share best practice around GB and also remain aware of the different development pathways with their respective timescales and costs.

Other feedback

21	**Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?**

21

Broadly, we wish to emphasise that for the ESO to be successful in many of these initiatives, there will be requirements to ensure that appropriate/additional resource is deployed in the DSO functions, and that these are still subject to ED2 determinations.

Feedback on the ESO's paper "Operational visibility of DER"

- Operational Visibility of DER

We agree that the level of, and specifics of visibility needs to be proportionate – we think that data should only be collected to the extent that it will add value.

Overall the aims do sound reasonable, but we wish to reiterate the need to collaborate with the Open Networks WS1b P6 and P7 working groups.

- Aggregation at GSP

We suggest that the approach in Figure 2 for determining which aggregation sub-units will benefit from collaboration with DNOs; we could provide GSP information for any given MPANs. Some of this may even be in the embedded capacity register (ECR) by end of 2022, as we drop the lower limit from 1 MW to 50 kW for reporting of generation. For demand we could also provide the information.

- Operational metering standards – aggregated units

It would appear inevitable that some asset types (e.g. EV charge / V2G) will to some extent be managed by aggregators who would be responsible for dispatching DER in response to market conditions and/or customer need.

Table 4 should make clear that these are the read times from aggregators summation systems and therefore accuracies may or may not be achievable in practice since there will be some degree of statistical infill and downstream communication will have longer refresh times.

The proposal is aimed squarely at giving visibility of current state, there may need to be parallel functionality to address constraint management and/or integrate with ANM style schemes.

BP2 Stakeholder Consultation Response:

Scottish Hydro Electric Transmission Plc (SSEN Transmission), part of the SSE Group

ESO draft RIIO-2 BP2
Consultation questions proforma

Our BP2 consultation questions are set out below. We have grouped these in alignment to our main Business Plan document as follows:

- Role 1: Control centre operations
- Role 2: Market development & transactions
- Role 3: System insight, planning and network development
- Cross-cutting and overarching questions (including IT, Innovation and cross-role activities)
- Additional feedback

How to respond to our consultation

To assist stakeholders in responding to our consultation, we have developed this consultation proforma which contains all the questions and a corresponding space for you to provide your feedback.

Please send your response electronically to **box.ESO.RIIO2@nationalgrideso.com**

Alternatively you can fill out this response via MS forms at https://forms.office.com/r/JS0J63vXuH

About you

Name: Andrew Ferrimore

Position: Regulation Manager

Organisation: Scottish Hydro Electric Transmission Plc (SSEN Transmission), part of the SSE Group.

Role 1: Control Centre Operations

New and materially changed

1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
1	We support the updated plans under A3.
2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?
2	No comment.
3	At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online. Do you have any comments about our proposed plans for A19 - Data and analytics operating model?
3	No comment.

Activities that are not new or materially changed

4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
4	No comment.

Role 2: Market development & transactions

New and materially changed

5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
5	No comment.
6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.
6	No comment.

7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform

7	SSEN-T welcome ESO's recognition within A6 that codes, their governance, and their reform are key enablers of the commitment to net zero. Broadly the activities and deliverables outlined in the business plan are consistent with net zero as a primary objective for the ESO. BP2 acknowledges that code changes required to achieve certain policy objectives and has detailed new deliverables. Given that these changes will affect stakeholders there is the possibility that the changes will not only drive the need for ESO proposed modifications but will also drive an increase from existing and new stakeholders seeking modifications to realise customer benefits and meet net zero objectives. We recommend that the ESO consider in BP2 whether further specific resource would be required in the future in response. Further, in the context of wide-ranging market reform, codes have an increasing impact on businesses. In the current business plan objectives, there is a recurring focus on enabling access for new parties. However, the outcome "*efficient participation for all parties*" seems a more appropriate overarching objective against which the success of A6 should be assessed. This would better assess whether barriers in code governance have been overcome and whether there is a platform for parties affected by codes. Current governance structures have inherent barriers to the voices of some parties being heard, for example, SSENT is consistently impacted by CUSC modifications, yet we are not signatories so have limited influence on modification. Broadly we agree with the proposals on costs and headcount for A6. We would welcome specific resource being committed to managing a potential increase in modification proposals from stakeholders as they are impacted by wider policy reforms that are driving the ESO's own agenda for modification proposals, driving efficiencies in the code governance process, and enabling the transition to the Energy Code Review (ECR) governance structure. Specific comments on sub-activities: • *A6.1: Code management / market development and change* - We support a commitment to reducing the unpredictability and volatility of TNUoS charges and the suitability of the current charging mechanisms to enable net zero. We welcome that the ESO are leading the task force and we look forward to discussing this further. We encourage the ESO to consider further whether additional resource will be required to manage a consequential increase in code modifications because of wider reforms. • *A6.4: Transform the process to amend our codes* – We welcome recognition of stakeholder feedback that code governance can be a barrier rather than an enabler of net zero. Further we welcome the declaration that this change by 2025, with the intention being to deliver a 'no regrets' action plan. We look forward to engaging on this in due course. We agree with stakeholder feedback that code alignment, simplification and rationalisation are 'no-regrets' and should proceed independently of the ECR project. • *A6.5: Work with all stakeholders to create a fully digitalised, Whole System Technical Code by 2025* - Whilst we agree with pausing technical code consolidation, this should not lose any of the insight from stakeholders on how consolidation might be achieved. This insight can be used by the ESO when engaging with the ECR, and we would welcome further opportunity to engage on this subject when it is appropriate to do so. Consideration should be made in the business plan for how the steering group set up under A6.5 reporting to Grid Code Review Panel will be affected by ECR, if at all. • *A6.9 Whole system codes reform* – We support the introduction of this activity and look forward to working with ESO to embed whole system thinking. We encourage the new whole system

team to seek opportunities for efficiencies within existing processes and embed lessons learnt in doing do. Where the team takes forward code changes under D6.9, they do so with a style of embedding lessons learned for the BAU teams. The ESO should also be mindful of whole system thinking developed through existing channels.

From our perspective A6 could be further enhanced by including the following:

- *Commitment to code governance efficiency* - We commend the important role that the ESO plays in administering the code change process and acknowledge commitment within the business plan to ensure that code governance is an enabler rather than a barrier to the overall goals by 2025. Analysis of the ESO's code tracker shows that the current live modifications will take an average of 634 days from modification raised date to proposal being sent to Ofgem for decision, the average time to be implemented for closed modifications is 351 days, which results in an average of 33 modifications being implemented per year across the ESO's codes. Given the urgency and timescales of net zero, we feel a specific commitment to driving the efficiency and timescales of the code governance process would be appropriate for the business plan and that this should be tracked and monitored. We recognise that ECR will be a significant enabler of efficiency within the process as well as being a key dependency. There is an opportunity for cross-code administrator learning and best practice sharing in advance of, and independent of, the ECR. There is also an opportunity for the ESO, in its ambition to be code manager, to be part of lessons learned with stakeholders of the implementation of Retail Energy Code (REC), assessing to what extent the objectives sought of the new Code Manager role have been achieved and where there is room for improvement.
- *Consideration of transition period to new code governance process under ECR* - We recommend that the ESO consider the need for resource and investment to manage the transition to new governance under the ECR. Consideration will need to be made for how in-train modifications will be managed, and how new modifications will be assessed during a transitional period. By committing time and resource to this within BP2, it will allow for clear communication lines with customers and stakeholders to shape this process as more guidance comes out. This is important as resource planning, investment decisions, and benefits cases will need to be made by customers and stakeholders as to whether to commit to the current process or await the new one.

8 We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem.

Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?

8 Given the scale of change that Nodal Pricing would require (ultimately the recommendation from the Net Zero Market Reform project), we would expect reaching such a conclusion to be thoroughly evidenced by extensive stakeholder engagement and supporting analysis by the ESO.

Figure 12 in the draft RIIO-2 BP2 shows a negative stakeholder response regarding Locational Marginal Pricing (LMP) as a possible solution to issues in the current system. RIIO is stakeholder-led, taking any position or view that is contrary to the majority of stakeholders should be clearly articulated and justified. We recommended that further stakeholder engagement is built into BP2 to explore the clear concerns of those stakeholders and justify ESO positions.

The approach used in the NZMR project and the resulting announcement for LMP was underpinned by a lack of evidence of Nodal Pricing within the GB market. Although evidence was published several months later at the end of May after the announcement back in March, it failed to expand on concerns within industry.

We would also have expected to see more advanced analysis before making such an announcement to investors and the industry. In particular we would have also expected the ESO to have carried a significant level of qualitative analysis of the impact on investor confidence as a result of the LMP announcement. Such an extensive reform to market design providing future uncertainty may deter future investment, with the associated pass-through costs turning to an increase in weighted average cost of capital (WACC). This increase is likely to be implemented on consumers, so further evidence in this area would been expected.

As the Transmission Owner for the north of Scotland, the interest of generators in our jurisdiction is critical to our business. Nodal Pricing could have a material and commercial impact on north of Scotland generators, fundamentally impacting business plans and rendering projects in the early stages uncompetitive. The proposed mitigation for Scottish generators, Financial Transmission Rights (FTR's), has limited mention May's publication. We therefore recommend that the ESO build further analysis and engagement on the design and implementation of these mitigations into BP2.

9 The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs).

Do you have any comments about the plans we are proposing relating to our Role in Europe?

9 We welcome a work programme that will seek to remove barriers and increase coordination between relevant parties, such as the TOs, that play a role in delivering or enabling cross-border capacity.

Role 3: System insight, planning and network development

New and materially changed

10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?
10	Stakeholder engagement is key to ensuring effective design and implementation. We therefore support the principle of the new deliverable within A15.9.
11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?
11	We welcome the approach the ESO is taking to deliver an energy demand model as a replacement to the existing model. However, we'd welcome interaction with the TOs in the development of the model build into BP2. At SSEN Transmission, we have undertaken our own analysis on hydrogen development for our network area which could be useful to the ESO in their work and have provided information on hydrogen electrolysis to the ESO previously. We would welcome mutually beneficial engagement with the ESO as they develop their energy demand model, especially with regards to T-connected demand assumptions.
12	A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years. Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?
12	We agree with the observations of an increase in volume and complexity of customer connections, and therefore support activities that streamline the connection process for all parties involved and deliver a better customer experience. In particular, we welcome an industry wide review of the connections process and look forward to further engagement with the ESO on the implementation of any changes in due course.
13	A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

13 Whilst we recognise that competition policy sits with Ofgem, it is our view that the net consumer benefit of introducing competition 'for the market' in electricity transmission has yet to be demonstrated. We have serious reservations about mechanisms that would lead to fragmentation in ownership or responsibilities, and subsequent inefficiencies and lack of accountability. We are also concerned that early competition will divert resource away from the delivery of onshore projects that have already been identified as required to deliver net zero ambitions. Delay to delivery of networks risks failure to meet net zero targets, increased carbon intensity of our generation mix, and increase in costs to consumers through constraints.

It is imperative therefore that new activities on onshore competition do not delay those critical infrastructure projects required for net zero to go ahead in the near term. We look forward to continued engagement with the ESO on its development of plans for early competition in due course and will provide fuller feedback to the proposals in implementation workstream discussions

We agree that this activity has several dependencies with other activities (FSO, Network Planning Review, OTNR) which are all inherently interlinked. There remains a lack of clarity on how these activities will align and play out over the varying timescales of implementation. As per our responses to questions 18 and 19, we encourage the ESO to provide further detail on how those dependencies will be managed in practice.

As work on early onshore competition progresses, it is imperative that key stakeholders are involved and consulted at every stage. In particular we note that the ESO will be responsible for project specific cost benefit analysis, key stakeholders including the TOs must be involved in the development of methodologies. We consider therefore that it may be appropriate to include stakeholder management planning within this activity.

Activities that are not new or materially changed

14 Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3.

A7: Network Development

A8: Pathfinders

A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works

A11: Enhanced analytical capabilities

A12: SQSS Review with regard to proposed deliverables and timeline

A15.1: System operability framework

A15.2: Provide technical support to the connections process

A15.4: Manage operational data and modelling

A15.7: EFC capability

A16: Network Access Planning

Please provide us with any feedback you have on these proposals.

14 No comment.

Cross-cutting and overarching questions:

IT

15	Do you have any feedback on our IT proposals?
15	We do not have any comments to make on the NGESO's IT proposals. However, we note that NGESO have submitted its update on planned IT investment using the Technology Business Management (TBM) Taxonomy. We understand that TBM has been used to comply with a request from Ofgem in its Guidance on the ESO Business Plan. SSENT would like to highlight their reticence regarding wholesale use of the TBM Taxonomy across the industry, without further detailed consultation on the goals and the framework itself. We do not have any reservations about the NGESO using TBM for this submission, but we are anxious that Ofgem may seek to impose its use on other TOs (e.g. as part of the RIIO-T3 Business Plan Guidance.) SSENT's view is that use of TBM in business planning, in the way described, would actively hinder the level of business and technology agility which we think should be fostered within the T3 framework and would not be well aligned to the Technology and Digital Strategy that we are executing through the RIIO-T2 period. Use of TBM as a consistent mechanism of reporting actual IT costs is welcomed, subject to understanding the purpose and intent, however, like the ESO, SSENT would need to make investments and deliver a step change in maturity to enable that capability within our organisation. We will feed back these concerns directly to Ofgem as part of the T3 planning process.
16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
16	No comment.

Innovation

17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
17	Innovation is crucial for the delivery of a decarbonised energy system, so we welcome the level of ambition from the ESO in relation to innovation. As an active partner in the Virtual Energy Systems (VirtualES) programme we support the ESO's continued coordinating role in this programme until it transitions to being industry led. The central role of the ESO in network operation means that involvement is necessary in many SIF projects. We recognise the increasing calls on ESO resource to support third party SIF applications and therefore support plans to grow the innovation team throughout the remaining price control period. We look forward to continuing collaboration on our own SIF projects with the ESO. We agree with the ESO's views on NIA. Although we observe that the proposed NIA projects are largely around current market arrangements. We consider that there would be value in a more diverse range of projects; for example, the role of markets, or codes and charging innovations.

We would welcome insight from the ESO on the benefits that have been delivered through previous innovation expenditure.

Offshore coordination

18 Offshore Coordination is a new area of work for BP2.

Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

18 We are supportive of, and actively engaged in, greater coordination in the development of offshore energy networks. We support the overarching aim of the Offshore Transmission Network Review (OTNR) in ensuring that future connections for offshore wind are delivered with increased coordination while ensuring an appropriate balance between environmental, social, and economic costs. The ESO have an important role to play through the development of a Holistic Network Design (HND) and ensuring efficient interaction with onshore network planning frameworks.

This is a fast-evolving policy area, the outputs of which are crucial to demonstrating the need for, and therefore providing regulatory certainty for, the delivery of strategic network infrastructure. We therefore agree with the pace of change for this activity. Due to the pace of change, we encourage the ESO to remain flexible in their business planning to enable quick and effective response to policy evolution from Government and Ofgem.

This area of work is inherently interlinked with other activity areas, most namely implementation of the FSO, network planning review, and onshore competition. Whilst we therefore support this new area of work as a “cross-cutting” activity under Role 3, we encourage the ESO to further set out the governance arrangements for this activity, to demonstrate and ensure that interlinkages and overlaps are managed across activities. This is particularly important as policy that determines ESO roles and responsibilities across those activities are still evolving.

We note that Offshore coordination and network planning are addressed together in the ESOs draft business plan. Our remaining views on offshore coordination as a cross-cutting activity are therefore consistent with the views presented in question 19 on network planning.

Network Planning Review

19 Network Planning Review is a new area of work for BP2.

Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

19 We agree with the timing, intent, and objectives of Ofgem's Electricity Transmission Network Planning Review (ETNPR). Policy proposals that focus on timely and efficient delivery of infrastructure and provide confidence in delivery to system users, the supply chain and other relevant stakeholders are needed, given the pace and scale of investment required. We therefore agree that Network Planning Review should be a new and important area of work for the ESO in BP2.

This area of work is inherently interlinked with other activity areas, most namely implementation of the FSO, offshore coordination, and onshore competition. Whilst we therefore support this new area of work as a "cross-cutting" activity under Role 3, we encourage the ESO to further set out the governance arrangements for this activity, to demonstrate and ensure that interlinkages and overlaps are managed across activities. This is particularly important as policy that determines roles and responsibilities across those activities are still evolving.

An important focus for the ESO under this activity should be engaging with relevant industry stakeholders, including the TOs who have crucial relevant expertise on this activity area, and who will be impacted by its implementation. We are encouraged that the ESO has recognised the importance of stakeholder engagement and considered the FTE impact of doing so. We would welcome further demonstration on how the ESO plan to engage with stakeholders on these cross-cutting themes within the business plan.

We agree with the ESOs high-level view of enduring requirements to deliver a holistic approach to planning the onshore and offshore transmission network set out in Annexe 1. That annexe notes that *"due to the early stage of maturity and ongoing uncertainty of both projects, a clearer view will emerge through 2022."*. We look forward to ongoing engagement with the ESO over the coming months as certainty on delivery plans materialises.

Facilitating Distributed Flexibility

20 Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan.

A1.5: Operational coordination with DER and DSO

A4.5 Facilitate whole electricity system market access for DER

A15.8 Facilitate distributed flexibility and whole electricity system alignment

Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?

20 We believe that the DNOs have made significant progress in transitioning to have system operation functions alongside countless years of planning and operating the distribution network. This is evident with over 30GW of DER already being deployed across GB. The industry has also implemented the world's largest local flexibility markets, with 2.9GW being put out to tender by DNOs in 2021 alone.

However, we foresee potential issues from service conflicts occurring with ESO and DSO procuring and dispatching DER for their own needs. As a TO we would likely have to deal with implications arising from this. It is essential that there is strong coordination between all parties to ensure this doesn't happen.

We support a whole electricity system approach, although we believe this should go further and include electricity, gas, heat and transport networks and components that serve society. A whole system approach is required to ensure that no unintended consequences occur and that in all functions ensuring the provision of security of supply must be paramount.

Other feedback

21	Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?

21	The ESO's BP2 responds to the challenge of accelerating the energy transition. Achieving energy ambitions will raise challenges for all parties involved, including the ESO, the TOs, Ofgem and BEIS. We commend the pro-active role that the ESO playing in coordinating with those parties through the HND to unlock the investment needed to achieve 2030 targets. That agility and co-ordinated way of working is an excellent example of how we can focus on what is required and not be distracted by reform. We encourage the ESO to maintain focus on 2030 by building upon frameworks already in place, whilst continuing to work collaboratively on the required institutional reforms to ensure the right tools are in place by 2030 and beyond. Electricity transmission is critical national infrastructure and therefore requires the right institutional framework where roles and responsibilities of all industry stakeholders are clear and well-understood. We agree with Ofgem and BEIS that the institutional framework must be grounded in the new challenges we see in the future but note that reform can be highly disruptive. Early planning and effective implementation of the Future System Operator (FSO) is therefore key, and we agree that it is appropriate for the ESO to begin planning for that change now and welcome the opportunity to feedback on those draft plans. We recognise that the proposed plans are indicative due to the uncertainty around timings and outstanding policy decisions on area such as role and responsibilities. We welcome further engagement with the ESO in the future as uncertainty narrows and plans are firmed-up. In response to the current indicative plans we want to reiterate the principles in which we think the implementation of institutional reform should be grounded. Achieving the UK, Scottish and Welsh Government's net zero targets require an unprecedented programme of investment in our electricity networks, not seen since the 1960s. Not only must it be delivered, but as the targets to net zero become ever more accelerated, the challenge is delivery at pace. Institutional reforms must not divert attention away from, and therefore risk delay to, that delivery. Transitional arrangements should be used with caution. It is of upmost importance therefore that there is always a clear framework of roles and responsibilities, without overlap or ambiguity. We are concerned that a phased approach to implementation poses risks, with periods of uncertainty and lack of accountability. This is particularly pertinent where policy on roles, responsibilities, and regulatory frameworks is evolving alongside implementation. Indeed, the ESO recognise that "*the creation of the Future System Operator is only one element of the transformation needed for the energy industry to drive towards net zero, and that the roles and responsibilities of other organisations will also need to evolve to meet this challenge*". As a result, the proposals note the need for flexibility and agility; we think that also leads to enhanced risk of delivery. We argue for a programme-led approach to developing institutional reforms, with a 'go live' date after necessary legislation, licencing changes and code modifications have been made. In the interim, the desired policy outcomes can be achieved within the existing institutional framework. This will minimise risk of uncertainty and lack of accountability during a transitional period, whilst also enabling the delivery, in parallel to institutional reform, of the required programme of investment in our networks that are required to meet net zero goals.

BP2 Stakeholder Consultation Response:

Scottish Power Renewables

ESO draft RIIO-2 BP2
Consultation questions proforma

Our BP2 consultation questions are set out below. We have grouped these in alignment to our main Business Plan document as follows:

- Role 1: Control centre operations
- Role 2: Market development & transactions
- Role 3: System insight, planning and network development
- Cross-cutting and overarching questions (including IT, Innovation and cross-role activities)
- Additional feedback

How to respond to our consultation

To assist stakeholders in responding to our consultation, we have developed this consultation proforma which contains all the questions and a corresponding space for you to provide your feedback.

Please send your response electronically to **box.ESO.RIIO2@nationalgrideso.com**

Alternatively you can fill out this response via MS forms at https://forms.office.com/r/JS0J63vXuH

About you

Name: Priyanka Mohapatra

Position: Grid and Regulation Manager

Organisation: SP Renewables

Role 1: Control Centre Operations

New and materially changed

1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
1	SPR broadly agrees with the work planned under A3 Electricity System Restoration Standard by NG ESO. We also acknowledge that NG ESO have engaged with wider industry in 2021-2022 through consultations and wider working groups. NG ESO have also indicated that they will be launching Wind Expression of Interest (EOI) in 2022, to allow wind generators onshore and offshore to participate as restoration service providers. This is a positive step regarding inclusion of renewable generators in restoration services. However, we find significant gaps in NG ESO's RIIO-2 BP2 regarding definition of regional requirements, and technical specifications based on restoration capabilities of recent technologies. NG ESO should have following deliverables in its RIIO2 BP2 to enable more renewable generation to participate in restoration service tenders

	- Extrapolation of learning from Distributed ReStart project to transmission connected renewable generators: Whilst we commend NG ESO in its efforts to implement learning from Distributed ReStart project at distribution level. The same concepts should be implemented for renewable generators connected at transmission level. Also, to be noted, Distributed ReStart project demonstrated that 132 kV connected generators in Scotland (transmission) can created restoration zones and connect to other restoration zones. As the number of conventional generators connected at transmission level is fast declining, it is inadequate from system restoration perspective to apply the concept developed through Distributed ReStart only to distribution level. - Definition of regional technical requirements and change of minimum technical requirements to include converter-based generation – The GB power system is fast moving towards predominantly converter based renewable generation and interconnectors. Yet there is no work currently undertaken by NG ESO to include the characteristics of converter-based generation in restoration tender technical requirements. The technical requirements for ESRS tenders are still largely based on characteristics of synchronous generators. There seems to be no plan in place by NG ESO to perform additional regional level system studies to take regional differences in requirements for restoration services into account. There is also no plan to perform studies to include converter-based generation capabilities in the system restoration technical requirements. The technical requirements for ESRS as they stand still favour synchronous generators, are not technology agnostic and should be revised in BP2, to be more technology agnostic. - Restoration Decision Support Tool requirements definition: NG ESO's BP2 lays out need for restoration decision support tool and need for more visibility of restoration service providers. However, the investment required to implement such tool and make it reliable and secure, needs to be borne by network owners and generators. It is unclear how NG ESO accounts for such significant IT investment on part of restoration service providers and how it plans to compensate generators (both restoration service providers and non-restoration service providers) to enable such system critical services.
2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?

2 SPR finds NG ESO's BP2 objective to enable more market monitoring positive and commends its aspiration to be more transparent. We support NG ESO's market monitoring objective and have following recommendations for NG ESO to improve market monitoring in the second half of BP2:

- Market monitoring should be based on real data and should not be superficial. In first half of RIIO2 NG ESO conducted such market monitoring based on publicly available data only and thus the information inferred cannot be considered reliable or providing a full picture of the markets. We urge NG ESO to perform more in-depth market monitoring based on real data in second half of RIIO2.
- Market monitoring should include a KPI to show whether existing markets are being utilised effectively and efficiently. Whilst NG ESO's ambition for market monitoring is mostly around capturing any scrupulous activities, we encourage this to be extended to be more inward looking. NG ESO should define KPIs to show how it utilises existing markets to create more value for GB consumers.
- To emphasise the point, SPR believe the markets are being utilised inefficiently to balance the network. We observe the share of balancing activities in GB's wind portfolio was significantly higher in proportion to the Battery Energy Storage System (BESS) portfolio. Thus, highlighting NG ESO's inefficiency in using BESS to balance to the network. As the current pipeline of GB BESS projects is in order of 30-40 GW in next years, such inefficient balancing comes at a significant cost to GB consumers. We urge NG ESO to improve its efficiency of balancing by improving utilisation of BESS in second half of RIIO-2 and use market monitoring mechanism to enable this objective.

3 At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online.

Do you have any comments about our proposed plans for A19 - Data and analytics operating model?

3 SPR strongly supports NG ESO's plans in RIIO 2 BP2 regarding improving transparency and efficiency of ESO activities and engagement with customers through enhanced data analytics. In the first half of RIIO-2 NG ESO launched the Single Markets Platform and Connections Portal. Although, these tools are still to be tried and tested by the industry, it shows ambition on NG ESO's part in improving customer experience and efficiency in engagement with NG ESO.

We have also noticed improved generation forecasting in NG ESO's control centre with superior modelling and tools improving the accuracy in wind forecasts. We are yet to see integration of this data in NG ESO's decision making process.

Although, there is a plan in place, our view is the pace of digitalisation using NG ESO's data and analytics hub and spoke model is still lagging industry standards and far behind other sectors such as finance.

Additionally, a lot of emphasis has been given in NG ESO's RIIO 2 BP 2 to collection and management of data. Although, analytics has been mentioned there is no clear picture provided of how these analytics and resulting information will benefit NG ESO and wider industry. As the generation and demand profile becomes more complex, system operation including balancing, dispatching, maintaining system stability and security become increasingly challenging, as highlighted by NG ESO in BP2. However, there is no clear strategy or plan presented of the use of enhanced data analytics, AI and other improved IT tools will feed into providing information to its own and generators' control centres and reduce complexity in any of the functions.

As a concrete examples, of where NG ESO should focus on in terms of using data analytics to improve system operation and customer experience, following are some of SPR's suggestions to be include in NG ESO's RIIO-2 BP2

1. Use of real-time high frequency system data to improve real-time system dynamic modelling and better predicting system events. NG ESO has posed a requirement on generators to install Dynamic System Monitor and the business plan highlights integration of WAMS in control centre. However, this has been a requirement since RIIO-1 and NG ESO is far behind other system operators in the US, Australia, and Iceland in utilising this dynamic data to improve system operation. In case of a fault, such visibility could enable NG ESO to share event data more promptly with system users and generators and thus improve system stability and security. NG ESO has not posed on itself any requirement to use and model dynamic system data, or to provide this data to system users, we view this as a serious lack of ambition of using data to efficient deliver its key role of system operation.

Dynamic system data could be used to predict system stability conditions, help generators to improve tuning and operation of their control systems. It could aid NG ESO to perform dynamic modelling and use such models for system restoration and state estimation purposes. This could massively reduce the risk of incidents such as on the 9th of August 2019. NG ESO recently posed onerous requirements on users and generators to perform dynamic modelling and analysis prior to connection through GC1041. However, it is surprising to see its own business plan does not provide any information regarding how such data and models will be used in real-time to improve system operation.

Integration of wind forecasting, power available signals to improve frequency response and better utilisation of BESS in balancing services are few other examples where NG ESO could utilise user data to improving balancing and ancillary services provisions. Often NG ESO requests for such data, however there is no transparency regarding how this data gets utilised to inform NG ESO's processes.

Activities that are not new or materially changed

4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
4	SPR acknowledges and appreciates NG ESO's efforts regarding launch of "operational transparency forum" and organisation of weekly meetings to engagement with users and generators. However, in RIIO2 BP2 we would like to see how data transparency is realised. We have had limited to no involvement in the implementation of outcomes of the open data and transparency model and/or control centre training and simulation activities undertaken by NG ESO. We are keen to be a part of such process and believe we can contribute positively to improving data and information sharing. We will appreciate if NG ESO could provide concrete details of how it plans to involve users and generators in the two mentioned activities. We also appreciate if open data and transparency could be extended to definition of market requirements and system operability requirements as well. Especially for ancillary services this would allow users to build informed business cases for new technologies such as grid forming and BESS. Lack of system data transparency leads to frameworks such as CfD encouraging lower CAPEX solutions and thus missing on the opportunity to encourage new technologies and solutions that could better meet system needs and create more value out of connecting generations. Lack of data transparency also makes investment in new technologies riskier for developers as the return of investment remain uncertain through market mechanisms. NG ESO should aim in RIIO 2 BP2 to be more transparent about system needs at various parts of the network and not wait for a tender announcement to share such data with users. As often, then it is too late for developers to change their project design and/or investment in additional technologies and solutions to provide services to the system. In conclusion, we are supportive of NG ESO's plans regarding improved training and simulation and data transparency, however, will appreciate if NG ESO involves users more in implementation of these objectives.

Role 2: Market development & transactions

New and materially changed

5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
5	SPR finds the Markets Roadmap to be an informative document. The BP2 Draft however lacks necessary information and details regarding NG ESO's clear ambitions and goals regarding market reform. Sentences such as 'We will continue to widen access to the BM and make the process quicker and easier to complete' and 'We will enhance these new services and procurement approaches to ensure providers receive an engaging experience' do not really provide a clear picture or deliverables against which NG ESO's performance will be measured in RIIO-2. These sentences more sound like an open-ended ambition, detailed structure plan with clear deliverables that NG ESO's performance in this key role can be measured against. The move toward a more real-time procurement is more than likely a positive move, however, ESO should provide analysis as to how the implementation of DC and EFA Block procurement of frequency services has improved their ability to manage the system, while also reducing the cost to the consumer. This should help inform the Reserve Market reform where the ESO are moving toward similar real-time procurement methods. There is also no information in BP2 regarding how different markets should operate together and where are the overlapping elements. It is unclear how NG ESO plans to operate different markets in a cohesive manner to reduce system costs. Currently each market operates under its own objective and leads to investments in different assets providing different services in a region. Impact of the markets on legacy and new plants- economics of moving to net zero with a piecemeal approach to markets, does not make full use of the range of services and flexibility of the assets. Stimulating new technologies and allowing for connecting generators to provide more value to the system and creating more investment value. NG ESO alongside the wider energy sector must develop short, medium, and long-term plans which will highlight the need for types of ancillary services assets over time to deliver an efficient, reliable, and operable 100% converter-based renewable generation (CBR) grid. NG ESO should send the right signals to future CBR manufacturers to invest in technology and innovation, so that generators can provide ancillary services and reduce the need for dedicated assets to maintain stability and security of supply. We strongly believe the current market reform and market signals fail to utilise the wide-ranging capabilities of CBRs.
6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.

6	BP2 states “We will also continue to improve security of supply through use of enhanced modelling and more granular data sets and explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.” In line with this ambition, the competitive allocation process of the CfD regime encourages low-cost solutions for renewable energy including CAPEX costs. The viability of connecting more renewables to GB power system in line with UK Government Targets will depend on having a stable and operable network that can support operation of Net Zero grid by 2025. To facilitate the design of this grid and meet the need for ancillary services in various parts of the network, we recommend the CfD framework driven by BEIS is more closely aligned with NG ESO’s regional stability and services requirements. The CfD regime should prioritise value to the system by allowing developers to bid in with projects at higher CAPEX costs, but with ancillary services provisions for the grid which can be commercialised through market mechanisms. This approach will reduce reliance on dedicated assets for ancillary services and streamline the approach to procurement of ancillary services based on regional requirements and drive down costs for GB customers.
7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform
7	- We support broadly the Whole system code approach and the digitalisation of Grid Code – however we suggest maintaining different sections applicable to different users and providing adequate navigation in the digital code database for easy access of users to different clauses applicable to them. An agile code review and management system should not mean less consideration for industry opinions and the current format of consultations and voting should be retained. - Currently, NG ESO prioritises grid code modifications as per its own availability and priority list, this does not represent the need of the industry. Industry should have more voice and voting rights for prioritisation of code changes. - Regarding BSUoS and BSUoS tariff setting we have following suggestions for NG ESO to be included in BP2 o Provision of initial view of a 3-5 year forecast of BSUoS fixed tariff rates with some restrictions (tolerance levels) on moves from these forecasts o Provision of more advance notification of rates in future years – recognising short timeframes of delivery by 31 march next year but need more than 2 months notification for the 1st month of delivery when setting tariffs o Introducing limits on how much additional BSUoS costs can be carried forward into the following year – e.g. if actual 2023/24 BSUoS costs are 50% higher than expected – not spreading that cost over the full 2024/25 period but over a longer period of time. We Recommend introducing a framework as to how to spread any potential additional BSUoS costs. o We welcome the emphasis on greater transparency and detail of BSUoS forecasts some of which has already been implement since the start of this year. - TNUoS Task Force – It is worth flagging the ongoing delay faced with the task force as it was scheduled to commence earlier in the year. It appears that Net Zero will not be included within the scope of this task force and will be captured in a longer-term Ofgem programme. Members of this task force should have a clearly defined responsibility to report back detailed updates to the wider sector. - Digitalising the Grid Code – Streamlining of the processes is always a good ambition. Our only concern as highlighted before, is for NG ESO to ensure that, there is always adequate time and opportunity to allow for debate and feedback from wider industry.

8	We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem. Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?
8	The ESO should be open to independent analysis, as well as conducting their own. As ever, transparency over analysis/trials is key to the wider market understanding the ESO position and being able to provide feedback based on this. As explained in detail in response to Q5, we do not agree that the market reforms introduced by NG ESO will lead GB to its net zero future. There is lack of system modelling and definition of net zero system. There is no short term, medium, long term plan regarding requirements operation and services requirement of a predominantly CBR grid. The reform still looks back at backfilling services lost due decline in conventional generation, rather than defining the grid requirements for a predominantly CBR grid. There is no ambition or plan in BP2 to perform studies or redefine service requirements for Net Zero. The operation of almost 100% CBR grid is not a fact now and is something that will progressively develop over time. This will require some backfilling of services from synchronous generation in the short and medium term (<10 years, until the current stability pathfinder contracts end). For example, until the Transmission Owner (TO) system protection philosophy evolves to no longer be dependent on minimum SCL, in the transition period SCL will still be needed on the system to maintain protection system effectiveness. Therefore, we see the methods adopted now which are focussed on backfilling inertia and SCL lost on the grid, as an intermediate step enabling the grid to transition to an almost 100% operable CBR grid. However, we strongly believe this current process will not deliver a long-term sustainable strategy and will not be in the long-term economic interest, or in the long-term interest of consumers. Ultimately, TOs, DNOs, the ESO and generators will need to adapt system protection (not to depend on minimum SCL), operation, stability, and security requirements to reflect efficient and economic operation of an almost 100% CBR grid. Regarding, Locational Marginal Pricing (LMP), the NZMR conclusion suggests LMP as the answer to resolve increasing constraint costs, and balancing costs. However, this study does not provide any counterfactuals. The reports demonstrate the potential benefits that may be achieved from LMP but could have provided a more balanced picture of the risks to system security and stability. We welcome further detailed studies to identify where the potential risks could be especially related to price volatility, lack of clear business case and ROI for developers and most importantly for vulnerable customers located further apart from demand centres. This can be achieved by looking at the various international examples for lessons learned. As an industry, we also need to address if now is the right time for LMP given the 2035 Net Zero targets.
9	The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs). Do you have any comments about the plans we are proposing relating to our Role in Europe?
9	No comments, we support all collaborative measures with Europe.

Role 3: System insight, planning and network development

New and materially changed

10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?

10	NG ESO identifies implementation of new technologies such as CCUS, bioenergy with carbon capture and storage (BECSS), new nuclear, hydrogen, large and long duration storage and EVs necessary for effective zero carbon operation. Almost all of these technologies are synchronous generation types. GB power system is fast moving towards being operated as an almost 100% CBR grid. The 100% CBR grid can be defined as a grid operation state where almost 100% of demand is met by asynchronous generation and imports from interconnectors. This a viable scenario and will become more prevalent as we transition to Net Zero. SPR would like to draw NG ESO's attention to the fact that, it has not recognised, attempted to model, or explore the vast capabilities of converter-based generation. Converter technology has fast evolved to be most innovative technology for zero carbon operation, with grid forming converters, self-sustaining turbines (SSTs) and advanced phase locked loop grid following converters when designed to meet system needs, are far well suited for Net Zero operability, providing all necessary stability, reserve, voltage and black start services. It is disappointing to see that NG ESO's BP2 does not mention Grid forming converters, capabilities of battery energy storage systems and other converter technologies with advanced control algorithms as part of its plan to be modelled, studied and included in Network Options Assessment (NOA) and System Operability Framework (SOF) work. The fact is converter-based generation will be more locationally available and widespread than any of the mentioned technologies. However, NG ESO still predominantly supports and incentivises technologies that are direct replacements for conventional synchronous generation, such as CCUS, synchronous condensers. This technology favouritism towards conventional generation types is as a recurrent pattern in balancing decisions, market reform and definition of ancillary service markets. NG ESO still models the system as a predominant synchronous generation system and thus the resulting technical solutions are direct replacements for synchronous generation. There is no attempt or plan to model and understand a predominant converter-based generation grid that would create a new picture and support more innovation in converter-based generation technologies. Instead, such modelling activities are purely left to the developers by imposing more onerous requirements on the developers. The average annual inertia in GB grid has fallen by around 40% in last 10 years. The regional level in short circuit level (SCL) in certain parts of Scotland and in England have fallen drastically over last 5 years and currently parts of Scottish grid is operating at SCL level as low as 5 GVAs. We do not believe that there are any commercial framework and market mechanisms, that will enable us to replace the lost levels of synchronous generator type rotational stored inertia and fault-infeed contributing to SCL in an economic way. We believe that inertia in future will be obtained through inertial response or synthetic inertia solutions, which will effectively manage frequency excursions. The system strength in future grid will not be analogous to SCL in its traditional sense Thus the current approach replaces these stability related services in its conventional synchronous generation manner, hundreds of synchronous generators/condensers would need to be installed all over the grid. This is not financially viable for the developer, nor will it be in the consumer's best interest. We do appreciate CCUS, hydrogen long duration electricity storage and EVs will play important roles in future system operation. However, we will appreciate if NG ESO modelled the operation of an 100% CBR grid and understood the locational and service requirements of such a grid. This will allow developers to install right converter technologies on the grid which are more suited to future Net Zero operability, failing

	this it will be a lost opportunity for the 50 GW of offshore wind, onshore wind, solar and storage planned to installed in GB.
11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?
11	SPR welcomes inclusion of new energy demand model within FES to have a more complete picture of the future system. We recommend including DNOs in development of the demand model, as they have all the data and information regarding assets and load connecting to their network. We envisage a future system operation where NG ESO will work closely with future DNOs/DSOs to make use of flexibility services that can be enabled through embedded DERs and DNO connected assets. We urge NG ESO to provide more clarity regarding how pipeline projects especially storage projects are being accounted for in the FES process. And whether BESS be modelled as both generation and dispatchable demand, in the energy demand model.
12	A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years. Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?
12	We would not agree with the statement that "the current connections process was designed for a small number of large connections", however we do acknowledge the volume of applications being managed by the ESO has increased over recent years due to growth in the sector. We welcome the creation of a new Policy and Change Management team which we believe will provide a much-needed linkage between industry change/policy development and how that directly impacts the connections framework and customers. We further welcome the introduction of the Customer Portal to introduce automation to some manual and time-consuming activities that are recognised by many as being inefficient and time consuming in an often-complex process. We would however like to understand how the ESO will, through the "Management of the connection contracts programmes", will "secure delivery of connections to planned timescales, ensuring TOs deliver on their programme for enabling connections or conducting reinforcement works" With regards to queue management implementation, we have witnessed over the years varying commitment to the development and implementation of Queue Management Principles by the ESO. We acknowledge this is a complex policy area, however industry cannot continue to debate when action and implementation is required.
13	A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

13	No further comments.

Activities that are not new or materially changed

14	Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3. A7: Network Development A8: Pathfinders A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works A11: Enhanced analytical capabilities A12: SQSS Review with regard to proposed deliverables and timeline A15.1: System operability framework A15.2: Provide technical support to the connections process A15.4: Manage operational data and modelling A15.7: EFC capability A16: Network Access Planning Please provide us with any feedback you have on these proposals.
14	As discussed in our response to Q 5,8 and 10, we would like to reiterate following key points: 1. Consideration of converter dominant grid with different storage solutions for NOA and pathfinders' requirements definitions. We would like NG ESO to develop a short, medium- and long-term scenario, identifying a break-even point where the real transition to Net Zero operability will occur, i.e. the system can be operated majority of the times without relying on fossil fuel powered generators. 2. Study and definition of stability and security in an almost 100% converter based generation grid operation scenario, this will allow for new services to be identified, markets to be developed and most importantly will provide the right signals to OEMs and developers to innovate, design and install converter technologies now that will be future proof and can support the grid in next 15-20 years. 3. In Section A11, BP2 highlights the need for development of stability assessment tool and improving probabilistic modelling. We are supportive of both these activities and understand the need for it. However, we see serious gaps in NG ESO's approach in addressing stability and improving modelling. First, NG ESO does not make use of dynamic data as much as other TSOs around the world. The WAMS integration to control centre, has been an ongoing theme since completion of NIC project VISOR in 2016. The lack of dynamic visibility and inclusion of dynamic data in modelling, does not provide a true picture of stability issues in various parts of the network. 4. Also, attempts to define stable and unstable network states, purely relying on a tool sounds more like a desktop study than creating any actual value. Stability can be monitored more accurately using dynamic data if NG ESO could enable this by working closely with TOs and generators. This will be really useful, to better assess system events, proactively handle unstable conditions, provide visibility to generators, identify and prevent network interactions, improve state estimation and in future perform fast acting wide area control to prevent unstable network to cascade into a full black out. The same will also allow NG ESO to improve probabilistic modelling, by providing a more accurate power flow scenario to study overload conditions.

	Increase transparency regarding operation planning and data. Include stakeholders in decision making processes. Better modelling and dispatching of vast amounts of BESS connecting to the network.

Cross-cutting and overarching questions:

IT

15	Do you have any feedback on our IT proposals?
15	We have not been involved in any of these proposals, we are keen to be involved so that our own internal IT roadmap can support NG ESO with their IT and digitalisation ambitions in RIIO-2. It is imperative to appreciate NG ESO cannot improve visibility of the grid, without TOs, DNOs and generators enhancing their own IT infrastructure and providing reliable data to NG ESO. NG ESO's IT strategy should not be developed in isolation and should include whole system requirements, to provide more visibility to other parties in terms of what they need to do to support and implement NG ESO's strategy. For example, with development of ancillary service markets, NG ESO will require real time data from the units providing these services to be able to reliably dispatch them when required. However, if the necessary IT infrastructure is not in place, this could lead to further delays or inefficient operation of the units. Another example being need for secure communication to new restoration service providers. As the level of automation increases in NG ESO's daily operations, the same needs to be reflected across the industry for the tools implemented by NG ESO to receive reliable data and to be able to make decisions in real-time. Often, we hear from NG ESO that they cannot implement tools, as there is lack of data from generators, DERs etc. However, as NG ESO's IT strategy does not highlight these requirements and there is no clear interface definition between generators and NG ESO, the overall data and digitalisation implementation in the sector remains piecemeal and ineffective. In RIIO-2 NG ESO could expand its IT strategy to identify such gaps and define network requirements which will allow it implement advanced tools such as wide area monitoring and control, stability condition monitoring, inclusion of state of charge and energy into dispatch tools to have full visibility of storage reserve capacity. In general, we expect the IT strategy to state clearly type and quality of data required from TOs, DNOs, and generators and provide a clear roadmap as to how this data will be integrated in different tools and processes to improve overall system operation.
16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
16	

Innovation

17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
17	We believe NG ESO has led and delivered ground-breaking innovation projects in RIIO 1 and 2. In this regard, we support NG ESO's increase in innovation funding request. However, we would like to see NG ESO work more closely with OEMs, renewable and other generators, and service providers to realise the full potential through innovation. We would like to take this opportunity to highlight a few areas where we can contribute and work collaboratively with NG ESO to innovate: 1. Net Zero operability: we welcome an industry wide collaborative project, where OEMs and renewable developers/generators can support NG ESO with modelling and analysis of challenges and opportunities related to operation of a 100% converter-based generation grid. It will aid in identifying new technologies and services that can support the operation of the Net Zero grid. 2. Future definition of stability and stability market: Following up from the NIA project assessing stability market, there is an opportunity to redefine stability from future system operation perspective. 3. Stability Assessment Tool: We and other generators could contribute greatly to this tool, by highlighting the stability issues faced by generators in weak networks. 4. Inclusion of generators in virtual energy system to create end to end visibility of power networks. 5. Holistic Network Design: We are keen to understand how innovation is influencing the HND process. There are many examples of innovation in offshore grid, including but not limited to meshed offshore networks, hydrogen network etc. We would like to have more visibility of and contribute to the HND process through innovation. We believe NG ESO's innovation strategy should be more industry led and based on the real challenges faced by users and developers, as opposed to ESO led. It should be more outward looking in terms of improving overall system operation, increasing digitalisation across the system, and increasing transparency regarding future system requirements.

Offshore coordination

18	Offshore Coordination is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?
18	To be provided on the 14th of June.

Network Planning Review

19	Network Planning Review is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

19	No further comments.

Facilitating Distributed Flexibility

20	Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan. A1.5: Operational coordination with DER and DSO A4.5 Facilitate whole electricity system market access for DER A15.8 Facilitate distributed flexibility and whole electricity system alignment Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?
20	SPR agrees that there is value in increased visibility of DERs and operational metering of aggregated units. As the number of DERs increase across the network, such visibility will unlock potential for new flexibility services. We are however are not sure whether it should be a function of the ESO/future FSO to unlock the potential of DERs or that of the DSO. We appreciate NG ESO has a number of critical responsibilities. In the last decade, the ESO has reported multiple times over the complexity of managing increased number of balancing mechanism units (BMUs) and number of dispatch instructions. The ESO has also reported challenges with fully utilising transmission connected BESS, as smaller BMUs as compared to larger synchronous generators. Given, NG ESO has reported extensively about the increased complexity of network operation, we are unsure if adding DERs to the mix will exponentially complicate the challenge for the ESO and will be data and resources intensive for the ESO to manage in real-time. We therefore suggest ESO to let DSOs to manage DERs and procure flexibility services, and balancing information. The ESO should co-ordinate through the DSOs to increase visibility of DERs.

Other feedback

21	Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?
21	No further comments

BP2 Stakeholder Consultation Response:

Sembcorp Energy (UK) Limited

ESO draft RIIO-2 BP2
Consultation questions proforma

Our BP2 consultation questions are set out below. We have grouped these in alignment to our main Business Plan document as follows:

- Role 1: Control centre operations
- Role 2: Market development & transactions
- Role 3: System insight, planning and network development
- Cross-cutting and overarching questions (including IT, Innovation and cross-role activities)
- Additional feedback

How to respond to our consultation

To assist stakeholders in responding to our consultation, we have developed this consultation proforma which contains all the questions and a corresponding space for you to provide your feedback.

Please send your response electronically to **box.ESO.RIIO2@nationalgrideso.com**

Alternatively you can fill out this response via MS forms at https://forms.office.com/r/JS0J63vXuH

About you

Name: Mark Field

Position: Regulatory Analyst

Organisation: Sembcorp Energy (UK) Limited

Role 1: Control Centre Operations

New and materially changed

1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
1	SEUK agree with and support the development and implementation of the Electricity System Restoration Standard (ESRS) and the need for this to be extended to new and emerging technologies as this will keep costs down and increase the chance of a successful ESRS. By ensuring that this standard can be met by all market participants will ensure that the ESO has the correct portfolio of services to enable the continued, effective and efficient operation of the energy system going forward. Any existing or emerging technology that participates in the market should be able to be part of the ESRS.

2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?
2	SEUK support the flexible approach that is to be developed with regard to Market Monitoring as new technologies and market participants emerge. It is important that the ESO has the ability to identify and report any potential breaches of the Grid Code that it discovers and be able to effectively manage these activities in order to maintain compliance. Furthermore, Codes and agreements in the electricity industry are interrelated, so any breach of this wider contractual framework would therefore also potentially need to be considered when undertaking any investigations, given the type and scale of the breach. We note that and agree with the daily frequency of market and transaction activities as appropriate for the identification of potential breaches at the earliest opportunity.
3	At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online. Do you have any comments about our proposed plans for A19 - Data and analytics operating model?
3	Whilst we understand the Data and Analytics Hub & Spoke model and the consistent and coordinated internal communication that this would bring, it would be helpful at this relatively early stage to clearly understand any requirements (or potential impacts) that may be placed on stakeholders. For example, these could include: **Data and information provision** – stakeholders will need to clearly understand any data or reporting requirements and any formatting or timescale constraints that may be required. Furthermore, any requests should be clear, focussed and balanced to ensure that data submission or reporting requirements do not become too onerous over time; **Open data sharing** - although the ESO will take all precautions to anonymise any data provided, the wider implications of GDPR etc. will need to be considered to ensure that all parties can remain compliant with these obligations; **Data and Reporting access** - it would be helpful to understand exactly what access market participants will enjoy. For example, access to ESO produced reporting or the ability to develop their own bespoke reports via indirect access to data/ datasets via a GUI; **Data Catalogue** - it may be prudent to fully engage with stakeholders to ensure that all definitions used are both clearly understood and consistent as some data items may have both divergent uses and meanings as systems and processes have developed over time or have multiple definitions that will need to be rationalised; and **Security** – As the Energy Industry and the ESO in particular, will become increasingly reliant on the datasets being developed and the reporting that will be developed, it is important that all parties are satisfied with the security arrangements that will be developed to guard this data and information and that these are developed so as to be flexible as the industry develops as we move towards our net zero 2050 targets.

Activities that are not new or materially changed

4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
4	We note that a great deal of work is being done to establish the required data platform and access to data, datasets and the numerous reports that will no doubt be developed as the work progresses and that an open and transparent approach is developed. One aspect that may require further consideration as this work progresses is to ensure that all interested parties are, and continue to be, fully engaged. As parties will have varying resource availability the ESO may need to make sure that these organisations can continue to be pro-actively involved and that a 'two-tier' industry, with regard to data and information is not inadvertently created. This may be particularly important where data inputs and/or new reporting is required.

Role 2: Market development & transactions

New and materially changed

5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
5	We understand and support the need for a review of the balancing and ancillary services market as the industry transitions towards a net zero 2050 and the changes in energy production and services that this will bring. The challenges that the ESO and the industry face in order to develop these markets and services, whilst maintaining an appropriate balance between providing short-term market arrangements and strong, longer-term investment signals are significant. We are particularly keen to understand more about how the ESO will plan to mitigate any potential shortfalls that may evolve due to the more limited opportunities of providers of balancing and ancillary services to revenue stack that could lead to these parties operating in fewer, or even one, market and so reducing the overall provision of these services as we move towards our 2050 targets. SEUK will continue to participate in establishing these future markets. Whilst cogniscent of the need for interconnection with other markets we would ask that the ESO continues to ensure that these services are procured, and will continue to compete, on a level playing field as currently GB policy in this area has resulted in these services being more expensive to provide when compared to the EU equivalent. For example, carbon pricing, and whilst not under direct ESO control issues such as this may need to be considered to obtain and maintain a holistic view. These disparities will need to be considered going forward if these services are to be procured on an equitable basis. We welcome the ESO establishing a local constraint management service to deal with the B6 boundary issues as this will ensure effective and efficient management of capacity requirements across this border and will play a vital role in minimising the costs associated with these services. We believe that a competitive day-ahead alternative to the current Balancing Mechanism and the facilitation of an accelerated DER market could achieve benefits and will send the correct signals to parties who provide these services. We would ask that the ESO work with Ofgem on balancing reforms, such as these, to ensure that these developments are progressed at an appropriate pace. We are interested in seeing

	how any new platforms that may be developed will also be integrated with current and planned arrangements and how the balance between new and existing services will be maintained.
6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.
6	It is clear that the scale and rate of change both envisaged and required for the capacity market must be assessed at the earliest opportunity and SEUK are pleased to see that this is a focus for the ESO and that customer engagement is a key element of this process. The need to enhance modelling requirements to be able to assess the combined impacts of reduced thermal generation, increased use of intermittent sources and the duration limitations of existing support services will be key to ensuring that longer-term capacity is optimised. SEUK will continue to engage with these developments providing the necessary support wherever possible. However, due to the current levels of uncertainty that naturally exist when looking to understand future situations it may be prudent (if not already considered) for the ESO to develop a similar scenario approach to that used for the FES, that has been widely acknowledged by the industry and forms the basis of a great deal of additional analysis and thinking in this area. Furthermore, we would suggest the ESO to not be bound by the 2-year reporting frequency that is currently envisaged and allow this to be dictated by the level of change that needs to be modelled and assessed, with the 2-year cycle set as a maximum interval between reports.
7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform
7	SEUK note that there is currently a modification with Ofgem for decision that is designed to fix BSUoS tariffs in advance and understand that this is currently expected at the end of July. We anticipate that the ESO will be considering the outcome of this as part of their forecasting capability developments. As these modifications are looking to balance the notice period and length of fixed BSUoS period we understand that this could affect the ESO's recovery position. We appreciate the financial exposure to the ESO of differing notice periods and fixed lengths, but we would expect the ESO to understand the benefits of increased certainty of budgeting and financial forecasting for all parties concerned. Furthermore, as poorly forecasted fixed BSUoS tariffs or unrealistic notice periods can have a detrimental impact for all parties we are keen to ensure that all interested parties have the ability to engage on aspects of these developments. For example, enhanced demand and generation forecasting, collaboration with consultations and cross-body research to improve weather forecasting and system modelling and how these will be holistically developed. While the current BSUoS forecasting reporting metrics work well for performance monitoring, more information on forecasting methods, including breakdown of methodology would allow industry to have greater faith in the ESO's abilities in this area.

8	We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem. Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?
8	SEUK does not have any comments to make on Net Zero Market Reform, at this time.

9	The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs). Do you have any comments about the plans we are proposing relating to our Role in Europe?
9	We do not have any comments to make with regard to the ESO's role in Europe at this time.

Role 3: System insight, planning and network development

New and materially changed

10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?
10	SEUK support a whole system approach and the focus on engaging with stakeholders to develop and deliver effective zero carbon operations. We consider that taking such a holistic view is the best way of optimising zero carbon operability as new technologies become available and the impacts that these changes will have on existing system constraints and new ones as they emerge. Again, the need for parties to be engaged to ensure collaboration and successful delivery will be a primary consideration.

11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?

11 Here we note that consideration is being given to the possibility of the separation of DNO and DSO roles as part of Ofgem's Call for Input: Future of local energy institutions and governance, a position that SEUK support. It will therefore be prudent to understand the implications of any decisions that emerge from this and that any energy demand model and development plan is established with the flexibility required to accommodate potential demand trends that may emerge.

12 A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years.

Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?

12 Given the rate and scale of change both currently and forecast for the future, the need to review connection activities to meet these demands **(**both in terms of volumes and potentially different types of connection requirements) with a whole electricity system approach is clear. SEUK believe that a holistic review will provide the greatest insight and so potential benefits.

13 A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

13 Whilst we see the potential benefits that early competition will bring, we again highlight the need to ensure that as part of the process the GB market remains competitive and that transparency both during and after the competition process is provided at every opportunity and that any lessons learnt are also fully communicated to stakeholders.

Activities that are not new or materially changed

14 Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3.

A7: Network Development
A8: Pathfinders
A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works
A11: Enhanced analytical capabilities
A12: SQSS Review with regard to proposed deliverables and timeline
A15.1: System operability framework
A15.2: Provide technical support to the connections process
A15.4: Manage operational data and modelling
A15.7: EFC capability
A16: Network Access Planning

Please provide us with any feedback you have on these proposals.

14	As the activities listed have not materially changed, we do not have any specific comments to make. However, we anticipate that the ESO will continue to monitor these areas of work to ensure that they remain fit for purpose as the energy industry transforms as we moved towards a fully decarbonised power system by 2035.

Cross-cutting and overarching questions:

IT

15	Do you have any feedback on our IT proposals?
15	SEUK do not have any comments to make with regard to ESO's IT proposals at this time.

16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
16	We acknowledge that certain aspects of costs are unknown at this time but would ask that the ESO continue to include references to known costs items in order to provide stakeholders with the necessary 'audit trail' to enable the tracking of these items, follow their development and clearly identify new items that may emerge. This will ensure further timely engagement and efficient and effective progress to be made.

Innovation

17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
17	SEUK do not have any comment to make, at this time.

Offshore coordination

18	Offshore Coordination is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

18	SEUK do not have any comments to make on this new area of work, at this time.

Network Planning Review

19	Network Planning Review is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?
19	SEUK do not have any comments to make on this new area of work, at this time.

Facilitating Distributed Flexibility

20	Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan. A1.5: Operational coordination with DER and DSO A4.5 Facilitate whole electricity system market access for DER A15.8 Facilitate distributed flexibility and whole electricity system alignment Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?
20	SEUK understand the importance and significance of these activities and the need for the ESO to be in an agile position to respond quickly and effectively to changes to markets, technologies, services and roles and responsibilities. With this in mind, we anticipate that the ESO will be coordinating their activities to align with any Ofgem decisions that may emerge from their recent Call for Evidence on the Future of local energy institutions and governance that is due to close on 7th June 2022. The outcomes of this consultation may have an impact on the approach that the ESO may be developing in the interim, particularly if the role of the DSO is moved to a new central function, for example.

Other feedback

21	Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?
21	SEUK do not have any further comments to make.

BP2 Stakeholder Consultation Response:

SP Energy Networks (SPEN)

ESO RIIO-2 Team

National Grid ESO
Faraday House
Warwick Technology Park
Gallows Hill
Warwick, CV34 6DA

Date

10/06/2022

Contact / Extension

Stephanie Anderson

0141 614 1612

By email: box.ESO.RIIO2@nationalgrideso.com

Dear ESO RIIO-2 team

ESO draft Business Plan 2 (BP2) Consultation

SP Energy Networks (SPEN) represents the distribution licensees of SP Distribution plc and SP Manweb plc and the transmission licensee, SP Transmission plc. We own and operate the electricity distribution networks in the Central Belt and South of Scotland (SP Distribution) which serves two million customers, and Merseyside and North Wales (SP Manweb) which serves one and a half million customers. We also own and maintain the electricity transmission network in Central and South Scotland (SP Transmission, SPT). As an owner of both transmission and distribution network assets, we are subject to the RIIO price control framework and must ensure that we develop an economic, efficient and coordinated onshore electricity system.

As a key stakeholder of the ESO, we welcome the opportunity to review and comment on the ESO's RIIO-2 Business Plan 2 (BP2) and appreciate the opportunities that the ESO has offered the network operators to discuss their plans previously.

The policy landscape has changed since the development of the ESO's BP2 plans, following the publication of the British Energy Security Strategy (BESS) on 7 April 2022. We'd therefore welcome further detail as to how the proposed deliverables in BP2 will be prioritised or de-prioritised following the commitments in the BESS. One immediate example is the continued development of an Early Competition model and tender, given Government's stance that strategic infrastructure projects ought to be exempt from competition. We question whether this proposal should continue to be a prioritised commitment for BP2, and the resources and costs associated with it.

More generally, we would appreciate greater clarity on prioritisation within the Business Plan. The scale of proposals for the forthcoming 2-year period is significant, yet it is not clear to the reader what issues must be prioritised for delivery, as opposed to those activities that are '*nice to have*', but not critical for BP2 ambitions, Net Zero or system security.

In terms of the ESO's updated ambition statements, we welcome the fact that "competition everywhere" has been amended to "driving competition for the benefit of consumers" as

this is absolutely the right signal. Competition has a place in operating the system, provided always, that competition delivers good value for consumers and does not compromise the security, reliability and resilience of the system.

We have provided feedback on specific areas of BP2 below, focussed on the areas of greatest relevance to us as a network operator, and reflective of our regular interactions with the ESO.

Role 1 – Control Centre Operations

System Restoration and Black Start Tests

We welcome the focus on system restoration in BP2, in light of the Electricity System Restoration Standard (ESRS) requiring compliance by 2026. Given that this is a legislative ambition, we would expect this to be flagged as a key priority in BP2. In our view, there is considerable work to be undertaken, starting now, to ensure the ESO, network operators and generators/service providers are ready to meet the accelerated restoration targets by the end of 2026, with suitable local restoration plans in place. SPT and the ESO have engaged in testing for black start capabilities which has provided valuable learnings. However, further work alongside the ESO is required to develop black start capabilities and feed into our detailed system restoration plans. We are therefore pleased that the ESO continues to support plans for the testing of critical electricity restoration plans through its BP2. We stand ready to work directly with the ESO to play our part in the development of this new ESRS and in developing further insights into black start capabilities.

The role of the distribution system in supporting local system restoration plans is also critical to ensuring robust outcomes. We therefore welcome the acceleration of work to incorporate the recommendations from the Distributed ReStart project into restoration tenders.

DSO Coordination

We are keen to better understand the ESO's proposals for DSO coordination. Whilst we understand there will obviously need to be close engagement between the appointed DSOs and the ESO, the extent of coordination should be limited to ensuring local and national markets are complementary and not overlapping.

Through the Whole System Regional Insights, BP2 proposes to significantly extend the ESO's role in local-level engagement, even to the point of working with Local Authorities on their Local Area Energy Plans (England and Wales) and Local Heat and Energy Efficiency Strategies (Scotland). Ofgem has not yet concluded its findings in relation to the Future of Local Energy Institutions and Governance, therefore, we don't believe it is appropriate for the ESO to carry out any engagements at a local market level, where the existing DNOs are already operating closely with their Local Authorities and have factored into their ED2 Business Plans.

Role 2 – Market Development and Transactions

Code Development

We recognise the criticality of code modifications to facilitate the connection of 50GW offshore wind by 2030, including to the Security and Quality of Supply Standard (SQSS), the

System Operator-Transmission Owner Code (STC), the Connection and Use of System Code (CUSC) and the Grid Code, setting appropriate frameworks for offshore transmission networks and enabling coordination.

The extent of code reform proposed in the BP2 is extensive, some of which is driven by key initiatives such as the Offshore Transmission Network Review (OTNR), ESRS and wider Grid Code reform. However, the scale of code reform proposed is sizeable and we do not believe is manageable by the ESO within the 2-year period of BP2. We would therefore like to see prioritisation of code reform in the final BP2 – with the ESO identifying the code work which must be treated and progressed as a priority, compared to those other areas that are *'nice to have'* but not priorities. For example, the OTNR and restoration related changes are key and in need of timely delivery to support wider policy or legislative change.

Development of the Pathfinder projects

We note that Pathfinders are now falling under Role 2 as a market mechanism. It is crucial that there is more clarity around the ESO's intentions for future Pathfinders and the timescales involved. This will enable the most optimal network planning for RIIO-T3 and onwards. The existence of the Pathfinders 'potentially' being considered by the ESO as a solution to addressing well-identified network needs is already resulting in uncertainty in relation to network planning and will continue to do so as TOs commence their RIIO-T3 planning. For example, we are keen to learn more about the ESO's proposals for a 7th Pathfinder. The draft BP2 is not clear on the scale of Pathfinder projects that industry should expect during the remainder of RIIO-2. We therefore welcome the fact that the ESO intends to update its Pathfinder proposals ahead of final Business Plan submission.

Role 3 – System Insight, Planning and Network Development

There are many areas of development in Role 3 that we recognise have been driven by BEIS and Ofgem requests, such as OTNR and Early Competition. It makes sense that they are now included in the BP2 baseline, as opposed to being funded through the pass-through mechanism.

The FTEs proposed throughout BP2, and particularly in Role 3 are high. The BP2 exercise provides the ESO with an opportunity to seek additional funding for new and developing areas identified in BP2. As TOs we are engaging with and supporting the ESO in a number of important Role 3 areas including Early Competition, OTNR and Electricity Transmission Network Planning Review (ETNPR). As we have previously flagged with the ESO, it is the TOs' network planning teams who continue to be asked for advice and input to these developing areas. This scarce and expert resource is also expected to design and develop the transmission network in line with the priorities outlined in the BESS, to accelerate the development and delivery of strategic infrastructure. We would welcome discussions with the ESO to explore ways in which the TOs can secure additional resource to dedicate TO input to these ESO-led reforms, whilst not distracting from the key priority to accelerate the delivery of strategic transmission infrastructure.

Electricity Ten Year Statement (ETYS) and Network Options Assessment (NOA)

There is a clear focus on strategic planning in BP2, which we welcome. We understand and strongly support exploring revision to the Networks Options Assessment (NOA) as part of the wider review into network planning in order to give longer-term signals of the need for strategic infrastructure on the network, as opposed to updating this on an annual basis. At

the same time, in light of this strategic work, it is odd that the ESO is proposing to continue to explore ways in which to extend the existing NOA to include non-load and connection projects. We do not consider this to be a worthwhile activity until the wider strategic network planning work has been completed. It does not make sense for consumers to fund FTEs to work in this area, when we expect the NOA to change in light of wider strategic network planning reforms.

We agree with BP2 proposals to create a strategic network planning process as a 'blueprint' for the future, with anticipatory investments identified. We stand ready to work with the ESO in the development of the ETNPR work, as it is important that TOs, as network owners and operators, have a role to play in the design and development of a strategic network plan.

Connections Process

We agree with the ESO's proposals to increase prioritisation and resources in the connections area, given the ever-increasing scale and complexity of connection applications received. We welcome the ESO's ambition in this area and it will be important that the TOs are fully involved in the development of this work. We stand ready to work with the ESO on this much needed reform.

Development of the Early Competition Plan

We have concerns that the progression of the Early Competition workstream directly contradicts the messaging within the BESS, which stated "*Certain infrastructure identified in the HND and CSNP will be exempt from the introduction of onshore network competition*". It is clear that the UK Government wants the industry to move quickly to deliver the pressing offshore wind targets. We therefore question why the ESO have prioritised Early Competition to the extent that is outlined in their draft BP2. For example, we were surprised by the ESO's request for 11 FTE, despite Ofgem's FDs suggestion that new roles such as those relating to the Early Competition Plan are not likely to merit consideration for additional funding.

We believe it is necessary to clearly identify the infrastructure exempt from onshore network competition prior to the ESO continuing to progress Early Competition. Before this takes place, we do not think it is appropriate for the ESO to progress with Early Competition as currently laid out in their BP2.

Distributed Flexibility

We welcome the ESO's ambition to support the transition to DSO, which will be critical to ensuring Net Zero targets are met at best value for consumers. However, we query whether it is necessary for the ESO to increase their FTE in DSO Coordination to 22 new FTEs, given that there are only 14 DNO regions, and that the majority of the work and resource will naturally fall to the DNOs to manage the transition. We do not necessarily believe that there has been significant change since the submission of the ESO's initial RIIO-2 plan that would justify this extra FTE being required.

It is unclear where these new FTEs will sit and what activities they will support. For the final BP2 submission, we would welcome further clarity on this proposal, so as to understand what DSO-type activities the ESO is planning on being involved in, and how that will impact our two distribution licence areas, SPD and SPM.

Future System Operator Role

We believe that the proposed phased transition to FSO is appropriate, given the scale of the change and the wider concurrent industry changes and code reforms. The ESO has a critical role to play in wider system change, so must not allow FSO transition preparation to become a barrier to its other critical roles.

It is right that the ESO has not costed, nor included plans to develop capabilities in areas where policy decisions are not yet clear, including any potential ESO roles in heat and transport decarbonisation or hydrogen. Any future additions to current proposed FSO roles should be subject to robust industry consultation processes and are not appropriate for development until current and proposed roles are properly embedded in a new FSO organisation.

The ESO currently contains many highly skilled staff, who must be protected in the transition to FSO. Retaining and developing the talent required to deliver the proposed FSO roles and respecting the skills and careers of current employees, must be a priority. We therefore welcome the ESO's focus on transitional employment arrangements in the FSO Annex.

Should you have any questions in relation to the issues raised in this response, please do not hesitate to contact me.

Yours sincerely,

Stephanie Anderson
Head of Regulation

BP2 Stakeholder Consultation Response:

SSE Group

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10th June l 2022

Consultation: ESO draft RIIO-2 BP2

SSE Group welcomes the opportunity to respond to this consultation. It is an important consultation at a vital time of wider industry and market change as we progress towards net zero. Please note that this response is provided on behalf of SSE Group (SSE); there will be an additional response from SSEN Transmission.

While full details of our views can be found in the pro-forma sent with this letter, NGESO is asked to note the following points:

- The BP2 plan appears comprehensive and well thought through. It is pleasing to see it reflecting the importance of new technologies and market developments, eg. distributed flexibility, as key drivers in achieving net zero. Looking ahead, however, as the ESO drafts the final BP2, going into the regulatory period and beyond, simplification of the plan so that the messages and proposed differences in both activities and outputs are clear.
- The BP2 Plan must be one based on increased engagement between ESO and network operators to facilitate the cooperation and coordination on strategic and operational issues – the increasing volumes of DER being jointly facilitated with DNOs provide an excellent example.
- The ESO must recognise that its announcement in March recommending the introduction of LMP was not only premature but made with inadequate evidence, analysis or engagement with the market (see answer to Q8). The final BP2 Plan should ensure this mistake is not repeated in future and place an emphasis on real cooperation and engagement with all stakeholders.
- Appendix 5 of the BP2 proposals is a welcome indication that the ESO is preparing for the creation of the FSO. However, it is essential that the proposed activities and resources support the 'lift and shift' of the ESO's current operations, rather than add further disruption at a time of regulatory and market change in several other areas.

I trust that you find the comments in this letter useful. In the meantime, please do not hesitate to contact me should you require clarification regarding our views.

Yours sincerely

Amrik Bal
Group Regulation Strategy Manager

ESO draft RIIO-2 BP2 Consultation questions proforma

Our BP2 consultation questions are set out below. We have grouped these in alignment to our main Business Plan document as follows:

- Role 1: Control centre operations
- Role 2: Market development & transactions
- Role 3: System insight, planning and network development
- Cross-cutting and overarching questions (including IT, Innovation and cross-role activities)
- Additional feedback

How to respond to our consultation

To assist stakeholders in responding to our consultation, we have developed this consultation proforma which contains all the questions and a corresponding space for you to provide your feedback.

Please send your response electronically to **box.ESO.RIIO2@nationalgrideso.com**

Alternatively you can fill out this response via MS forms at https://forms.office.com/r/JS0J63vXuH

About you

Name: Amrik Bal

Position: Group Regulation Strategy Senior Manager

Organisation: SSE Group

Role 1: Control Centre Operations

New and materially changed

1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
1	• **Support justification for materially changing the sub-activity A3.2 to align with the revised implementation deadline for the restoration standard set by BEIS.** • **As it implements the Restoration Decision Support Tool, ESO must continue working in partnership with DNOs so that expectations for their regulatory funded contributions and resources are appropriately aligned and calibrated.**

1	
2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?
2	• **Exponentially increasing numbers of ESO market participants also participate in distribution flexibility markets or have specific flexible connection agreements facilitated through Active Network Management (ANM), etc - however, re paragraph 7.1.10 - 7.1.10.3, there are no references to how the ESO's new Market Monitoring team will interface with these markets or DNOs.** • **ESO must address potential concern that this team takes a narrow view of market behaviour and issues without appropriate engagement and dialogue with DNOs - only a full value chain view of markets will allow fully rounded conclusions on market behaviour to be reached.** • **For the final BP2 we would like to see the ESO set out a clear proposal for interactions the new team will have with the DNOs and other network operators, both now and in the future, plus what data/ information the ESO foresees they should provide to fulfil licence obligations and avoid erroneous conclusions on market behaviour.**
3	At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online. Do you have any comments about our proposed plans for A19 - Data and analytics operating model?
3	• **No comment**

Activities that are not new or materially changed

4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
4	• **No comment**

Role 2: Market development & transactions

New and materially changed

5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
5	• **As the operator of the distribution grid (SHEPD) in the North of Scotland, we would like to see more engagement with ESO on 'new' work detailed under D4.6.4 'Local Constraints Market reform' to establish local constraint management services specifically targeting B6 constraint cost using DER technology ahead of an enduring RDP being implemented.** • **Whilst we understand the broad context and need to tackle B6 issues, we note there is limited reference to what role SHEPD might need to fulfil, especially as issues on B6 may require resolution of constraints on other North of Scotland boundaries concurrently – ESO should engage further on this subject with us ahead of the final BP2 to enable us to provide a substantive comment on need for D4.6.4.**
6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.

6	• N**o comment**

7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform
7	• **ESO must adopt a partnership approach to working with others, with recommendations jointly developed rather than unilaterally through ESO leadership.** • **We would encourage the ESO to set out proposed success factors for work on whole system code reform in the final BP2 and how it envisages working collaboratively with others - this will enable us to better assess the suitability of activities.** • **Specific comments on sub-activities:** 1. ***A6.1: Code management / market development and change:*** **We support a commitment to reducing the unpredictability and volatility of TNUoS charges and the suitability of the current charging mechanisms to enable net zero. We look forward to seeing a collaborative approach from the ESO in the industry task force leading this work.** 2. ***A6.4: Transform the process to amend our codes:*** **We note some stakeholder feedback that code governance may act as a barrier rather than an enabler of net zero. Furthermore, we welcome the declaration of the intention to deliver a 'no regrets' action plan and look forward to engaging on this in due course.** 3. ***A6.5: Work with all stakeholders to create a fully digitalised, Whole System Technical Code by 2025:*** **Whilst we agree with pausing technical code consolidation, this should not lose any of the insight from stakeholders on how consolidation might be achieved. This insight can be used by the ESO when engaging with the ECR and we would welcome the opportunity to do so when appropriate. Consideration should be made in the business plan for how the steering group set up under A6.5 reporting to Grid Code Review Panel will be affected by ECR, if at all.** • ***A6.9 Whole system codes reform:*** **We support the introduction of this activity and look forward to working with ESO to embed whole system thinking. We encourage the new whole system team to seek opportunities for efficiencies within existing processes and embed lessons learned in doing do. Where the team takes forward code changes under D6.9, they should do so with the aim of embedding lessons learned for the BAU teams. The ESO should also be mindful of whole system thinking developed through existing channels.**

- **We support the activities set out under A6.9 'Whole system code reform' - this is necessary and the ESO has a clear role to play here alongside network operators and wider industry participants.**

- From our perspective A6 could be further enhanced by including the following:

1. ***Commitment to code governance efficiency**:* **Analysis of the ESO's code tracker shows that the current live modifications take an average of 634 days from modification raised date to proposal being sent to Ofgem for decision, the average time to be implemented for closed modifications is 351 days, which results in an average of 33 modifications being implemented per year across the ESO's codes. Given the urgency and timescales of net zero, we feel a specific commitment to driving the efficiency and timescales of the code governance process would be appropriate in BP2 and that it should be tracked and monitored. We recognise that ECR will be a significant enabler of efficiency within the process as well as being a key dependency. There is an opportunity for cross-code administrator learning and best practice sharing in advance of, and independent of, the ECR.**
2. ***Consideration of transition period to new code governance process under ECR:* We recommend that the ESO considers the need for resource and investment to manage the transition to new governance arrangements under the ECR. Consideration will need to be made for how in-train modifications will be managed, along with how new modifications will be assessed during a transitional period. Allocating and resource within BP2 will provide scope to enable clear communication lines with customers and stakeholders to shape this process as more guidance comes out. This is important as resource planning, investment decisions and benefits cases will need to be made by customers and stakeholders as to whether to commit to the current process or await the new one.**

8 We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem.

Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?

8

- **Given the scale of change that Nodal or LMP Pricing (ultimately the recommendation from the Net Zero Market Reform – NZMR -project) would represent, the minimum expectation is extensive stakeholder engagement and supporting analysis by the ESO.**
- **Figure 12 in the draft BP2 shows the negative stakeholder response regarding whether Locational Marginal Pricing (LMP) should be explored as a possible solution. The result of this is at odds with the ESO's public position advocating for LMP unveiled in March this year.**
- **This reaction was significantly down to the lack of evidence, with some published somewhat after March – even then, the evidence failed to address concerns within industry expressed in March. We recommend that further analysis to respond to stakeholder concerns is undertaken within BP2.**
- **In any event, going forward we expect to see more advanced analysis before making such announcements to investors and the industry, including a significant level of qualitative analysis of the impact on investor confidence. Such an extensive reform to market design providing future uncertainty may**

	deter future investment, with any increase in costs likely to fall on consumers - further evidence in this area would been expected. • **As the Transmission Owner for the north of Scotland, the interest of generators in our jurisdiction is critical to our business. Nodal Pricing could have a material and commercial impact on north of Scotland generators, fundamentally impacting business plans and rendering projects in the early stages uncompetitive. The proposed mitigation for Scottish generators, Financial Transmission Rights (FTR's) has limited mention in May's publication.** • **We therefore recommend that the ESO build further analysis and engagement on the design and implementation of these mitigations into BP2.**
9	The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs). Do you have any comments about the plans we are proposing relating to our Role in Europe?
9	• **No comment**

Role 3: System insight, planning and network development

New and materially changed

10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?
10	• **No comment**
11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?

11	• **The final BP2 should clarify the intent and resourcing asks on A13.5 (Integrate with other networks and supporting DNOs to develop their DFES processes).** • **We found the main plan and stakeholder annexes to be slightly at odds, eg. the stakeholder annexes make specific reference to activities linked to the DNO DFES process which are not captured in the main plan:** ***"For FES 2023 we intend on forming agreement on the feedback loop and interaction between ESO, DNOS & GDNs and Local Authorities with agreement to be in place by FES 2024"*** • **We are confused by the above sentence and believe there is a potential missing link with Ofgem's 'Call for Input on Future of local energy institutions and governance'. The ESO therefore needs to provide greater clarity on A13.5 and how additional resourcing requests link with other DSO activities.** • **We would welcome the ESO to consider engaging more with TOs and DNOs as they develop their energy demand model, especially with regards to T-connected demand assumptions.**

12	A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years. Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?

12	• **It is encouraging to see ongoing work at the ESO/TO connection interface through activity A14.4 (Facilitate development of the customer connections portal) - a vital piece of efficiency for customers enabled through digitisation.** • **There is merit in extending the portal to include distribution and to support the active coordination between DSO and ESO - vital with the ever-growing size of DER connections.** • **Large batteries connecting to the distribution grids have capacities on par with new grid transformers and so extending the portal to distribution will enable us to better coordinate their connections with the ESO.** • **We would like to see a clear reference in the final BP2 on how the ESO will work with DNOs/ DSOs to improve connection coordination efficiency with the distribution networks.**

13	A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?

13	• **Whilst we recognise that competition policy sits with Ofgem, it is our view that the net consumer benefit of introducing competition for 'the market' in electricity transmission has yet to be demonstrated. We have serious reservations about mechanisms that would lead to fragmentation in ownership or responsibilities, and subsequent inefficiencies and lack of accountability.** • **It is imperative therefore that new activities in onshore competition do not delay those critical infrastructure projects required for net zero to go ahead in the near term. We look forward to engaging with the ESO on its development of plans for early competition in due course and will provide fuller feedback to the proposals in implementation workstream discussions**

- **We agree that this activity has several dependencies with other activities (FSO, Network Planning Review, OTNR), which are all inherently interlinked. There remains a lack of clarity on how these activities will align and play out over the varying timescales of implementation. As per our responses to questions 18 and 19, we encourage the ESO to provide further detail on how those dependencies will be managed in practice.**
- **As work on early onshore competition progresses, it is imperative that key stakeholders are involved and consulted at every stage. We note that the ESO will be responsible for project specific cost benefit analysis, key stakeholders including the TOs must be involved in the development of methodologies. We consider therefore that it may be appropriate to include stakeholder management planning within this activity.**

Activities that are not new or materially changed

14	Within The following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3. A7: Network Development A8: Pathfinders A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works A11: Enhanced analytical capabilities A12: SQSS Review with regard to proposed deliverables and timeline A15.1: System operability framework A15.2: Provide technical support to the connections process A15.4: Manage operational data and modelling A15.7: EFC capability A16: Network Access Planning Please provide us with any feedback you have on these proposals.
14	• **No comment**

Cross-cutting and overarching questions:

IT

15	Do you have any feedback on our IT proposals?
15	• **We note that NGESO has submitted its update on planned IT investment using the Technology Business Management (TBM) Taxonomy. We understand that TBM has been used to comply with a request from Ofgem in its Guidance on the ESO Business Plan.**

	• **While do not have any reservations about the NGESO using TBM for this submission, the decision to do so should not necessarily be seen as a precedent for its use elsewhere, eg. TOs and DNOs – that is an issue that should be considered on its own merits.**

16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
16	• **No comment**

Innovation

17	Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?
17	• **Innovation is crucial for the delivery of a decarbonised energy system, so we welcome the level of ambition from the ESO in relation to innovation.** • **As an active partner in the Virtual Energy Systems (Virtual ES) programme, we support the ESO's continued coordinating role in this programme until it transitions to being industry led.** • **The central role of the ESO in network operation means that involvement is necessary in many SIF projects. We recognise the increasing calls on ESO resource to support third party SIF applications, so support plans to grow the innovation team throughout the remaining price control period. We look forward to continuing collaboration on our own SIF projects with the ESO.** • **We agree with the ESO's views on NIA, although the proposed NIA projects seem largely centred around current market arrangements. There would be value in a more diverse range of projects, eg. the role of markets, codes or charging innovations.**

Offshore coordination

18	Offshore Coordination is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?
18	• **We support and are actively engaged in the greater coordination in the development of offshore energy networks. We support the overarching aim of the Offshore Transmission Network Review (OTNR) in ensuring that future connections for offshore wind are delivered with increased coordination while ensuring an appropriate balance between environmental, social, and economic costs.** • **The ESO has an important role to play through the development of a Holistic Network Design (HND) and ensuring efficient interaction with onshore network planning frameworks.**

- **This is a fast-evolving policy area, the outputs of which are crucial to demonstrating the need for, and therefore providing regulatory certainty for, the delivery of strategic network infrastructure. We therefore agree with the pace of change for this activity. Due to the pace of change, we encourage the ESO to remain flexible in its business planning to enable quick and effective responses to policy evolution from Government and Ofgem.**
- **This area of work is inherently interlinked with other activity areas, most namely implementation of the FSO, network planning review, and onshore competition. Whilst we therefore support this new area of work as a "cross-cutting" activity under Role 3, we encourage the ESO to further set out the governance arrangements for this activity, to demonstrate and ensure that interlinkages and overlaps are managed across activities. This is particularly important as policy that determines ESO roles and responsibilities across those activities are still evolving.**
- **We note that offshore coordination and network planning are addressed together in the ESO's draft business plan. Our remaining views on offshore coordination as a cross-cutting activity are therefore consistent with the views presented in question 19 on network planning.**

Network Planning Review

19	Network Planning Review is a new area of work for BP2. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

19	• **We agree with the timing, intent, and objectives of Ofgem's Electricity Transmission Network Planning Review (ETNPR). Policy proposals that focus on timely and efficient delivery of infrastructure and provide confidence in delivery to system users, the supply chain and other relevant stakeholders are needed, given the pace and scale of investment required – therefore, the Network Planning Review should be a new and important area of work for the ESO in BP2.** • **This area of work is inherently interlinked with other activity areas, most namely implementation of the FSO, offshore coordination, and onshore competition. Whilst supporting this new area of work as a "cross-cutting" activity under Role 3, we urge the ESO to further set out the governance arrangements for this activity, to demonstrate and ensure that interlinkages and overlaps are managed across activities - particularly important as policy that determines roles and responsibilities across those activities are still evolving.** • **An important focus for the ESO should be engaging with relevant industry stakeholders, including the Transmission Operators (TOs) who have crucial relevant expertise on this activity area and who will be impacted by its implementation. We are encouraged that the ESO has recognised the importance of stakeholder engagement and considered the FTE impact of doing so. We would welcome however, further demonstration on how the ESO plan to engage with stakeholders on these cross-cutting themes within the business plan.** • **We agree with the ESOs high-level view of enduring requirements to deliver a holistic approach to planning the onshore and offshore transmission network set out in Annexe 1. That annexe notes that "due to the early stage of maturity and ongoing uncertainty of both projects, a clearer view will emerge through 2022.". We look forward to ongoing engagement with the ESO over the coming months as certainty on delivery plans materialises.**

Facilitating Distributed Flexibility

20	Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan. A1.5: Operational coordination with DER and DSO A4.5 Facilitate whole electricity system market access for DER A15.8 Facilitate distributed flexibility and whole electricity system alignment Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?
20	• **We welcome the distinct focus on facilitating distributed flexibility within BP2.** • **It is vitally important for us to continue to work together to enable higher volumes of flexibility - we need to work closely on Regional Development Plan (RDP) coordination (A15.8), especially within the West London area of our SEPD licence area. This is vital given rapid growth in the area and the resultant capacity challenges and Ofgem's final determination on the Access Significant Code Reform (Access SCR). We would like to see West London work the ESO is committed to doing with us called out in the final BP2.** • **More broadly we would welcome additional clarity in the final BP2 on what makes additional spend asks for A13.5 (Facilitated distributed flexibility and whole electricity system alignment), A4.5 (Facilitate whole electricity system market access for DER) and A15.8 (Facilitated distributed flexibility and whole electricity system alignment) mutually exclusive and what is distinctive about the additional resourcing requirements in each area? We found this area confusing to navigate, especially how resourcing would work closely with each of the DNOs.** • **And linked to the point above we would welcome a clearer breakdown of the 22 additional FTEs for DSO in the final BP2. We found this difficult to link back to activity areas and counted also more than 22!**

Other feedback

21	Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?
21	• **We welcome activity outlined under A1.5 (Operational Coordination with DER and DSO) such as operational visibility, RDPs, and operational input into the design of DER flexibility markets.** • **However, more distinctive measures of success for A1.5 are required in the final BP2. We are naturally apprehensive that during system events there is potential for information gaps which disable DER playing a full role in post event recovery or our customers receiving inefficient outcomes.** • **Defining operational success factors though needs to be a collaborative peer-to-peer process and we would like to offer our support to working with the ESO in defining these.** • **Working closely with DNO and DER to facilitate network access (A16.3) more efficiently is an ongoing activity area from BP1 which has not been signalled as materially changing for BP2 by the ESO.** • **Whilst we welcome the ongoing work under Activity 16.3 and the potential consumer saving it could enable, we noticed no reference to the changes being driven through**

Ofgem's Access SCR. We believe these changes could create significant requirements at the transmission/distribution interface that needs resolving. We would urge the ESO in BP2 to provide a clear assessment of impacts for Access SCR related facilitating network access and to re-consider if material changes are not required.

- **Early planning for the timely and effective implementation of the Future System Operator (FSO) is key - it is imperative that the ESO begins planning for that change now so that the 'lift and shift' of the current ESO into the FSO takes place in a manner that minimises disruption. We therefore welcome the opportunity to feedback on those draft plans as detailed in Annex 5.**
- **Whilst recognising that the proposed plans are indicative due to the uncertainty around timings, roles and responsibilities, we would welcome further engagement with the ESO in the future as uncertainty narrows and plans are firmed-up. In response to the current indicative plans we want to reiterate the principles in which we think the implementation of such institutional reform should be grounded.**
    1. **Achieving the UK, Scottish and Welsh Government's net zero targets require an unprecedented programme of investment in our electricity networks, not seen since the 1960s. Not only must it be delivered, but as the targets to net zero become ever more accelerated, the challenge is delivery at pace. Institutional reforms must not divert attention away from, and therefore risk delay to, that delivery.**
    2. **Transitional arrangements should be used with caution. It is of upmost importance, therefore, that there is always a clear framework of roles and responsibilities, without overlap or ambiguity. We are concerned that the proposed phased approach to implementation though a series Transitional Service Agreements (TSAs) poses risks, with periods of uncertainty and lack of accountability.**
    3. **This is particularly pertinent where policy on roles, responsibilities, and regulatory frameworks is evolving alongside implementation. Indeed, the ESO recognises that "the creation of the Future System Operator is only one element of the transformation needed for the energy industry to drive towards net zero, and that the roles and responsibilities of other organisations will also need to evolve to meet this challenge".**
    4. **In short, the full suite of ongoing reforms, e.g, market design, institutional design, competition, governance arrangements and regulatory framework implementation, etc. need to be optimised at a holistic level, with a more conscious sequencing of any changes designed to avoid harmful new behaviour and inefficient, potentially delaying net zero.**

BP2 Stakeholder Consultation Response:

Thermal Storage UK

ESO draft RIIO-2 BP2
Consultation questions proforma

Email to box.eso.riio2@nationalgrid.com

About you

Name: Tom Lowe

Position: Founding Director

Organisation: Thermal Storage UK

Role 1: Control Centre Operations

New and materially changed

1	In BP2, we will continue to open restoration services to more technologies and implement the Electricity System Restoration Standard (ESRS) which came into effect on 19 October 2021. This will allow quicker restoration and compliance with the agreed restoration times of the ESRS. Do you have any comments about our proposed plans for A3, particularly in relation to the sub-activity A3.2 – Electricity System Restoration standard?
1	No comment
2	In April 2021, Ofgem introduced a new Licence obligation for us to monitor activity in Balancing Services markets. We will monitor Balancing Services markets for potential breaches of the Grid Code, investigating where necessary and raising concerns to Ofgem where appropriate. Do you have any comments about our proposed plans for A18 - market monitoring?
2	No comment
3	At the start of the BP2 period, we will have operationalised key elements of our Data and Analytics Hub & Spoke model. We anticipate that our operating model will evolve over the BP2 period as we bring more complex data products online. Do you have any comments about our proposed plans for A19 - Data and analytics operating model?

3	No comment

Activities that are not new or materially changed

4	Do have any comments about our proposals relating to the following activities which remain unchanged for BP2? A2 Control Centre Training and Simulation activity A17 Open Data and Transparency
4	**We encourage National Grid ESO to work with Elexon and DSOs to produce transparent data in a consistent format relating to how much flexibility is procured and what types of flexibility are procured, e.g. thermal storage, heat pumps, electric vehicles or batteries.**

Role 2: Market development & transactions

New and materially changed

5	For Great Britain to achieve a fully decarbonised power system by 2035, it is vital that ESO balancing and ancillary services markets are fit for purpose. This means we build on the reforms delivered in BP1 by further improving the functionality of these markets, increasing accessibility for market participants and improving the efficiency of our procurement across services. We also must continue to reform and develop the right portfolio of markets to facilitate a smooth transition to net zero. Do you agree or have any comments about our proposed plans for A4, particularly in relation to sub-activity A4.6 - balancing and ancillary services market reform?
5	**Thermal Storage UK encourages National Grid ESO to explain how balancing and ancillary services markets will be made fit for purpose to decarbonise heat during 2023 to 2025 and beyond. We ask National Grid ESO to consider the extent to which distributed thermal storage would assist with providing flexibility and reducing peak demand, particularly in winter. This includes ensuring that cost-reflective pricing signals are available (for energy suppliers, aggregators and DSOs) to incentivise the creation of smart time of use tariffs.** **We welcome the "Day in the Life of 2035" work already conducted by National Grid ESO with Regen and agree that electric heating may involve shifting peak demand by as much as 11.5 GW in 2035 (the equivalent of four Hinkley Point C nuclear power stations). National Grid ESO should ensure that evidence on the electrification of heat, including the role of thermal storage in providing flexibility, is provided to the government's Review of Electricity Market Arrangements (REMA) over summer 2022.**
6	Do you have any comments about our proposed plans for A5? We are seeking feedback particularly in relation to the new sub-activity A5.4 - long-term capacity adequacy. This sub-activity will explore options for the capacity mix that could deliver capacity adequacy through the 2030s to support policy development and longer-term decision-making to meet net zero.

6	No comment
7	Do you have any comments about our proposed plans for A6, particularly in relation to the following new / materially changed sub-activities for BP2? A6.1: Code management / market development and change A6.3: Industry revenue management A6.4: Transform the process to amend our codes (New): A6.7: Fixed BSUOS tariff setting (New): A6.8: Digitalisation of codes (New): A6.9 Whole system codes reform
7	**Thermal Storage UK agrees that the TNUoS methodology should align with the goals of the energy transition, including considering the role of heat in providing flexibility. Through its leadership of the TNUoS taskforce, we encourage National Grid ESO to facilitate the role of thermal storage to help manage peak demands in electricity, particularly in winter.** **Half hourly settlement is important to developing price signals for smart time of use tariffs, both for heat and transport. We encourage National Grid ESO to work with Elexon, Ofgem and energy suppliers to push for speedier implementation of half hourly settlement, aiming for December 2023 rather than 2025.** **We support National Grid ESO digitalising codes and encourage further work to help innovators to understand and engage with industry codes.**
8	We have described how we will deliver the Net Zero Market Reform project through analysis and trials, stakeholder engagement and working alongside BEIS and Ofgem. Do you agree with this approach and is there anything else you'd expect us to be doing that we have not already outlined?
8	**While we support National Grid ESO continuing to work on the Net Zero Market Reform project and exploring nodal prices, we encourage the ESO to investigate how different low carbon electric heating systems can provide flexibility. For instance, National Grid ESO should articulate the extent to which low temperature heat pumps, high temperature heat pumps, thermal storage and energy efficiency will support flexibility. Thermal Storage UK members such as Caldera, Sunamp and Tepeo offer products that allow homeowners and businesses to shift when they consume electricity for heating. This flexibility can work with or instead of heat pumps.** **We absolutely agree with National Grid ESO that "the challenges are of investment, but also of markets sending the right real-time whole-system dispatch signals."** **Thermal Storage UK is happy to engage with National Grid ESO to provide further information on the role of thermal storage in providing flexibility and decarbonising heat at lowest cost.**
9	The new cross-role activity, Role in Europe, has been created for BP2 to ensure all activities regarding cross-border and interconnectors are working towards the same purpose – not just those within Role 2 but also those in Role 1 (e.g., developing the right data and systems to optimise a highly interconnected system) and Role 3 (e.g., coordination and planning of offshore networks and multi-purpose interconnectors (MPIs). Do you have any comments about the plans we are proposing relating to our Role in Europe?

9	**We encourage National Grid ESO to continue working hard to demonstrate that decisions on new or expanded interconnection are in the best interests of the whole system and are taken independently of any commercial interests for National Grid group.**

Role 3: System insight, planning and network development

New and materially changed

10	Within A15.9 we have created a new deliverable (D15.9.5) replacing the existing deliverables, which will focus on engaging with stakeholders on the implementation of technologies for effective zero carbon operation. Do you have any comments on these proposals?

10	**Thermal Storage UK is happy to engage with National Grid ESO to provide further information on the role of thermal storage in providing flexibility and decarbonising heat at lowest cost.**
11	A13.5 FES: Integrating with other networks has developed since our initial RIIO-2 five-year plan. We have introduced a new deliverable reflecting our commitment to ongoing development of the new energy demand model, with a development plan to be in place by the end of 2023/24. Do you have any comments on these proposals?
11	No comment
12	A14 Take a whole electricity system approach to connections: The Customer Connections Team manages connection contracts and provides connection offers to new customers, an activity which has increased significantly in volume and complexity in recent years. Do you have any comments on the changes across this activity proposed to meet this increase in volume and complexity?
12	No comment

13	A8.4 Early Competition Onshore - this sub-activity has developed since our BP1. Do you agree with the pace of change and assumptions made for this activity and do you have any further comments on this activity?
13	No comment

Activities that are not new or materially changed

14 Within the following activities are remaining the same or similar to those proposed in the RIIO-2 five-year plan within Role 3.

A7: Network Development

A8: Pathfinders

A9: Extend NOA approach to end-of-life asset replacement decisions and connections wider works

A11: Enhanced analytical capabilities

A12: SQSS Review with regard to proposed deliverables and timeline

A15.1: System operability framework

A15.2: Provide technical support to the connections process

A15.4: Manage operational data and modelling

A15.7: EFC capability

A16: Network Access Planning

Please provide us with any feedback you have on these proposals.

14	No comment

Cross-cutting and overarching questions:

IT

15 Do you have any feedback on our IT proposals?

15	No comment
16	Are we providing adequate information on our IT plans to allow you to make an informed view of costs and changes in the BP2? How could we do better?
16	No comment

Innovation

17 Do you agree with the level of ambition related to our Innovation plans and the ask for additional funding to support innovation?

17	**For all innovation projects relating to heat decarbonisation and flexibility, we ask that National Grid ESO considers the extent to which distributed thermal storage would assist with providing flexibility and reducing peak demand, particularly in winter. National Grid ESO should analyse and articulate the extent to which low temperature heat pumps, high temperature heat pumps, thermal storage and energy efficiency will support flexibility.**

Offshore coordination

18 Offshore Coordination is a new area of work for BP2.

Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

18	No comment

Network Planning Review

19 Network Planning Review is a new area of work for BP2.

Do you agree with the pace of change and assumptions made for this activity and do you have any further comments?

19	No comment

Facilitating Distributed Flexibility

20	Our work on facilitating distributed flexibility, including supporting the DSO transition, features across new or materially changed activities in all three roles of our business plan. A1.5: Operational coordination with DER and DSO A4.5 Facilitate whole electricity system market access for DER A15.8 Facilitate distributed flexibility and whole electricity system alignment Are our proposals in these areas sufficient to support the move towards net zero? Do you have any further comments on these activities?

20	**Thermal Storage UK supports National Grid ESO coordinating with DSOs about distributed flexibility resources. It is important that the energy system provides consistent price signals through the transmission and distribution systems to distributed assets. As part of the work with DSOs and suppliers on whole system alignment, we encourage National Grid ESO to explore distributed assets such as thermal storage that can provide heat flexibility. We recommend that National Grid ESO analyses and articulates the extent to which low temperature heat pumps, high temperature heat pumps, thermal storage and energy efficiency will support flexibility.** **We encourage National Grid ESO to work with Ofgem and DSOs on how any shift to locational or nodal pricing will affect flexibility markets. National Grid ESO should also work with Ofgem to ensure consistency across the energy system on governance, including in relation to DSOs.**

Other feedback

21	Do you have any other comments on our BP2 proposals not covered elsewhere in our consultation questions?

21	