

## Engineering Justification Papers for RIIO-ED2

<b>Publication date:</b>	9 February 2021	<b>Contact:</b>	Niall McDonald
		<b>Team:</b>	Engineering Hub
		<b>Tel:</b>	0207 901 7201
		<b>Email:</b>	Niall.McDonald@ofgem.gov.uk

As part of their RIIO-ED2 business plan submissions, DNOs are required to provide Engineering Justification Papers which set out the scope, costs and benefits for major projects or aggregated investment programmes aimed at reinforcing the network or improving asset health. This document sets out the frameworks that must be used for these papers, highlights the information that is required by Ofgem for our review process and provides summary guidance on how to populate the frameworks.

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Any enquiries related to the text of this publication should be sent to Ofgem at: 10 South Colonnade, Canary Wharf, London, E14 4PU. Alternatively, please call Ofgem on 0207 901 7000.

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## 1. Introduction

1.1. This document sets out the framework to be used to generate Engineering Justification Papers (EJPs) for load related and non-load related investments that are aimed at reinforcing the network, improving asset health or network performance.

1.2. The purpose of the EJP is to provide justifications for investments and act as decision support tool, which is open to scrutiny and challenge, in conjunction with other appropriate means of justification for investment decisions.

1.3. Section 2 of this guidance sets out the general requirements to produce EJPS. Recognising that a licensee may already have internal justification papers, where they contain all the information discussed in Section 2, those may be submitted.

1.4. Section 3 of this guidance provides an example structure and example content. Regardless of the EJP structure adopted, we do require as a minimum that the summary table detailed in Section 3 of this document is appended to the submissions.

1.5. In support of our assessment of business plans DNOs must explain the structure of all proposals that require an EJP and present an overview of the content in a separate document. This overarching document must allow Ofgem to check that the requirements of this guidance have been satisfied.

## 2. General Requirements

### Section summary

This section provides the overarching guidance for the production of Engineering Justification Papers (EJPs), sets out the key principles and criteria, sets out the assessment framework the Authority will apply and some of potential assessment outcomes.

2.1. The purpose of the EJP is to provide justifications for load related and non-load related investments and act as decision support tool, which is open to scrutiny and challenge, in conjunction with other appropriate means of justification for investment decisions. An EJP will achieve this by:

- Establishing the need for the investment and presenting supporting evidence.
- Demonstrating a structured options development process.
- Detailing the proposed investment scope, costs, risks, and benefits.

2.2. They will be produced for projects or aggregated investment programmes aimed at reinforcing the network, improving asset health or network performance.

### Criteria for Engineering Justification Papers Production

2.3. The EJPs must align with the cost, volume and output data underpinning the Business Plan submissions, as submitted in the Business Plan Data Templates (BPDTs).

2.4. In our Business Plan guidance we state that in proposing costs for operating and developing their networks, companies must explain their cost and workload forecasts, particularly where these diverge from historical trends.

2.5. In a similar vein and based on learning from RIIO-2 transmission and gas controls, we have developed criteria to produce EJPs which licensees must apply. The criteria that licensees must apply is set out in detail in this Section.

2.6. **EJPs will be required for high value load related and non-load related investment programs, where the investment proposals forecast cost exceeds £2m.**

This includes discrete projects and programmes of projects with common drivers. Programs could include activities to address common reliability or obsolescence issues, where an individual intervention, is unlikely to meet the criteria or threshold.

**2.7. EJPs will also be required for load related and non-load related investment programs where the asset replacement volume proposals have increased by more than 33% when compared to RIIO-ED1 price control periods and the forecast cost exceeds £500k.** This does not include investments that fall within the High Value category (2.6).

**2.8. Where the investment cost is less than £2m, DNOs may consider producing an EJP to enhance transparency and/or provide additional evidence.** This may be considered for proposals that include complex or novel solutions, or the chosen option moves beyond minimum requirements to meet the needs case.

### **Background Information Requirements**

2.9. For load related investments the need for investment must be substantiated against a range of plausible planning scenarios. Where strategic ahead of need investment is proposed, the rationale must be clear and supported by clear articulation of the risks associated with no investment.

2.10. For non-load related investment need for investment must include evidence of reported condition and risk, linked to anticipated deterioration, and may be supported by additional asset condition data so far as reasonably practicable.

2.11. For all proposals, licensees must present a supporting narrative on data that underpins the proposed modification. This will detail what data is held, how it has been used and how the data and supporting analysis supports the investment decision.

### **Optioneering Requirements**

2.12. For each investment that is proposed, a full range of credible solutions must be presented. The minimum level of intervention that would be required to remain compliant with all relevant legislation must be clearly identified.

2.13. Solutions may include traditional reinforcement options, commercial solutions (eg flexibility procurement) and smart solutions (involving technology, systems and data) as applicable to the investment need.

### **Analysis and Cost Requirements**

2.14. For each investment the detailed scope of the options considered and discounted by the network companies, including the risks, costs and benefits that were considered as part of the analysis to inform the need for the intervention and their proposed solutions, must be presented.

2.15. When presenting options, a whole life analysis must be reflected in the options development and this must contain whole life costs including consideration of electrical losses. In aggregated portfolios cases this analysis may be limited to generic factors and assumptions which will be listed and clearly identified.

2.16. Costs for specific projects must be based on a detailed scope of works. Where a detailed scope of works cannot be presented due to uncertainties in scope, unit costs or time this must be articulated and justified.

2.17. EJPs will provide commentary on the ability of the organisation to deliver the proposed volumes and outputs associated with the proposals detailing the key risks. Where deliverability risks have a cost impact, we expect the costs to be related to risk drivers where appropriate.

2.18. EJPs will be part of the toolbox approach to justifying and assessing proposed investments and preferences for chosen strategies. This toolbox will include Cost benefit Analysis (CBA), econometric assessment, Network Asset Risk Metric (NARM) and qualitative assessment of the narrative presented in the Business Plan. EJPs must not replicate or duplicate any analysis contained in other areas of the Business Plan so far as is reasonably practicable.

### **Interaction with the Business Plan Incentive**

2.19. As detailed in the RIIO-ED2 Business Plan Guidance as a minimum requirement under Stage 1 of the Business Plan Incentive (BPI) DNOs must produce and submit EJPs in accordance with this document.

2.20. In support of our assessment of the Stage 1 of the Business Plan Incentive the EJPS must adopt a common structure which sets out the information required by Section 2.1 to 2.18 of this guidance for each of the proposed investments. Section 3 of this guidance sets out an example structure and provides example content guidance. Where a DNO does not follow the guidance in Section 3, i.e. adopts a different structure aligned to internal justification papers, as a minimum requirement we expect the EJP to include the summary table as detailed in Section 3.1.

2.21. In addition, the licensee must explain, in a separate overarching document any links between the proposed EJP and the business plan outputs, supporting submissions, such as Business Plan Data Tables, CBAs, NARMS data and asset management plans. This overarching document must also explain how the common structure and content of the EJPs proposed by the DNOs meets the requirements of this document.

2.22. This overarching document must allow Ofgem to check that the requirements of this guidance have been satisfied, and EJPs have been produced for high value investment programs and where there is a significant volume change compared to RIIO ED1.

### **EJP Assessment Process**

2.23. As part of the wider assessment of the Business Plan, Ofgem shall assess each EJP submitted by the DNOs and consider:

- **The needs case for the investment:** whether this has been demonstrated by the provision of an explanatory narrative and evidence to support the need for investment. Whether adequate supporting evidence has been provided such as: NARM data, asset condition and performance data; degradation projections; power system analysis reports and references to the outputs of other industry standard process or assessment methodologies.
- **The options development and assessment process:** whether all credible options to meet the needs case have been identified, including do nothing or minimum intervention and whether the reasons for the rejection of options are presented and the rationale for rejection is clear. This ensures that the most relevant options are progressed.
- **Efficiency of engineering solutions:** whether the chosen/preferred option is a proportionate solution to the identified needs case and the scope of the solution has not expanded beyond meeting the identified need, without further justification. Whether the

associated CBA supports the solution proposed, where the CBA does not support the solution we will consider the additional arguments from licensees.

- **Investment delivery timings and volumes:** Whether the volumes proposed as part of a proposed solution can be delivered in the RIIO-ED2 period, and for asset replacement projects, whether they deliver a net risk reduction as measured through NARM.
- **Maturity of submitted costs:** whether the licensee has clearly stated their view on the cost maturity and confidence for submitted costs.

2.24. If, having completed the above assessment, it is not clear whether the EJP meets the requirements of this document we will seek clarification via supplementary questions and bilateral meetings. We expect engagement at a working level to explain complex or novel proposals.

2.25. Ofgem will engage external engineering consultants, where appropriate to aid in the assessment of specialist areas.

2.26. On completion of the EJP assessment, we will form a view on the following aspects:

- The overall need for the investment, and the suitability of the supporting evidence.
- The efficiency of the engineering solution and the proposed volumes, which will include any arguments and evidence from licensees for enhanced solutions.
- The maturity and confidence associated with costs, and arguments for enhanced costs.
- The deliverability of the proposed investments and the risk of non-delivery or stranding of assets.



### 3. Content and Structure

#### Section summary

This section sets out our recommended structure and content for an Engineering Justification Paper (EJP) and the key considerations to be discussed as part of the paper.

This guidance applies to both load related and non-load related investments that are aimed at reinforcing the network or improving asset health or network performance

#### Summary Table

3.1. The following table sets out the key information that must be contained in an EJP. This table must be produced at the beginning of each EJP.

<b>Title Section</b>	
<b>Name of Scheme/Programme</b>	Working Title of Scheme/Programme  <i>This will be a meaningful name that relates to the investment proposed.</i>
<b>Primary Investment Driver</b>	e.g. Asset Health/Load/Environmental/VIP  <i>Outputs can only be declared under a single investment driver, i.e. a single transformer replacement cannot be proposed under asset health <u>and</u> load outputs, it can be one or the other.</i>  <i>If the scheme/project being described in this paper comprises multiple smaller schemes/projects then it will be made clear how the outputs and costs are split and recorded throughout the tables to ensure double counting is avoided.</i>

	<i>Clear referencing to other parts of the BPDT or additional referenced data sources (CBRM, DFES, etc)</i>
<b>Scheme reference/ mechanism or category</b>	E.g. SH-00001/Generation Connection, or SP-00002/Transformer <i>As input in the Business Plan Data Tables</i>
<b>Output references/type</b>	Please list all outputs to be delivered, e.g.:NLR-0001/Transformer, NLR-0002/Circuit Breaker <i>As input in the Business Plan Data Tables</i>
<b>Cost</b>	Submitted cost of preferred scheme <i>Total cost of the scheme, not just the RIIO-ED2 element. This is to aid our assessment of the scheme impact ranking.</i>
<b>Delivery Year</b>	Year of output delivery if a program delivery is over a number of years in a staged manner, list multiple years.  For Programmes of work spanning whole or most of price control, just state RIIO ED2. If output delivery spans price controls, specify expected years of delivery and price control period.  <i>Detail will provided where known, but at the very least the Price Control Period that delivery outputs will be achieved will d be specified.</i>
<b>Reporting Table</b>	Where in the Business Plan Data Tables volumes/costs/outputs are recorded
<b>Outputs included in RIIO ED1 Business Plan</b>	Yes/No – where yes, to be referenced in document  <i>A simple Yes/No in this section. If Yes detail must be provided in the section headed "Deliverability and Risk" later in the document.</i>

Spend apportionment	ED1	ED2	ED3+
	<p><i>Costs split across price control periods. ED3 should be interpreted as ED3+, i.e. should costs be forecast in ED4, include in ED3 box here but explain later in document text.</i></p>		

## Introduction

3.2. This section will provide a concise, succinct summary of the details contained with the main text of the EJP.

3.3. It will detail the following:

- background to the investment.
- identify the primary investment driver.
- identify any secondary investment drivers.
- declare the reasons for the timing of investment,
- state the expected outputs and year of delivery.

## Background Information

3.4. This section will explain the investment drivers and present argument and evidence to support intervention in the RIIO ED2 period.

3.5. It will detail the following:

- The particular asset or asset grouping that the proposal pertains to, with named assets where practicable.
- For load related investments, the supporting evidence including the planning scenario driving the investment with commentary on load and generation backgrounds.
- For non-load asset this will include a summary of the asset conditions and the supporting evidence.

## Optioneering

3.6. This section will provide a high level description of all options considered, noting which have been discounted at an early stage and for what reason, a detailed analysis of each option.

3.7. It will detail the following:

- The minimum level of intervention that would be required to remain compliant with all applicable regulation.
- The credible solutions considered, including replacement, reinforcement, innovative solutions, contracted flexibility, and other commercial options.
- Strategies for asset replacement including any upfront trade-offs in asset portfolios.

## Analysis and Cost

3.8. The subset of options that were identified for further consideration/comparison in the previous section will be examined here.

3.9. It will detail the following.

- A sensitivity analysis of the preferred options, including consideration of asset stranding.
- The results from a CBA analysis where it has been carried out.
- The rationale for the selected option.
- The predicted costs, timing of investment, declared outputs and their delivery year.
- Any regional variations, site specific factors or exceptional costs.
- The cost maturity and confidence for submitted costs.
- The risk and contingency required.

3.10. Note: Where reasoning is extensive, consideration may be given to a summary explanation here with full technical discussion in an appendix.

## **Deliverability and Risk**

3.11. This section will provide commentary on the ability of the organisation to deliver the proposed volumes and outputs associated with the proposals.

3.12. It will detail the following.

- A summary of the outputs.
- The volume delivery profile on a year by year basis.
- A reference detailing the track record in ED1.
- Any proposed investment/outputs were included in the company's RIIO-ED1 plan.
- Any deliverability constraints and key delivery risks and mitigations.

3.13. Where deliverability risks have a cost impact, we expect the costs to be related to risk drivers where appropriate.

## **Conclusion**

3.14. This section will provide a concise, succinct summary of main conclusions and recommendations contained within the main text of the EJP.