

Business Plan 2 Draft Determinations – Electricity System Operator

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Our aim for the RIIO-2 price controls is to ensure energy consumers across GB get better value, better quality of service and environmentally sustainable outcomes from their networks.

As part of its RIIO-2 price control, the Electricity System Operator (ESO) has submitted a second Business Plan for its second Business Plan period, commencing on 1 April 2023. We have now assessed these plans. This document sets out our Draft Determinations for consultation. We are seeking responses to the questions posed in this document by 17 January 2023. Following consideration of responses, we will make our Final Determinations before the start of the second Business Plan period.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at [Ofgem.gov.uk/consultations](https://www.ofgem.gov.uk/consultations). If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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1. Introduction

Purpose of this document

1.1 We set key aspects of the ESO's RIIO-2 framework for the whole five-year period in our Final Determinations in December 2020¹, but set a two-year Business Plan period which requires a limited number of decisions to be taken anew for the ESO's second Business Plan period (BP2). BP2 will cover the two-year period from 1 April 2023 to 31 March 2025. **This document sets out our Draft Determinations and consultation positions for the ESO's second Business Plan.** All figures in this document are in 2018/19 prices except where otherwise stated.

What do we expect the ESO's Business Plan 2 to deliver for consumers?

1.2 The ESO has a central role in our energy system. It performs a number of important functions from the real-time operation of the system, through to market development, managing connections and advising on network investment. The ESO's delivery of its Business Plan, across the spectrum of its roles, can unlock substantial benefits for consumers by helping to shape the best pathways to a Net Zero energy system whilst keeping the system operating securely.

1.3 Over the course of BP2, we expect to see the ESO continue to deliver its RIIO-2 ambitions². This includes:

- having the ability to operate the electricity system carbon-free by 2025;
- ensuring all types of technology and solution are able to fully compete to provide the electricity system's short, medium and longer-term needs;
- coordinating closely with network operators, to ensure there is seamless integration between ESO and distribution-level flexibility markets, as well as a consistent, whole system approach to operations and planning; and

¹ RIIO-2 Final Determinations – Electricity System Operator Annex: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](#)

² ESO RIIO-2 ambition: <https://www.nationalgrideso.com/document/141256/download>

- shaping the evolution of the energy system by providing trusted analysis and recommendations that ensure decisions are taken to optimise outcomes for consumers across transmission and distribution networks.

1.4 Since the original RIIO-2 process and decision there have been several changes in the wider energy policy space, which have affected the ESO's future role. As we anticipated when setting RIIO-2, the ESO has taken on increasing roles in offshore coordination, early competition and enhanced network planning. In addition, further clarity has been provided by BEIS and Ofgem on the intention to create an expert, impartial Future System Operator (FSO) with responsibilities across both the electricity and gas systems³, subject to legislation currently before Parliament. We expect the ESO's transition to an FSO to be at the forefront of developments as we proceed into BP2.

1.1 We believe the ESO's BP2 ambitions build on the actions we approved under its first Business Plan period (BP1), with a strengthened focus on driving the transformation to a fully decarbonised electricity system in line with the government's new 2035 target. We remain committed to the price control vision we set out in our Final Determinations for RIIO-2⁴. Taken as a package, our Draft Determinations for BP2 should provide the ESO with; the funding it needs to deliver its Business Plan, a fair return for the risks it faces, and a strong incentive reward for excellence. We believe that the successful delivery of an ambitious plan should translate into a reward for the ESO. Our grading of the ESO's Business Plan makes clear that if the ESO achieves demonstrable progress on the outcomes set out in its Business Plan and provides significant further evidence throughout BP2 to justify cost efficiency, then this would result in an incentive reward.

1.5 A critical part of the ESO achieving this outcome is the delivery of an ambitious IT programme. The ESO's IT programme represents a significant proportion of total ESO activity and spend, with total costs having risen from average forecasts of £252m per year under BP1 to £335.5m per year under BP2. Our Draft Determinations sets out our proposals, including monitoring and assurance within the incentive scheme, to drive high quality cost-effective delivery through BP2.

1.2 Finally, we do not consider there to have been any major risk change to merit changes to the ESO's funding and financial arrangements at present. We have

³ Proposal for a Future System Operator role – decision: [Future System Operator: government and Ofgem response to consultation \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

⁴ Paragraph 1.9, RIIO-2 Final Determinations – Electricity System Operator Annex: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](https://www.ofgem.gov.uk)

proposed a funding and financing arrangement which we consider represents value for money for consumers and would allow the ESO to efficiently finance its activities and deliver its vision.

An overview of the ESO's RIIO-2 price control & our BP2 proposals

1.6 We set key aspects of the ESO's overall price control design and remuneration approach for the RIIO-2 period in December 2020⁵. Table 1 provides an overview of the key components of the price control. Some proposals applied to the whole five-year RIIO-2 period, while others only apply to BP1 which covers the two-year period from 1 April 2021 to 31 March 2023.

Table 1: Overview of key decisions on the ESO's RIIO-2 price control

Component of price control	Key figures	Decision period	
Outputs and performance incentives	Incentive scheme design	n/a	RIIO-2 ⁶
	Incentive scheme value	£-12m to £30m (over two years)	RIIO-2 ⁷
	Licence Obligations	n/a	Ongoing
	ESO Roles Guidance	n/a	RIIO-2
	ESO Delivery Schedule	Delivery Schedule grading: Role 1: 5/5 Role 2: 4/5 Role 3: 4/5	BP1
	Performance measures	n/a	BP1 ⁸
	Cost benchmark	£504m (over two years)	BP1
	Disallowance of Demonstrably Inefficient and Wasteful Expenditure	Cap on annual disallowance of - 2.5% RAV	RIIO-2, apart from cap value which is for BP1
Baseline financial returns	Allowed return on debt	-0.07%	RIIO-2
	Allowed return on equity	7.55%	RIIO-2
	WACC Allowance	3.36%	RIIO-2
	ESO additional funding	£4.8m per year plus a pass-through (~£0.7m-£0.9m) of certain costs	BP1

⁵ Table 1, RIIO-2 Final Determinations – Electricity System Operator Annex: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](#)

⁶ The overarching framework. We will consider incremental improvements within RIIO-2 where beneficial.

⁷ Subject to a future decision on the timing and length of ESO's third Business Plan.

⁸ Except for our approach to stakeholder surveys which we intend to put in place for the whole of RIIO-2.

	Capitalisation Rate, Depreciation Allowance, and other financial decisions	n/a	RIIO-2, apart from Capitalisation Rate set for BP1
Innovation funding	Network Innovation Allowance	£20.7m (over 5 years)	RIIO-2, with opportunity to increase after BP1
	Strategic Innovation Fund	n/a	RIIO-2
Adjustments for uncertainty	Approach to ESO price control adjustments	n/a	RIIO-2
	Financial uncertainty mechanisms (including indexation)	n/a	RIIO-2

1.7 This document sets out our consultation positions on key aspects of the ESO's second Business Plan. **Table 2 provides an overview of our key proposals for the ESO's BP2 period.**

Table 2: Overview of key proposals for the ESO's BP2 period

Component of price control		Chapter	Proposals for BP2
Outputs and performance incentives	Incentive scheme design	Chapter 2	Amend our evaluation criteria for Value for Money and Demonstration of plan benefits. Streamline our approach to within scheme feedback/Performance Panel.
	ESO Roles Guidance	Chapter 3	Update guidance to reflect developments in the ESO's areas of activity and evolving role in BP2.
	ESO Delivery Schedule	Chapter 3 and Appendix 2	Proposed Delivery Schedule grading: Role 1: 4/5 Role 2: 4/5 Role 3: 4/5
	Performance measures	Chapter 3 and Appendix 3	Amend our approach to a suite of measures, including performance metrics (balancing costs, forecasting, competitive procurement and new measures to monitor day-ahead procurement and connection offers under Role 2 and 3 respectively); stakeholder satisfaction surveys for each ESO Role; and a number of other areas for regularly reported evidence.
	Cost benchmark	Chapter 4 and Appendix 4	Propose to fund the full totex request of £671m for BP2 Proposed Value for Money scoring: Role 1: does not meet expectations Role 2: does not meet expectations Role 3: meets expectations

	Disallowance of Demonstrably Inefficient and Wasteful Expenditure	Chapter 4	No change to cap value from BP1
Baseline financial returns	ESO additional funding	Chapter 5	No increase to additional funding from BP1
	Capitalisation Rate	Chapter 5	No change in methodology from BP1
Innovation funding	Network Innovation Allowance	Chapter 6	Additional £21.9m for RIIO-2

1.8 BEIS and Ofgem have set out their intention to create an FSO, subject to legislation currently before Parliament. The ESO produced an indicative plan for the FSO transition as part its BP2 submission, including high-level costs and milestones. This document consults on our high-level proposals to enable and incentivise high-quality, cost effective FSO delivery by the ESO alongside its core BP2 plan, set out in Table 3. Once the transition to the FSO reaches the appropriate stage, we expect the ESO to provide an updated plan and costs which we will consider, and if necessary, consult on.

Table 3: Overview of high-level proposals for FSO transition

Component		Chapter	Proposals
FSO transition	Funding	Chapter 7	Propose to fund efficient costs incurred by the ESO in order to transition to the FSO via its license.
	Reporting and incentives framework		Introduce a reporting and incentives framework to create transparency on progress with the FSO transition, and to incentivise timely and efficient FSO delivery. Framework will include an evaluative assessment against delivery and spending and reporting against key milestones and costs, including specific KPIs.

Next steps and further work with stakeholders

1.9 We will publish a Final Determination by March 2023 which will build on and finalise the decisions made in the Draft Determinations. The Final Determination will consider all consultation responses received.

1.10 Alongside our Draft Determinations, we are consulting on the detailed implementation of the policy set out. As discussed in this document, for the ESO, this includes consulting on detailed changes to:

- The ESO Roles Guidance (which sets out our expectations for the ESO under its licence obligations and incentives); and
- The ESO Reporting and Incentives (ESORI) Arrangements Guidance document (which contains detailed guidance on the incentive process for the ESO).

1.11 We will publish a further consultation on the specific details for our proposed FSO incentive framework once we have further clarity on the costs and outputs of the FSO transition, which we expect to be next year.

2. Incentives framework

Introduction

- 2.1 This chapter sets out our proposals for the ESO’s incentives framework for the BP2 period. We propose to keep the same broad structure for incentives as in BP1, but with targeted changes to the scheme design. We propose a more streamlined approach to within scheme feedback and the Performance Panel and changes to two of the evaluation criteria - our assessment of Value for Money and Demonstration of plan benefits.
- 2.2 A summary of our positions for the incentive scheme design in BP2 is in Table 4. Throughout this chapter, and the next, we refer to a number of different components and documents used to define the ESO’s outputs and incentives framework. For reference, these are listed and defined in Appendix 5.

Table 4: Key incentive framework features for BP2

Area		Proposals
Scheme scope		No change from BP1
Scheme design	Scheme length	No change from BP1
	ESO Performance Panel	Performance Panel meetings in line with revised scheme evaluation format below.
	Timing and format of scheme evaluations	Propose that the reviews at six-month and eighteen-month will be streamlined. This will involve targeted feedback, but not a full evaluation and scoring process. We will not issue a call for evidence.
	Evaluation criteria	We propose to re-frame ‘Demonstration of plan benefits’ to ‘Quality of outputs’ to focus explicitly on <i>how</i> the ESO delivers the outputs in its Business Plan. We also propose to adjust our Value for Money criterion and ex-ante assessment (setting a score for each Role against our cost expectations rather than a cost benchmark).
	Performance evaluations	No change in structure from BP1; we will continue to set out expectations in the ESO Roles Guidance; grade the ESO’s Delivery Schedule against our expectations and set performance measures. We are proposing changes to specifically reflect BP2, which are: updating the ESO Roles Guidance, grading the BP2

		Delivery Schedule, and updating certain performance measures. These are set out in Chapter 3.
Scheme value		No change from BP1

Scheme design

2.3 At the start of RIIO-2, we set out the framework for the ESO’s two-year incentive scheme in BP1. This process involves several steps. Firstly, the ESO engages with its stakeholders and publishes a Business Plan before the start of the incentive scheme. Ofgem provides an ex-ante assessment of the ESO’s Delivery Schedule, Value for Money and sets performance measures. The ESO then reports on its progress against these deliverables and performance measures throughout the incentive scheme, receiving feedback from stakeholders, Ofgem and the Performance Panel every 6 months throughout the scheme. At the end of the incentive scheme, the Performance Panel performs a final evaluation against pre-defined evaluation criteria, producing scores from 1 to 5 for each Role. These scores set a default recommended payment or penalty for each Role and have an associated financial range. Ofgem then assess the Performance Panel’s recommendations, as well as any further evidence submitted, to determine the final payment and penalty.

Within scheme feedback and panel timings

Background

- 2.4 In order to create transparency around the ESO’s performance throughout the Business Plan cycle and to help stakeholders, the Performance Panel and Ofgem monitor the ESO’s progress against its Business Plan.
- 2.5 Under the current scheme design, the Performance Panel and Ofgem provide a full performance evaluation at the six-month stage; mid-period stage; eighteen-month stage; and at the end of the two-year Business Plan period.

Consultation position

2.6 Our proposals on the key scheme stages remain broadly consistent with our positions at the start of RIIO-2. The Performance Panel and Ofgem will continue to undertake a full performance evaluation at the mid-period stage and at the end of the two-year Business Plan period. The key change is that we propose that the Performance Panel and Ofgem will provide the ESO with targeted feedback on its

performance at the six-month stage and eighteen-month stage in the Business Plan cycle (rather than a full assessment).

- 2.7 We expect this review will focus on any changes to plans from the last update received (either at the start of the scheme or at the mid-scheme stage), the justifications provided for performance against metrics, and the rationale for significant expected cost deviations. We will not issue a call for evidence or hold a stakeholder event every 6-months, but will continue to engage widely with stakeholders throughout the scheme.

Rationale for consultation position

- 2.8 We believe these proposals strike the right balance between providing clear feedback and not creating undue administrative burden. Our experience to date has shown that the evaluation process and associated events can take significant time and resource. This approach would mean the ESO does not need to provide detailed reporting every 6 months and that the Performance Panel would be able to provide feedback in a more agile way. This would enable the ESO to quickly action and respond to feedback received. Moreover, this approach should reduce burden on the ESO and provide more time for other important activities, such as the requirements of its cost monitoring (see chapter 4).

Evaluation criteria

Demonstration of plan benefits

Background

- 2.9 For RIIO-2 we set out five evaluation criteria for Role 1, Role 2 and Role 3 to assess the ESO's performance. This included: Plan delivery, Outturn performance metrics⁹, Stakeholder evidence, Demonstration of plan benefits and Value for money. These criteria were designed to be considered together to establish an overall picture of the ESO's performance for each Role.

Consultation position

- 2.10 We propose to change the evaluation criterion called 'Demonstration of plan benefits' to 'Quality of outputs'. This criterion will still aim to measure, as set out at the start of BP1, the benefits the ESO has achieved from its Business Plan.

⁹ For BP1, we removed the performance metrics criterion for Role 3 as we did not believe suitable, robustly benchmarked performance metrics could be set for this role.

However, it will also explicitly measure *how* the ESO has delivered its Delivery Schedule in line with our expectations in the ESO Roles Guidance.

2.11 This change should ensure that performance under the 'Plan delivery' criterion and 'Demonstration of plan benefits' criterion are two distinct areas for assessment; Plan delivery measuring 'what' was delivered in the ESO's Business Plan and Demonstration of plan benefits capturing 'how' the ESO delivers. For clarity, we do not propose to consider any additional evidence as part of the overall evaluation criteria – we plan to consider the evaluation against the ESO Roles Guidance from under one evaluation criterion in BP1 to another for BP2.

2.12 Table 5 highlights our current thinking on the changes to the evaluation criteria for BP2.

Table 5: Changes to the evaluation criteria for BP2

Criterion	Description	Below	Meets	Exceeds
a) Plan delivery	Measures whether the ESO has delivered its Delivery Schedule on time. Exceptions made where the ESO can clearly explain why a plan deviation was in consumer's interest or outside of its control.	Delivery of a <3 graded Delivery Schedule	On track to deliver the key components of a 3-graded Delivery Schedule	On track to deliver the key components of a 4 or 5-graded Delivery Schedule
b) Metric performance	No change from BP1			
c) Stakeholder evidence	No change from BP1			
d) Quality of outputs	Measures the benefits the ESO has achieved from its Business Plan, considering the ESO's original benefits case and the quality of the outcomes and outputs delivered through the plan. Also considers whether the ESO adapts when needed	Reported evidence does not support the realisation of the Business Plan's benefits. ESO does not identify changes or course correct when needed. And	Reported evidence on realisation of benefits is strong in some places but weak in others. ESO identifies the most significant changes and course corrects when needed.	Reported evidence strongly supports the realisation of plan's benefits in most areas ESO quickly and proactively identifies changes and course-corrects when need.

Criterion	Description	Below	Meets	Exceeds
	<p>in order to maximise plan benefits.</p> <p>Where the ESO cannot clearly demonstrate the benefits from its Business Plan, this also measures whether it has demonstrated actions to meet our guidance for exceeding expectations.</p>	<p>ESO does not produce outputs that demonstrate the 'meets expectations' guidance in our ESO Roles framework</p>	<p>Or</p> <p>ESO produces outputs that demonstrate the 'meets expectations' guidance in our ESO Roles framework</p>	<p>Or</p> <p>ESO produces outputs that demonstrate most/all of the 'exceeds expectations' guidance in our ESO Roles framework</p>
e) Value for money	See later in this chapter.			

Rationale for consultation position

2.13 We consider this change to the evaluation criteria will ensure better clarity on how the ESO can evidence the quality of its Business Plan and the benefits from this. For BP1, we relied on the ESO’s evidence against its Cost Benefit Analysis (CBAs). However, for many areas – particularly under Role 2 and Role 3 – these benefits will not materialise for many years, making it difficult to clearly assess whether the actions the ESO has undertaken has delivered benefits. Considering ‘how’ the ESO has delivered, in line with our ESO Roles Guidance, will ensure our assessment will reflect the quality of the ESO’s performance - which we consider will best indicate the likelihood of delivering long term benefits.

Value for money

Background

2.14 At the start of RIIO-2, we decided that outturn expenditure should be considered in the ESO’s incentive framework. To facilitate this, we introduced an ex-ante assessment of the ESO’s proposed internal costs and set an accepted allowance and cost benchmark for each Role. The cost benchmark reflected our view of the efficient level of expenditure involved with the delivery of the ESO’s proposals.

2.15 For BP1, the cost benchmark is a point of reference for our within-scheme monitoring and ‘Value for Money’ evaluation. Where there was too much uncertainty on the efficient costs associated with certain investments (for

example, because they were a novel and/or early-stage proposal) we did not include estimated costs for these investments in the up-front cost benchmark. Instead, we decided to reassess the costs for beneficial but uncertain investments once these proposals reach a sufficient stage of maturity. We could then update the cost benchmark accordingly during the incentive scheme.

- 2.16 Increasing costs against the benchmark, specifically in Role 1, has been a cause for concern to date during BP1. To address this, we specifically called out IT investments as an area that we expected increased detail for and would be performing additional scrutiny of, as part of the BP2 assessment. We published the ESO Business Plan: IT Investment Plan Guidance Document¹⁰ to provide a clear indication of what was expected of the ESO and how it would be assessed. This was a challenging new standard of detail required, far above what had been submitted in previous plans.

Consultation position

- 2.17 We propose to move away from an ex-ante cost benchmark to an ex-ante scoring of 'Value for Money' for each role against our cost expectations, based on the requested funding. This approach will be similar to how we set ex-ante performance expectations by scoring the ESO's Business Plan for each Role against the 'Plan delivery' evaluation criterion. Our proposed scoring for Value for Money can be found in Chapter 4.
- 1.3 We propose that the Value for Money evaluation criterion will measure whether the ESO has struck the optimum balance between maximising the benefits delivered from its outputs whilst minimising the cost required to achieve those outputs. Value for Money for each Role will be considered in the round, taking the other criteria into account and weighing them against the costs incurred by the ESO.
- 1.4 For all investments and business activities within a Role, we consider Value for Money to include, but not be limited to, consideration of the following criteria:
- Business Suitability – spend is necessary and has been appropriately prioritised against other activities;
 - Resilience and adaptability – future uncertainty has been appropriately considered;

¹⁰ ESO Business Plan: IT Investment Plan Guidance Document: [Decision on IT Guidance for ESO Business Plan Guidance | Ofgem](#)

- Ongoing efficiency – value is managed throughout the life of the work; and
- Governance, including delivery and management of risk – spend is controlled, risks are managed, and robust oversight and accountability is maintained.

2.18 Specific technical criteria may also be considered where appropriate, for example for IT investments it may be suitable to consider aspects such as the foundational capability of those investments.

1.5 Table 6 highlights our current thinking on the changes to the Value for Money evaluation criterion for BP2. Further guidance is provided in our ESORI guidance, which we are consulting on alongside this document.

Table 6: Value for Money evaluation criteria for BP2

Incentive Criteria	Details	Below	Meets	Exceeds
e) Value for money	Measures whether the ESO has delivered value for money, striking the optimal balance between maximising benefit delivered from outputs whilst minimising costs.	Failure to demonstrate that one or more of the criteria have been met to standard levels of industry good practice.	Demonstration that the criteria have been met in a reasonable manner and evidence that standard good practice is being followed.	Demonstration that the criteria have been met to a high standard and evidence that best practice is being followed, for example, using robust external validation to verify and drive improvement.

Rationale for consultation position

2.19 The costs submitted in the ESO’s second Business Plan and the costs incurred to date have deviated significantly from those forecast at the start of RIIO-2. This is driven predominantly by substantial increases in the requested funding for IT investments.

- 2.20 As part of our assessment, we commissioned an independent consultant’s report on the ESO’s IT investment plans. Both our assessment and the independent consultants’ assessment followed the assessment process set out in our IT guidance¹¹. The independent consultant had access to Ofgem’s supplementary questions and attended both regular meetings with ESO IT representatives and attended several deep dives on specific topics. The details of the independent consultants’ assessment can be found in the Appendix 4. The ESO also commissioned its own report into its IT cost assurance.
- 2.21 Our assessment has found a significant number of ESO investments have not met the standard of information required, based on the current information provided. The independent consultants’ report highlights some delivery approaches and decisions that do not appear to meet best practice. These suggest that some ESO IT costs are uncertain, and that better practice has the *potential* to drive efficiencies in a range of areas. The ESO’s own report also shows a significant number of IT projects not having the level of cost maturity that they would have expected given the investment/delivery stage, which tends to reinforce this conclusion.
- 2.22 If we were to apply these assessments in line with our BP1 approach, a significant number of projects would not be included in a cost benchmark. However, we do not believe setting a very low benchmark would necessarily reflect the efficient cost of these projects, especially where a key issue is the immaturity of the ESO’s costings. Moreover, setting a low benchmark in this context could result in the ESO significantly delaying or halting/descoping activities. This would not provide the clarity and certainty the process was intended to give.
- 2.23 We recognise that costs will be somewhat uncertain in the early stages of projects, and that the ESO’s priorities and costs can change for good reasons – particularly in a rapidly evolving and uncertain environment. Therefore, in order to enable the ESO to deliver at pace and to ensure the ESO is strongly incentivised to drive for cost efficiency, we propose to adopt a slightly different approach. We will set clear ex-ante expectations on cost efficiency by setting a Value for Money score for each Role. We will then place emphasis during the incentive scheme cycle on evidence of good practice supported by a clear rationale for expenditure. We believe this will ensure that the ESO retains full ownership of its IT programme

¹¹ Chapter 2, ESO Business Plan: IT Investment Plan Guidance Document: [ESO Business Plan IT Investment Plan Guidance.pdf](#)

design and delivery choices, but with sufficient accountability to consumers and Ofgem that those choices are well made and efficiently implemented.

Incentives framework consultation questions

- ESOQ1. Do you agree with our proposed approach to within-scheme feedback, including the timings and approach to performance panel sessions?
- ESOQ2. Do you agree with our proposed changes to the evaluation criteria for BP2?
- ESOQ3. Do you agree with our overall approach to cost regulation for the ESO?

3. Outputs

Introduction

3.1 This chapter sets out our proposed outputs for the ESO, following our review of its Business Plan for BP2.

3.2 Table sets out the key parts of the framework that define the outputs the ESO should deliver. It also summarises our proposals for BP2. We discuss the aspects that we are changing for BP2 in more detail in the sections that follow.

Table 7: Framework defining ESO outputs for BP2

Type of output	Description	Our proposals
Licence obligations	Set the minimum standards the ESO must achieve with its price control funding.	No change from BP1.
ESO Roles Guidance	For each of the ESO’s three Roles, this sets out our expectations for how the ESO should both comply with its obligations and also meet or exceed our incentives expectations.	The ESO Roles Guidance will be updated to reflect new developments in the ESO’s activities in BP2.
ESO Delivery Schedule	Contains specific details on what the ESO will be accountable to deliver and by when.	We have graded the ESO’s Delivery Schedule for BP2. We will work with the ESO to get further clarity on areas where necessary prior to Final Determinations. We will then perform and publish a final Delivery Schedule grading.
Performance measures	Key outputs the ESO is required to report on through the price control to inform our assessment of its performance in its incentives.	We propose amendments to elements of: performance metrics; stakeholder satisfaction surveys for each ESO Role; and a number of other items as regularly reported evidence.

ESO Roles Guidance

Background

- 3.3 At the start of RIIO-2 we set out the ESO Roles Guidance¹² which describes and groups the ESO’s key roles and activities associated with the Business Plan and sets out our expectations for these activities. This includes how the ESO should meet its licence obligations and could meet or exceed our performance expectations under the incentives framework.
- 3.4 We set the ESO Roles Guidance to provide clarity on what the ESO needs to deliver in BP1 and also provide guidance on what the ESO should seek to achieve with its second Business Plan in BP2. However, we recognize the rapid pace of change in the sector and the need to update our expectations to reflect the changing or expanding roles for the ESO between now and the end of RIIO-2. We also note there are areas where we have more clarity on what factors are outside the ESO’s control than when we first set out the ESO Roles Guidance, which merit changes to expectations.

Consultation position

- 3.5 Following our review of the ESO’s Business Plan, we propose to update the ESO Roles Guidance for BP2. Table 8 shows the main areas we propose to change for each Role in BP2. Detailed changes are set out in the ESO Roles Guidance published alongside this document.

Table 8: Proposed changes to the ESO Roles Guidance for BP2

Role 1: Control Centre Operations	Role 2: Market Development and transactions	Role 3: System insight, planning and network development
<p>Security of Supply; new expectations to ensure year-round preparedness for risks and industry readiness.</p> <p>Person Professionally Arranging Transactions (PPAt); new PPAT monitoring expectations in line with new Balancing</p>	<p>Cross-border Markets; improvements to interconnector role in the market by removing barriers to entering balancing markets & work under Trade and Cooperation Agreement (TCA).</p>	<p>Pathfinders; updates to reflect the new status of pathfinder projects.</p> <p>Connections; changes in line with proposed new metric 3X for BP2.</p> <p>Early Competition; updates to reflect policy</p>

¹² ESO Roles Guidance: [eso_roles_guidance_2021-23_1.pdf](#)

<p>Market monitoring licence obligations.</p> <p>Restoration; update to reflect the direction for the Electricity System Restoration Standard by government and changes in risk management expectations.</p>	<p>Competitive Procurement; minor amends.</p> <p>Real-time Procurement; updates to reflect updated metric 2Ai for BP2.</p> <p>Accessible Markets; updates to reflect new compliance expectation and other minor amends.</p> <p>Signaling Procurement Needs; minor amends.</p> <p>Electricity Mark Reform (EMR) Expectations; minor amends.</p> <p>Role in Europe; changes to a number of sections to reflect the ESO’s changing role in the sector following the UK’s exit from the European Union.</p>	<p>position and recent decisions on early competition.</p> <p>Network Planning Activities; minor amends.</p>
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3.6 As is the case currently, we will retain the ability to change the ESO Roles Guidance following consultation if the ESO’s roles or our expectations change within the RIIO-2 period.

Rationale for consultation position

3.7 For Role 1, updates are intended in response to recent developments in security of supply, restoration and to capture specific new PPA monitoring expectations. Security of supply updates are likely to include preparedness for risks and transparency in addressing these risks. This is intended to ensure year-round preparedness and industry readiness through transparency. However, we are still considering possible changes in this area and will engage with the ESO before our Final Determinations to develop these expectations. We have updated our restoration expectations to reflect the direction that was issued for the Electricity System Restoration Standard by government and changes in risk management expectations.

3.8 For Role 2, we are proposing changes to better reflect the ESO’s new position in Europe and focus our expectations on compliance with retained EU regulation. We

also intend to develop a new expectation focusing on maximising value from cross-border balancing markets while ensuring system security. We also expect to make minor changes to other expectations in order to reflect the changes in the sector following the last change to the ESO Roles Guidance.

- 3.9 For Role 3, we are proposing changes to reflect updates in planning activities and connections. We also intend to introduce changes in expectations as a result of our updated policy position on early competition¹³. We are still considering most of the updates in this area and will work with the ESO between now and our Final Determinations to develop these expectations. Overall, our expectations for Role 3 remain for the ESO to play a leading role in coordination of the system in the near and longer-term. We expect the ESO to provide value to consumers through optimal timing of procurement of services, upgrading of systems, and providing useful and transparent information to industry.
- 3.10 Across all Roles, we expect the changes proposed to better align expectations between Ofgem, the ESO and stakeholders on what is required from the ESO to meet its licence obligations and perform well against the incentive scheme for BP2. In particular, we expect to work with the ESO between now and our Final Determinations on changes needed to the ESO Roles Guidance to ensure the document fully captures our expectations against our proposed 'Quality of outputs' evaluation criterion.
- 3.11 We are consulting on the specific wording changes to the ESO Roles Guidance alongside this document.

Outputs consultation questions

ESOQ4. Do you agree with our proposed changes to the ESO Roles Guidance? Are there any areas we have not captured in our expectations?

ESO Delivery Schedule

Background

- 3.12 The ESO's Delivery Schedule sets out the key deliverables, milestones and success measures under its two-year Business Plan. At the start of RIIO-2, we graded the

¹³ Decision on the development of early competition in onshore electricity transmission networks: <https://www.ofgem.gov.uk/publications/decision-early-competition-onshore-electricity-transmission-networks>

ambition of the ESO’s RIIO-2 aims¹⁴ and two-year Delivery Schedule for BP1. Table 9 summarises our assessment of the ESO’s Delivery Schedule for BP1.

Table 9: Assessment of ESO’s Delivery Schedule for BP1

What	Assessment	Role 1	Role 2	Role 3
RIIO-2 aims	Ambition (1-5)	5	4	4
Two-year Delivery Schedule	Minimum requirements met (Yes / No)	Yes	Yes	Yes
	Ambition (1-5)	5	4	4

3.13 For BP2, we have assessed the ESO’s two-year Delivery using the same methodology used at the start of RIIO-2¹⁵. We will not be re-grading the ESO’s RIIO-2 aims.

Consultation position

3.14 Our assessment is summarised in Table . Full details of our assessment of individual activities are contained in Appendix 2.

Table 10: Assessment of ESO’s Delivery Schedule for BP2

What	Assessment	Role 1	Role 2	Role 3
RIIO-2 aims	Ambition (1-5)	No change from BP1		
Two-year Delivery Schedule	Minimum requirements met (Yes / No)	Yes	Yes	Yes
	Ambition (1-5)	4	4	4

Rationale for consultation position

3.15 We have assessed the ESO’s BP2 Delivery Schedule and we are satisfied that it has met our minimum requirements for all Roles.

¹⁴ The ESO’s RIIO-2 aims set out the ESO’s medium-term strategy for progressing towards the long-term vision over the five-year RIIO-2 period.

¹⁵ Appendix 1, RIIO-2 Final Determinations – Electricity System Operator Annex: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](https://www.ofgem.gov.uk/consultation/consultation/RIIO-2-Final-Determinations-REVISED)

- 3.16 We continue to believe the ESO's Business Plan shows strong ambition. For Role 1, we are somewhat less confident that the ESO's activities in BP2 will make highly ambitious progress towards the overall RII02 aims. The ESO's RII02 aims – in particular, to operate the system carbon free by 2025 – are now two years closer, and we have not seen outputs and outcomes materialise under BP1 at the quality and pace expected under all areas. This has pushed back delivery in BP1, reducing the pace at which benefits are likely to be realised from highly ambitious to ambitious. As a result, we have reduced our grading of the ambition of the Delivery Schedule from BP1 to a 4 for Role 1.
- 3.17 For Role 2 and 3, we have continued to grade the ambition of the Delivery Schedule as a 4. This is due to the approach taken in both Roles to address key stakeholder issues while delivering a broad scope of activity. At the start of BP1, we expressed our view that Role 3 was starting to exceed expectations and we see a consolidation of ambition in this Role for BP2.
- 3.18 In order to improve the ambition scores we expect to see the ESO, across all Roles, provide and commit to clearer and more concrete milestones for certain deliverables highlighted in Appendix 2.
- 3.19 More detailed narrative and rationale for our assessment is contained in Appendix 2.

Outputs consultation questions

ESOQ5. Do you agree with our grading of the ESO's Delivery Schedule for 2023-25?

Performance measures

- 3.20 For BP1 we set three types of performance measure:
- Performance metrics – numeric measures of performance which have clear ex-ante performance benchmarks for below/meets/exceed expectations;
 - Stakeholder satisfaction surveys – surveys on satisfaction with the ESO which are repeated at regular intervals to track performance; and
 - Regularly reported evidence (RRE) – numeric measures which are relevant evidence of the successful delivery of the ESO's Business Plan aims, but for

which it is not possible to set reliable performance benchmarks and/or where the data is available too infrequently to be a useful performance metric.

3.21 For BP2 we have proposed amendments to these measures which should better track the quality of the ESO’s actions under its Business Plan and help inform the evaluation against the relevant criteria of the incentive scheme.

Performance metrics

Background

3.22 For BP1, we have regularly tracked the ESO’s performance delivering its Business Plan outcomes to date against the performance metrics set. Through this process, we have been able to assess where improvements could be made to the metrics and identify key relevant areas of performance not captured by metrics for BP2.

Consultation position

3.23 Table summarises our proposed changes to the performance metrics for BP2.

Table 11: Summary of changes to performance metrics for BP2

Metric	Proposed change	Explanation for change
Role 1		
1A. Balancing costs	Revision of Method	We are proposing to update this metric to account for the day-ahead wholesale electricity prices in the benchmark. We are also proposing to replace the adjustment variable ‘outturn wind’ with ‘renewables as a percentage of demand’. This is in recognition of the uncharacteristically high costs of electricity seen over the last year, which has made the use of historical balancing costs – with only an adjustment for wind output – unsuitable. We are considering whether other factors should be accounted for. Additionally, we are considering whether different subsets of costs should be adjusted for differently e.g., should the energy costs benchmark be adjusted differently to the constraint costs benchmark, rather than the total costs being adjusted, as is the case currently (i.e. does percentage of renewable energy affect energy costs, constraint costs, or both). Our current position is to adjust constraint costs for renewable generation and energy costs for wholesale electricity prices.
1B. Demand Forecasting	Revision of Method and update	We propose to allow for retrospective revision of performance to account for metered volumes of dispatched demand reduction services.

	of associated reporting	Reporting to include the requirement to provide Ofgem with the forecasts and performance of any operational forecast used to account for the sensitivity of demand to anticipated market prices for electricity.
1C. Wind generation forecasting	Update of associated reporting	Update to associated reporting to include locational tag to BM wind unit forecasts. Requirement to send associated reporting to Ofgem.
1D. Short notice changes to planned outages	No change from BP1	-
Role 2		
2Ai. Phase-out of non-competitive balancing services	Revision of Method and update of associated reporting	Revision of methodology in recognition that requiring the ESO to publish the amount of competitive procurement is no longer useful. We are proposing to update this metric to monitor the phase-out of non-competitive procurement (2Ai), and to introduce a new RRE to monitor the impact of these changes on actions the ESO takes (2Aii). Requirement to send associated reporting to Ofgem.
2X. Day-ahead procurement	New metric	We propose to track the volume of service the ESO procures no earlier than in the day-ahead market in order to monitor improvements, in line with our expectations.
Role 3		
3X. Connection offers	New metric	Stakeholders have called for the inclusion of a metric to measure performance under Role 3. We propose to introduce this metric to assess performance on connections – we are considering monitoring the timeliness and/or quality 'Right First Time' (RFT) of connection offers.

3.24 Further details are in Appendix 3. We plan to work further with the ESO between now and Final Determinations on the details of these proposals. We welcome stakeholder’s views and feedback, especially where we have proposed new or revised methodologies.

Rationale for consultation position

3.25 We believe that the majority of metrics used in BP1 are fit for purpose. However, we note that some metrics, most notably 1A. Balancing costs, need updating to remain a relevant indicator of ESO performance. We also took this opportunity to update the associated reporting of some metrics to ensure additional context is provided to Ofgem, the Performance Panel and industry.

3.26 We have also noted a gap in the metrics for Role 2 and have taken steps to address this with the inclusion of a new metric in this area. We have also proposed

a new metric for Role 3 around connections – a key area of concern and for which the ESO has committed to increase investment considerably in its wider Business Plan.

- 3.27 The full list of performance metrics, including our proposed methodologies and required associated reporting can be found in our ESORI Guidance, which we are consulting on alongside this document.

Outputs consultation questions

ESOQ6. Do you agree with our proposed changes to the performance metrics for BP2?

ESOQ7. Do you agree that the full suite of metrics provide a comprehensive view of measurable ESO performance? If not, what is missing?

Stakeholder satisfaction surveys

Background

- 3.28 The stakeholder satisfaction surveys framework has been set for RIIO-2. For BP2, we stated the ESO could set out updated proposals for certain aspects of the stakeholder satisfaction surveys, including: the questions, survey method, participants and the performance benchmarks.
- 3.29 The ESO has proposed to make changes to the questions contained within the survey to make them more concise and accessible, in an effort to increase participation rates. In addition, the ESO has proposed a change to the performance benchmarks to capture performance outside of the majority of respondents being the threshold for a score.
- 3.30 The ESO has proposed that when 80% of stakeholder scores are in the 'meeting' or 'exceeding' expectations categories combined, the resulting score would be seen as 'exceeding' expectations overall, with the additional caveat that a minimum of 10-15% of the 80% would need to be in the 'exceeding' category. The 'exceeding' category would also need to be greater than the 'below' expectations category. The overall score would be seen as 'below' expectations if that category is greater than 30%.

Consultation position

1.6 We agree with the ESO’s proposal to streamline the stakeholder satisfaction survey questions to increase engagement.

3.31 We propose keeping the same benchmarks as in BP1, but including a different caveat to the one suggested by the ESO. Rather than just the majority of respondents being the threshold for a score, we propose a caveat that;

- Should the majority of respondents score the ESO as ‘meeting’ expectations, but the number of respondents that score the ESO as ‘exceeding’ expectations significantly outweigh those that score the ESO as ‘below’ expectations, then the ESO can be categorised as ‘exceeding’ expectations; and
- Should the majority of respondents score the ESO as ‘meeting’ expectations, but the number of respondents that score the ESO as ‘below’ expectations significantly outweigh the number of respondents that score the ESO as ‘exceeding’ expectations, then the ESO would be considered ‘below’ expectations.

3.32 Table 12 summarises our proposal for the stakeholder satisfaction survey benchmarks.

Table 12: Proposal for BP2 stakeholder satisfaction performance benchmarks

	Below	Meets	Exceeds
Stakeholder satisfaction performance benchmarks	<p>‘below expectations’ category is the most common response category in the stakeholder satisfaction survey</p> <p>or</p> <p>‘meets expectations’ category is the most common response category <u>and</u> the number of respondents that score the ESO as ‘below expectations’ <i>significantly outweigh</i> the number of</p>	<p>‘meets expectations’ category is the most common response category in the stakeholder satisfaction survey</p>	<p>‘exceeds expectations’ category is the most common response category in the stakeholder satisfaction survey</p> <p>or</p> <p>‘meets expectations’ category is the most common response category <u>and</u> the number of respondents that score the ESO as ‘exceeding expectations’ <i>significantly outweigh</i> the number of respondents that score the</p>

	Below	Meets	Exceeds
	respondents that score the ESO as 'exceeding expectations'		ESO as 'below expectations'

Rationale

- 3.33 We acknowledge the ESO’s concern that the benchmarks set for BP1 create a high bar to exceed expectations as the majority category to date has been ‘meets’ expectations. We agree that relying on this alone does not capture the full picture of stakeholder views, particularly if there is a relatively even distribution of stakeholder views in two or more response categories.
- 3.34 However, it is our view that the ESO’s proposal is too mechanistic in setting an overall benchmark score towards either ‘exceeds’ or ‘below’ expectations. We believe setting mechanistic values, beyond majority scores, for both categories could result in either the ESO being overcompensated or undercompensated for a relatively even distribution of stakeholder views across categories. For example, should the ESO score 35% below, 40% meets and 25% exceeds - under the ESO’s proposed benchmarks this would result in the ESO being ‘below’ expectations, even though 65% of total respondents thought the ESO was meeting or above expectations.
- 3.35 Our proposal therefore has the same spirit of capturing stakeholder views beyond the majority, without rigidly sticking to percentage points. If the majority category is ‘meeting’ expectations but there is a significant difference between ‘exceeds’ or ‘below’ expectations, we would then consider scoring something other than the majority category of ‘meets’ expectations. For instance, should the ESO score 10% below, 55% meets and 35% exceeds, as there is a significant difference between the ‘below’ and ‘exceeds’ response categories, we could then consider this to be ‘exceeding’ expectations.

Outputs consultation questions

- ESQ8. Do you agree with our proposed changes to the performance benchmarks for measuring stakeholder satisfaction?

Regularly reported evidence

Background

3.36 We have used RRE in BP1 to regularly track the ESO’s performance delivering its Business Plan outcomes to date. Through this process, we have been able to assess where improvements could be made to better inform the evaluation against the relevant criteria in the incentive scheme.

Consultation position

3.37 Table summarises our proposed changes to the RRE for BP2.

Table 13: Proposed changes to regularly reported evidence for BP2

Role	Regularly reported evidence	Proposed change	Reason for change
1	1E. Transparency of operational decision making	Update of associate reporting	We propose to include the requirement to provide Ofgem with narrative to explain the reasoning behind skipping units in the dispatch order beyond reason code.
2	2Aii. Balancing services delivered in a non-competitive manner	Revision of method and update of associate reporting	Revision of methodology in recognition that requiring the ESO to publish the amount of competitive procurement is no longer useful. We are proposing to introduce a new RRE to accompany metric 2Ai. This RRE would monitor the impact of the changes to the number of competitive/non-competitive contracts the ESO holds on actions taken. Requirement to send associated reporting to Ofgem.
2	2C. EMR decision quality	Remove	We believe that this RRE is no longer useful and propose to remove it from the framework.
3	3C. Diversity of technologies in Network Options Assessment (NOA) processes	Remove	We believe that this RRE is no longer useful and propose to remove it from the framework.

3.38 Further details are in Appendix 3. We plan to work further with the ESO between now and Final Determinations on the details of these proposals. We welcome stakeholder’s views and feedback, especially where we have proposed revised methodologies.

Rationale for consultation position

3.39 We believe that the majority of RREs used in BP1 are fit for purpose and create transparency with regard to the ESO’s progress towards its 2025 ambitions. We have taken into consideration the changing relevance of the areas targeted by these measures and have concluded that some need updating to remain relevant indicators of ESO performance. This is particularly the case for Role 3, where the ESO’s focus has shifted from the Network Options Assessment (NOA) to new network planning tools.

3.40 More details, including methodologies and required associated reporting can be found in the ESORI guidance, which we are consulting on alongside this document.

Outputs consultation questions

ESOQ9. Do you agree with our proposed changes to the regularly reported evidence for BP2?

Summary of outputs for the ESO’s second Business Plan

3.41 Table summarises the specific outputs discussed in this chapter that the ESO should report on during BP2.

Table 14: Incentive scheme reported outputs for BP2

Criteria	Role 1	Role 2	Role 3
a) Plan delivery	ESO Delivery Schedule Quarterly reports on progress against Delivery Schedule Dashboard report on delivery of zero carbon operability ambition		

b) Metric performance	<p>Metrics on:</p> <ol style="list-style-type: none"> 1. Balancing costs 2. Demand Forecasting 3. Wind generation forecasting 4. Short notice changes to planned outages 	<p>Metrics on:</p> <ol style="list-style-type: none"> 5. Phase-out of non-competitive balancing services 6. Day-ahead procurement 	<p>Metrics on:</p> <ol style="list-style-type: none"> 7. Connection offers
	Monthly reports on outturn metric performance and supporting rationale		
c) Stakeholder satisfaction	Satisfaction survey results for Role 1	Satisfaction survey results for Role 2	Satisfaction survey results for Role 3
	Feedback provided on the quality of Business Plan deliverables, through Performance Panel sessions, regular monitoring and calls for evidence.		
d) Quality of outputs	Annual reporting against original Business Plan CBA focusing on areas not picked up by performance metrics or demonstration of how activities are delivered in line with ESO Roles Guidance expectations.		
	<p>Regularly reported evidence on:</p> <ul style="list-style-type: none"> • Transparency of operational decision making • Zero carbon operability (ZCO) indicator • Carbon intensity of ESO’s actions • Constraint cost savings from collaboration with Transmission Owners (TOs) • Security of supply • Critical National Infrastructure (CNI) outages 	<p>Regularly reported evidence on:</p> <ul style="list-style-type: none"> • Balancing services delivered in a non-competitive manner • Diversity of service providers • EMR demand forecast accuracy • Accuracy of forecasts for charge setting 	<p>Regularly reported evidence on:</p> <ul style="list-style-type: none"> • Future savings from operability solutions • Consumer value from the NOA
e) Value for Money	Discussed in Chapter 4 as part of the cost monitoring framework.		

4. Internal costs

Introduction

4.1 This chapter sets out our proposal for the regulation of the ESO’s internal costs during BP2. In particular, it covers:

- Our assessment of the ESO’s total expenditure (totex);
- Our proposed Value for Money scoring;
- Our proposed cost monitoring framework for use in the ESO’s incentive scheme; and
- Our proposal to maintain the cap value for demonstrably inefficient and wasteful expenditure (DIWE) for BP2.

4.2 An overview of our consultation positions, discussed in this chapter, are outlined in Table 15.

Table 15: Overview of ESO cost assessment for BP2

Area	Our proposals
Totex assessment	We agree to the totex of £671m for BP2.
Value for Money	We have rated the ESO costs per Role below: Role 1: Below expectations Role 2: Below expectations Role 3: Meets expectations
Cost monitoring framework	We propose to introduce a more granular cost monitoring framework to enable the ESO to provide regular updates on internal costs. Ofgem will consider the additional information provided when reassessing costs and our Value for Money scoring, on an annual basis, as part of our assessment against the Value for Money evaluation criterion.
Demonstrably Inefficient and Wasteful (cost disallowance)	No change to the cap value from BP1.

Totex assessment

Background

- 4.3 There are various 'internal' costs that the ESO incurs which it seeks to recover through its price control.¹⁶ The costs which the ESO can influence form part of its totex. Other costs which the ESO cannot influence (such as licence fees and business rates) are passed-through to consumers and are not part of the incentive assessment.
- 4.4 In our RIIO-2 Final Determinations¹⁷ we decided:
- To adopt a two-year Business Planning cycle for assessing totex;
 - Not to apply a Totex Incentive Mechanism (TIM) on the ESO's totex; and
 - To cap the ESO's disallowance in recognition of the balance between the ESO's totex and its Regulatory Asset Value (RAV) compared to the balance for network companies.
- 4.5 This recognised that the main focus of the ESO's price control should be to encourage the ESO to deliver the best overall outcomes for the energy system and consumers at an efficient level of costs, rather than solely minimising its own totex.
- 4.6 There are four main categories of costs that the ESO incurs as part of its totex: ESO operational costs (opex), capital expenditure (capex), business support costs (BSC) and other price control costs¹⁸.
- 4.7 The ESO shares certain functions with other National Grid Group companies, including IT, HR, finance, legal and procurement. The costs associated with these functions are allocated to the ESO by National Grid Group. Some of these costs are allocated on an indirect basis, based on a methodology to reflect the ESO's approximate usage. Others are allocated to the ESO directly (for example costs for ESO-specific property or IT investments).

¹⁶ The ESO also recovers 'external' costs. These are the costs it incurs to pay electricity market participants and network operators for services to operate the electricity system. This section discusses internal costs. External costs are regulated through our proposals in Chapter 2 and 3.

¹⁷ Chapter 4, RIIO-2 Final Determinations – Electricity System Operator: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](#)

¹⁸ Full details of the ESO's totex cost categories are in Chapter 4, RIIO-2 Final Determinations – Electricity System Operator: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](#)

- 4.8 At the start of RIIO-2, the ESO proposed to increase its total spending for BP1 to £252m per year compared to RIIO-1 averages of £170m. This was largely driven by proposals to invest in new IT infrastructure which the ESO believes is critical to achieving its 2025 ambitions. There were also material increases in the allocations of indirect IT costs allocated to the ESO by National Grid plc, and the ESO requested increases in opex for each of its Roles. Throughout BP1, the ESO has revised BP1 forecasts upwards and has also revised the forecasts for BP2 upwards considerably.
- 4.9 To fund BP2, the ESO has requested £335.5m per year¹⁹. The requested totex for BP2 is an increase of 25% from its latest BP1 expected spend and an increase of 28% compared to what the ESO thought it would need for BP2 at the time of BP1’s submission. Table 16 sets out the full details of the ESO’s funding request for BP2.

Table 16: BP2 Totex overview²⁰

Cost category		ESO Forecast Funding for BP1 (£m)	ESO Requested Funding for BP2 (£m)
ESO Opex			
(a)	Role 1	63.6	67.8
(b)	Role 2	32.7	39.2
(c)	Role 3	47.7	56.5
(d)	Supporting Operational Costs	15.2	16.5
(e)	Total ESO opex	159.3	179.9
Capex			
(f)	IT & Telecoms (IT&T)	206.9	241.8
(g)	Property	4.7	10.7
(h)	Total Capex	211.6	252.5
Business Support Costs			
(i)	IT&T	101.4	178.1
(j)	Property management	8.3	11.4

¹⁹ The ESO’s Business Plan outlines totex costs which cover: opex, capex, BSC and other price control costs. The ‘other price control costs’ category comprises of cyber costs and pension administrative costs.

²⁰ Table 16 outlines totex costs as provided in the ESO’s Business Plan Data Template (BPDT). We are aware that the ESO’s totex funding request in the ESO’s Business Plan and BPDT do not appear to fully align, with a difference of £3.2m. We will work with the ESO to assure these numbers before Final Determinations.

(k)	HR and non-operational training	5.6	4.8
(l)	Finance, audit and regulation	8.8	6.6
(m)	Insurance	1.3	1.8
(n)	Procurement	0.9	1.4
(o)	CEO and group management	13.2	6.8
(p)	Total Business Support Costs	139.5	211.0
Other price control costs			
(q)	Other price control costs	45.9	30.7
Total costs			
(r)	Total costs (e+h+p+q)	556.4	674.2

Consultation position

- 1.7 We propose to approve the ESO recovering its full BP2 funding request of £671m, as set out in its Business Plan.
- 4.10 We consider that there are no activities or investments in the ESO’s plan that are not worth proceeding with.
- 1.8 However, it is our view that there are activities and ESO IT investments that, based on the evidence provided, currently lack the evidence for us to conclude that the ESO proposes to deliver them efficiently. Further detail of this can be found in the Proposed Value for Money scoring section later in this chapter.
- 1.9 We also note that the ESO’s internal costs are pass-through with no sharing factor, which should enable the ESO to flexibly manage its spend as it modernises its IT and takes on significant new activities.

Rationale for consultation position

- 1.10 We consider the ESO’s activities, and thus investments, to be of high value to consumers, with strong positive CBAs. We recognise that the ESO is being asked to take on new activities, and to significantly change how it delivers existing activities in order to meet its ambition to operate a zero-carbon system. We

believe the ESO's BP2 ambitions build on the actions we approved under BP1, with a strengthened focus on driving the transformation to a fully decarbonised electricity system in line with the government's new 2035 target. We recognise that, whilst costs for BP2 have significantly increased, undertaking these activities and committing to these investments are critical to achieve the key outputs the ESO has committed to deliver.

ESO non-IT opex and capex costs

1.11 We recognise that the activities proposed by the ESO are all activities we would expect from an efficient system operator. The activities proposed by the ESO in its Business Plan align strongly with the expectations we set out in the ESO Roles Guidance document. Together with the ESO, we have validated this with ongoing stakeholder engagement which has supported the view that the ESO should deliver across the proposed areas at pace.

4.11 The forecast for the ESO's non-IT capex expenditure has risen for the remainder of BP2 from BP1 levels, especially for years 2024/25. However, the forecast remains small in comparison to IT capex. We are confident that the ESO's property investments are justified and required as the ESO looks to increase headcount and hire for the future.

1.12 We acknowledge that some increase in expenditure is merited in BP2 for the ESO to achieve its 2025 vision and comply with new obligations.

ESO IT opex and capex Costs

1.13 We commissioned an independent consultant, Zuhlke, to assess the ESO's IT investment programme based on the criteria set out in our ESO Business Plan: IT Investment Plan Guidance document²¹. Through this assessment, the independent consultant concluded that, based on the evidence provided, all ESO specific investments had met the threshold set out in our guidance of being required from an effective ESO. The details of this assessment can be found in the Appendix 4.

BSC

1.14 The ESO's forecast Business Support Costs have risen significantly from BP1 - driven by a large rise in the IT & Telecoms (IT&T) category. As with the ESO

²¹ Chapter 2, ESO Business Plan: IT Investment Plan Guidance Document: [ESO Business Plan IT Investment Plan Guidance.pdf](#)

specific IT costs, we recognise the need for the IT improvements but have concerns regarding the efficiency of the proposed delivery.

Other price control costs

- 1.15 Our assessment of Cyber IT costs is confidential and not discussed in this document in the interests of national security.
- 1.16 Overall, we have considered whether allowing the full totex figure is in the best interests of consumers, in light of our concern around significant cost increases for certain IT investments. However, given that we believe all activities should proceed for the reasons set out in Chapter 2, we propose accepting the full totex amount. This proposal is qualified by Ofgem setting an ex-ante Value for Money score which will ensure the ESO is strongly incentivised to drive cost efficiency, whilst still enabling the ESO to deliver at pace.

Cost consultation questions

ESOQ10. Do you agree with our proposal to approve the ESO recovering its full BP2 funding request of £671m?

ESOQ11. Do you agree that the activities and investments proposed by the ESO are necessary and should proceed?

Proposed Value for Money scoring

Background

- 4.12 As outlined in Chapter 2, we are proposing to move away from setting an ex-ante cost benchmark to providing an ex-ante score for costs against the Value for Money evaluation criterion.

Methodology for assessment

- 4.13 Our assessment of costs focuses on BP2. We have reviewed the full five-year RIIO-2 proposals for context but have not performed an assessment of cost efficiency after 31 March 2025. The assessment draws from the information submitted: in the ESO's Business Plan; annexes and supporting data tables; and the ESO's responses to a number of supplementary questions asked following the Business Plan submission.

- 4.14 We have opted to review IT opex and IT capex separately to the ESO's non-IT opex and capex. This is because a large portion of the cost increases in the ESO's Business Plan are driven by IT. To aid the review of the IT costs, we commissioned an independent review of the ESOs Business Plan IT proposals. The details of this review can be found in Appendix 4.
- 4.15 For clarity, our assessment of Value for Money has been performed Role-by-Role. Our assessment of whether the activities in its Business Plan meet our expectations of an efficient ESO has been performed on an activity-by-activity basis. Cross-cutting expenditure impacts all three Roles equally. Our Value for Money scores are not impacted by Non-Activity Based costs (such as licence fees and business rates) or the ESO's NIA allowance.

ESO non-IT opex and capex costs

- 4.16 Our non-IT opex and capex assessment for the ESO is unique to the ESO and employs a bottom-up approach. This involves the combination of:
- Quantitative analysis of historical run rates to establish changes in spending for each sub-category of costs; and
 - Qualitative reviews of the supporting narrative for expenditure and associated outputs by Subject Matter Experts (SMEs) within Ofgem.
- 4.17 This is different from our assessment for similar cost types for other networks where we have used top-down econometric analysis. Other networks' opex activity and capex costs can more readily be compared against each other. Their costs are more stable and use consistent cost categories going back multiple price control periods. Our approach for the ESO recognises that its activities and capex requirements, such as the control room, are unique and that it is in the process of undergoing a transition, which does not facilitate similar comparison benchmarking.

ESO IT opex and capex Costs

- 4.18 The ESO's IT costs have been assessed with the input of external experts Zuhlke, who produced an independent assessment of the ESO's IT. The assessment was performed on the ESO plans – both from a portfolio-level perspective and on a project-by-project basis using the seven criteria and Red-Amber-Green (RAG) rating set out in the ESO Business Plan: IT Investment Plan Guidance Document.

1.17 Each of the IT investments have been allocated a Role in annex 4 of the ESO’s Business Plan. This allocation has been used to assign individual investments to Roles in the incentive scheme.

Other price control costs

4.19 Other price control costs were also assessed using the bottom-up methodology described above. Any assessment of Cyber IT costs is confidential and not discussed in this document in the interests of national security.

Consultation position

4.20 Table 17 below sets out our proposed Value for Money scoring.

Table 17: Initial Value for Money Scoring proposals

Role	Score	Overview of Rationale
Role 1	Below Expectations	71% of the Role 1 ESO specific IT investments were rated Red in the Zuhlke report. We note that non-IT costs have sufficient evidence to justify the proposed cost increases.
Role 2	Below Expectations	47% of ESO specific IT costs were rated Red. Only 12% of costs were in investments rated as Green in the Zuhlke report. A small number of non-IT costs have seen rises that are not clearly justified or require clearer deliverables (see below). However, these are not the primary driver of this score.
Role 3	Meets Expectations	Non-IT costs generally have sufficient evidence to justify the proposed cost increases, although we highlight some specific areas below that require further information. 99.8% of ESO specific IT spend is on Amber rated projects and there are minor concerns with the clarity of some deliverables. However, there were no Red rated projects in the Zuhlke report. We believe that the issues with the Amber projects are due to lack of evidence rather than specific issues highlighted in the Zuhlke report.

Rationale for consultation position

Role 1

- 4.21 The ESO is requesting £253m over BP2 for Role 1 costs. £162.4m are Role 1 ESO specific IT investment costs and the remaining £90.6m are non-IT costs, shared IT costs and IT incremental running costs.
- 4.22 The key driver for scoring Role 1 as 'below expectations' are the concerns we have identified with the Role 1 specific IT investments. Some 64% of the Role 1 funding request is ESO IT specific investments and red-rated IT projects make up more than 45% of the total Role 1 request. Further details of these concerns can be found in Appendix 4.
- 4.23 For specific IT investment costs, 19 of the ESO's investments were categorised as Role 1 investments. This represents £162.4m in BP2, 63% of the total £259.7m Role specific IT Investment funding request. The Zuhlke report highlighted:
- 10 of those investments representing £114.8m in BP2 and 71% of the Role 1 IT funding request, were rated as Red;
 - 5 investments were rated as Amber representing £37.4m or 23% of the Role 1 IT funding request; and
 - 4 investments were rated as Green representing £10.2m or 6% of the Role 1 IT funding request.
- 4.24 For non-IT opex, we are satisfied that the ESO has provided sufficient evidence to justify the proposed increase in Role 1. Cost justifications have been sufficiently explained and efforts have clearly been made to rationalise resource allocation across activities in some cases. The cost of additional headcount in new and changed activities appear proximate to the outputs to be delivered. In addition, the increase requested is small compared to the increase requested at the start of RIIO-2 from RIIO-1.

Role 2

- 4.25 The ESO are requesting £111m over BP2 for Role 2 costs. Some £56.4m are Role 2 ESO specific IT investment costs and £54.6m are non-IT costs, shared IT costs and IT incremental running costs.

- 4.26 The main driver for scoring Role 2 as 'below expectations' are concerns with the ESO's proposed Role-specific IT spend. Some 51% of the Role 2 funding request is IT; with 47% of those ESO Role-specific IT investments rated red and 41% of the investments rated amber. Further details can be found in Appendix 4.
- 4.27 7 investments were categorised as Role 2 totalling £56.4m or 22% of the total £256.6m Role-specific IT investment funding request. In the Zuhlke report, of those 7 investments:
- 3 investments were rated as Red, representing £26.5m in BP2 or 47% of the Role 2 IT funding request;
 - 2 were rated as Amber representing £23.2m in BP2 and 41% of the Role 2 IT funding request; and
 - 2 investments were rated as Green, £6.7m in BP2 and representing 12% of the Role 2 IT funding request.
- 4.28 The ESO has requested a significant increase in headcount. The level of cost increase is not, in all instances, well justified when considered against the proposed outputs over BP2.
- 4.29 We note that the ESO has requested significant additional opex to fund an increase in headcount for sub-activities *A4.2 Power Responsive* and *A4.3 Deliver a single day-ahead response*. In its Business Plan, these sub-activities are marked as having undergone 'no or minor change.' We would like to understand the drivers of the need for the additional headcount beyond what the ESO has provided in its submission.
- 4.30 The ESO has also expanded its work around sub-activity *A6.1 Code management/market development* and change and added a new sub-activity *A6.8 Digitalisation of code* under the activity. While we are satisfied that the level of spend associated with these activities has been justified, we would like to understand what the ESO expects market reform to deliver for the inputs, as well as the material differences between sub-activity *A6.8* and *A6.5 Work with all stakeholders to create a fully digitalised whole system technical code by 2025*. This is to gain confidence that the ESO has dedicated spend efficiently across the activity to avoid overlap.

Role 3

- 4.31 The ESO is requesting £106m over BP2 for Role 3 costs. £40.9m are ESO Role-specific IT investment costs and £65.1m of those are non-IT costs, shared IT costs and IT incremental running costs.
- 4.32 We have scored Role 3 as 'meeting expectations'. Some 39% of the total Role 3 funding request is IT. No projects were rated as red for Role 3 and the vast majority of spend is on amber-rated investments. The main reason for a number of those projects being rated as amber was a lack of information rather than identified issues. Details of this assessment can be found in Appendix 4.
- 4.33 7 investments were categorised as Role 3 totalling £40.9m or 16% of the £256.6m Role-specific IT investment funding request. The Zuhlke report highlighted:
- None of the IT investments for Role 3 were rated as Red;
 - 6 investments were rated Amber representing £40.8m or 99.8% of the Role 3 IT investment funding request; and
 - 1 investment was rated as Green, representing £0.1m in BP2, 0.2% of the Role 3 IT investment funding request.
- 4.34 The forecast for Role 3 non-IT opex has risen significantly when compared to BP1 estimates - driven by a marked increase in headcount, most notably to support activities *A22 Offshore coordination and network planning review* and *A14 Take a whole electricity system approach to connections*. As set out in Chapter 3, we have proposed to introduce a new metric on connections and are reviewing the ESO Roles Guidance in this area. We expect to see clear positive outcomes for this level of funding increase.
- 4.35 While the ESO has proposed to introduce significant changes to the scope of its Role 3 activities, we have some concerns as to the deliverability of the plan and the lack of clarity as to specific deliverables. This is particularly true for sub-activities *A15.8 Facilitated distributed flexibility and whole electricity system alignment*, and activity *A14 Take a whole electricity system approach to connections*.
- 4.36 Overall, while the ESO has scored within the 'meeting expectations' bracket, it is towards the lower end of this scoring. We expect to see further clarity and action

to remedy the points set out above before we would consider adjusting our score upwards within this category.

Costs consultation questions

ESOQ12. Do you agree with the proposed Value for Money scoring?

Cost monitoring framework

Background

1.18 As outlined in Chapter 2, we are proposing to move away from setting an ex-ante cost benchmark to providing an ex-ante scoring of costs against the Value for Money evaluation criterion. We propose to place emphasis during the incentive scheme cycle on evidence of good practice supported by a clear rationale for expenditure through a cost monitoring framework.

Consultation position

4.37 We propose to introduce a detailed framework to monitor the ESO's costs. This will cover all costs but will have a specific focus on IT and the delivery of IT investments. This framework will allow the ESO to regularly report cost variances or delivery changes from its plans as well as provide additional evidence to address any concerns we have about the efficiency of its plans.

1.19 As part of this framework, we will reassess the ESO IT investment plans and produce an updated RAG rating for each investment following the same criteria as used in this assessment. This will feed into a mid-scheme (12-month) scoring for Value for Money as part of the mid-scheme evaluation process.

4.38 We propose to introduce a cost monitoring framework centring on update reports provided quarter-yearly throughout the incentive scheme. The quarterly report will be split into two sections:

- An update report; this should focus on a Role-by-Role summary of investments and a progress dashboard for each investment. The report can be supplemented by information for a Role or investment to identify deviations from plans and cost forecasts or to highlight a key decision, improvement or change in risk profile. The primary focus of this section is

to provide surety to Ofgem regarding the progress of key investments. The structure used will be pre-agreed with Ofgem; and

- Any additional information or evidence; the ESO can provide targeted details to answer specific questions asked, provide additional evidence on a topic or provide evidence of a change of plan, cost or assumption from its original plan to address areas of concern.

4.39 Further detail of the proposed cost monitoring framework can be found in the ESORI Guidance document, published alongside this document.

Rationale for consultation position

4.40 By introducing a framework for ongoing monitoring of costs, we give the ESO the opportunity to regularly engage with Ofgem on our Value for Money assessment. The ESO can provide additional evidence where Ofgem have indicated areas of concern or evidence where they consider themselves to be 'exceeding' our expectations.

4.41 The monitoring framework and regular engagement will also allow the ESO to provide an update as plans change, with the reason for the changes as they happen - and allow Ofgem to ask further questions and provide initial feedback to that evidence where appropriate.

1.20 The proposed rescoring of the Value for Money is in line with the existing incentives process where we score the ESO at the mid- and end-of-scheme stages. The reassessment of the RAG ratings at the mid-scheme stage will be to provide a clear steer for IT investments and highlight any continuing areas of concern. This will allow the ESO to address them ahead of the end of scheme evaluation for BP2.

1.21 We believe the proposals above strike the right balance between allowing the ESO to provide evidence and ongoing assurance without placing too much regulatory burden upon them.

Costs consultation questions

ESOQ13. Do you agree with our proposed approach to monitoring the ESO's costs?

Disallowance of demonstrably inefficient or wasteful expenditure

Background

- 4.42 Our Final Determination for BP1 limited the amount of demonstrably inefficient and wasteful expenditure (DIWE) that Ofgem can disallow each year at 2.5% RAV per year.
- 4.43 We stated that we would keep this cap under review, based on the ESO's track record of delivery and any Ofgem use of disallowance powers. We would consider adjusting the value of the cap at the start of BP2 if this would be in consumers' interests.
- 4.44 The ESO has not proposed a change to the disallowance cap in its Business Plan for BP2.

Consultation position

- 4.45 We propose to keep the cap value the same for BP2. We agree there is no case to review the disallowance cap, unless the overall additional funding package (see Chapter 5) creates a need to review the disallowance cap.

Costs consultation questions

- ESOQ14. Do you agree with our proposal to not change the disallowance cap value for BP2?

5. Finance

Introduction

5.1 In the following sections we propose financing assumptions for the notional ESO for BP2. Table 18 summarises our proposals.

Table 18: Finance proposals for the ESO for BP2

Finance Area	ESO Proposal	Consultation position/assessment
Capitalisation rates	No change from BP1	Capitalisation rate set as 35% for 2023/2024 and 34% for 2024/2025
Additional funding – Working Capital Facility (WCF)	Additional £4.4m for BP2	Maintain the level of additional funding from BP1 to BP2.
Additional funding – Other		

Additional funding (including the WCF)

Background

5.2 Our Final Determination for BP1 set 'Additional Funding – Other' at £4.8m per year (nominal prices) and 'Additional Funding – Working Capital Facility (WCF)' as a pass-through arrangement to fund the efficient and observable costs for the WCF. The WCF was estimated at £0.7m - £0.9m in nominal prices²².

5.3 We stated that these additional funding decisions could be reviewed for BP2 due to the uncertainty of the underlying estimates, the changing nature of the ESO's role and the lack of precedent for the underlying risks. We would consider potential changes to revenue collection cashflow risks and whether experience with the new price control could change the level of perceived asymmetric risk the ESO is credibly exposed to.

5.4 For BP2, the ESO has requested a further additional £4.4m (bringing the total 'additional funding' to £10m per annum) based on two arguments:

- Increased risk to the ESO from taking on new strategic planning roles; and

²² Chapter 5, RIIO-2 Final Determinations – Electricity System Operator Annex: [RIIO-2 Final Determinations – Electricity System Operator \(REVISED\) \(ofgem.gov.uk\)](#)

- To cover any increased cashflow risk in in the event that an annually fixed BSUoS tariff is introduced under code change CMP361²³ or any variant.

Consultation position

5.5 On the basis of the evidence provided, we propose to maintain the level of additional funding from BP1 to BP2.

Rationale for consultation position

5.6 We are sceptical of the need for further additional funding as, at present, we see no major risk change and consider the evidence for needing more funding or capital weak or unclear. The ESO argues that new roles in early competition and offshore coordination will materially change its risk profile and merit more additional funding once established, but has not presented detailed arguments or figures at this point.

5.7 With regard to BSUoS cash flow, we believe there are still a number of open and unspecified details which could impact the split of risk between stakeholders, and therefore the right level of funding. Furthermore, we would expect to see stronger evidence from the ESO and a clear case that an increase would not result in double-counting (e.g. ESO's remuneration). In addition, we are currently unpersuaded by the ESO's specific arguments and calculation for additional funding.

5.8 We remain open to engaging further with the ESO between Draft Determinations and Final Determinations to consider further evidence and review our position for Final Determinations where appropriate.

Capitalisation rates

Background

5.9 At the start of RIIO-2 we set annual capitalisation rates that reflect expected split between capex and opex expenditure (37% for 2021/22 and 34% for 2022/23).

²³ Final Modification Report CMP361 & CMP362: [download \(nationalgrideso.com\)](https://nationalgrideso.com)

5.10 In its Business Plan, the ESO has not proposed to change the capitalisation rate for BP2.

Consultation position & rationale

5.11 We do not think a financial ability assessment is needed as we are only redetermining a subset of financial decisions for BP2, which do not materially change the ESO's business.

5.12 Therefore, based on the expected split between capex and opex expenditure for BP2, we propose to set annual capitalisation rates at 35% for 2023/2024 and 34% for 2024/2025 - in keeping with the previous methodology for BP1.

Finance consultation questions

ESOQ15. Do you agree with our proposal to not increase additional funding for BP2 based on the current information available?

ESOQ16. Do you agree with our proposal to set annual capitalisation rates in keeping with the previous methodology for BP1?

6. Innovation

Introduction

- 6.1 Innovation plays a key role in supporting the transition to a smarter, more sustainable energy system on the path to Net Zero. It will help us to discover new ways of operating and developing networks to facilitate the system integration of flexible, low carbon and distributed technologies. It will also enable us to make efficiency gains and ultimately, to lower costs for consumers.
- 6.2 At the start of RIIO-2 we set the ESO’s Network Innovation Allowance (NIA) funding at £20.7m for the 5-year period. We set out that the ESO could request additional funding for BP2, alongside further details of planned innovation activity in those years and more evidence of how the activities will build upon wider activities in the RIIO-2 Business Plan.

Network Innovation Allowance

- 6.3 We set out below our Draft Determinations on the ESO’s BP2 NIA funding.

Consultation position

Table 19: ESO NIA proposals for BP2

Network Innovation Allowance	ESO proposal	Consultation position
Level of NIA funding	Additional £24.3m NIA funding for RIIO-2	£21.9m additional NIA funding for RIIO-2

Methodology for assessment

- 6.4 At the start of RIIO-2, we outlined our RIIO-2 NIA framework and the criteria used to assess NIA²⁴. For BP2, we have followed a similar approach, adapting it to more closely align with the approach used to evaluate Distribution Network Operators (DNOs) bids under the same funding bracket²⁵. The revised framework

²⁴ Chapter 10, RIIO-2 Sector Specific Methodology Decision: [riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf](#)

²⁵ Chapter 3, RIIO-2 ED2 Draft Determinations – Core Methodology Document: [RIIO-ED2 Draft Determinations Core Methodology.pdf](#)

underscores the expectation that innovation should be a core part of a companies' Business As Usual (BAU) activities.

6.5 When assessing innovation allowances we considered the following, along with any other relevant information:

- *Proposals for these allowances in the business plans;*
- *Undertaking other innovation as BAU activities;*
- *Application of best practises;*
- *Processes in place to roll out proven innovation into BAU and the evidence that this is already happening; and*
- *Processes in place to monitor, report and track innovation spending and the evidence that this is already happening.*

Rationale for consultation position

6.6 We have outlined our assessment of the ESO's Business Plan against the revised criteria in the table below:

Table 20: Assessment of ESO's Business Plan against NIA criteria

NIA criteria	Ofgem view
Proposals for these allowances in the business plans	<p>Satisfies the criterion including: The ESO provides strong evidence to indicate that the NIA projects within its portfolio at the time of BP2 submission meet its broader innovation strategy and priority areas. The ESO further outlines the potential benefits it expects these innovation projects will have for the wider energy system and future consumers, although we note these are seldom quantified. There is clear continuity between many of the projects completed during the BP1 period and the forward workplan for BP2, with new areas of activity highlighted.</p>
Undertaking other innovation as BAU activities	<p>Satisfies the criterion including: Whilst we note the ESO has not explicitly committed to spend on innovation from BAU funding, we acknowledge that the ESO's price control is not directly comparable to that of the DNOs for the purpose of assessing them against this criterion. As such, we believe it is reasonable for the ESO to rely largely on NIA funding to carry its innovation plans forward.</p>
Application of best practices	<p>Satisfies the criterion including: Evidence of established governance procedures for innovation projects and consideration of best practice across wider industry engagement, the scale up of innovation investments and potential supplier contracts.</p>
Processes in place to roll out proven innovation into BAU and the	<p>Does not satisfy the criterion:</p>

<p>evidence that this is already happening</p>	<p>We do not consider that the ESO has demonstrated sufficient transparency and ambition in its process to roll out proven innovation into BAU.</p> <p>We note the ESO uses the Energy Networks Association (ENA)'s Innovation Measurement Framework (IMF)²⁶ to report annually on the implementation of innovation into BAU. However, it is not clear that benefits are being quantified on a consistent basis and that the IMF will report on innovation benefits realised through roll-out into BAU. We would like to see more specific examples of the impact of innovation projects on BAU activities.</p>
<p>Processes in place to monitor, report and track innovation spending and the evidence that this is already happening</p>	<p>Satisfies the criterion including: Clear illustration of processes in place to monitor, report and track innovation spending and benefits. In addition, demonstration that cost forecast revisions are subject to a strict change control process.</p>

6.7 We consider that the ESO has satisfactorily met four out of five of our assessment criteria, demonstrating sufficient evidence to support awarding £21.9m of additional NIA funding for years 3-5 of RIIO-2. This figure is the ESO's total funding request minus 10% to reflect the lack of evidence it has provided against our benefits tracking criterion. This is a fixed allowance with flexibility for the ESO to allocate funds over the remainder of RIIO-2.

6.8 The ESO has evidenced significant progress since our last assessment in its efforts to streamline and manage the NIA project assessment and procurement processes. However, we have identified weaknesses in its approach to ensuring that the benefits from NIA-funded innovation filter into BAU.

6.9 Our NIA award at the start of RIIO-2 was contingent on the introduction of a new and improved, sector-wide benefits tracking framework. While the introduction of the Business Partner model provides some assurance that the ESO has improved its management and monitoring of the rollout of innovation into BAU, we have doubts as to the robustness of the framework used by the ESO to roll-out innovation into BAU.

6.10 The ENA's Innovation Measurement Framework (IMF) is intended to provide stakeholders with an accurate and comparable representation of the benefits associated with investing in network innovation. We expect to see the ESO provide

²⁶ https://www.energynetworks.org/assets/images/Energy_Networks_Innovation_Process-Final.pdf

further evidence to demonstrate a robust quantification of the benefits associated with innovation on a consistent basis.

Innovation consultation questions

ESOQ17. Do you agree with the level of proposed NIA funding for the ESO? If not please outline why.

7. FSO

Introduction

- 7.1 In April 2022²⁷, we published a joint consultation response/decision with BEIS on the next steps for the Future System Operator (FSO). The key decision was the commitment to proceed with the creation of an expert, impartial FSO with all the main existing ESO roles and longer-term planner roles of the Gas System Operator (GSO), which would be delivered by, or in, 2024, subject to legislation currently before Parliament. The FSO will have an important duty to facilitate Net Zero whilst also maintaining resilient, and cost-effective system operation.
- 7.2 As part of its BP2 submission, the ESO produced an indicative plan for the transition to FSO. This plan included transformational activities, high-level costs and milestones.
- 7.3 Since the submission, we have engaged with the ESO and National Grid Plc and asked them to produce a more detailed plan for the transition to FSO. This further plan will include a separation blueprint with more detailed costings for the activities associated with separation and transitioning to the FSO. The ESO and National Grid Plc are still in the process of finalising this plan and we expect that this will be shared with us later this year.
- 7.4 FSO transition is important, and we want to enable and incentivise high quality, cost-effective FSO delivery by the ESO alongside its core BP2 plan. Therefore, we are setting out our high-level proposals on the approach we will take for assessing and overseeing any transition activities which fall within the price control for consultation. We expect to consult, in full, in the new year on both the details of these proposals and the efficient level of cost to be funded once we have received the ESO's detailed plan. To note, our approach to FSO regulation and incentives is considered separately to the BP2 process. However, we will try to align the processes going forward where appropriate.

²⁷ Future System Operator: Government and Ofgem's response to consultation: [Future System Operator: government and Ofgem response to consultation \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/consultations/future-system-operator)

Funding

Background

7.5 In its BP2 submission the ESO estimated that the one-off cost of the transition to the FSO would be between £135m and £185m, which includes preparatory costs and separation costs. The ESO is currently in the process of producing a more detailed cost assessment and plan of separation activities and we expect to receive this plan later this year.

Consultation position

7.6 We propose, in principle, to fund efficient costs incurred by the ESO for transition to the FSO using the ESO's licence. For clarity, the level of efficient cost is still to be decided.

7.7 We propose that costs incurred will not be classed as totex or added to RAV. Instead, we propose to introduce a new 'pass-through' item into the ESO's licence conditions. Alongside our funding proposal, we will introduce an incentive framework which is discussed later in the chapter.

Rationale for consultation position

7.8 Timely and cost-effective delivery of the FSO is within consumer's best interests as it will facilitate Net Zero whilst also maintaining a resilient, and affordable system. We are proposing to fund efficient FSO costs as a 'pass-through' as our main focus is on the effective delivery of FSO transition which is critical for the sector transition, and this changes but does not itself add to the ESO/FSO value. Introducing an incentive framework, alongside our funding proposal, will ensure the ESO is held accountable for transition costs.

7.9 We expect to consult in our follow-up consultation on the following details of the ESO's transition cost funding:

- Which FSO transition activities we will agree to fund;
- Conclusions on cost efficiency; and
- Any additional cost protection measures.

Regulatory and incentives framework

Background

7.10 In the ESO’s BP2 submission it presented an indicative plan to establish the FSO. Our initial view is that it is a good early plan and has additional value in driving ownership of the FSO vision and design within the ESO. The ESO is currently in the process of producing a more detailed cost assessment and plan of separation activities and we expect to receive this plan later this year.

Consultation position

7.11 We propose to introduce a reporting and incentives framework to create transparency on progress towards FSO transition, and to incentivise timely and efficient FSO delivery. We are consulting on the outline of this framework as part of these Determinations and will follow-up with detailed decisions on specifics once the costs and outputs for the FSO transition are clear.

7.12 We propose the following as our minded to positions on the high-level incentive and reporting framework:

Table 21: Assessment of ESO’s Business Plan against NIA criteria

Incentive and reporting framework	High level proposals
Scheme length	To final delivery of a standalone FSO with interim progress assessments to be set in line with transition plan and timetable.
Scheme design	Evaluative assessment focused on delivery and spending with potential use of KPIs/performance measures.
Scheme value	Reputational only
Reporting & monitoring	Report against key delivery milestones and costs. Co-ordinated with wider BP2 process and new cost monitoring framework (see Chapter 4) where appropriate.

Rationale for consultation position

7.13 We have proposed that the framework should last until the FSO is delivered. This will allow us to continually assess the ESO’s performance until final delivery to ensure all measures are taken to deliver a high-quality and cost-effective

transition to the FSO. We propose to set intermediate progress assessments tied to key stages of the transition.

- 7.14 We propose an evaluative assessment focusing on delivery and spending. This should incentivise high-quality and cost-effective delivery of the FSO by the ESO. We expect to consult on precise assessment criteria and any specific output expectations in our future detailed consultation.
- 7.15 We believe a reputational, rather than financial, incentive better suits this framework. This is because this method allows for a framework that is not restricted by BP2 timelines and therefore can be more reactive to any uncertainty in FSO delivery timelines. In addition, FSO transitional activities are distinct from current Business Plan activities, making allocation of funds under the current incentive framework difficult. Furthermore, given the current timelines and mechanics for FSO transition, using a financial incentive could lead to imposing penalties through disallowance on different ownership for actions they did not undertake. We are considering the details of this approach, notably the possible inclusion of a public statement from the Authority when reviewing the ESO's performance.
- 7.16 We propose the ESO report on key milestones and their costs associated with delivery to ensure we can effectively monitor the delivery of the ESO's plans to transition to an FSO. Our current thinking is to align with other monitoring processes, such as the proposed new cost monitoring framework under BP2, to ensure a streamlined process. We will consult on specific reporting requirements and associated timelines as part of a future consultation.

FSO consultation questions

ESOQ18. Do you agree with our intention to fund the ESO's efficient FSO transition costs through a mechanism set out in the ESO's licence, and that this should not be classed as totex and therefore not added to RAV? If not, please detail why.

ESOQ19. Do you agree with our proposals for a regulatory and incentive framework for FSO delivery? If not, please outline why.

Appendices

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Appendix 1 – Consultation questions

This appendix lists the consultation questions in this document.

Incentives framework consultation questions

- ESOQ1. Do you agree with our proposed approach to within-scheme feedback, including the timings and approach to performance panel sessions?
- ESOQ2. Do you agree with our proposed changes to the evaluation criteria for BP2?
- ESOQ3. Do you agree with our overall approach to cost regulation for the ESO?

Outputs consultation questions

- ESOQ4. Do you agree with our proposed changes to the ESO Roles Guidance?
Are there any areas we have not captured in our expectations?
- ESOQ5. Do you agree with our grading of the ESO's Delivery Schedule for 2023-25?
- ESOQ6. Do you agree with our proposed changes to the performance metrics for BP2?
- ESOQ7. Do you agree that the full suite of metrics provide a comprehensive view of measurable ESO performance? If not, what is missing?
- ESOQ8. Do you agree with our proposed changes to the performance benchmarks for measuring stakeholder satisfaction?
- ESOQ9. Do you agree with our proposed changes to the regularly reported evidence for BP2?

Cost consultation questions

- ESOQ10. Do you agree with our proposal to approve the ESO recovering its full BP2 funding request of £671m?
- ESOQ11. Do you agree that the activities and investments proposed by the ESO are necessary and should proceed?
- ESOQ12. Do you agree with the proposed Value for Money scoring?
- ESOQ13. Do you agree with our proposed approach to monitoring the ESO's costs?
- ESOQ14. Do you agree with our proposal to not change the disallowance cap value for BP2?

Finance consultation questions

- ESOQ15. Do you agree with our proposal to not increase additional funding for BP2 based on the current information available?

ESQ16. Do you agree with our proposal to set annual capitalisation rates in keeping with the previous methodology for BP1?

Innovation consultation questions

ESQ17. Do you agree with the level of proposed NIA funding for the ESO? If not please outline why.

FSO consultation questions

ESQ18. Do you agree with our intention to fund the ESO's efficient FSO transition costs through a mechanism set out in the ESO's licence, and that this should not be classed as totex and therefore not added to RAV? If not, please detail why.

ESQ19. Do you agree with our proposals for a regulatory and incentive framework for FSO delivery? If not, please outline why.

Appendix 2 – Grading of the ESO’s Delivery Schedule

Purpose of this appendix

This appendix sets out our proposed grading of the ESO’s two-year Delivery Schedule. Its purpose is to provide the ESO with targeted feedback on how and where it should improve its Delivery Schedule before we perform a final plan grading at the Final Determinations.

For clarity, we have graded the Delivery Schedule for BP2. The ESO’s RIIO-2 aims were assessed at the start of RIIO-2.

Summary of assessment

Table 22: Summary of ESO Delivery Schedule Grading for BP2

What	Assessment	Role 1	Role 2	Role 3
RIIO-2 aims (assessed at the start of RIIO-2)	Ambition (1-5)	5	4	4
Two-year Delivery Schedule	Minimum requirements met (Yes / No)	Yes	Yes	Yes
	Ambition (1-5)	4	4	4

Assessment of two-year Delivery Schedule

Role 1

We determined the Delivery Schedule for Role 1 was particularly ambitious in our BP1 assessment. We still consider the Delivery Schedule to have a high degree of ambition and exceed some of our expectations over the next two years in BP2.

However, given the ESO’s ability to further develop and scope activities in BP1, we expected to see more tangible deliverables across BP2 that provide assurance that the ESO will be on track to deliver its full RIIO-2 ambition. As a result, we now have less confidence in the full delivery of the plan for BP2, owing to notable delays during BP1 or unclear targets set in the Delivery Schedule for BP2. In particular, we note the following:

Appendix 1 Delays in the delivery of enhanced balancing capability and competitive procurement of restoration services - two key deliverables in our assessment of the Delivery Schedule both for BP1 and BP2;

Appendix 2 Extension of the Distributed ReStart project not being reflected in the Delivery Schedule for BP2. Distributed ReStart is an innovative and important activity and implementation of the learning from these trials would exceed our expectations but cannot be correctly assessed or tracked if omitted from the Delivery Schedule; and

Appendix 3 Milestones for operational coordination with DNOs are difficult to assess, meaning it is unclear whether these activities will exceed our expectations or not.

For Role 1, we have therefore graded the two-year Delivery Schedule for BP2 a '4'. To further build on this score and ensure it exceeds our expectations, the ESO must provide surety that key milestones for deliverables in its Delivery Schedule will be reached during the BP2 period and that the ambitions for RIIO-2 can be achieved in the remaining years.

1(a) System Operation		
<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A1 (excluding D1.1.7, D1.4.1) A2, A18	Yes	Exceeds
<p>Comments:</p> <ul style="list-style-type: none"> • The critical functions of the ESO (D1.1.1 – D1.1.3) meet our expectations as they are primarily assessed using metrics. • Co-operation with European bodies (D1.1.4), continued update of legacy IT systems (D1.1.5) as well as the continued production of the Operability Report (D1.1.6) meet our expectations for this Role. We note that success measures for D1.1.4 appear to be deliverables but there are no indicative milestones or deadlines associated with these outcomes. • Increasing the robustness of trading solutions (D1.1.8) meets our expectations, however, could be improved with clear milestones where possible. • The deliverables associated with the Future of Balancing activity, previously named Enhanced Balancing Capability (A1.2), still exceed our expectations if the ESO remains on track to deliver the success measures associated with these deliverables. We note that several milestones in this area were delayed in the BP1 period, but we still consider that the final deliverable of being able to dispatch a greater number of market participants would exceed our expectations. • Similarly, the activity to Transform Network Control (A1.3) will exceed our expectations if the ESO can continue to demonstrate it is able to meet its milestones for the end of BP2. The milestones in this area are well-specified and achieving the outcomes of this activity are a key success area in our grading. • The new activity for Operational Coordination with DSO and DER (A1.5) could exceed our expectations to deliver whole system benefits in liaison with 		

	<p>DNOs. However, the key milestones for these deliverables are generally intangible and difficult to track so we cannot say with confidence that the ESO will exceed our expectations in this area.</p> <ul style="list-style-type: none"> • The new activity for Minimising Balancing Costs (A1.6) meets our expectations as we consider most of the activities contained within to be BAU activities. • Several of the deliverables for Control Centre Training and Simulation (A2) are unchanged from BP1 and therefore continue to meet our expectations. We are aware of multiple delays from this activity, so confidence that the ESO will meet its targets will be key to meeting our expectations. • The new activity for Market Monitoring (A18) meets our expectations. This activity ensures compliance with the ESO’s PPA and licence conditions. Compliance in these areas is a minimum requirement for the ESO and so does not exceed our expectations.
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1(b) Restoration

<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A3	Yes	Exceeds

<p>Comments:</p> <ul style="list-style-type: none"> • The delivery of Fully competitive restoration procurement (D3.1.5) would exceed our expectations. The ESO demonstrates that it will actively seek to maximise the use of non-traditional sources of generation at all voltage levels and could achieve a significant year-on-year increase in the level of restoration services that are competitively procured. • The deliverables associated with implementation of the Restoration Standard (A3.2) continue to meet our expectations. There has been little change in these deliverables from BP1, and so we continue to expect the necessary milestones for compliance will be achieved. • We noted at the start of RIIO-2 that the deliverable for producing a Restoration decision making support tool (D3.2.4) could exceed our expectations if the ESO could successfully develop and implement a tool capable of providing dynamic restoration routes in BP2 timelines. However, the ESO’s milestones and updated timelines in this area (Q4 2024/25 – ‘Tool testing in progress’) imply that this will not be the case following delays during BP1. • The deliverable for Distributed ReStart trials (D3.3.1) has been removed following successful completion of the initial two trials of the project. It is our understanding, however, that the ESO intends to complete a third trial and extend the project. The delivery schedule should be updated to reflect this. Distributed ReStart is still an innovative and important activity and implementation of the learning from these trials would exceed our expectations. 		
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1(c) Transparency, data & forecasting

<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
	Yes	Exceeds

D1.1.7, D1.4.1, A17, A19		
<p>Comments:</p> <ul style="list-style-type: none"> • The deliverable for Producing and publishing detailed forecasts (D1.1.7) meets our expectations and could exceed our expectations with the addition of solar and wind product implementation. However, the success measure of implementation “as far as possible” is not a solid commitment to be held to. This deliverable could be improved by specifying what improvements the ESO is aiming for and the level of integration expected. • There have been no significant changes on the Data & Analytics Platform deliverable (D1.4.1) from BP1. This deliverable continues to exceed our expectations providing the ESO continues to meet integration milestones throughout BP2. • We note several continuous deliverables from BP1 to BP2 under the activity for Transparency and Open Data (A17). These deliverables at least meet our expectations as they show intent to provide user-friendly, comprehensive, and accurate information, including transparency on control room decision making. Deliverable D17.6 for the Operational Transparency Forum has succeeded in exceeding our expectations to date for BP1. This could continue in BP2 if the ESO continues to provide quality information and facilitate a high degree of understanding of the ESO’s operations and decision-making processes. • The new deliverable for the Data & Analytics Operating Model (A19) meets our expectations as the ESO continues to build on the open data platform. There is, however, limited supporting information in the way of activities and milestones for this deliverable which prevents it from exceeding our expectations. 		

Role 2

We expect the activities in the Delivery Schedule will exceed some of our expectations over BP2 and have therefore graded this Role a '4'. In particular, we note the following:

- The pace at which the ESO plans to coordinate with DNOs to ensure a consistent procurement experience for providers of services. We are heartened to see new deliverables added under this activity (A4.5) and a broadening of its scope. We also note an increase in FTE supporting development here; and
- Pathfinders and NIA projects have spurred action on market development for both stability and reactive power requirements. The BP2 Delivery Schedule indicates that ESO will be continuing this work in a more formalised manner. Providing clear investment signals by clearly outlining the procurement principles for these services is important and the ESO's deliverables accord with this.

To further build upon this score in BP2, and ensure that it exceeds our expectations, the ESO could:

- Develop a coherent plan to move to full compliance with 'grandfathered' EU legislation, and to improve communication of why these features of product design are beneficial to industry. The ESO should express to industry why the product/market design principles work for the betterment of markets themselves, their participants and for the operation of the system as a whole, and ultimately result in best outcomes for end consumers.

2 (a) Market Design		
<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A4 A20 A21	Yes	Exceeds
<p>Comments:</p> <ul style="list-style-type: none"> • We note that in BP1 to date, the ESO has not managed to convince us that it has been on top of introducing its new balancing products and markets. There have been issues with quality throughout the product development cycle from ideation through to operation. To meet our expectations for BP2, the ESO would need to improve significantly in this area, both in the roll-out of new products scheduled for delivery and for the ongoing improvements to existing products. • We also note that the ESO did not convince us that they understood their compliance requirements for balancing products and markets under BP1. To 		

meet our expectations for BP2, we need to see a marked improvement in the design of products from a 'compliant first' approach, with greater clarity where this is not possible.

- Delivery of products, compliant with relevant legislative criteria, and evidence that these products are providing benefits would meet our expectations.
- During BP2, we will also be looking for evidence that the products introduced are adding value above and beyond existing services, in order for the ESO to exceed our expectations.
- Renaming the activity Deliver a Single Day-ahead Response and Reserve Market (A4.3) from a focus on response and reserve, to a focus on frequency management, is a positive indication that the ESO has given itself scope to develop new markets that meet system needs and break new ground where required.
- A standardised roadmap of delivery and post-delivery development of products would meet our expectations, including the ESO being able to evidence that products are well thought through, and no unreasonable foreseeable inefficiencies were introduced with 'day 1' products.
- In our assessment of BP1, we indicated that the integrated market platform alone, if delivered well and on time, would be enough to exceed our expectations. While this remains a key area of focus in our expectations, this platform must be a platform that supports high-quality balancing markets that provide consumer value and provider experience.
- We note that the ESO has focused on an agile delivery for their Single-Markets Platform (SMP). We understand that this allows the ESO to prioritise the updates that will most benefit consumers. This therefore has the potential to exceed expectations by providing a positive experience to service providers. We wish to express that the ESO should still focus on ensuring that the SMP is a one-stop shop for all of its markets.
- We recognise that ESO performance could also exceed expectations with clear and well-thought-out deliverables from activities under Net Zero Market Reform (A20) - with the ESO showing leadership from its position central to electricity markets. We recognise that this activity does have dependencies with key policy decisions, but we are glad to see indications that ESO is taking a front-footed approach to overall electricity market design questions.

2 (b) EMR		
<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A5	Yes	Meeting, very slightly exceeding. (3 or low 4)
Comments:		
<ul style="list-style-type: none"> • The ESO generally meets our expectations across the deliverables under activity Transform Access to the Capacity Market and Contracts for Difference (A5). • However, there is lack of clarity on delivery timelines for Contracts for Difference (CfD) activities, and the ESO could add more focus on explaining milestones alongside the Capacity Market (CM) milestones they have outlined. As stated at the start of RIIO-2, there is a lack of specificity in milestones for us to measure progress and performance against, particularly for CfD milestones. • Delays to the introduction of the new EMR portal (descoping it from SMP plans) means that this deliverable now only meets our expectations. Against our proposed ESO Roles Guidance, the ESO could still exceed expectations with an evidenced step change improvement in user experience, which might be linked to reintroducing plans to combine the portal with the SMP. This latter ask is 		

understood to be subject to legislative change, so we expect the ESO to remain agile in its delivery approach for SMP to ensure best value for consumers.

- The main ambition shown under A5 is the ESO positioning itself to be more proactive in policy, rule and process changes as the EMR delivery body. A change in line with this, whereby the EMR delivery body can share and make use of its knowledge and experience on EMR would be beneficial, and in doing so, the ESO could somewhat exceed our expectations.
- Under the activity Enhancing Cross-border Frameworks and Markets (A21.2), the ESO shows good ambition by having a deliverable that aims at enhancing the role of interconnectors in GB markets. Strong delivery against this deliverable could exceed our expectations, however we note that the ESO’s definition of success for this lacks ambition.

2 (c) Industry codes and charging

<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A6 A12 A15.3 A15.8 A21	Yes	Meets

Comments:

- The ESO has defined a good number of deliverables under activity Code Management/Market Development and Change (A6.1) and Industry Revenue Management (A6.3), allowing them to prepare themselves and other industry parties for some of the largest changes expected to the markets in the coming years. Timelines for delivery appear reasonably ambitious. The ESO could exceed expectations by showing strong leadership and proactivity in these areas of reforms.
- While the general theme of Transform the Process to Amend Our Codes (A6.4) is in line with our expectations, milestones for D6.4 lack sufficient detail for us to consider delivery to exceed our expectations.
- The ESO has increased the Net Present Value (NPV) for activity Work with All Stakeholders to Create a Fully Digitalised, Whole System Technical Code by 2025 (A6.5) and Digitalisation of Codes (A6.8) in its CBA. Based on the milestones in the Delivery Schedule, the ESO can exceed our expectations through these activities, but there will need to be evidence of what is actually delivered under the high-level deliverable descriptions.
- For their Security and Quality of Supply Standard (SQSS) review (A12), the ESO has identified a larger number of areas of focus than they anticipated during BP1. It is good to see that the ESO has conducted a prioritisation of these findings and aims to have high-priority areas delivered by the end of the first year of BP2.
- The activity Setting the Net Zero Cross-border Landscape (A21.1) includes the development of a cross-border strategy. We view this as an important deliverable and if the ESO can deliver outputs which are supported by relevant stakeholders, then this could exceed our expectations. The ESO has a crucial role in setting direction of operability and by extension attracting investment in interconnection (including of multi-purpose interconnectors). It is therefore important that the ESO takes a leadership role on this and is proactive in influencing. Particularly, the ESO needs to improve in explaining the potential operational challenges and finding solutions that create least impact across all parties.

- For activity Enhancing Cross-border Frameworks and Markets (A21.2), the ESO meets our expectations in this area, essentially ensuring their legal compliance with legislation and the TCA.

Role 3

The ESO has shown ambition in each of its Role 3 areas to exceed our expectations, and new activities and deliverables promise to deliver value across the electricity market. Specifically, we find that:

- Continuing to look forward at network needs and to identify best value opportunities to procure services and to signal investments are important functions of a successful ESO; and
- Addressing the challenges the industry is facing with the connections process under the current significant volume of possible connections is vital. We are heartened to see that the ESO seems to recognise this. Making improvements in this area would create significant benefit. The ESO needs to make sure it sets clear milestones and ambitious aims to solve issues existing now, and also avoid a similar situation in a few years' time.

To further build upon this score, and ensure that the ESO exceeds our expectations, the ESO could:

- Show how it is pulling together the broad swathe of activities, particularly under 3(b) and 3(c), and ensuring that this is working in the same direction. Additionally, the ESO needs to work to make this clear to market parties, such that they can prepare for the future easily. Parties should get the same investment signals wherever they go for information from the ESO and should be able to easily identify the right place for information to meet their needs.

3 (a) Connections and access		
<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A14 A15.2 A15.5 D15.6.7 A16	Yes	Meets
Comments:		

- Connections has become a major task over BP1. There has been an increase in the number of connection requests beyond the level predicted by ESO forecasting, and the ESO has also expressed that they foresee the number of connections requests remaining at this higher level. Dates for new connections are often significantly in the future with stakeholders expressing significant concern in some areas.
- Following submission of its BP2 plans, the ESO has committed to providing additional resource to allow A14.5 Connections Reform to be completed in BP2 timeframes. If done well to genuinely tackle these issues and avoid recurrence, this would exceed our expectations. However, we cannot currently say it does exceed due to the lack of specific commitments. It is also good to see that ESO is taking onboard stakeholder feedback and prioritising activity where clear industry benefit can be derived.
- Under activity Develop Regional Development Programmes (A15.5), the ESO has added two extra deliverables for the delivery of two new Regional Development Programmes (RDPs). This meets our expectations alongside delivery of the RDPs already underway.
- Two new deliverables under activity Delivery of Consumer Benefits for Improved Network Access Planning (A16), (D16.5.1 and D16.5.2), introduce benefits in line with a system fit for the future and meet our expectations.

3 (b) Strategy and Insights		
<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A13 A15.6 A15.7 D15.8.1 A15.9	Yes	Exceeds
Comments:		
<ul style="list-style-type: none"> • The addition of a bespoke deliverable (D13.2.1) with ambitious milestones that looks to add regional level insights into the Future Energy Scenarios (FES) exceeds expectations. D13.5.3 is also welcome in that it adds to ESO’s ability to be a trusted leading source of information for system insights, but there is not sufficient detail for us to assess whether this exceeds our expectations. • Newly added deliverables for BP2 under activity Transform Our Capability in Modelling and Data Management (A15.6) improve the ESO’s modelling capability. This appears to be a significant modernisation, and on timelines presented, slightly exceeds our expectations. • Activity Deliver Enhanced Frequency Control by 2025 (A15.7) includes a new deliverable, adding a 5th phase of the project in the second year of BP2. Phases 2 – 4 of the project have been moved to BP2 timescales following additional work in BP1. This work meets our expectations. 		

3 (c) Long term network planning		
<i>Relevant deliverables</i>	<i>Met minimum requirements?</i>	<i>Assessment against Ofgem expectations</i>
A7 A8 A11	Yes	Exceeds

A22		
<p>Comments:</p> <ul style="list-style-type: none"> • Deliverables under activity Network Development (A7) continue to offer the ESO opportunity to exceed our expectations. Particularly, the ESO describes success for D7.2 as 'NOA methodology continues to evolve to reflect changing needs.' – this would exceed our expectations as the ESO is uniquely positioned to provide insight into how the NOA can best continue to deliver value in the changing environment of network planning. The ESO should clearly define how the NOA fits within its other activities in Role 3(c), linked to deliverables under activity Network Planning Review and Offshore Coordination (A22). • We are pleased to see pathfinders starting to develop into more bankable markets for system needs, yet that the ESO is bringing forth plans to continue finding efficient procurement through newly-named Network Services Procurement (D8.1). This especially appears to add value by reducing constraint costs, a key driver of high balancing costs. Continued delivery on this aspect, along with broadening of the type and number of technologies able to competitively provide such services, would exceed our expectations. • Further, the new deliverable D8.4 meets Ofgem's expectations for timelines. A forward-thinking approach with the ESO providing input and being an active party in the delivery of a quality first auction would exceed expectations - recognising the regulatory and legislative dependencies of this deliverable which are generally out of ESO's control. • Deliverables under activity Enhance Analytical Capabilities (A11) add valuable functionality to the ESO's modelling capabilities. Successful, timely delivery of these improvements would exceed our expectations, as outlined in our BP1 assessment. • We are aware that deliverables under activity Network Planning Review and Offshore Coordination (A22) are affected by ongoing policy decisions. Until we have a clearer view of policy conclusions and how ESO activities line up with our expectations against this, we will not comment on this area. 		

Appendix 3 - Performance measures assessment and proposals for BP2

Purpose of this appendix

In this appendix, we outline which performance measures we propose to amend, retain, or remove for BP2 from BP1. We also outline which new performance measures we propose to introduce for BP2 and the rationale for our decision.

In addition, we outline the specific areas we welcome stakeholder views and where we will continue to work with the ESO between now and Final Determinations to develop our proposals.

Role 1: Control centre operations

1A. Balancing costs

Proposal

We propose to amend this metric to consider the impact of renewable generation and the wholesale day-ahead price of electricity on balancing costs.

Rationale

High costs over the last 12 months have meant that the model used to calculate the balancing cost benchmark, both *ex-ante*, and more importantly, *ex-post*, has become outdated.

From our analysis, supported by ESO analysis, the variable 'outturn wind' which was used to adjust constraint costs, appears to be less strongly correlated with costs than 'renewable generation as a percentage of demand'. We therefore intend to update the metric to reflect this.

We also intend to use other variables to update the *ex-post* benchmark where appropriate. At this stage, we intend to use the day-ahead wholesale price of electricity as this helps to capture the cost exposure to the ESO in balancing the system in real time.

We believe that having a metric, based on a benchmark that more closely reflects the system conditions that impact on balancing costs, allows for a better assessment of the ESO's performance.

1B. Demand forecasting

Proposal

We propose to amend this metric, with minor changes to the methodology and reporting requirements to account for metered volumes of dispatched demand reduction services.

We propose that in settlement periods where Optional Downward Flexibility Management (ODFM) and/or Demand Flexibility Service (DFS) are instructed by the ESO, this will be retrospectively accounted for in the data used to calculate performance. We also propose that the ESO shall publish and provide Ofgem of any operational forecast used to account for the sensitivity of demand to the anticipated market prices.

Rationale

We anticipate that metered volumes of dispatched demand reduction services may be significant over the current winter period with the introduction of DFS and the increased likelihood of the ESO calling on other demand reduction services. As such, we believe this will need to be factored into the ESO's performance against this metric.

In its Business Plan, the ESO suggested that it was no longer realistic to expect a 5% improvement in historical 5-year average performance considering the increasing penetration of embedded generation. The ESO argued that this increases the uncertainty of demand and therefore proposed a metric based on MW error rather than % error.

Having engaged with the ESO, we hold the view that the metric in its current form continues to have strong relevance for performance monitoring purposes.

Whilst we recognise increased embedded generation could increase the complexity of transmission demand forecasting, we consider this point is more relevant to the choice of performance benchmarks. We believe that the performance baseline and expectation bands in the current methodology provide a reasonable benchmark against which we expect to see improvements. We note that the ESO has committed to invest large sums in improving its demand forecasting capabilities, which we expect to translate into real benefits for consumers.

We recognise that the use of % error could create a focus on lower demand periods when measuring total performance over the two-years. If we were to adopt a MW approach, we believe the opposite would be true, with a larger focus on high demand periods. Historical analysis over the last six years suggests that the ESO has had significantly less accurate forecasts over the summer periods than in winter. At the same time, months of low demand are increasingly becoming some of the most expensive periods in terms of balancing costs. We therefore do not agree with the ESO that focussing on MW errors (and thus higher demand periods) will better align with consumer interests. Given the two choices, we believe that a greater relative focus on low demand periods as opposed to high demand periods is likely to be more aligned with consumers' interests, at least over the next two years. This is because we believe there is a greater need for improvements in performance in these periods.

1C Wind generation forecasting

Proposal

We propose to amend this metric, with minor changes to reporting requirements. This would include a locational tag to BM wind unit forecasts.

Rationale

In its Business Plan, the ESO questioned the continued relevance of this metric. Although it will continue to forecast wind generation, the ESO believes that wind output is increasingly influenced by factors outside of its control and that other organisations are better placed to provide this data.

We believe that the importance of wind forecasting will only increase as more capacity comes online, and that the ESO has the capabilities to improve its wind generation forecasts. We believe that sufficient historical data is available to define reliable benchmarks to measure performance. In addition, we believe the changes we propose to the ESO's reporting requirements will provide greater clarity and transparency for stakeholders - providing industry with useful visibility of forecast by region/unit.

1D. Short notice changes to planned outages

Proposal

We propose to retain this performance metric for BP2.

1E: Transparency of operational decision-making

Proposal

We propose to amend this RRE to include an update to associated reporting.

Rationale

In order to provide greater transparency for stakeholders, we are proposing a requirement for the ESO to provide clear additional narrative as to the reasons why some units have been skipped beyond reason code.

The ESO has suggested that this would impose a significant regulatory burden, instead proposing to create more transparency in this area through direct engagement with industry. We will continue to engage with the ESO on this performance measure between now and Final Determinations, and welcome industry views on our proposal.

1F: Zero carbon operability indicator

Proposal

We propose to retain this RRE for BP2.

1G: Carbon intensity of ESO's actions

Proposal

We propose to retain this RRE for BP2.

1H: Constraint cost savings from collaboration with TOs

Proposal

We propose to retain this RRE for BP2.

1I: Security of supply

Proposal

We propose to retain this RRE for BP2.

1J: CNI outages

Proposal

We propose to retain this RRE for BP2.

Role 2: Market development and transactions

2Ai: Phase-out of non-competitive balancing services

Proposal

We propose to amend this metric with a significant revision to the methodology and associated reporting. We propose monitoring the phase-out of non-competitive contracts to ensure that they are replaced with competitive contracts in an efficient manner.

Rationale

We believe that it no longer makes sense to measure spend on competitively procured services to demonstrate the ESO's progress towards its 2025 goal for 'competition everywhere.' A measure based solely on spend risks being misleading as increased competition can bring prices (and overall spend) down.

Focussing on tracking the phase-out of non-competitive services to ensure they are replaced with competitive alternatives would allow greater transparency as to the ESO's progress and step changes in the make-up of its product portfolio. We note that significant volumes of long-term legacy contracts are nearing the end of their life and expect the ESO to replace these volumes with a competitive alternative. This would also more closely align with our expectation for 100% competitive procurement of reserve and frequency response much earlier than 2025.

We will continue to work with the ESO between now and Final Determinations to develop performance benchmarks and reporting requirements for this metric. We welcome stakeholder views on our proposal.

2Aii: Balancing services delivered in a non-competitive manner

Proposal

We propose a new accompanying RRE for performance metric 2Ai. which would allow the ESO, where appropriate, to provide supporting narrative to demonstrate the value of their approach - beyond the current reporting required as part of the incentives framework.

Rationale

We believe that the addition of this RRE would provide greater transparency around the actions the ESO takes and the impact of those actions on the market, as well as its progress towards the introduction of new products.

The inclusion of non-competitive procurement spend – reflective of the full cost of these services – would also provide an important point of comparison for the purpose of tracking the ESO’s performance over time and ensuring that new markets provide a more economic and efficient alternative. This was a key function of the metric 2A. used for BP1.

For clarity, we propose to include all services procured non-competitively by the ESO during the BP2 period, but to exclude legacy contracts reasonably initiated before this time.

We will continue to engage with the ESO to develop this RRE and to avoid any duplicate reporting. We welcome stakeholder views, especially with regard to the kinds of services which should be reported on.

2X: Day-ahead procurement

Proposal

We propose to introduce a new metric to measure the ESO’s performance around day-ahead procurement.

Rationale

We believe that the addition of a new metric around day-ahead procurement would provide a clearer view of the trajectory of the ESO's performance on the path to achieving its 2025 targets.

The ESO must ensure that 30% of all products are procured not earlier than in the day-ahead market. The ESO has been performing consistently above this threshold in recent years, and we expect it to continue to improve as its product portfolio changes with the conclusion of the ESO's Auction Trial, monthly FFR phase out (and later, MFR), as well as the day-ahead procurement of the new products from the ESO's planned Response and Reserve Reform programmes. The ESO currently procures Dynamic Containment (DC) and Short-Term Operating Reserve (STOR) at the day-ahead stage, as well as some small volumes of Dynamic Moderation (DM) and Dynamic Regulation (DR) which we presume the ESO will procure in greater volumes (displacing equivalent legacy services) once their confidence in these services increases.

We will continue to engage with the ESO between now and Final Determinations to develop a set of benchmarks for this proposal based on the relevant data and its forward workplan. We welcome stakeholder views on our approach, including which products should be included in this metric.

2B: Diversity of service providers

Proposal

We propose to retain this RRE for BP2. We are considering a rationalisation of the data provided; there are currently some differences between the data the ESO reports for different product types, and we believe the reporting could be improved through alignment of this.

We will continue to work with the ESO between now and Final Determinations on this performance measure, and welcome stakeholder views.

2C: EMR decision quality

Proposal

We propose to remove this RRE from our performance measures for BP2.

Rationale

We believe that the information provided under deliverable *D5 1.1 Continuation of EMR Delivery Body obligations* (sub-activity *A5.1 EMR Delivery Body*) already allows us to track and assess the ESO's performance in this area. D5.1.1 includes a specific milestone on the disputes process.

2D: EMR demand forecast accuracy

Rationale

We propose to retain this RRE for BP2.

2E: Accuracy of forecasts for charge setting

Proposal

We propose to retain this RRE for BP2.

Role 3: System insight, planning and network development

3X. Connection offers

Proposal

We propose to introduce a new metric under Role 3 to measure the ESO's performance around connections. We are considering monitoring the ESO's performance on connection offers in line with meeting their timeline and 'right first-time' (RFT) performance.

Rationale

We believe that the inclusion of a metric under Role 3 would provide for a more balanced assessment of the ESO's performance across all three Roles. The ESO's performance on connections has been a key area of concern for stakeholders in recent times and we acknowledge that there is a lot of consumer value attached to on-time and efficient management of the connections process.

In its Business Plan, the ESO has committed to increase investment considerably to improve the connections process and so we expect to see improvements over the course of BP2. Currently, the ESO is obliged to offer a connection date to developers within a

three-month statutory timeline. However, we have received derogation requests from the ESO from this timeframe on several occasions where the ESO has been unable to meet this – being unable to provide a connection offer within that timeline. We believe it would be beneficial to measure the ESO’s production of timely and/or accurate connection offers to provide transparency for the market and track improvements in the ESO’s performance in this area.

We will continue to work with the ESO between now and Final Determinations to develop this metric, including appropriate benchmarks and welcome stakeholder input, including proposals for an alternative measure.

3A: Future savings from operability solutions

Proposal

We propose to retain this RRE for BP2. However, we recognise that the reporting could be improved to increase understanding of the estimated benefits being reported.

Rationale

We consider that the narrative reporting on aspects of the specific operability solutions (pathfinder projects, for example) provides a clear and useful update on the ESO’s progress towards implementing those solutions.

However, we believe that the use of a counterfactual – assuming no solution – complicates the picture, as it does not provide an indication as to whether the ESO’s choice of solution was the most economic and efficient one.

We will continue to work with the ESO between now and Final Determinations to develop the reporting of performance measure, and welcome stakeholder views.

3B: Consumer value from the NOA

Proposal

We propose to amend this RRE for BP2. We propose to introduce a ‘mini-CBA’ framework for each NOA activity (excluding pathfinders), which we believe could provide greater transparency on the associated benefits it reports. Alternatively/additionally, we propose focusing this performance measure on pathfinder projects, particularly as these have now started move from concept to delivery. In addition, there may be further scope to

refocus this measure to address some of the other network planning tools we expect the ESO to develop in the BP2 period.

Rationale

We have found it consistently difficult to interpret and apportion the large numbers on associated forecast benefits the ESO reports under this RRE and question the value of the requirement to continue reporting on the NOA given a shift in focus towards other network planning tools during the BP2 period (HND, CSNP, OTNR²⁸). This is especially true because the actual cost benefits from the NOA are difficult to track.

We will continue to work with the ESO to develop this RRE (particularly in terms of scope, associated reporting, and counter-factual used to measure ESO performance) and welcome stakeholder views.

3C: Diversity of technologies considered in the NOA

Proposal

We propose to remove this from our performance measures for BP2.

Rationale

We believe that there is little value in requiring the ESO to continue reporting on this measure. This measure was designed to create transparency as to whether the ESO considers all solutions to network needs within NOA processes. However, we accept that the ESO has little control over the diversity of options that the TOs propose for consideration in the NOA and as such, this measure does not capture the ESO's performance.

Throughout BP2, we still expect the ESO to open the NOA up to extract its full value where possible, for example through initiatives such as the Interested Persons (IP) process.

²⁸ HND refers to Holistic Network Design, CSNP refers to Centralised Strategic Network Plan and OTNR refers to Offshore Transmission Network Review.

Appendix 4 – Summary of independent review of ESO IT Investment Plan

Purpose of this appendix

This appendix sets out the conclusions of the report, 'Independent Review of the GB National Grid Electricity System Operator £556M Enterprise IT Investment Plan' by Zuhlke Engineering Ltd, commissioned by Ofgem. Zuhlke reviewed and assessed the ESO's Information Technology Investment Plan²⁹ from May 2022 to early October 2022. The purpose of this report was to support and inform Ofgem's Draft Determination positions. We note that the ESO shared some additional information beyond this period; this was too late for it to be factored into the findings of the report and therefore this appendix but may inform the ongoing monitoring.

This appendix is split into four sections;

- Method of assessment;
- Scope of review and overview of findings;
- Portfolio Level overview; and
- Investment Summaries.

Method of assessment

Methodology against guidance

Zuhlke Engineering Ltd. reviewed the full 5 years of RIIO-2 for each investment. The assessment was conducted in accordance with Ofgem's ESO Business Plan: IT Investment Plan Guidance Document³⁰ and was framed using the seven criteria established in that guidance. A Red, Amber, Green (RAG) rating was used to illustrate the findings regarding each IT Investment, using the definitions in the guidance.

For clarity, the 'Red' RAG rating category contains the foundational expectation that the IT investment is required. A project may meet this requirement, but be rated red, if either following criterion are not significantly demonstrated; the chosen IT Solutions are

²⁹ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: [download \(nationalgrideso.com\)](https://nationalgrideso.com)

³⁰ ESO Business Plan: IT Investment Plan Guidance Document: [ESO Business Plan IT Investment Plan Guidance \(1\).pdf](#)

effective at achieving the specified business outcomes and/or the IT investment will be delivered at an efficient cost.

As set out in our original IT Guidance, a project will be rated as Red if any *significant* concern is present, and amber if any concern is present - even if the majority of findings for a project are positive. This approach is chosen to ensure that the project is understood in terms of its most significant potential risk.

We note that the criteria set out in our original IT Guidance refer to a single cost benchmark. Our Draft Determinations set out how we propose to adapt this approach.

Targeted assessment

The consultants determined that it was not efficient or practical to review all aspects of the ESO's investments in full detail. The review was therefore targeted to provide an informative characterisation of ESO investments in the round, while also providing in-depth analysis where this appeared to be most valuable. Accordingly, certain ESO projects were investigated in greater depth than others. The ESO projects were categorised to make it clear what approach the review took for each project. The categories used by the consultant are as follows:

Table 23: Zuhlke review type

Zuhlke review type	Comment
Limited	Zuhlke examined the published material that the ESO created to meet Ofgem's regulatory requirements and greatly limited the time spent considering the validity of ESO statements. Either the project is at such an early stage that a review was not practical, or Zuhlke took the view that the topic in question poses low risk to energy consumer's services and that there were higher priority topics that warranted our attention
Light touch	Zuhlke examined the published material that the ESO created to meet Ofgem's regulatory requirements and even in cases where this left Zuhlke with questions for the ESO, de-prioritised following up on these enquiries so that Zuhlke could invest resources into higher priority topics.
Moderate	Zuhlke examined the published material that the ESO created to meet Ofgem's regulatory requirements, and posed additional written questions to gain additional insights in response to the conclusions of our initial exploratory review.
In-depth	Zuhlke investigated elements of this work in detail, including having meetings with the ESO and by asking many written questions. Zuhlke reviewed project material such as architecture designs, project management artefacts and board papers that go beyond the public domain

	publications made by the ESO. Even this review type was not an exhaustive exercise.
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The projects were also categorised into types to aid analysis. Zuhlke categorised the projects as follows:

Table 24: Zuhlke project category assignment

Zuhlke project category assignment	Description
Strategic Platforms	Projects creating major platforms that form the core of the ESO's target IT systems. Commonly other ESO services depend on these platforms
Dedicated Services	Large IT solutions that are dedicated to a particular market task, it is uncommon for other projects to depend on these
Requirements Gathering	Projects whose main purpose is to gain visibility and understanding of emerging requirements that ESO IT solutions need to achieve
Derivative Solutions	These projects make extensive use of the Strategic Platforms by configuring and integrating their capabilities to derive specific services
Sustaining Investments	Investments in maintaining critical ESO systems that are not part of the ESO's target IT architecture and that are to be replaced by Strategic Platforms
Future Projects	Early-stage projects that are learning detailed requirements. These projects will move to another category as they mature

The information used to conduct the independent review was:

- The ESO Business Plan³¹;
- Previous versions of the ESO's Digital, Data and Technology annex³²;
- A data model the ESO submitted that describes its enterprise IT, compliant with the standardised semantics found in the Technology Business Management (TBM) Council's TBM taxonomy³³;

³¹ ESO RIIO-2 Business Plan 2023-2025: <https://www.nationalgrideso.com/document/266156/download> and it's annexes, particularly: ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

³² April 2022 draft: [ESO RIIO-2 Business Plan 2 Technology Investment](#), December 2019: [ESO RIIO-2 Business Plan Annex 4 – Technology investment report](#) and October 2019 draft: [RIIO-2 Business Plan Annex 4 - Technology investment report](#)

³³ <https://www.tbmcouncil.org/learn-tbm/tbm-taxonomy/>

- Formal regulatory 'Supplementary Questions' Ofgem asked on Zuhlke's behalf to gain answers to our specific questions;
- Direct meetings between the ESO, Ofgem and Zuhlke starting in 2021 and throughout 2022; and
- Other ESO publications, such as its June 2022 Digitalisation Strategy and Action Plan (DSAP)³⁴.

Scope of review and overview of findings

Scope of review

The ESO plans to spend £1.5bn over the 5-years of RIIO-2, excluding its cost of financing. IT comprises 72% (£1.1bn) of that spending. The scope of the consultant's review focused on the 'Direct' IT investments (£556M), which are investments to improve ESO IT services. The scope of the consultant's review excluded joint IT investments that the ESO makes with the wider National Grid Group. Also excluded from the review was IT spending relating to day-to-day running of the ESO's existing IT.

Overview of findings

Overall, Zuhlke scored 13 investments as red, totalling £307M (55%); 13 investments as amber, totalling £210M (38%) and 7 investments as green, totalling £38M (7%).

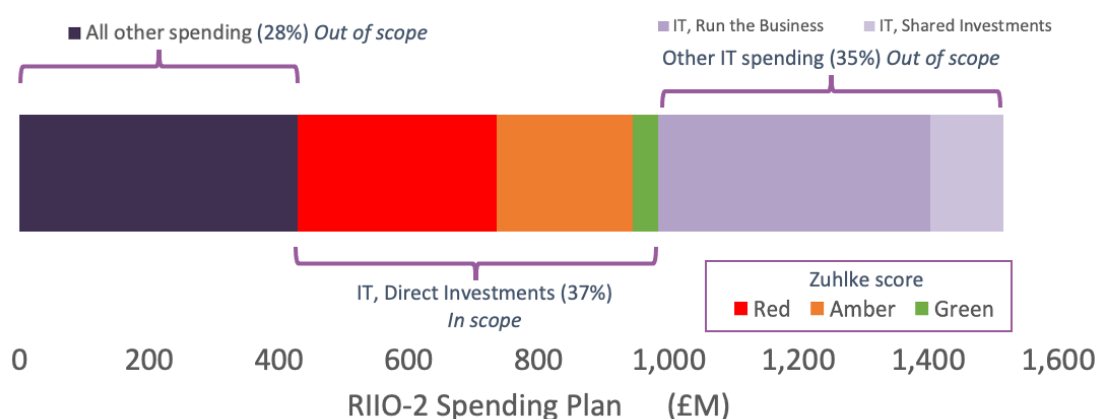


Figure 1: Overview of ESO RIIO-2 spending plan, excluding the cost of finance. The scope of the review is 37% of all ESO spending and 51% of IT spending. Values are quoted in FY2018/19 money.

³⁴ The ESO Digitalisation Strategy and Action Plan: <https://www.nationalgrideso.com/document/262371/download>

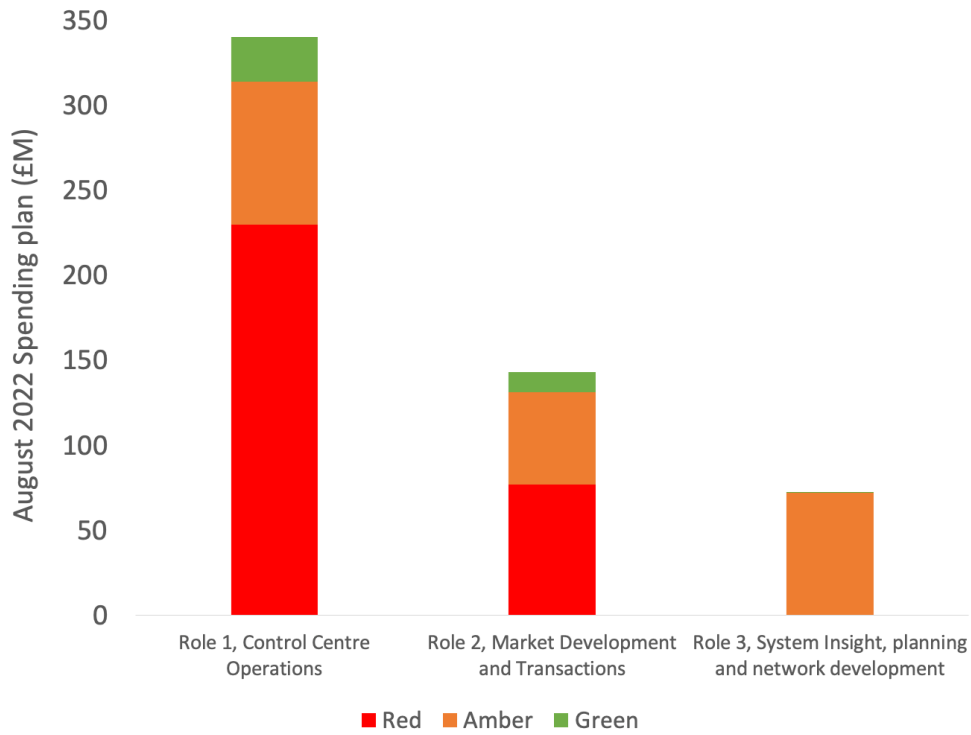


Figure 2: Zuhlke scores using Ofgem RAG method for the ESO latest spending plan. Values are quoted in FY2018/19 money.

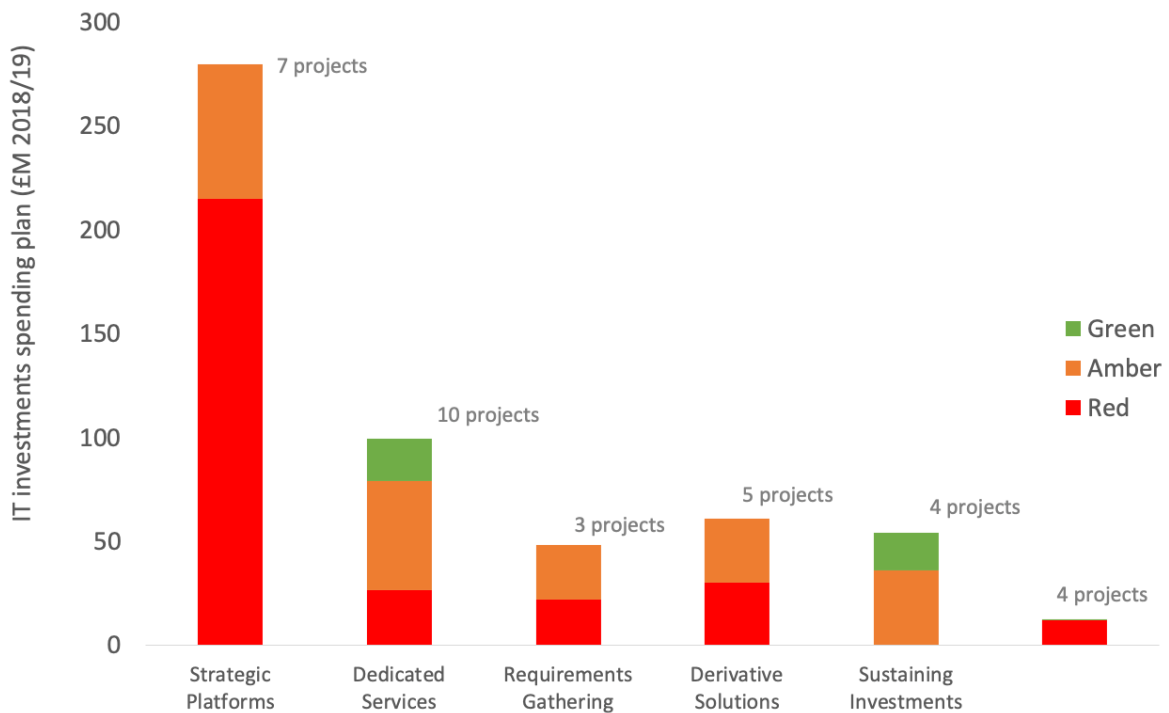


Figure 3: A view of RAG scores for ESO projects using grouping from the Zuhlke categorisation of project types.

Portfolio Level overview

This section provides an overview of the portfolio-level concerns and actions recommended by Zuhlke Engineering Ltd. in their report. The following tables in this section are a direct extract from the full Zuhlke report.

Business Suitability, Green	
Overview	The ESO gains appropriate assurance regarding 'what' IT products/services it should deliver. This is our criteria of least concern.
Concerns	<p>Main concerns</p> <ul style="list-style-type: none"> ■ poor quality ESO information has rendered it challenging to fully assure its software selection processes <p>Other concerns</p> <ul style="list-style-type: none"> ■ there are signs that the ESO is poor at prioritising among the investment portfolio tasks
Actions we recommend	<ul style="list-style-type: none"> ■ The ESO to refresh its approach to documenting its IT solution options selection ■ The ESO to ensure it has a clear audit trail demonstrating its independence from National Grid Group regarding enterprise/solution architecture decisions ■ The ESO to review its practices for inter-project investment prioritisation versus delivery capability ■ The ESO to review the load balancing of project milestones across its portfolio

Governance (control & accountability), Amber	
Overview	We find the ESO method of governance is serviceable, but we don't see sufficient evidence that it is optimised for oversight of a portfolio featuring 72% of all spending on IT investments.
Concerns	<p>Main concerns</p> <ul style="list-style-type: none"> ■ the ESO does not appear to have monitoring and success measures in place for its IT services ■ there appears to be no vision for modernising ESO IT governance ■ the existing governance process features an important internal assurance gap for ways of working <p>Other concerns</p> <ul style="list-style-type: none"> ■ budgeting process is incompatible with the ESO ambition to be a product-led organisation

Actions we recommend	<ul style="list-style-type: none"> ■ The ESO to create a vision and implementation for modernising governance practices ■ The ESO to consider empowering its ways of working workstream to establish a governing board to oversee the ways of working for the portfolio of ESO projects ■ The ESO to publish its performance measures for each IT service in all future IT investment plan updates
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Foundational capability + Resilience & adaptability, Red

Overview	<p>The use of on-premises data centre hosting and consequential preference for creating bespoke IT using proprietary software appears to be significantly raising delivery costs/time/risks without compelling evidence that this hosting approach is required.</p>
Concerns	<p>Main concerns</p> <ul style="list-style-type: none"> ■ the ESO has not evidenced that its data centre hosting strategy is appropriate ■ there is a risk of future product lock-in that seems to be avoidable through different decisions ■ staff appear to be generally unaware of Government standards and so Future System Operator needs are at risk <p>Other concerns</p> <ul style="list-style-type: none"> ■ projects' gathering of IT requirements is inconsistent, with some projects being extremely poor at learning these ■ the ESO portfolio of software products appears to feature unnecessary functional overlaps with an insufficient attempt in place to resolve this
Actions we recommend	<ul style="list-style-type: none"> ■ The ESO to submit to Ofgem the requirements it used for when deciding its hosting strategy ■ The ESO to submit to Ofgem the origin of how it arrived at the requirements it used when deciding its hosting strategy ■ The ESO to submit to Ofgem its criteria for determining if infrastructure meets the definition of CNI ■ The ESO to submit to Ofgem the origin of how it arrived at the criteria it uses for when deciding if infrastructure meets the definition of CNI ■ The ESO to submit to Ofgem its contracted vendor-supported SLAs and the public-cloud SLAs it considered when making its hosting decision ■ The ESO to submit to Ofgem the origin of how it arrived at its SLA requirements ■ The ESO to review its processes for software selection and how it ensures all options are considered (i.e. proprietary and open-source)

	<ul style="list-style-type: none"> ■ The ESO to form a view regarding the extent that the ESO should (or not) follow with government digital, data and technology standards for the benefit of energy consumers ■ Ofgem to determine its stance regarding the need for/extent to which the ESO should follow government digital, data and technology standards ■ ESO to engage with the Central Data and Digital Office (CDDO) regarding whether it should seek sign-off for the ESO's CNI hosting strategy ■ The ESO to engage with Crown Hosting and the Cabinet Office Chief Architect, including Ofgem and BEIS in this engagement ■ The ESO to review how it gains assurance for projects' NFRs ■ The ESO to conduct a software audit
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Cost & Efficiency, Red

Overview	Our review of the drivers responsible for the planned spending increase of +£148M (+35%) do not convincingly explain issues that an efficient system operator would have reasonably encountered
Concerns	<p>Main concerns</p> <ul style="list-style-type: none"> ■ Reasonable opportunities for longitudinal benchmarking of spending have been missed ■ Cost estimation/maturity benchmarks seem to lack appropriate governance controls to assure the independence of advice/views <p>Other concerns</p> <ul style="list-style-type: none"> ■ CBA giving insight about ESO performance could reasonably be carried out but the ESO does not do this
Actions we recommend	<ul style="list-style-type: none"> ■ ESO to operationalise robust, independent and regular cost estimation exercises ■ ESO to commence CBA analysis that measures the downstream markets impact of ESO changes to its delivery of services

Transition delivery management & risk, Red

Overview	There is no single overriding issue. The sheer number and importance of 'Amber' concerns resulted in our deviating from our stated normal process, hence we regard this criteria to be 'Red'
Concerns	<p>Main concerns</p> <ul style="list-style-type: none"> ■ The ESO strategic ambition for changing ways of working is narrow, with the following themes appearing to be out of scope: leadership, funding, governance and technology and tooling needs

	<ul style="list-style-type: none"> ■ In practice there is no attempt to align to Government Digital Service (GDS) delivery methods, despite this being framed as having guided the ESO strategic aims (see page 5)³⁵ ■ The ESO interpretation of the SAFe working method is only a loose resemblance of SAFe ■ There is no central ESO process for assuring projects' ways of working ■ No discernible path to achieving the strategic aims broadcast publicly by the ESO
Actions we recommend	<ul style="list-style-type: none"> ■ The ESO to conduct a self-assessment for each of its IT investment projects against the 14 GDS service standard principles³⁶ ■ The ESO to review and expand the scope of its initiatives for achieving its ways of working transition ■ The ESO to demonstrate that it has appropriate governing controls in place for assuring projects' ways of working ■ The ESO to propose a plan for gaining independent assurance over 'how' it delivers IT investments ■ The ESO project team for 180 Enhanced Balancing Capability to review their implementation of SAFe ■ The ESO to validate the implementation of SAFe by other projects and equivalently for other delivery methods ■ The ESO to determine and act on remediation actions in response to its poor risk management experience ■ Ofgem to determine if it is satisfied with the ESO's compliance with the DSAP regulations

Engagement & transparency, Red	
Overview	The ESO is very good at broadcasting its business intentions and is reasonably good at assuring that the products/services it plans to create are the right ones. It is poor at assuring how it goes about delivering the corresponding solutions.
Concerns	<p>Main concerns</p> <ul style="list-style-type: none"> ■ The ESO seemingly has no channels for assuring that 'how' it delivers IT follows the best methods
Actions we recommend	<ul style="list-style-type: none"> ■ The ESO to recommend to the TAC that it begins tracking IT service performance measures of ESO IT investments at each meeting

³⁵ Page 5, <https://www.nationalgrideso.com/document/262371/download>

³⁶ <https://www.gov.uk/service-manual/service-standard>

	<ul style="list-style-type: none"> ■ The ESO to propose a plan for gaining independent assurance over 'how' it delivers IT investments (this is the same action as for criteria: Transition delivery management & risk) ■ The ESO to commit to targets for the timeliness and quality of its answers to future Supplementary Questions ■ The ESO to invite Ofgem to participate in all of its future IT investment cost estimation exercises before scoping and/or the procurement approach is designed
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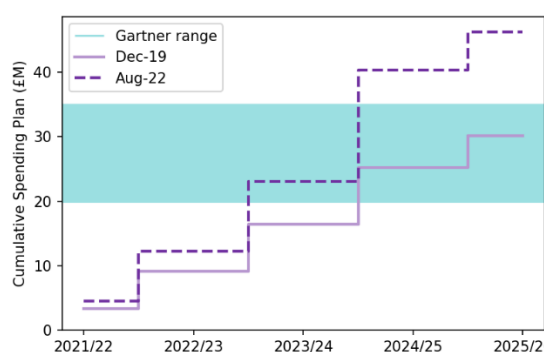
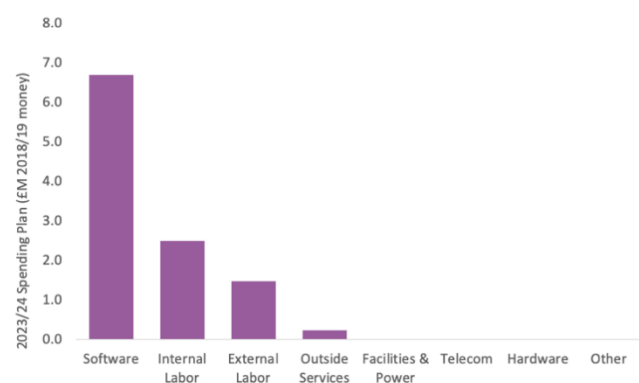
Investment Summaries

This section sets out each project in turn and provides, for each project, Zuhlke’s own summary of their review findings and their consequent project scores. How Ofgem has used these scores is set out in the body of the Draft Determination. Further detail has been provided to the ESO throughout and at the end of the independent consultant’s review. The remainder of this section is comprised of direct extracts from the full Zuhlke report.

Role 1 Investments

110 Network Control

Review type	Role	Zuhlke category	Overall RAG score
Moderate	Role 1	Strategic Platform	Red



Review findings

The ESO has increased this project's spending plan by £16.4M (from £30M to £46.4M; +54%) compared to its December 2019 plan. Half of this is an increase to spending on protection against cyber threats. Other large cost changes include the ESO's having adopted a "TechOps" approach to working (£4.5M) and a change to the ESO approach to designing its solution architecture (£3.2M).

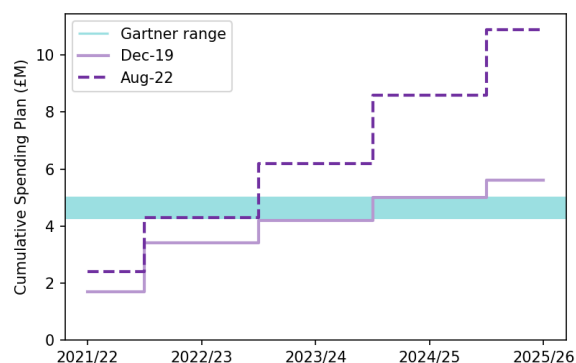
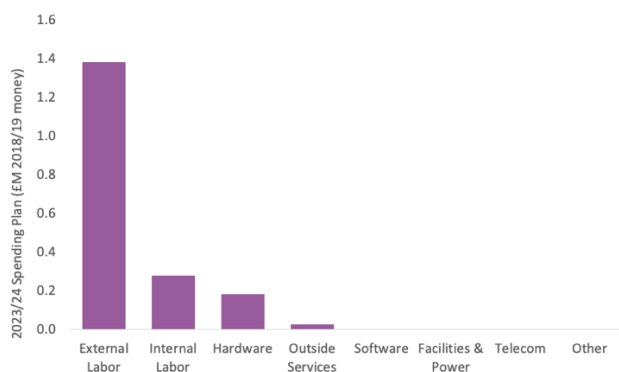
Project score

We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	The ESO appears to have sacrificed future CNI adaptability and resilience by delivering using an on-premises data centre and proprietary software without providing a robust justification
Cost & Efficiency	The ESO is seeking approval for spending relating to cyber security that needs to be reviewed by the Ofgem cyber security processes instead of this one
Transition delivery management & risk	The extensive use of Waterfall delivery methods appear to be creating avoidable risk The project mitigations to risks are not sufficiently actionable to fully protect from potential project issues (comment applies to publicly published risks and internal board reporting)
Engagement & transparency	The ESO did not answer explicit questions posed through Ofgem, even when Ofgem came back to restate that the first time the question was answered, an incomplete answer was received

120 Interconnector

Review type	Role	Zuhlke category	Overall RAG score
Moderate	Role 1	Dedicated Services	Amber



Review findings

Compared to its December 2019 view, the ESO plans to increase its spending on interconnector IT solutions by £5.4M (from £5.5M to £10.9M; +98%). The ESO gives numerous reasons for this large increase:

- reporting errors in the December 2019 submission account for £1M
- the addition of 2 and removal of 1 interconnector (net change of 1) is a market-driven increase to the project scope (£0.6M)
- the ESO states that an updated understanding of requirements explains the remaining cost changes (£4.4M)
- note that the ESO also netted off a saving of £0.5M of Operating Expenditure (OpEx) costs

Gartner provided a cost range for this project of £4.3M to £5.0M in December 2019. After adding back in the ESO's accidental exclusion of £1M, the ESO in December 2019 already expected to exceed Gartner's estimation with a project cost of £6.5M. The ESO projections now far exceeds the Gartner range and we note that the RtB costs have also increased, by £0.2M (+40%).

Project score

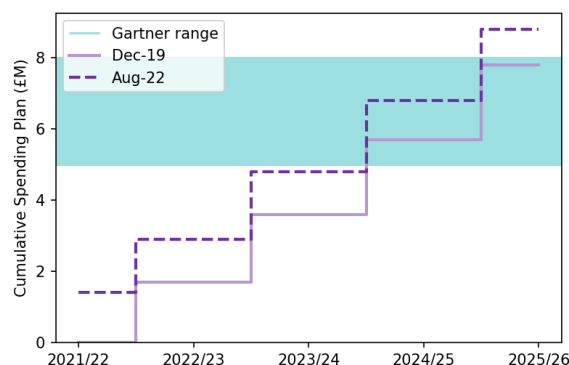
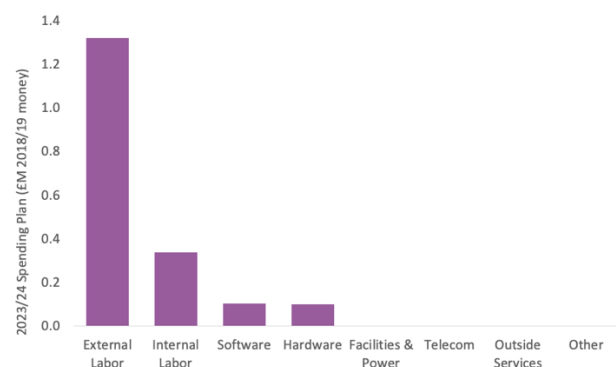
We have scored this project 'Amber'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	It appears poor stakeholder engagement has risked the quality of solution architecture through leading to an over-reliance on bespoke designs
Resilience & adaptability	Likely avoidable use of bespoke designs are risking reducing the ability of the ESO to adapt its services
Cost & Efficiency	Missed stakeholder engagement and NFR development opportunities are making it likely that delivery is avoidably expensive through loss of re-usable standardised solutions
Transition delivery management & risk	The project risk reporting and mitigating actions are inadequate
Engagement & transparency	The information quality about the ESO plan for this project has featured numerous errors in 2019 and in and this has interfered the efficiency of regulatory oversight

130 Emergent Technology and Systems Management

Review type	Role	Zuhlke category	Overall RAG score
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Light touch Role 1 Sustaining Investments **Amber**



Review findings

The stated purpose of this project, is to create and enhance the tooling for control room users, which is designed to supplement other tooling that is being created to improve performance in the control room. The ESO describes that in practice this is two projects:

- Inertia Monitoring and Forecasting
- Pathfinders (will be renamed 'Network Services Procurement')

Overall the ESO intends for project costs to increase by £1M from £7.7M to £8.7M (+13%) compared to its December 2019 view. The final milestone the ESO reports for this project is scheduled for completion in 2024/25, but the project costs continue to be £2M in 2025/26, the ESO does not explain the nature of this planned ongoing investment. The ESO did also experience some overrun of its RtB costs from RIIO-1 to RIIO-2 (£0.3M), this is out of scope of our review, but does reinforce that this project has experienced some minor issues at meeting its planned deadlines.

Project Score

We have scored this project 'Amber'.

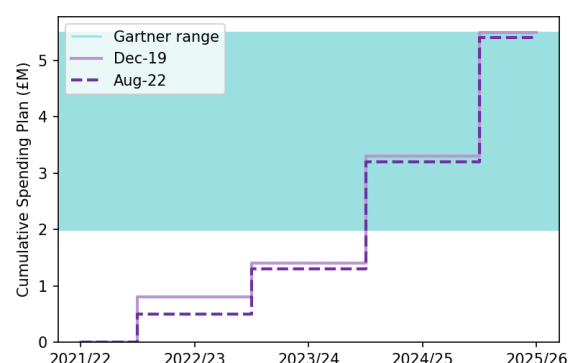
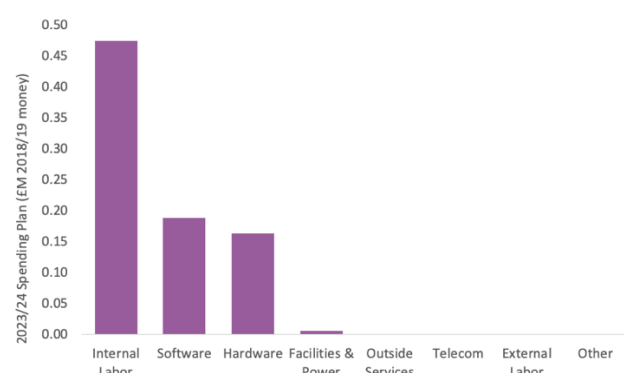
Criteria	Comment
Business suitability	No significant issues, but the ESO has only provided assertion (rather than evidence) that the ESO's decision to accelerate delivery at extra cost was a value for money decision
Governance (control & accountability)	Risk to effective coordination with other projects The ESO has not provided project performance measures in its public investment plan
Foundational capability	Unclear that the solutions appropriately integrate into the ESO architectural vision

Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	There are minor cases of parts of the project having already encountered delays The ESO reporting of risks and their mitigations is high-level and lacks specificity
Engagement & transparency	No significant issues

140 ENCC Operator Console

Review type	Role	Zuhlke category	Overall RAG score
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Light touch Role 1 Derivative Solutions **Red**



Review findings

There are no changes to the £5.5M project spending plan amount, there has been minor spend re-profiling.

The task of this project is to create user interfaces for the ESO's Electricity Network Control Centre (ENCC) operators, this is to take advantage of the services to be newly delivered by three projects: 110 Network Control, 180 Enhanced Balancing Capability and 220 Data and Analytics Platform.

[REDACTED]

The software selection for this project is in practice constrained by the software selection decisions of other projects 110 Network Control, 180 Enhanced Balancing Capability and 220 Data and Analytics Platform. Given these constraints, the approach appears reasonable. However, the very early stage of this project makes it impossible to provide a reliable cost estimate for the development work at this point in time.

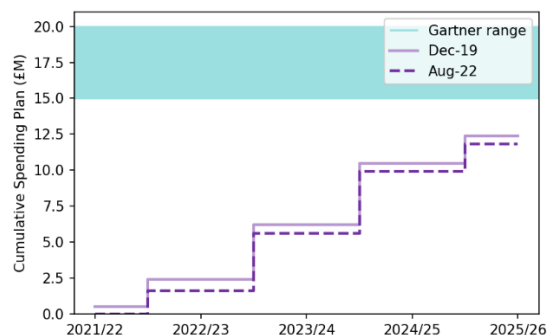
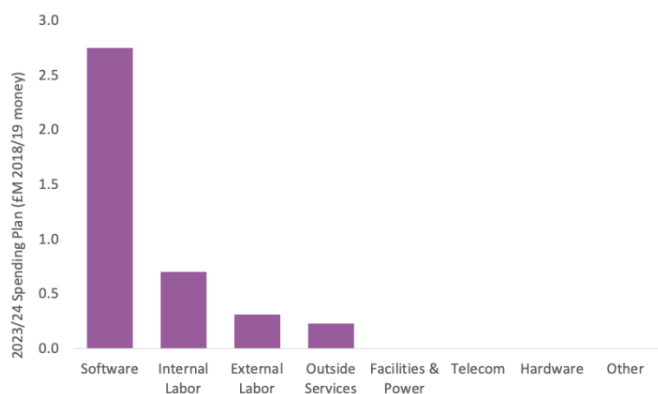
Project score

We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	We require more information to understand the basis and implications of classifying the IT services delivered by this project as CNI
Resilience & adaptability	Too early into project life to comment
Cost & Efficiency	We do not see an evidence base validating that the £5.5M project cost value is reasonable
Transition delivery management & risk	This project should reasonably be delivered compliant with the approach of a Discovery
Engagement & transparency	No significant issues

150 Operational Awareness and Decision Support

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 1	Derivative Solutions	Red



Review findings

The ESO has reduced its spending plans for Operational Awareness and Decision Support by £0.5M (from £12.3M to £11.8M; -4%). The costs for this project are reasonably stable and spending plans continue to be comfortably below the costs estimated by Gartner for the ESO as at the December 2019 submission by the ESO. The small changes to costs have been attributed to being an indirect consequence of the programme restructure made to project 110 Network Control, which has absorbed responsibility for this £0.5M of investment.

The cost profile of this project shows that the main activity for this project is yet to come and so an inherent risk remains that reality may differ from current plans. The ESO has gone out of its way to highlight the presence of Critical National infrastructure (CNI) requirements for this project. While we don't have any unique comments to raise regarding CNI for this project, our view on the ESO's approach to delivering CNI applies here as it does for all ESO CNI investments. We anticipate that this is driving this projects' baseline costs up (i.e. the costs estimated in December 2019) and we suspect that the assumption of a requirement for on-premises CNI was already baked into the Garter's cost estimation.

Given that this project is at an early stage, this is one of the more promising opportunities for the ESO to implement modern methods of delivery management, governance and architectural design and with that in mind, we do question whether running the project as a 'Hybrid' instead of as a fully Agile project is the right decision. We did not investigate this topic further.

Project Score

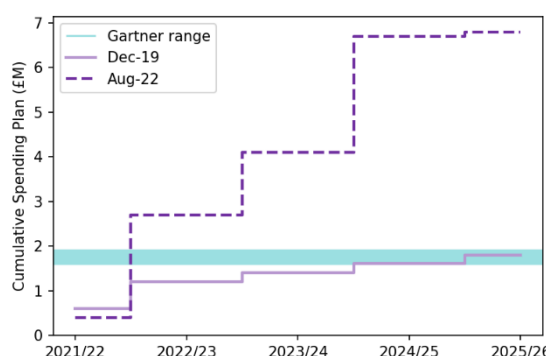
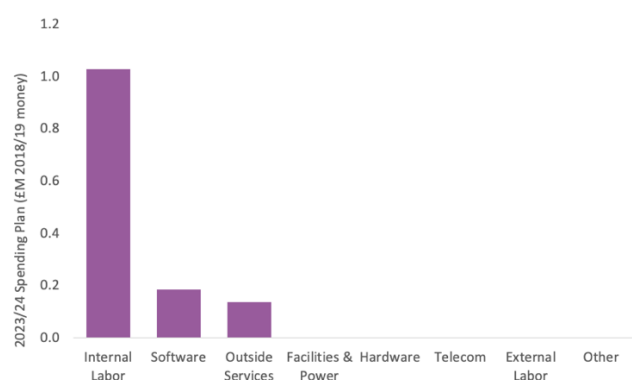
We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	This project is dependent on the successful delivery of the projects 110 Network Control and 220 Data and Analytics Platform; if they fail this investment will be a net cost to consumers The ESO has not provided project performance measures in its public investment plan
Foundational capability	We require more information to understand the basis and implications of classifying the IT services delivered by this project as CNI
Resilience & adaptability	The ESO appears to have sacrificed future CNI adaptability and resilience by delivering using an on-premises data centre and proprietary software without providing a robust justification
Cost & Efficiency	The ESO approach to requiring all CNI investments to be carried out using on-premises data centres and proprietary software is driving up costs and has not been well-evidenced as a being a genuine requirement

Transition delivery management & risk	This project delivery method should be compliant with the approach of a Discovery
Engagement & transparency	No significant issues

170 Frequency Visibility

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 1	Dedicated Services	Red



Review findings

The ESO has increased its spending plans for 170 this project by £4.9M (from £1.8M to £6.6M; +278%). This projects technical scope is unrecognisable from the scope described in December 2019 due to a combination of supplier changes (withdrawal of the supplier for the FATE system) and a decision of the ESO to include additional business scope, system enhancement (modernising the Dynamic System Monitoring (DSM)).

The ESO states its incumbent vendor supplying the bespoke Frequency and Time Error (FATE) system elected to withdraw support in 2021. This has been a catalyst for major changes to this project. The ESO did not make clear in its submission why support was withdrawn, but the December 2019 ESO RIIO-2 Business Plan Annex 4 – Technology investment report³⁷ does not include in its risk register the possibility that its proprietary software solutions may cease being made available and supported by vendors.

[REDACTED]

The ESO has described its inclusion of DSM monitoring as new scope, but the ESO does not make very clear on a technical level what the project will and will not do when reading both its December 2019 ESO RIIO-2 Business Plan Annex 4 – Technology investment report³⁸ and August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex³⁹ documents. This makes it impossible to clearly determine what IT

³⁷ ESO RIIO-2 Business Plan Annex 4 – Technology investment report: <https://www.nationalgrideso.com/document/158071/download>

³⁸ ESO RIIO-2 Business Plan Annex 4 – Technology investment report: <https://www.nationalgrideso.com/document/158071/download>

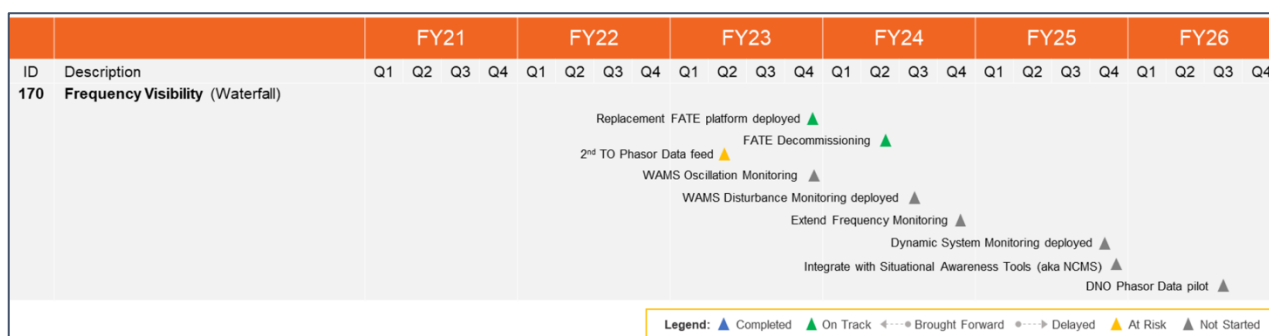
³⁹ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

exactly is newly being added to this project. The ESO has not supplied any options or alternatives to its solution and it appears to have only engaged with a limited set of users (the device owners supplying the services) when determining requirements.

In the December 2019 plan the ESO stated that *we will also transfer the PMU monitoring capability to the CNI environment to increase reliability and security*. No further comment was made in the August 2022 plan. This project is one that our portfolio-level concerns about the ESO's approach to CNI apply to.

[REDACTED]

This lowers our confidence in the accuracy of the statements the ESO has made in its public reporting of its project progress and it casts a shadow over the quality of this data for other projects for which we have not seen board paper information.



recognising market forces is not timely. Market information was available for the ESO to be able to make its insights gained through its Foundation and Blueprint activities years sooner than it did, seemingly, the market information was available at the time of the writing of the December 2019 IT investment plan.

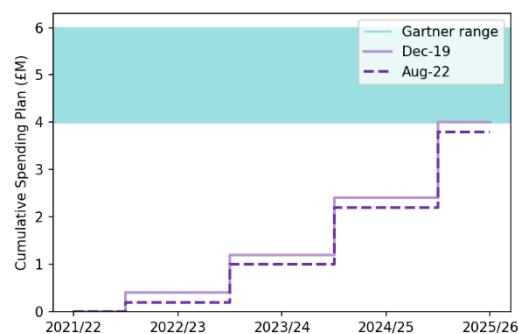
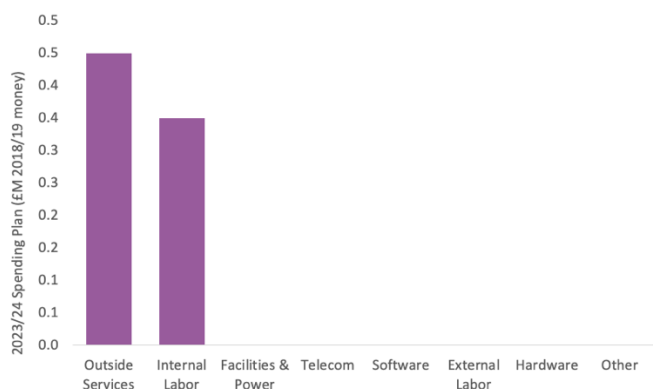
Project score

We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	The ESO approach to product management raises barriers to decommissioning legacy systems The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	The ESO appears to have sacrificed future CNI adaptability and resilience by delivering using an on-premises data centre and proprietary software without providing a robust justification
Cost & Efficiency	The ESO approach to requiring all CNI investments to be carried out using on-premises data centres and proprietary software is driving up costs and has not been well-evidenced as a being a genuine requirement
Transition delivery management & risk	The SAFE delivery methods for this project feature gaps versus the expectations of the SAFE methodology, this is driving cost, delay and risk to the delivery of enhanced system balance capabilities
Engagement & transparency	Risks to the delivery and cost efficiency of this project remain unresolved because the ESO only gave limited engagement with Ofgem on the topic of its CNI policy

190 Workforce and Change Management Tools

Review type	Role	Zuhlke category	Overall RAG score
Limited	Role 1	Sustaining Investments	Green



Review findings

The ESO has decreased its spending plans for Workforce and Change Management by £0.2M (from £4M to £3.8M: -5%) compared to its December 2019 plan. The 5% spend reduction compared to the December 2019 plan is due to the ESO achieving a good outcome from supplier costs, which is good to see.

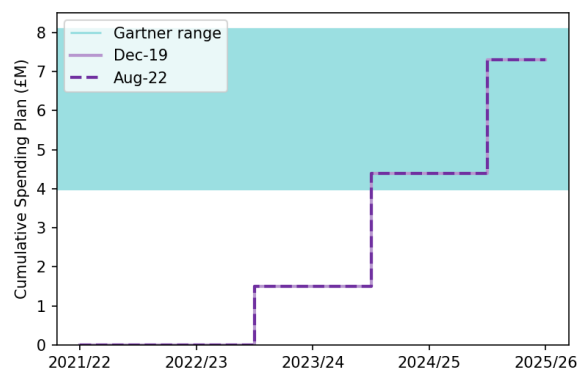
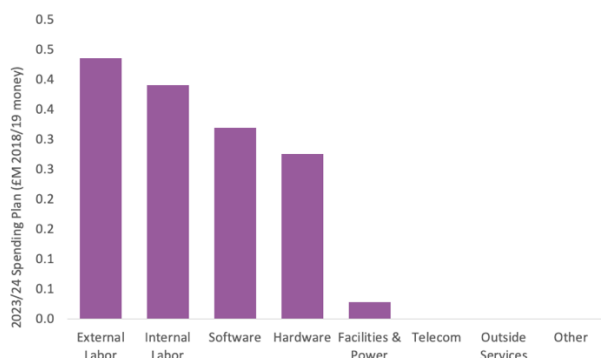
Project score

We have scored this project 'Green'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	No significant issues
Engagement & transparency	No significant issues

200 Future Training Simulator and Needs

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 1	Future Projects	Red



Review findings

There is zero change to the ESO spending plans for this project compared to the ESO's December 2019 plan. As part of its Hybrid working, this project is carrying out Discovery-stage research as its first activity. However, this is only made clear by the body-text. The first milestone on the project roadmap is 'Data and Analytics Platform integration', implying something that has been excluded from the roadmap already exists / will have been developed and so is available to be integrated with the data and analytics platform.

In terms of dependencies, the ESO must deliver the following projects in timely fashion for the ESO to be able to deliver this project as it plans:

- 110 Network Control
- 180 Enhanced Balancing Capability
- 220 Data and Analytics Platform

These three projects are all contenders for being described as 'the ESO's most complicated project' and none of them have yet to deliver the services that 200 Future Training Simulator and Needs requires from them.

Project score

We have scored this project 'Red'.

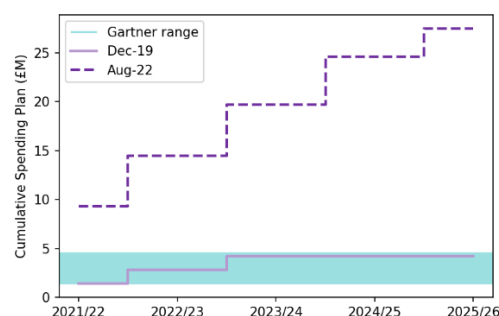
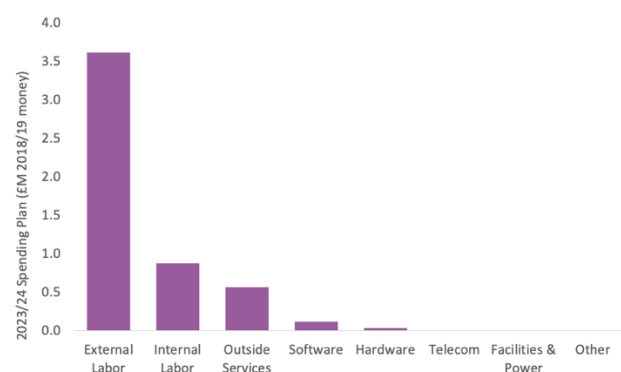
Criteria	Comment
Business suitability	the ESO has not provided a substantive investment plan worthy of a £7.3M investment, this investment should be seeking Discovery funding only
Governance (control & accountability)	this project wholly depends on the services of major ESO projects that have not yet delivered services to allow this project to be scoped effectively The ESO has not provided project performance measures in its public investment plan
Foundational capability	Too early into project life to comment
Resilience & adaptability	Too early into project life to comment

Cost & Efficiency	Too early into project life to comment
Transition delivery management & risk	Too early into project life to comment
Engagement & transparency	No significant issues

210 Balancing Asset Health

Review type	Role	Zuhlke category	Overall RAG score
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In-depth Role 1 Sustaining Investments Amber



Review findings

The ESO has increased its spending plan for this project by £23.2M (from £4.3M to £27.5M: +539%) compared to its 2019 plan. This project holds the unfortunate claim that its cost plan has increased in percentage terms more than any other ESO project; its spending plan has more than sextupled.

The ESO explanations for the cost drivers are hard to understand based on the text of its August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁴¹ report. The ESO alludes to extensions to how long the BM and EBS systems will continue to be required, which naturally increase their costs. **[REDACTED]**

The ESO attributes over half the increase (£13.3M of £23.2M) to planned spending as a result of its *better understanding of the capability size* requirements, which we consider to be vague information for when requesting to spend an extra £13.3M of someone else's money for no additional benefits. The ESO does at least go on to explain that in December 2019 it had assumed it would have implemented its EBS 4-hour scheduler capability by the end of RIIO-1. A reader might be forgiven for thinking that this then explains much of the need to spend an additional £13.3M during RIIO-2, however the ESO concludes by stating **[REDACTED]** this statement aligns with our conversations with the ESO, where we were told that control room staff no longer see this as a key enabler to their improving their day-to-day work. So, after 14-years of trying the ESO has concluded that **[REDACTED]** In conversation the ESO explained to us that this

⁴¹ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

capability is losing its value to markets at this point many years after the need and compared to when it was supposed to be delivered in 2012.

Though not made clear in the August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁴² report, the ESO did verbally and through presentation material provide an overview of the series of investments to be made into the EBS and BM systems. These improvements include themes like patching as well as some enhancements to scheduling.

Project score

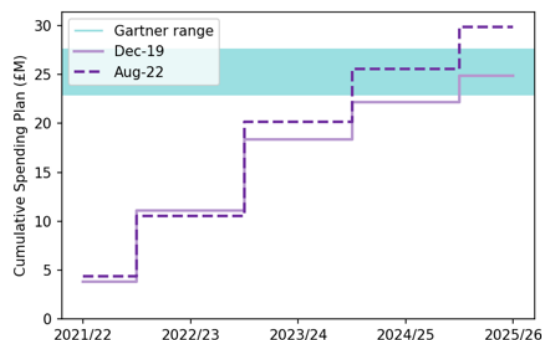
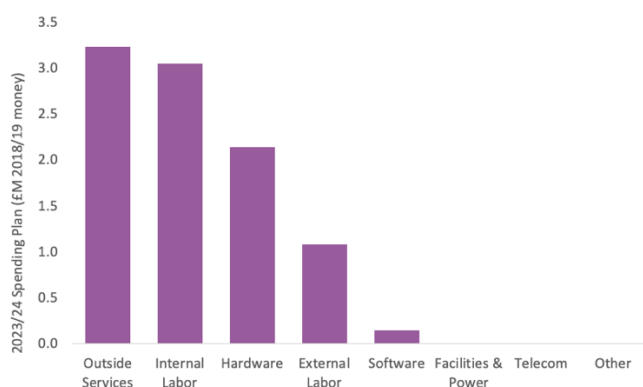
We have scored this project 'Amber'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	The ESO approach to product management raises barriers to decommissioning legacy systems The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	On the narrow definition of RIIO-2 investments, this is necessary spending that represents needed risk mitigation for consumers; taking a wider view of ESO performance, we consider this spending a manifestation of poor past ESO performance
Transition delivery management & risk	No significant issues
Engagement & transparency	No significant issues

220 Data and Analytics Platform

Review type	Role	Zuhlke category	Overall RAG score
Moderate	Role 1	Strategic Platforms	Amber

⁴² ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>



Review findings

The ESO has increased its project spending plans by £4.9M (from £25M to £29.9M; +19%). This is less of an increase than the ESO indicated in its April 2022 draft ESO RIIO-2 Business Plan 2 Technology Investment⁴³ document, where at the time it expected a spend increase of £12.9M. All of the spend increase is attributed to a newly discovered need to remediate Grey IT (£6M). The April 2022 submission indicated that security costs were also driving spend increases, these have now been removed, but this did affect the questions we asked the ESO about this project, see below.

Lastly, the ESO states costs are reduced by £1M as it *is due to rolling-off of project implementation resource*. The explanation the ESO gives for why it is able to make this saving is because *once the foundational platform is live the underlying platform is managed by operational teams*. There is no corresponding increase in the ESO's forecasted RtB costs, so we are unclear where these operational costs feature.

Project score

We have scored this project 'Amber'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	Risk of insufficient alignment between DAP feature development plan and other projects' plans to adopt those features The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	The ESO has been vague about the latest status of CNI data and how the DAP solution architecture will manage this
Cost & Efficiency	No significant issues
Transition delivery management & risk	The ESO has not carried out enough work to de-risk the scenario that the DAP becomes a 'white elephant'

⁴³ ESO RIIO-2 Business Plan 2 Technology Investment:
<https://www.nationalgrideso.com/document/250421/download>

	Risk of insufficient alignment between DAP feature development plan and other projects' plans to adopt those features
Engagement & transparency	The ESO has not carried out enough work to de-risk the scenario that the DAP becomes a 'white elephant'

240 ENCC Asset Health

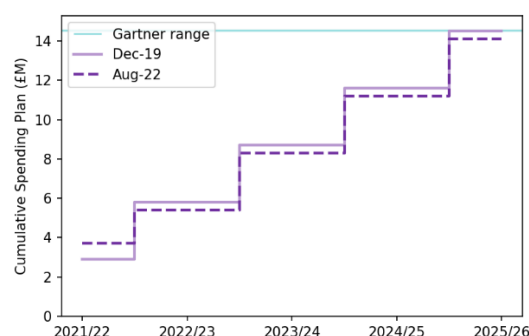
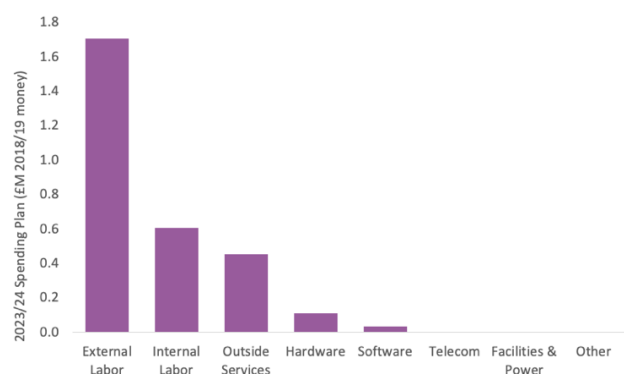
Review type	Role	Zuhlke category	Overall RAG score
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Light touch

Role 1

Sustaining Investments

Green



Review findings

The ESO reports that the spending plan for this project is unchanged, remaining at £14.4M, though note a £2.3M increase to RtB costs that are out of scope of our review. This project is for managing numerous minor IT solutions and services relating to the Electricity Network Control Centre (ENCC) assets (the ESO states 20+ such projects within this project have already been delivered) and is somewhat well described as funding to allow the ESO to manage the ENCC's 'technical debt'. Technical debt is a feature all IT environments. Many of these tools will be legacy and/or grey IT that is intended to be replaced by the solutions to be created by the ESO's strategic projects (e.g. 110 Network Control). The actual activity types the ESO reports this work includes are:

- maintaining stand-alone specific tools and resilient bespoke communication links (security updates, reliability, usability)
- removing grey IT
- replacing and upgrading applications
- re-platforming applications onto different hardware
- onboarding market participants to services
- create small IT solutions

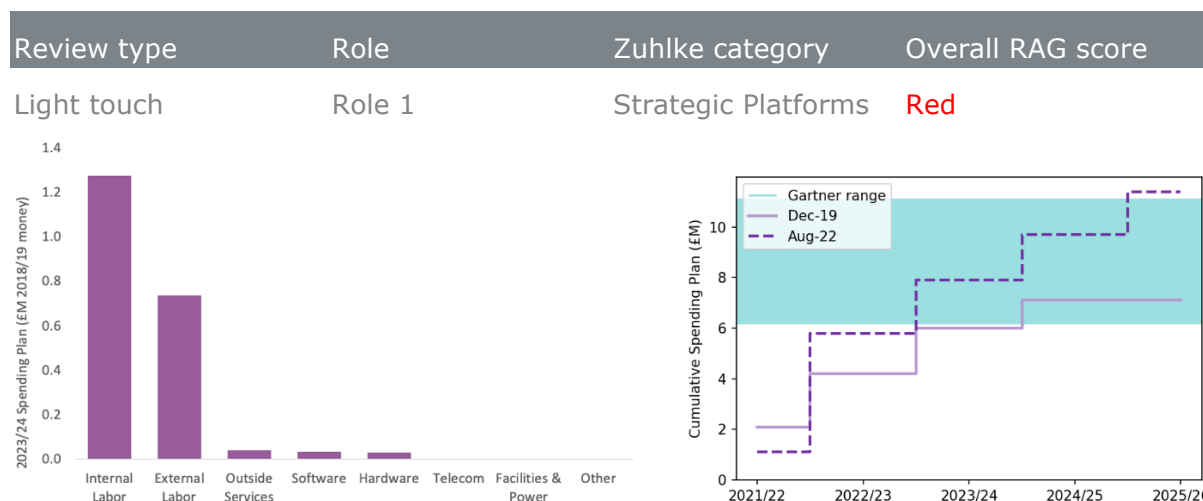
The ESO states that it has a backlog of work but has not shared the content of that backlog. It also states that items can be added to that backlog at short notice as market needs evolve, and operational system issues arise.

Project score

We have scored this project 'Green'.

Criteria	Comment
Business suitability	The Live service operational nature of these IT services means the ESO will be in possession of accurate user needs information and therefore it likely possess robust requirements
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	The Live service operational nature of these IT services means the ESO will be in possession of accurate user needs information and therefore it likely possess robust requirements
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	The Live service operational nature of these IT services means the ESO will be in possession of accurate user needs information and therefore it likely possess robust requirements The ESO has demonstrated its ability to complete its micro projects within this overall project
Engagement & transparency	No significant issues

250 Digital Engagement Platform



Review findings

In the ESO business plan, one high-level focus area is "improved engagement, transparency, and customer service", including making the customer experience easier, more convenient and tailored to their needs. Developing user-friendly web portals is a common solution for when looking to improve the customer experience. When observing

this project in isolation, we agree that the Digital Engagement Platform (DEP) aligns well with ESO business objectives.

The ESO has increased its DEP spending plans by £4.4M (from £7M to £11.4M; +63%) compared to its December 2019 plan. The reasons provided by the ESO for the increase can be summarised as the ESO having previously only had a poor understanding of the requirements implied by the needs of users of these engagement services. For its December 2019 submission the ESO assumed it would re-use National Grid Group's Digital Experience Platform (DXP), the ESO now understands that it must develop this capability independently. Creation of an independent DXP solution is the main driver of the ESO's cost forecast increase as it has increased project requirements.

This raises questions that we did not have time to prioritise investigating:

- Why was the original ESO plan to deliver a solution shared with National Grid Group, given the backdrop of separating the ESO from National Grid and this being a 'Direct' investment?
- What was unknowable at the time of December 2019 that the ESO thinks it has since learned to now lead it to create a 'greenfield' DXP solution?

The topic of a DXP and a DEP is not a unique challenge to the ESO, it is a challenge companies in all markets face. The solution options the ESO considered are all reasonable, knowable and familiar to any company.

- We do not see evidence of there being important information gained that the ESO could not have known at the time of its December 2019 plan
- We do not see evidence of requirements unique to the ESO that might undermine the accuracy of the Gartner cost ranges provided during December 2019

In December 2019 the ESO forecast it would spend at the low end of Gartner's cost forecast. The ESO has not provided satisfactory evidence justifying its plan for exceeding the Gartner 'high' cost scenario. Our default expectation is that if the ESO is an 'averagely' efficient company, its costs will broadly be in the middle of Gartner's range.

DEPs objectives include "providing a single point of access into ESO systems and external facing processes". This is a reasonable and recognisable need from users of ESO services. However, this call for a single point of ingress for users into ESO services must coordinate with many other investments around the ESO estate for its objectives to be met.

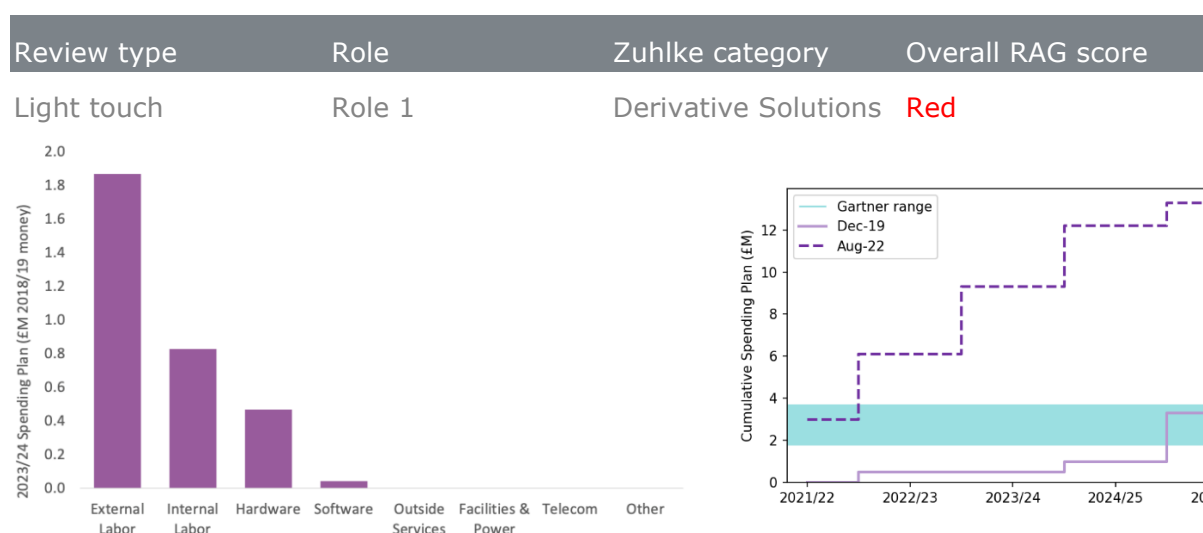
Project score

We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	A lack of clarity about how the DEP integrates across the interdependent portfolio of ESO digital engagement investments The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues

Resilience & adaptability	Lack of appropriate planning regarding the growing prospect of ESO separation from the wider National Grid company
Cost & Efficiency	Unconvincing explanations for cost increases. The reasons given appear to have been knowable uncertainties at the time of submission of the ESO December 2019 view
Transition delivery management & risk	There being no indication that the ESO is seeking alignment to government practices for a public digital, as is reasonably likely to be required by the Future System Operator
Engagement & transparency	No significant issues

260 Forecasting Enhancements



Review findings

The ESO has increased its spending plans for this project by £10.1M (from £3.3M to £13.4M: +306%) compared to its December 2019 plan. The ESO admits *At the time of the original submission, the expectation was that the first iteration forecasting products would be largely complete and minor incremental changes would be applied during the RIIO-2 period. However, during RIIO-1, only 2 out of the 4 first iteration forecasting products (National Demand & Solar Power) were delivered.* This is disappointing, but we do credit the ESO with being straightforward about this in its narrative in a way that we haven't experienced for other ESO projects that have encountered shortcomings, as we perceive.

The specific way this project has incurred costs are explained by the ESO as:

- a much more complex set of requirements from data science capabilities to be delivered during RIIO-2 than previously expected (£9.5M)
- a need to migrate services to the ESO Azure cloud platform, this is to take 2-4 months (March 2023 to June 2023) (£1.5M)

- a need to invest in ESO's legacy Energy Forecasting System (EFS) to sustain it because of the delays experienced by project 180 Enhanced Balancing Capability and the systems it is to deliver (£5.7M)
- there has also been a small saving made through the ESO determining it can reduce scope relating to Real Time predictions (£0.9M)

Observe that the numbers we have quoted add up to a net cost movement of £15.8M. This is as the ESO describes in page 113 of the August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁴⁴ report. However, the table from page 112 shows only a £10.1M movement. The ESO's £15.8M values translate to an even larger 478% increase to this project's costs, implying a revised project cost of £3.3M+£15.8M=£19.1M. The ESO will have to clarify which number, is the correct one.

The ESO has not provided sufficient information for us to validate whether or not the removal of Real Time predictions scope is an overall net benefit to energy consumers, the ESO explains very little, otherwise the ESO objectives appear to remain the same, only disrupted relative to past expectations.

		BP1		BP2		BP3	
		Actuals		Forecast			
		2021/22	2022/23	2023/24	2024/25	2025/26	TOTAL
Capex (£m)	BP2	3.0	3.1	3.1	2.7	1.0	13.0
	BP1	0.0	0.3	0.0	0.3	1.4	2.0
	Variance	3.0	2.8	3.1	2.4	-0.4	11.0
Opex (£m)	BP2	0.0	0.0	0.1	0.2	0.1	0.4
	BP1	0.0	0.2	0.0	0.2	0.9	1.3
	Variance	0.0	-0.2	0.1	0.0	-0.8	-0.9
Totex (£m)	BP2	3.0	3.1	3.2	2.9	1.1	13.4
	BP1	0.0	0.5	0.0	0.5	2.3	3.3
	Variance	3.0	2.6	3.2	2.4	-1.2	10.1
Cumulative RTB increase (£m)	BP2	0.1	0.4	1.5	1.9	2.3	
	BP1	0.1	0.1	0.1	0.1	0.1	
	Variance	0.0	0.3	1.4	1.8	2.2	

Table 100 – Investment cost summary

Figure 1: the ESO summary of this project's expected costs from page 113 of the August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁴⁵ report.

Project score

We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan

⁴⁴ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

⁴⁵ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

Foundational capability	<p>The ESO having focused only on the data science aspect of the implied work requirements, with no mention of data engineering/architecture requirements and how these will be managed</p> <p>We see ongoing missed engagement and NFR development opportunities where we expect cost savings could be made through facilitating greater standardisation of IT services</p>
Resilience & adaptability	The absence of a robust plan for data engineering risks the sustainability of the services created by this investment
Cost & Efficiency	The ESO has not explained the very large increase to this project's data science costs, as there is no clearly specified and corresponding increase to the quality of the service the ESO plans to provide
Transition delivery management & risk	No significant issues
Engagement & transparency	The project team have been honest and specific about past errors, to a standard far better than typical behaviour we have experienced

450 Future Innovation Productionisation

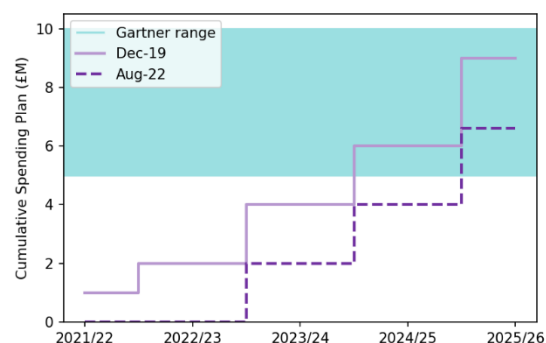
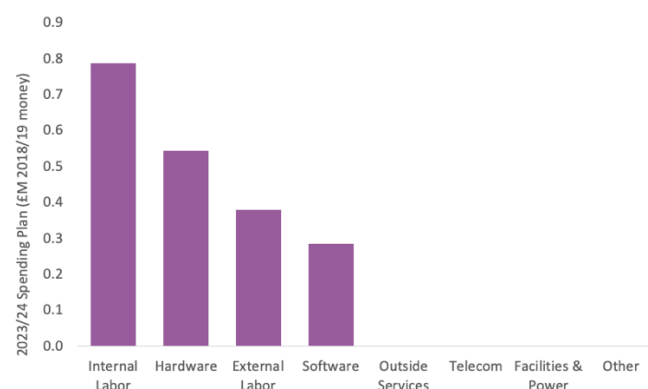
Review type	Role	Zuhlke category	Overall RAG score
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Light touch

Role 1

Requirements Gathering

Amber



Review findings

The ESO has decreased its spending plans for this project by £2.4M (from £9M to £6.6M: -27%) compared to its 2019 plan.

The purpose of this project is to help support work that has taken place in other ESO projects. The ESO projects in question are not the 'Direct' ESO IT investment projects, instead they are projects the ESO has been awarded / participates in that are initiated through other processes, for example the Network Innovation Competition (NIC) and the Strategic Innovation Fund (SIF). These projects commonly identify requirements on the ESO for new/improved IT services and so the purpose of this project is to productionise ESO IT and so deliver services to meet those requirements. The ESO points out that on occasion other projects in its Direct portfolio productionise IT, an example we have

commented on is project 460 Restoration and its plan to productionise requirements that are being gathered by the NIC Distributed ReStart project.

The ESO presently reports 58 projects that are candidates for creating a need for the ESO to productionise IT. The reduction in the ESO's spending plan is a consequence of its having refined its backlog of projects, resulting in a net reduction in spending anticipated. The nature of this work is that there is no singular or readily definable IT service to be created as the project is to respond to whatever the needs are that other projects identify, the scope is out of this project's control by-design.

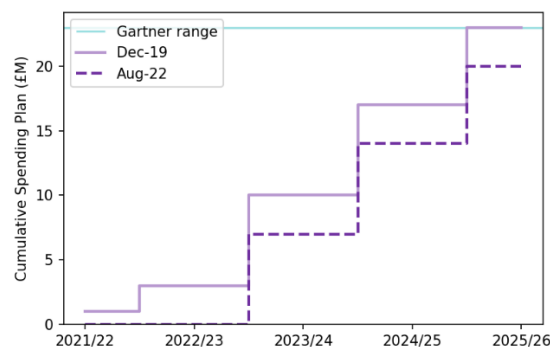
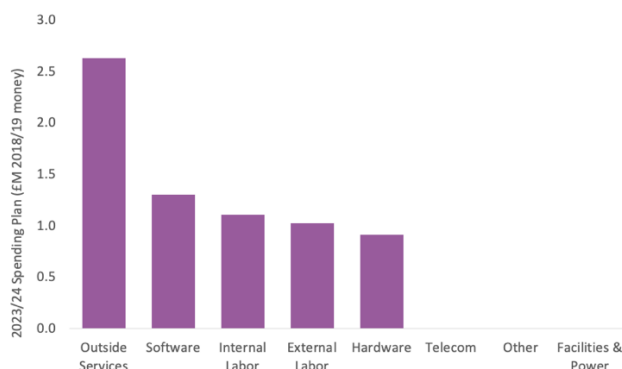
Project score

We have scored this project 'Amber'.

Criteria	Comment
Business suitability	It appears to be more appropriate for Ofgem and the ESO to agree a different approach to resourcing how the ESO ingests emerging IT requirements
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	The ESO current approach to ingesting IT requirements risks inefficiently high-cost spending and difficult to govern IT investments taking place
Transition delivery management & risk	No significant issues
Engagement & transparency	No significant issues

460 Restoration

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 1	Dedicated Services	Red



Review findings

The ESO has decreased this project's spending plans by £3M (from £23M to £20M: - 15%) in comparison to its December 2019 spending plan. However, this is purely a consequence of delivery responsibilities being moved to Distribution Network Owner (DNOs) companies and is not a reflection (positive or negative) on ESO performance.

The ESO is participating in a Network Innovation Competition (NIC) project, called Distributed Restart, its forthcoming report will result in recommendations for construction of a prototype of a Distributed Restart Zonal Controller (DRZC) to be used in the event of black starts. The ESO expects to have IT requirements relating to monitoring (data sharing with DNOs) and Electricity National Control Centre (ENCC) integration for DNOs.

Project score

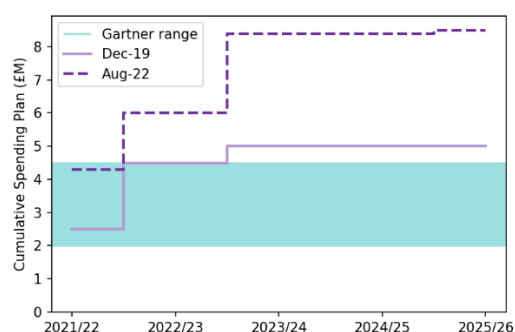
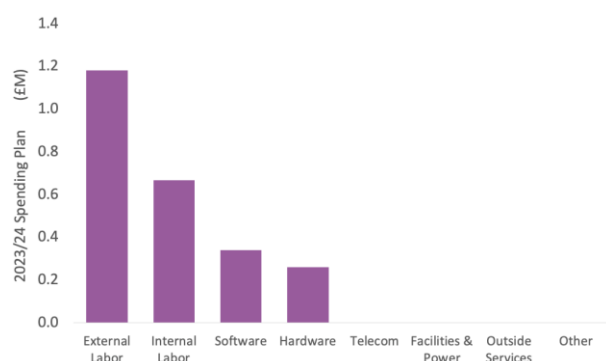
We have scored this project 'Red'.

Criteria	Score
Business suitability	The ESO has not provided a substantive investment plan worthy of a £20M investment
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	We require more information to understand the basis and implications of classifying the IT services delivered by this project as CNI
Resilience & adaptability	Our experience of ESO CNI-related projects is that the ESO approach is at risk of leading to excessive costs and that it may slowdown delivery, we anticipate the same will be true for this project as it matures, without intervention
Cost & Efficiency	The ESO approach to requiring all CNI investments to be carried out using on-premises data centres and proprietary software is driving up costs and has not been well-evidenced as a being a genuine requirement
Transition delivery management & risk	No significant issues

Engagement & transparency	No significant issues
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480 Ancillary Services Dispatch

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 1	Dedicated Services	Green



Review findings

The ESO has increased its spending plans for this project by £3.5M (from £5M to £8.5M: +70%) compared to its 2019 plan. This project is to sustain a legacy IT system, the Ancillary Service Dispatch Platform (ASDP) while the new system to be delivered by project 180 Enhanced Balancing Capability is made available. Delays to the expected delivery date of the new platform, the Open Balancing Platform (OBP), are explained as being the primary driver of cost increase to this project, with a £2.2M increase to project costs arising from a delay to the system decommissioning date. The remaining cost increase is also explained by the OBP, or rather the ESO's determination that it needed to redirect its 180 Enhanced Balancing Capability project resulting in a decision to create the OBP. In this case a hardware purchase by this project is no longer required and so is a sunk cost of £1.7M, though the ESO intends to now re-use this for the OBP and so we expect it is lowering the project cost of 180 Enhanced Balancing Capability.

Some cost reductions have also been achieved compared to the ESO's December 2019 view of costs. £0.6M is an efficiency gain as the ESO learned how to better manage its on-premises data centre and a £0.4M saving, but in this case the ESO explanation is hard to understand, it stated the saving is from: *Further funding available from other projects due to increase in throughput of work than previously forecasted.*

Project score

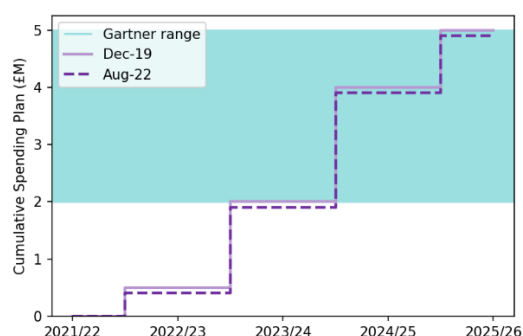
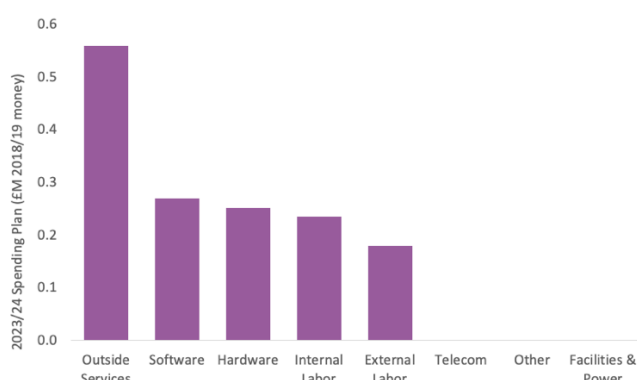
We have scored this project 'Green'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues

	The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	The source of all cost increases are out of this project's control. Even if these cost increases grow further, it will not change the best course of action for this project, which will be to sustain the ASDP until it can be replaced
Transition delivery management & risk	No significant issues
Engagement & transparency	No significant issues

510 Restoration Decision Support

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 1	Future Projects	Red



Review findings

The ESO has decreased its spending plans for Restoration Decision Support by £0.1M (from £5M to £4.9M: -2%) compared to its 2019 plan. The project has not started yet and a delay to its start explains the spend reduction of £0.1M. We note that the out of scope of our review RtB costs have been removed from the August 2022 plan (cost saving of £0.4M).

This project is very closely linked to project 460 Restoration, so much so that the ESO has stated *there is a high probability the milestones will be merged under a single investment after the discovery work in the latter half of FY23*. We are pleased the ESO is considering merging the two projects as we are not clear on the rationale for their being separate to each other, we see a risk this will lead to silo of development work without a clearly articulated benefit gained by the separation. There is an asymmetry between the two, in that 460 Restoration is planned to be delivered using the waterfall method, whereas this project is reported to be planning to follow a Hybrid method.

Project score

We have scored this project 'Red'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	The ESO has not made clear the extent that this project is impacted by the ESO decision-making approach to CNI, for which we have not seen a robust supporting evidence base
Resilience & adaptability	Too early into project life to comment
Cost & Efficiency	The ESO has not provided a substantive investment plan worthy of a £4.9M investment
Transition delivery management & risk	Too early into project life to comment
Engagement & transparency	No significant issues

670 Real-Time Predictions

Review type	Role	Zuhlke category	Overall RAG score
Limited	Role 1	Future Projects	Green

The ESO has not yet provided data about this project’s spending plan.

Review findings

There is nothing of meaning to review at this time. The ESO is providing early visibility of a project it anticipates seeking Ofgem agreement to deliver.

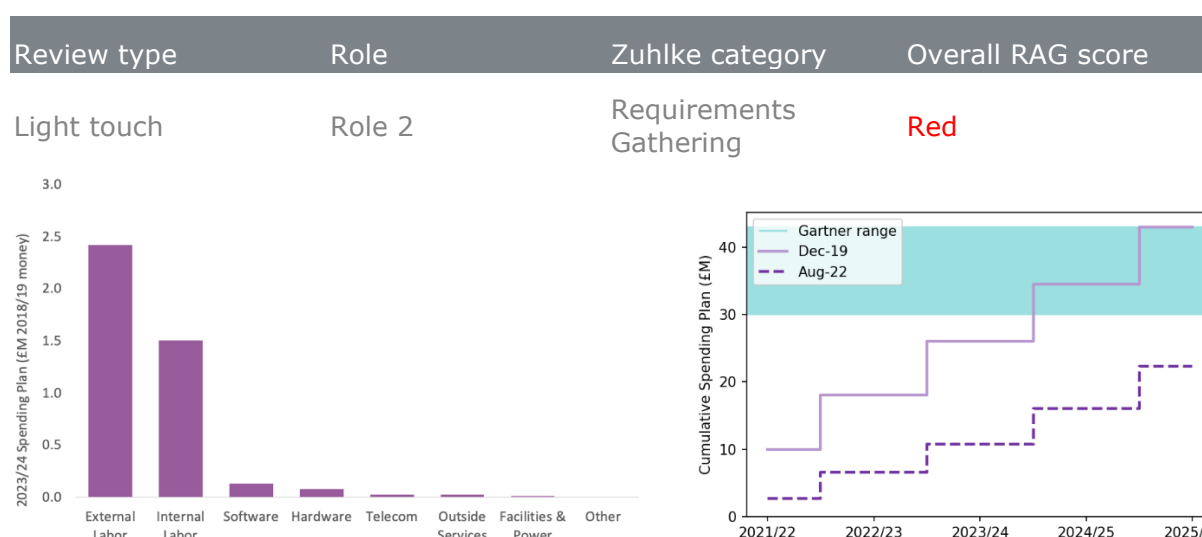
Project score

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	Too early into project life to comment

	The ESO has not provided project performance measures in its public investment plan
Foundational capability	Too early into project life to comment
Resilience & adaptability	Too early into project life to comment
Cost & Efficiency	No significant issues
Transition delivery management & risk	No significant issues
Engagement & transparency	The ESO has done all it reasonably can at this point in time, which is to provide visibility of the pipeline of upcoming work

Role 2 Investments

270 Role in Europe (formerly EU regulations)



Review findings

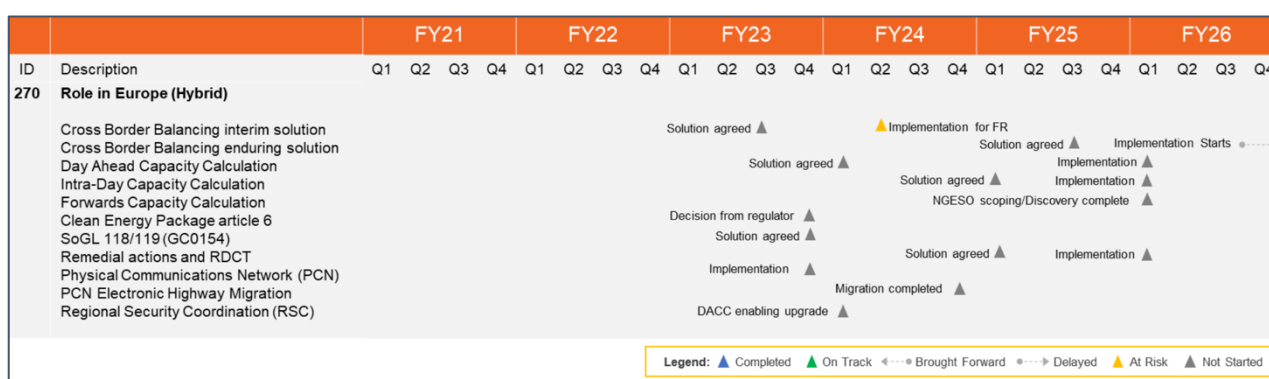
Understandably, with the UK having exited the EU since the December 2019 spending plan for this project, this project is now lower cost and unrecognisable compared to the December 2019 plan. The Garter estimation of the cost of this project is clearly not a useful benchmark. In response to these changes the ESO's project spending plans have decreased by £20.7M (from £43M to £22.3M; -48%).

The implications for IT system requirements stretch far and wide for this project. Our review of IT assessments cannot practically determine the extent or not that the UK system operator continues to need to engage with EU initiatives. We have not addressed this topic, but urge Ofgem to validate that they are content with the scope of EU-related objectives the ESO continues to engage with.

The ESO is clear that its objectives that this project will deliver are subject to a high degree of uncertainty. We see this reflected in the absence of detail about the IT systems that the ESO will have to deliver to facilitate meeting these objectives.

All of this project's deliverables are marked as 'Not Started', but the project spend profile is broadly linear across the whole of RIIO-2. It is hard to reconcile these pieces of information. Typically implementing solutions is the most costly stage of IT work. While there is some IT cost to agreeing solutions, we presume much of the spending prior to solutions having been agreed is actually policy work determining what ongoing role the ESO has in EU initiatives. It ultimately doesn't matter where policy work is recognised among Ofgem and the ESO's agreements for revenue, but we are concerned that there is a risk of double counting of policy work costs in non-IT ESO revenue streams.

We are surprised, from a review of the risk log supplied for this project that the ESO is unable to envisage any risk to this project that exceeds its category 1 (<£5M) risk. Especially given that this project has already experienced a £20.7M variation. Similarly, the December 2019 view of risks by the ESO comes across as blind to the political risks associated with the UK's EU Exit and the risks it posed to this project. In its BP1 submission the ESO did not include political risks, which have since translated into this £20.7M cost movement.



		BP1		BP2		BP3			
		Actuals		Forecast					
		2021/22	2022/23	2023/24	2024/25	2025/26	TOTAL		
Totex (£m)	BP2	2.7	3.9	4.2	5.2	6.3	22.3		
	BP1	10.0	8.0	8.0	8.5	8.5	43.0		
	Variance	-7.3	-4.1	-3.8	-3.3	-2.2	-20.7		

Figure 2: Roadmap regarding 270 Role in Europe (formerly EU regulations) taken from (top) the December 2019 ESO RIIO-2 Business Plan Annex 4 – Technology investment report⁴⁶; (middle) the August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex report⁴⁷ and; (bottom) the August 2022 spending plan view.

Project score

We have scored this project 'Red'.

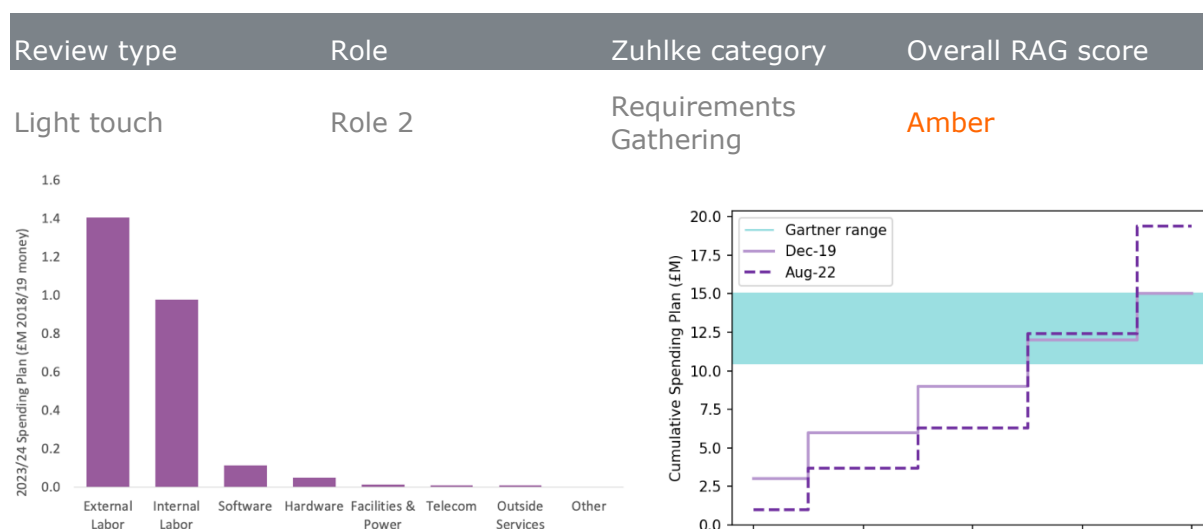
Criteria	Score
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⁴⁶ ESO RIIO-2 Business Plan Annex 4 – Technology investment report: <https://www.nationalgrideso.com/document/158071/download>

⁴⁷ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex report: <https://www.nationalgrideso.com/document/266131/download>

Business suitability	The level of maturity of agreement about what the ESO's objectives are with respect to the EU is insufficient for formulating a responsible IT investment spending plan
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	The cost profile of this project appears to be based on 'finger in the air' estimates and and/or may include policy resource costs that go beyond our review of IT investment costs
Transition delivery management & risk	No significant issues
Engagement & transparency	The level of maturity of agreement about what the ESO's objectives are with respect to the EU is insufficient for formulating a responsible IT investment spending plan

280 GB Regulations



Review findings

The ESO has increased its spending plans for this project by £4.4M (from £15M to £19.4M; +30%) since its December 2019 submission. To be clear, this project does not deliver IT solutions themselves, this project's entire scope relates to gaining early engagement regarding upcoming regulatory changes to ensure the ESO is able to capture implied IT requirements into its enterprise IT plan. The ESO explains its spending plan increase as a result of three upward pressure reasons that sum to £4.9M and one downward pressure. of -£0.5M:

- The concept of Discovery and Impact assessment analysis was developed in BP1 and therefore not included in the original forecast.
- The [regulatory] changes considered 2 years ago in the original plan are different to the changes in current backlog.

- *The expectation that regulatory change will continue to increase supporting the UK net zero ambition*
- *Capex variance due to Capex to Opex shift (-£0.5M)*

We don't know how shifting money from Capital Expenditure (Capex) to Operational Expenditure (Opex) saves £0.5M and can comment no further on this topic. Two of the other changes are market-driven drivers, i.e. changes to the regulatory agenda, which will be driving much uncertainty to this project's workload.

We don't know with confidence what a cost driver described as *concept of Discovery and Impact assessment analysis was developed* means owing to the poor sentence structure the ESO used, but assume that both a Discovery and an Impact Assessment activity have each been added to the project plan, which the ESO sees as raising costs. Given that this entire project's premise relates to ingesting market information and ensuring the ESO response to market forces is a robust one, we are confused by how the ESO planning on doing this prior to introducing the use of Discoveries and Impact Assessments. The ESO does not explain and nor did it do so in its original December 2019 ESO RIIO-2 Business Plan Annex 4 – Technology investment report⁴⁸.

The ESO definition of an Impact Assessment is: *An impact assessment goes into further detail and is completed when there is an expectation that the proposed regulatory change is likely to result in implementation. It provides the business with a high-level solution design for the modification and associated costs to deliver the change.* The GDS Service Manual definition of concluding a Discovery⁴⁹ requires that *there's a viable service you could build that would make it easier for users to do the thing they need to do.* This combined with our knowledge of how Agile working projects operate in practice leads us to conclude that the ESO Impact Assessment tried to achieve functions that the Discovery includes. The upshot is that we are left uncertain with what the ESO includes in its definition of a Discovery. It seems the combination of an ESO Discovery and an Impact Assessment is probably the same scope as a normal Agile Discovery.

Our reading of the report the ESO asked PWC to carry out to assure its cost maturity, but that the ESO chose to not publish states: *The maturity and granularity of delivery plans is dependent on the stage of the individual projects delivering specific regulatory changes.* This confirms that this project is indeed a series of smaller projects. This means that there is no single project to be reviewed here. The ESO doesn't provide much detail about how its sub-projects are being run.

£19.4M is enough money to build a large and complex IT system, in fact it is about the same cost the plans to spend on 460 Restoration for black start situations (£20M). Seemingly, no system is being constructed for project 280 GB Regulation and our review of this project using the TBM taxonomy data model shows 92% of the project cost is for human resource in 2023/24. Using the crude but simple assumption that 1 FTE costs the ESO £100,000/year, this project represents circa 36 FTEs all working full time over a 5-years period, with their purpose being only to learn how upcoming regulatory changes are having implications on the ESO enterprise-wide IT. The ESO has dedicated projects to actually carrying out detailed design and delivery of these implied IT requirements and to providing advice to ESO policy staff. These staff are just responsible for 'sketching' the circumstances and needs.

Essentially this project serves the purposes, much like the Discovery function we recommended as part of our review of 450 Future Innovation Productionisation. Except in this case it applies to regulatory changes instead of changes driven by the findings of innovation projects. We do not see a good reason why the ESO would separate its

⁴⁸ ESO RIIO-2 Business Plan Annex 4 – Technology investment report:

<https://www.nationalgrideso.com/document/158071/download>

⁴⁹ GDS Service Manual definition of concluding a Discovery: <https://www.gov.uk/service-manual/agile-delivery/how-the-discovery-phase-works>

research into upcoming IT needs from innovation projects (450 Future Innovation) from its upcoming IT needs driven by regulatory changes (280 GB Regulation), in fact the separation of the two poses risk to the coordination of enterprise architecture and solution architecture decisions.

The Government Digital service (GDS) lays out in detail on its website how Discoveries are best run (including how long it should take and the expected outputs). In that documentation the GDS Service Manual⁵⁰ states that a Discovery typically take 8 weeks in duration and at the end *there a viable service you could build that would make it easier for users to do the thing they need to do*. The ESO has 14 Discoveries planned for the period reported in the BP2 submission. If we continue our simple assumption of 1 FTE costing the ESO a round £100,000/year and that a large Discovery requires 5 FTE, we find a cost of £0.1M x (8 / 52) weeks x 5 FTE x 14 projects = £1.1M during the two years of BP2 (2023/24 and 2024/25). Of course some Discoveries can be larger/longer than others and there are fixed cost overheads relating to starting and closing Discoveries, plus we have used very simplistic numbers. However, our calculation comes to only 13% of the £8.7M the ESO plans to spend over this two year period. We can imagine 20-30% of the total money the ESO has planned to spend as being reasonable, but we cannot fathom what comprises all of the remaining 87% not captured by our basic estimate.

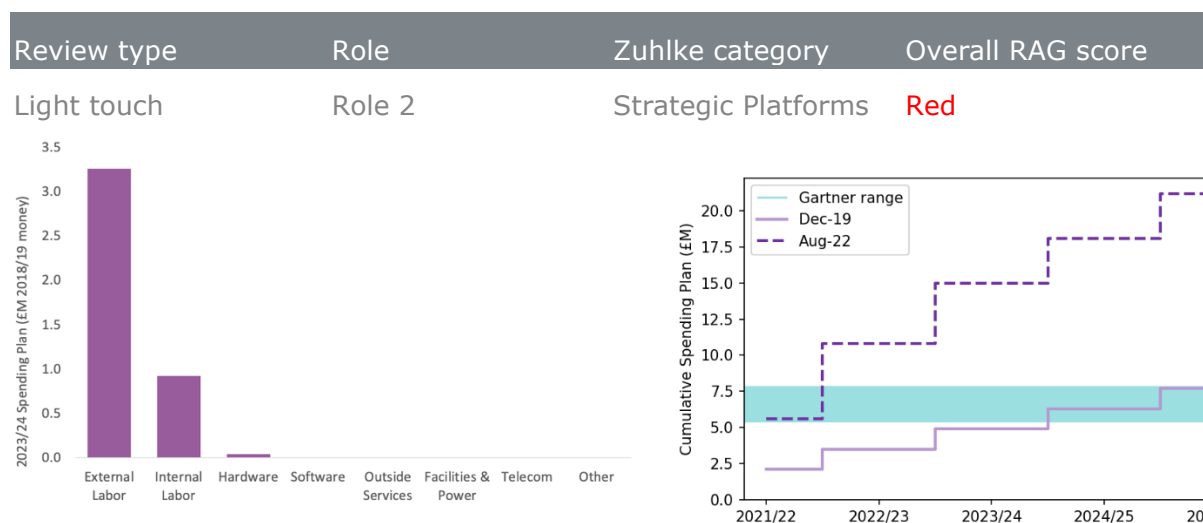
Project score

We have scored this project 'Amber'.

Criteria	Comment
Business suitability	Half of the previously agreed business scope (measured by cost) has been removed, but we don't have the information to know if that is a good thing or not
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	The ESO cost estimation information provided does not represent spend efficiency when compared to the project activities described and their typical costs
Transition delivery management & risk	No significant issues
Engagement & transparency	Providing specificity about the Discovery projects was very helpful

⁵⁰ GDS Service Manual: <https://www.gov.uk/service-manual>

320 EMR and CfD Improvements



Review findings

The ESO has increased this project's spending plans by £13.5M (from £7.8M to £21.3M; +173%). The reasons provided by the ESO for the increase to its IT services supporting Electricity Market Reform (EMR) and Contracts for Difference (CfD) are that *the Roadmap was being developed during our original [December 2019] submission and that there are Higher cost and additional resources and delivery times to deliver the more complex requirements.*

Project score

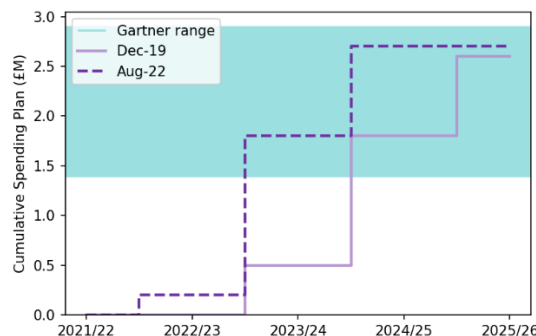
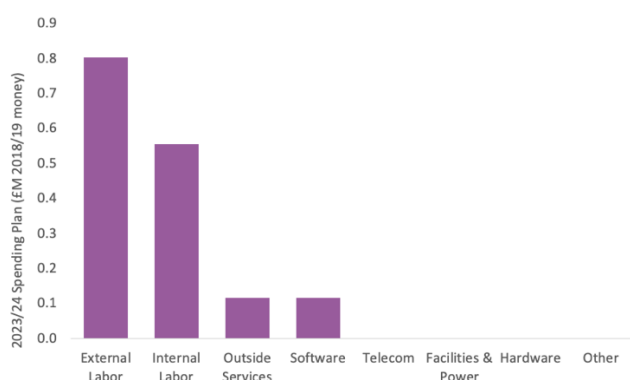
We have scored this project 'Red'.

Criteria	Score
Business suitability	There has been a reduction in project scope of business needs that appear to continue to be a priority
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	Project costs appear out of control with the ESO understanding of its requirements being poor, major deadlines arriving and insufficient convincing evidence that these challenges are wholly driven by regulatory uncertainty
Transition delivery management & risk	Poor-quality risk management practices for a project that has been facing major risk for at least 3-year

Engagement & transparency	No significant issues
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330 Digitalised Code Management

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 2	Dedicated Services	Green



Review findings

The ESO has increased its spending plans for Digitalised code management by £0.1M (from £2.6M to £2.7M: +3%) compared to its 2019 plan. This difference relates only to rounding errors, in practice the project spending plan is unchanged. However, the profiling of when the project plans to spend money has changed. The ESO has prioritised carrying out the code digitalisation activities sooner than as it had for its December 2019 plan. The ESO has provided a well-reasoned argument for this acceleration of work.

The ESO has described its having adopted the approach of conducting user experience research, user research and user-led prototype development for users of its codes services and, while the information is still somewhat limited, this is the highest quality description of user-led research we have seen from the ESO for any of its projects in the August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁵¹ document. This gives us confidence that this ESO is adopting a good delivery approach, at least for the beginning this project. We still have reservations that these Agile working methods may later be constrained as the ESO has stated this project is following 'hybrid' methods.

Project score

We have scored this project 'Green'.

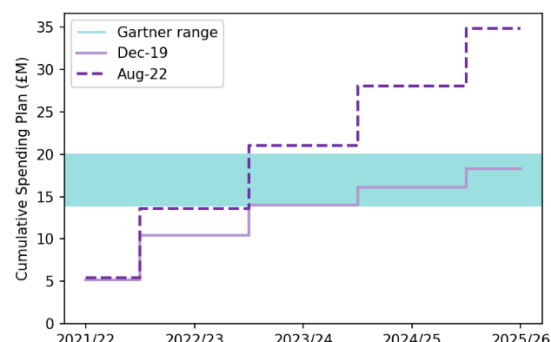
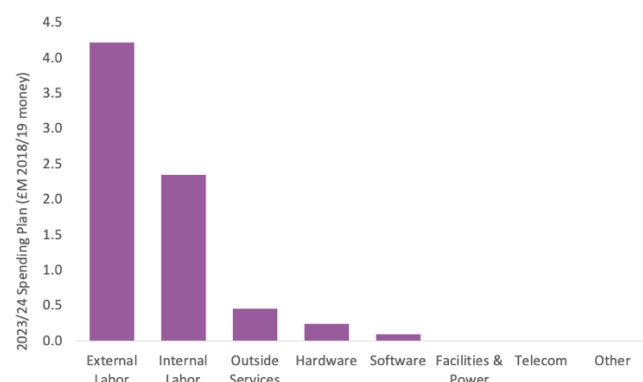
Criteria	Comment
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⁵¹ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	The ESO provided sufficient quality information evidencing its use of agile working practices to de-risk the project requirements gathering process
Engagement & transparency	No significant issues

400 Single Markets Platform

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 2	Strategic Platforms	Amber



Review findings

The ESO has increased this project's spending plans by £16.6M (from £18.3M to £34.9M: +90%) compared to its December 2019 plan. The ESO explains that it has significantly restructured this project and that it has had to introduce new scope (Ancillary Services Reform (ASR)) as an investment in back-end system functionality. ASR is spending to sustain interim and legacy ESO platforms, while it waits for its new solutions (like the Open Balancing Platform and STAR) to enable these to be decommissioned. The ESO is at least specific about the main legacy platforms in its purview, but it leaves ambiguity about the full set of ESO projects that these legacy systems relate to. The cost of ASR is £20.8M, the net cost to the 400 Single Markets Platform project is reduced owing to the ESO stating it has made £4.3M of savings through reviewing and rationalising its backlog for the wider 400 Single Markets Platform project.

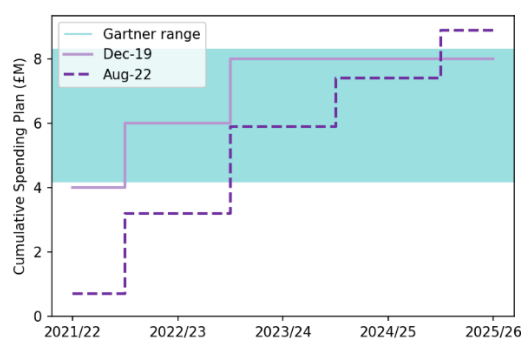
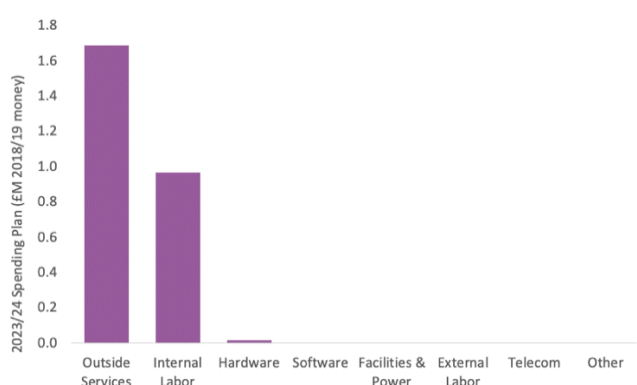
Project score

We have scored this project 'Amber'.

Criteria	Comment
Business suitability	Past ESO statements imply a risk that the ESO may have poorly scoped/run its software selection process
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	The ESO has experienced an inability to anticipate major project risks and has not demonstrated remediating action to its risk management process to ensure this kind of situation does not repeat itself
Engagement & transparency	No significant issues

420 Auction Capability

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 2	Dedicated Services	Green



Review findings

The ESO has increased its Auction capability spending plans by £0.9M (from £8M to £8.9M: +11%) in addition to changing the cost profile of the project. The project was due to conclude after 2023/24, it is now planned to run for the whole of the RIIO-2 period. The ESO refers to the actual outturn cost of its softer vendor selection and the continuation of the project as driving the cost increase. The spend profile change is because *the business agreed the requirement to maintain a capability to continuously deliver the enhancements to the platform throughout the RIIO-2 period.*

For readers interested in financial accounting practices, this project is an interesting outlier as unlike most ESO projects, for this one, spending is nearly exclusively

Operational Expenditure (OpEx) in nature. Most ESO project spending has been classified as Capital Expenditure (CapEx).

This project plan was clearer than most others we reviewed. It makes sense and even provides some light, yet convincing, evidence that the ESO has had success at implementing Agile working practices. It is clear that the ESO has already delivered incremental developments (the ESO calls these proof of concepts) and the way this has been done appears appropriate given the nature of commercial auction processes. Each increment has tested features that are distinct and comprehensible. The explanation of current work showed credible progress that has raised our confidence over the deliverability of the future activities.

The project still features dependencies on the wider ESO portfolio of work, and specifically the ESO states it needs to integrate this service with project 400 Single Market Platform. This is a risk to the project's ongoing success.

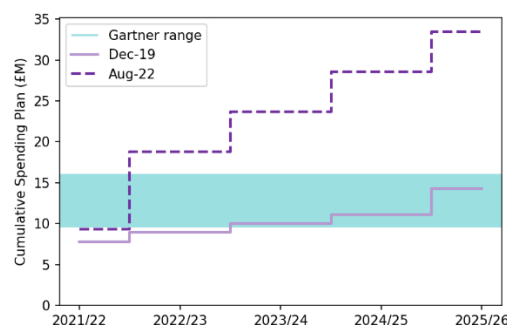
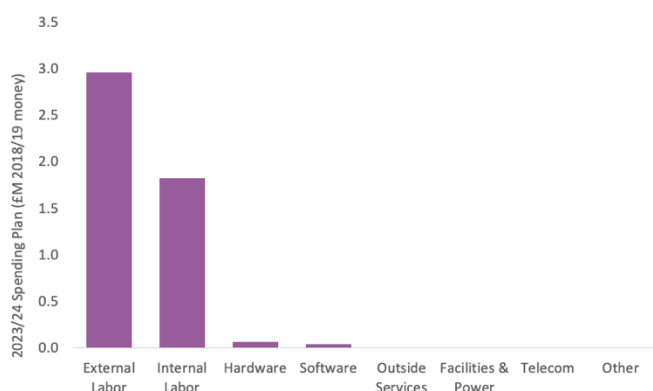
Project score

We have scored this project 'Green'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	The project has provided a sufficient amount of meaningful and specific information to evidence that it has been making steady constructive progress, relative to the level of complexity of the project
Engagement & transparency	No significant issues

610 Settlement, Charging and Billing

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 2	Strategic Platforms	Red



Review findings

As at the time of the ESO's December 2019 view of its plan, it featured three projects that have since been reorganised to be project, 610 Settlement, Charging and Billing:

- 290 Charging and billing asset health
- 300 Charging regime and CUSC changes
- 410 Ancillary service settlements refresh

When our review makes reference to the December 2019 view of project 610 Settlement, Charging and Billing project, we are making reference to the combined cost of the original projects.

The ESO has increased its spending plan for Settlement, Charging and Billing by £19.3M (from £14.2M to £33.5M: +135%) compared to its 2019 plan. The ESO attributes a net £11.2M of the increase to costs driven by *High regulatory demand including Significant Code Review necessitating teams to deliver requirements onto legacy and new systems*. This shows the challenge the ESO faces regarding requirements. The ESO has a 'moving target' objective in terms of charging/billing rules and when these will come into force, while additionally, it is replacing old systems with new and therefore there is additional uncertainty regarding on which or both systems should new charging/billing methods be implemented. We see two main factors responsible for this, external forces (i.e. the regulatory process) and the ESO's market commitments to deliver timely and high-quality investments into its IT systems; the latter minimises the ESO exposure to the prior, which is partially outside of its control.

Project score

We have scored this project 'Red'.

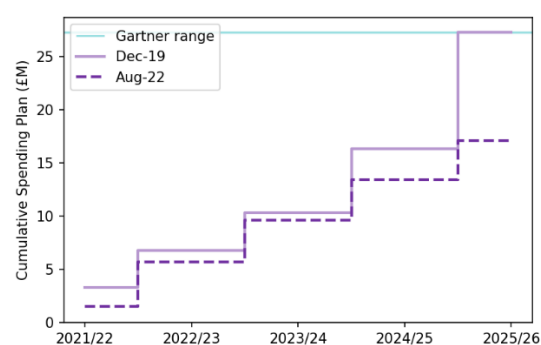
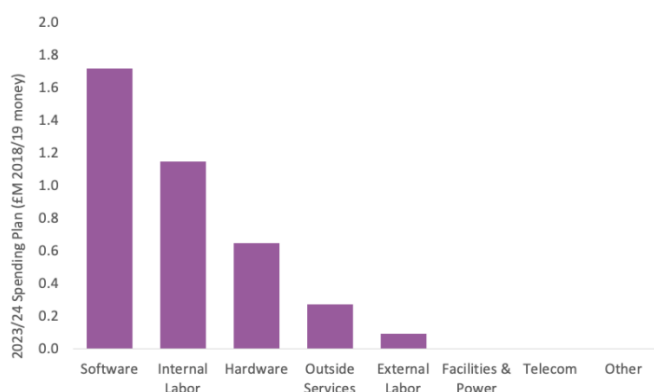
Criteria	Comment
Business suitability	The ESO ran a software selection process that appears to have discounted reasonable options without full assessment
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues

Cost & Efficiency	Cost has escalated by +135% and the ESO reasoning for this does not satisfactorily evidence that a well-run project would have encountered this situation
Transition delivery management & risk	<p>The limited information made available is insufficient to gain confidence about delivery practices</p> <p>Project risk management track record demonstrates that the ESO has not been effective at anticipating and heading-off issues</p> <p>The ESO has not provided evidence to give confidence that the delivery management and risk management shortcomings have been overcome</p> <p>Current project milestones have been delayed by multiple years and the ESO has set the expectation that further delays are probable</p>
Engagement & transparency	No significant issues

Role 3 Investments

340 RDP Implementation and Extension

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 3	Dedicated Services	Amber



Review findings

For Regional Development Programme (RDP) implementation and extension the ESO has decreased its spending plans by £10.1M (from £27.3M to 17.1M: -48%) compared to its December 2019 plan. The ESO explains this as due to the ESO removing its plan to deliver 'Power Potential Future Learnings' and 'Cross Vector opportunities', reducing this project's scope. The ESO also reports two other drivers of cost change; a £1.7M increase due to the ESO's Balancing Programme's Generation Export Management System (GEMS) encountering unexpected complexity and delay as well as an issue with the commissioning of the ESO's Inter-Control Centre Communication Protocol (ICCP)

network link and a £1.9M cost reduction through avoided Discovery research work and a decision to re-use existing solutions. The ESO does not say what research this was or what solutions can now be re-used and for what task this applies to.

The ESO no longer plans to deliver the business outcomes that would have been achieved through its Power Potential Future Learnings work, whereas for (we assume) Cross Vector Activities the ESO expectation is that project 500 Enhanced Frequency Control (formerly Zero Carbon Operability) will deliver this scope instead. Therefore, this £10M spending plan reduction is a re-organisation of work between projects only. The ESO reasons that project 500 Enhanced Frequency Control (formerly Zero Carbon Operability) is more suited to the task and implies that it is better to delay than to deliver these services through this project.

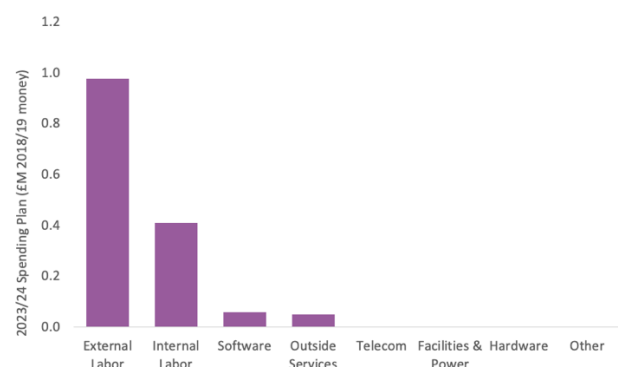
Project score

We have scored this project 'Amber'.

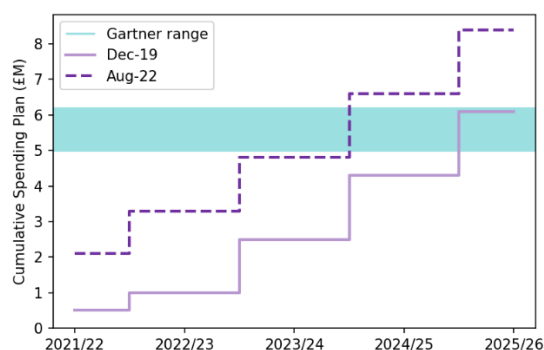
Criteria	Comment
Business suitability	The ESO has not explained what the IT solution(s) is/are Half of the previously agreed business scope (measured by cost) has been removed, but we don't have the information to know if that is a good thing or not
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	No significant issues
Engagement & transparency	No significant issues

350 Planning and Outage Data Exchange

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 3	Dedicated Services	Amber



Review findings



The ESO has increased its spending plans for this project by £2.4M (£6M to 8.4M; +40%) compared to its 2019 plan. This reported cost increase applies to the first two years of RIIO-2 only, the 'BP1' period, there is no change to the spending plans for the latter three years of RIIO-2. The cost increases relate to work that was not completed as planned during RIIO-1. 'Go-live' of enhancements to the Network Access Management System (eNAMS) was delayed from November 2020 to September 2021, which accordingly delayed the replacement of Transmission Outage and Generator Availability (TOGA) from 2020/21 Q1, (i.e. during RIIO-1) to 2021/22 Q2 (i.e. during RIIO-2). The reasons given for this (in the August 2022 document: ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁵²) are that there was *additional development work during end-to-end regression testing (before go-live) due to the need for access to eNAMS functionality by a wider external customer base* and because data processing was more complex than the ESO anticipated. This also had a knock-on effect of raising RtB costs by £0.6M, these are out of scope of our review.

This RIIO-2 project has had to absorb scope that was previously intended for delivery as part of the RIIO-1 price control.

In Supplementary Question ESO_BP2_SQ_102 (see Appendix 4 for full question and answer) we asked the ESO to further breakdown its explanation for the delay to delivering eNAMs. Paraphrasing, the ESO answered:

- a need for additional development work was identified with customers prior to go-live (reporting, TAG inheritance and cross boundary functions) (£0.7M)
- a high volume and complex nature of the 15-year old legacy data structure, which created further re-work and additional scope for data cleansing and migration (£0.6M)
- accommodating their customer's annual planning window and their internal critical system go-lives (£0.3M)
- addition of Workstream-1 "eNAMS Enhancements" releases to fulfil ongoing product improvement strategy (£1M)

The ESO's August 2022 publication makes mention of a larger user-base, but the answer to question ESO_BP2_SQ_102 makes no mention of changes to the known set of users. What the answer does show, we believe, is that the ESO's delivery challenges are rooted in its poor understanding both of end-user requirements (annual planning process) and data processing requirements (data structure) even at the late stage of this RIIO-1 activity. The £1M product improvement strategy cost is not contextualised or justified. The ESO has made no attempt to explain what these product improvements are and we do not know if they are also products/services that were expected to be available in RIIO-1 or are decision by the ESO to seek to expand the scope of this RIIO-2 project.

⁵² ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

The ESO's having changed its project plan between December 2019 and August 2022 (see roadmaps, below) combined with the delay to replacing TOGA make it difficult to understand the real ramifications this delay has had for the project. Overall, the ESO's position is that its costs and service delivery are both unchanged when excluding the TOGA replacement delay costs.

According to the ESO's latest roadmap, most of the work this project has delivered so far relates to its completing the work that was not completed as planned during RIIO-1 and carrying out the unexplained additional spending on eNAMS Enhancements as part of Workstream-1. The roadmap also indicates that significant user interface work is being carried out by this project; we refer readers to project 380 Connections Platform to see our perspective and concern about how the ESO is approaching front-end development.

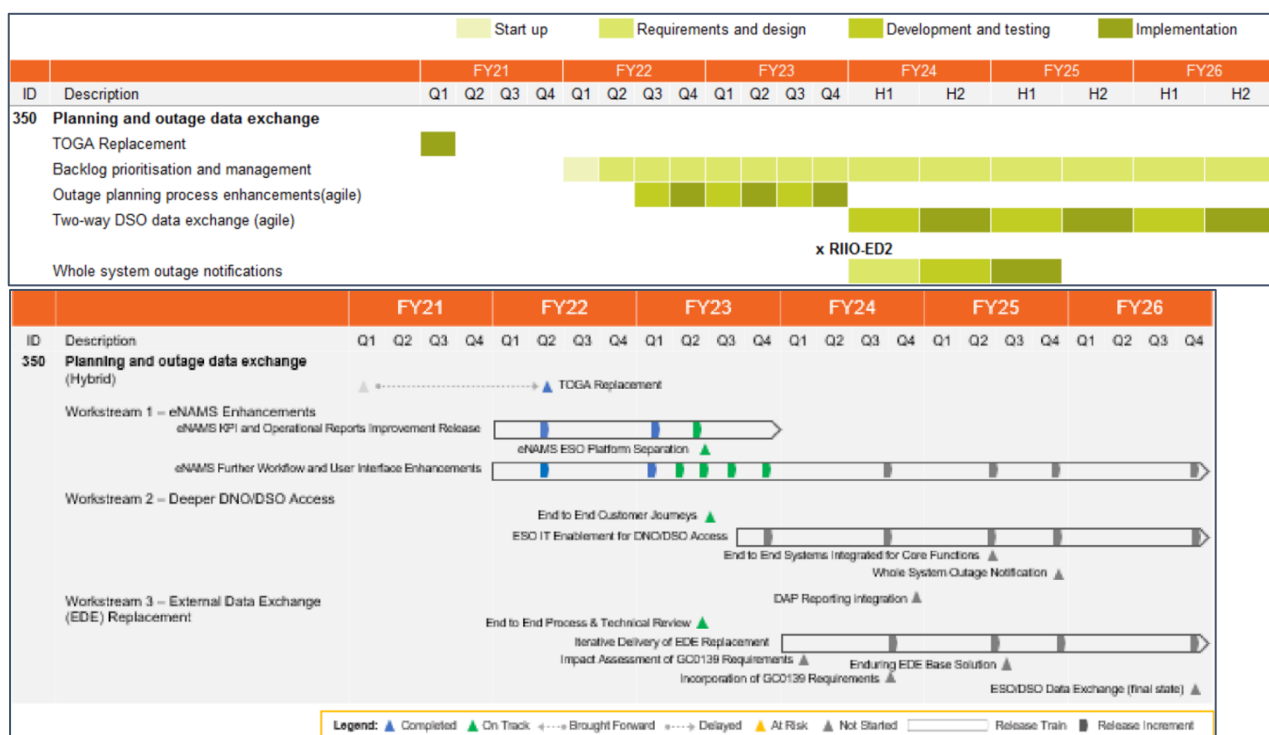


Figure 7: Roadmaps taken from (top) the December 2019 ESO RIIO-2 Business Plan Annex 4 – Technology investment report⁵³ and; (bottom) the August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁵⁴ report.

Project score

We have scored this project 'Amber'.

Criteria	Score
Business suitability	No significant issues
Governance (control & accountability)	No significant issues

⁵³ ESO RIIO-2 Business Plan Annex 4 – Technology investment report: <https://www.nationalgrideso.com/document/158071/download>

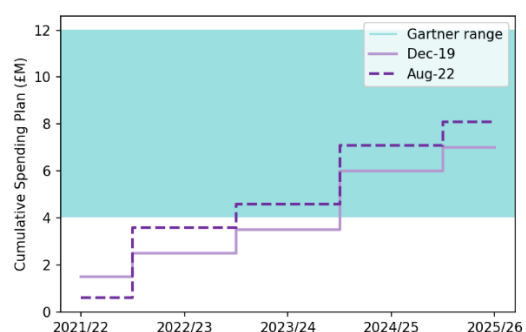
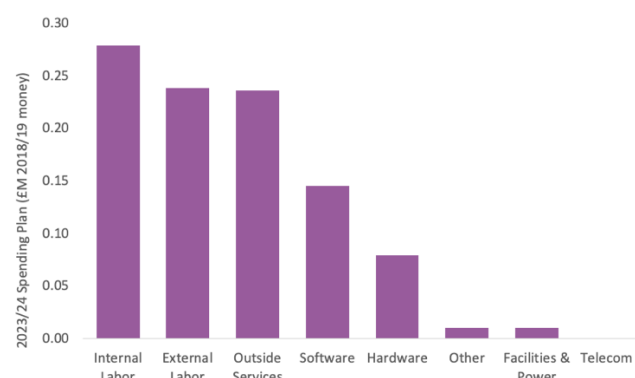
⁵⁴ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

	The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	The ESO's PWC review found that there is no meaningful data behind the ESO cost numbers
Transition delivery management & risk	There is an implied risk to future work based on recent past performance with no evidence of a remediation action plan
Engagement & transparency	We cannot reconcile ESO reporting about this project with PWCs findings

360 Offline Network Modelling

Review type	Role	Zuhlke category	Overall RAG score
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Light touch Role 3 Dedicated Services Amber



Review findings

The ESO has increased its Offline Network Modelling spending plans by £1.1M (from £7M to £8.1M; 15%). The drivers of this spend increase are attributed as delays caused by the later than planned delivery of the hardware upgrade for the Offline Transmission Analysis (OLTA) tool (+£0.7M), early implementation of software called PSCAD (+£0.4M) and a delay to the implementation of the Electricity Network Access Management System (eNAMS) by project 350 Planning and Outage Data Exchange (+£0.1M).

Project score

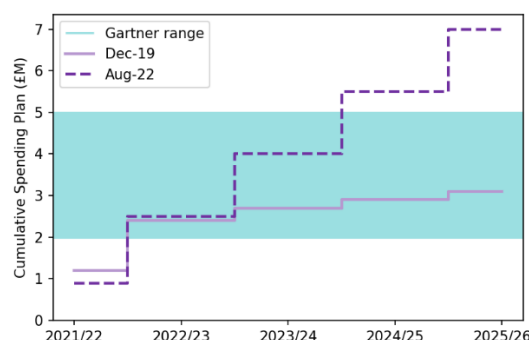
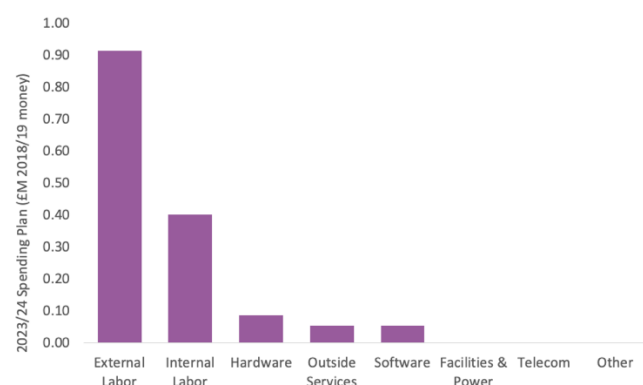
We have scored this project 'Amber'.

Criteria	Score
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan

Foundational capability	The project NFRs are very high quality The hardware requirements for this project are not explained, but are driving up project costs
Resilience & adaptability	No significant issues, subject to the outcome of the hardware explanation
Cost & Efficiency	The primary driver of cost increase is a consequence of wider ESO policy and not specific to this project The main other cost driver is complemented by an acceleration of delivery of services
Transition delivery management & risk	No significant issues
Engagement & transparency	No significant issues

380 Connections Platform

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 3	Dedicated Services	Amber



Review findings

The ESO has increased its spending plan for this project by +£4M (from £3M to £7M: +133%) compared to its 2019 plan. In addition to the overall figure, the trajectory of spend has also changed significantly - the ESO now plan to continue at a high spend rate throughout the RIIO-2 period (approximately £1.5M per year). The main reason provided by the ESO for the increase is the ESO introducing a second phase of work to deliver a customer connections portal. This is beyond the scope of its December 2019 intentions and the ESO states it is doing in response to stakeholder feedback. Other cost increases are also being driven by the need for integration with other strategic platforms, which was not previously considered.

In its August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁵⁵ publication the ESO characterises its original first project phase as to *digitalise the connection application process and introduce automation, for ESO and our*

⁵⁵ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

customers and its new second phase as being to *enable similar efficiencies to additional connections processes*. Though, confusingly, the ESO also states that additional scope of work it is proposing is a response to that fact that *customers and stakeholders have told us that the ESO should lead development of a customer connections portal*.

Further confusion arising from the ESOs December 2019 description of this project's goal, the ESO stated: *Through RIIO-2 we will work with stakeholders to develop this tool so that it provides a one stop shop for all connection-related information, such as signed agreements, charges, and operational notifications. It will be fully integrated with our digital engagement and customer relationship management tools to provide a seamless experience to customers and stakeholders* (see page 102 of ESO RIIO-2 Business Plan Annex 4 – Technology investment report⁵⁶). This December 2019 statement sounds like a customer connections portal and so seems to imply that the project scope already included the services that stakeholders have asked from the ESO during its recent engagement activities.

Based on the information the ESO has shared, we are unable to confidently explain exactly what the original project scope was in December 2019 and what it has changed to as-at August 2022. Our reading of the ESO plans makes the scope now appear the same as it was in December 2019. Presumably the ESO is learning more specific requirements from users about what is required from such a portal, but it doesn't make these scope changes clear and this is a normal feature of all digital portals and so something that should have been entirely predictable by the ESO and the staff who conducted the Gartner review for the ESO's December 2019 publication. The ESO December 2019 risk register did not include users' growing desire for features as a risk, which is an omission.

Otherwise with respect to risk, the ESO's August 2022 risk log is an improvement on its December 2019 risk log, which featured only one risk to this project, which was not credible. We give a fuller account of our view on risk reporting, but relatively speaking, this is an improvement.

Project score

We have scored this project 'Amber'.

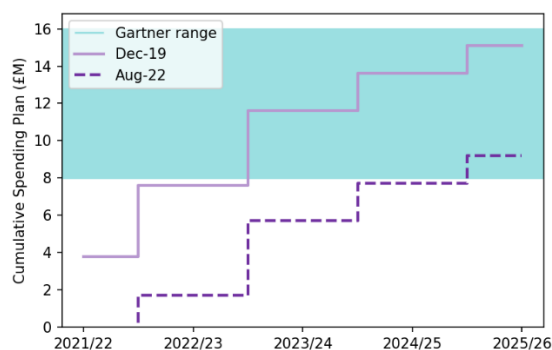
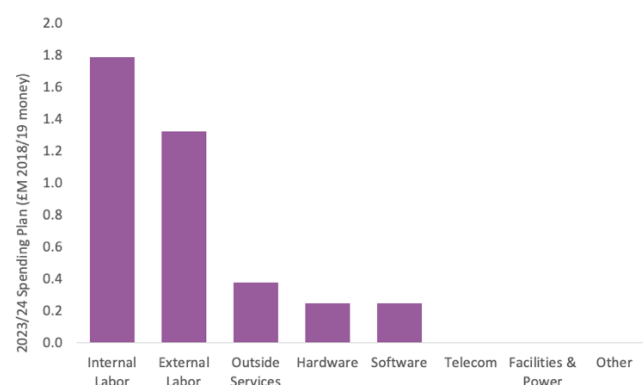
Criteria	Comment
Business suitability	The plan includes a broadening of the project scope, but this ambition is beyond the ESOs present ability to evidence its capability to deliver the basic services
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues

⁵⁶ ESO RIIO-2 Business Plan Annex 4 – Technology investment report: <https://www.nationalgrideso.com/document/158071/download>

Transition delivery management & risk	The project's main milestones are marked as 'at risk'
Engagement & transparency	<p>The quality of information the ESO has provided about this project is poor to the point that it has made it too difficult for us to confidently understand the precise change in scope proposed</p> <p>The ESO has been open about how this project's major milestones are at risk</p>

390 NOA Enhancements

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 3	Dedicated Services	Amber



Review findings

The ESO has decreased its spending plan for this project by £5.8M (from £15.1M to £9.3M: -38%) compared to its December 2019 expectation. The primary driver of this cost reduction is the reduction in the procurement cost of the probabilistic modelling tool, which the ESO has explained it achieved through a better than expected negotiation outcome. Savings are also being achieved as the tool is turning out to be easier to run than previously anticipated. The ESO also states that it deferred its licence purchase; though this does not tally with the quantitative explanation the ESO has given for achieving cost savings.

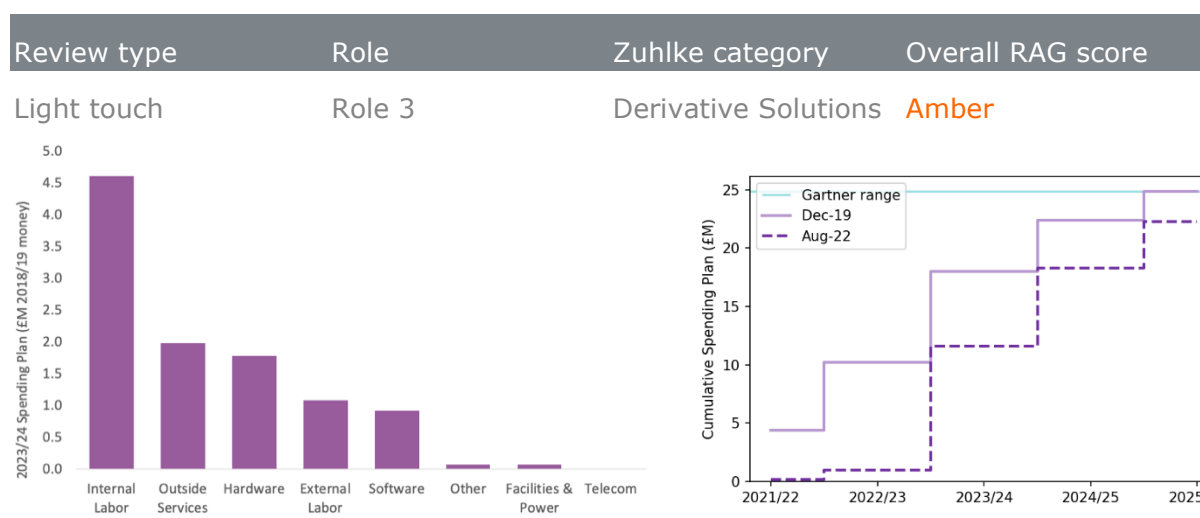
We are satisfied to see the ESO placing emphasis on its plan to make use of the open-source language, Python, and to publish analysis across the ESO and externally. We are mindful that the ESO has not stated what language and degree of access users have to the code base of the proprietary software they have procured for their Economic Assessment Tool. We can understand how COTS tooling likely plays a role in the analysis needs relevant to this project, but the exact execution of how COTS tooling is used in conjunction with open-source practices will dictate whether the ESO's investment allows for wide market participation and visibility of analysis and how it has been carried out. The close relationship between this work and the ESO's Future Energy Scenario (FES) work places great importance on this. The information the ESO has provided is insufficient to gain full confidence that this topic is being well-managed.

Project score

We have scored this project 'Amber'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	No significant issues
Resilience & adaptability	No significant issues
Cost & Efficiency	No significant issues
Transition delivery management & risk	Insufficient evidence that the ESO user engagement practices are of a high enough quality to ensure the right solutions are being created and that users are being supported in their adoption of services
Engagement & transparency	No significant issues

500 Enhanced Frequency Control (formerly Zero Carbon Operability)



Review findings

This project has decreased its spending plans by £2.6M (from £24.9M to £22.3M: -10%) compared to its 2019 plan. There is one major driver of cost change, which is an expansion of the project plan through the introduction of a new 'Phase Zero' to the project, this lower-cost phase has delayed previously planned work beyond the end of the RIIO-2 price control and it has re-profiled spending during RIIO-2, overall this produces the 10% RIIO-2 cost reduction, but note, the project overall is now longer and probably larger, it appears the ESO intends for it to continue beyond RIIO-2 at a cost that has not been quantified. The headline cost reduction is therefore a misleading statistic. This is a project whose overall costs and delivery timetable are larger and later, respectively.

We draw to Ofgem's attention that Phase One of this project is reported to also be benefitting from Network Innovation Allowance (NIA) funding, in case this is relevant to

its regulatory considerations regarding the appropriateness and potential for overlaps in regulated energy network company revenue streams, see August 2022 ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex⁵⁷ (page 232).

For this project the ESO has been clear that the high-level IT system to be created by this project is a modern Monitoring and Control System (MCS) for sending rapid frequency response information and instructions to enable to the electricity system operations to be stable while emitting zero carbon emissions.

The newly introduced Phase Zero *provided a strategy and design blueprint for the programme and mobilised participants for phase one*, implying that previously this £20M+ project's scope did not include did not plan to have a *strategy and design blueprint for the programme*, which does not reflect well on the December 2019 version of the ESO plan for this project. The ESO expects that overall, it is still in a position to meet its deadline of achieving *an operable zero carbon system by 2025*, despite how this new phase has delayed the start date. In its answer to ESO_BP2_SQ_72 the ESO has stated about this project that *whilst we still expect to commence requirements and design for the phase 5 - 2nd stage rollout in RIIO-2, completion of the second half of this work is now expected in RIIO-3. This is consistent with both the roadmap in IT annex final submission and our business delivery schedule.*

From this we conclude that while the RIIO-2 spending plan for this project is a 10% reduction, the full project now has costs expected to be incurred after RIIO-2, the ESO estimates this is £1.5M, which is the majority of the £2.6M spend reduction planned now for during RIIO-2.

Following the ESO's updated August 2022 roadmap, it is reasonable that the ESO has little understanding of the detailed requirements on IT capabilities and so we are unsurprised and accordingly content that little technical information is provided presently. This does mean, though, that the project timetable and cost estimations are subject to a high degree of uncertainty and will be subject to change. The PWC report that the ESO has chosen to not publish provides a similar perspective to our own.

Project score

We have scored this project 'Amber'.

Criteria	Comment
Business suitability	No significant issues
Governance (control & accountability)	No significant issues The ESO has not provided project performance measures in its public investment plan
Foundational capability	Too early into project life to comment
Resilience & adaptability	Too early into project life to comment
Cost & Efficiency	The ESO has not provided a substantive investment plan worthy of a £22.3M investment

⁵⁷ ESO RIIO-2 Business Plan 2 Digital, Data, and Technology Annex: <https://www.nationalgrideso.com/document/266131/download>

Transition delivery management & risk	Too early into project life to comment, but note project delivery roadmap leaves no margin for delay to meet 2025 objective
Engagement & transparency	No significant issues

650 Accelerating Whole Electricity Flexibility (formerly Facilitating Distributed Flexibility)

Review type	Role	Zuhlke category	Overall RAG score
Light touch	Role 3	Future Projects	Green

The ESO has not yet provided data about this project’s spending plan.

Review findings

Project 650 Accelerating Whole Electricity Flexibility (formerly Facilitating Distributed Flexibility) does not yet have cost information available. The ESO is seeking approval to conduct an Agile Discovery activity in anticipation of future IT investment needs relating to Accelerating Whole Electricity Flexibility. The proposed cost is in the region of £100k.

Project score

We have scored this project 'Green'.

Criteria	Score
Business suitability	No significant issues
Governance (control & accountability)	The ESO has provided a clear set of relationships between this and other projects The ESO has not provided project performance measures in its public investment plan
Foundational capability	Too early into project life to comment
Resilience & adaptability	Too early into project life to comment
Cost & Efficiency	The project duration and cost are reasonable for discovery-stage research Unlike numerous other early-stage projects, the ESO has not asked Ofgem for approval for its spending many millions of pounds on IT systems that the project team hasn't even begun to conceptualise yet
Transition delivery management & risk	The ESO has laid out a clear requirement for conducting Discovery research

Engagement & transparency	No significant issues
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Appendix 5 – Glossary of ESO-specific framework terms

Table 23: Guide to ESO outputs and incentives components

Element	Description
Activity	A subset of responsibilities within a role with specific expectations and deliverables attached to it.
BP1	The ESO’s Business Plan period from April 2021 to March 2023
BP2	The ESO’s Business Plan period from April 2023 to March 2025
Business Plan	Submission from the ESO containing its proposed costs and deliverables for a (initial) two-year period. We assess this to make determinations on incentives.
Deliverable	A specific delivered output within an activity which has associated delivery dates and success measures.
Delivery schedule	A grouping of deliverables for either a role or the Business Plan.
Delivery Schedule grading	Our grading of the Delivery Schedule for each role, designed to set a clear reference point and align expectations in the incentives process. Outlined further in Chapter 3 and in Appendix 2.
ESO Performance Panel	A mix of independent experts and industry representatives that are responsible for reviewing the ESO’s plans and performance, as well as performing an End of Scheme evaluation of the ESO’s performance.
ESO Roles Guidance	Sets out our expectations for how the ESO should comply with its obligations, and for RIIO-2, meet and exceed our incentives expectations under three roles: control centre operations; market development and procurement; and system insight, planning and network development.
ESORI Arrangements Guidance	A guidance document which sets out the logistics and detailed mechanics of the incentives scheme, including guidance on how the ESO performance should be evaluated, what it should report, and how we determine an incentive payment or penalty.
Evaluation criteria	The criteria used by the Performance Panel to measure the ESO’s performance for each role. Proposals for BP2 are in Chapter 2.
Incentive scheme	The process over a business plan cycle to assess the ESO’s performance against five key criteria, resulting in the award of a £m reward or penalty.
Long-term vision	The long-term vision covers the period from the start of RIIO-2 to 2030.
Medium-term strategy	The medium-term strategy is the five-year strategy covering the RIIO-2 period.
Performance benchmarks	Describes ex-ante what level of outturn performance is below, meets and exceeds expectations for each performance metric.
Performance measure	A measure of the ESO’s performance, including performance metrics, stakeholder satisfaction and other regularly reported evidence.

Performance metric	A numerical measure of ESO performance which can be produced regularly, has a pre-defined methodology and has clear performance benchmarks.
Regularly reported evidence	Evidence that should be regularly reported by the ESO to inform the evidence of benefits criterion in the evaluation criteria.
Role	One of the three roles in the roles framework.
Value for Money assessment	Considers whether the ESO has delivered value for money, striking the optimal balance between maximising benefit delivered from outputs whilst minimising costs.