

## Decision on the Final Project Assessment of the NeuConnect interconnector to Germany

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## Executive summary

In April 2022, we consulted on our Final Project Assessment (FPA) of the NeuConnect interconnector to Germany,<sup>1</sup> which is being developed by NeuConnect Britain Limited (NBL).<sup>2</sup> This publication is our decision on the FPA. We had one partially confidential response and one non-confidential response to our consultation from NBL and Transmission Investment (TI), respectively. We have taken these responses into account in reaching our decision.

### Background and scope

NeuConnect is a planned 1400 MW electricity interconnector between Isle of Grain, Great Britain (GB) and Wilhelmshaven, Germany. Our cap and floor regime applies to the GB portion of the project (50% share).

We considered the needs case for NeuConnect at our Initial Project Assessment (IPA) stage and decided in January 2018 to grant a cap and floor regime in principle to the project.<sup>3</sup> This was based on our assessment that the project is likely to benefit GB consumers and GB as a whole. In the IPA decision we said that *'for cost estimates, the condition is that the costs submitted by the project developers do not materially rise.'* Alongside our FPA consultation, we re-considered the needs case for NeuConnect in response to a material escalation in costs submitted to us at the FPA stage.

This document sets out our decision on the FPA for the NeuConnect interconnector. We confirm the cap and floor regime for NeuConnect and present our view on NeuConnect's proposed costs and technical characteristics. As NeuConnect is planned as a project-financed interconnector, the provisional cap and floor levels will be calculated when the project reaches financial close. The calculation methodologies we will follow to determine the cap and floor levels are set out in our February 2021 consultation on licence changes for the Greenlink and NeuConnect projects. We will then update all the relevant parameters in the NeuConnect Cap and Floor Financial Model 1 (NCFM1) in accordance with the terms and calculations set out in the model.

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<sup>1</sup> [Consultation on the Final Project Assessment of the NeuConnect interconnector to Germany](#)

<sup>2</sup> "NBL" and "NeuConnect" are used interchangeably in this document.

<sup>3</sup> [Cap and floor regime: Initial Project Assessment of the GridLink, NeuConnect and NorthConnect Interconnectors](#)

In parallel, on the date of this FPA decision, changes to NeuConnect's licence will take effect. We issued the decision in respect of these licence changes in June 2021 and explained that the licence changes will take effect on the date of NeuConnect's FPA decision.<sup>4</sup>

### **Next steps**

Before the FPA submission, we received a second pre-operational force majeure request from NBL. In June 2021,<sup>5</sup> we published a decision on the implementation of a mechanism to provide relief to the regime start date for pre-operational force majeure events. We issued a decision on NBL's second force majeure request in March 2022 and have confirmed that the regime start date will be 31 March 2028.

NBL will need to report to us throughout the construction period. As part of this annual reporting, NBL should provide notice of any significant variations from the project delivery schedule, as well as details of any cost changes from NBL's approved cost position. We will review any expenditure relating to such changes at the Post Construction Review (PCR) stage.

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<sup>4</sup> [Decision on changes to the electricity interconnector licence held by Greenlink Interconnector Limited \(GIL\) and the electricity interconnector licence held by NeuConnect Britain Limited \(NBL\)](#)

<sup>5</sup> [Cap and floor interconnectors: Decision on pre-operational force majeure arrangements](#)

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## 1. Introduction

### Section summary

This section provides an overview of the scope and structure of this document and highlights links to related publications.

### What are we making a decision on?

- 1.1. This document sets out our FPA decision for the NeuConnect interconnector, including our view on NBL's proposed project costs. We will confirm the financial parameters that will apply to the NeuConnect project after NeuConnect's financial close.
- 1.2. The following areas are in the scope of this document:
  - Our decision to retain NeuConnect's cap and floor regime in principle;
  - Assessment of firm devex and capex costs;
  - An initial assessment of uncertain capital costs;
  - An initial assessment of the project's post-construction costs;<sup>6</sup> and
  - Technical aspects, including review of the technical design and setting the project-specific target for the availability incentive.
- 1.3. The following areas are not part of the FPA and therefore not within the scope of this decision. These items have been considered separately ahead of NeuConnect's financial close:
  - Our pending decision on the financial parameters for NeuConnect at their final investment decision (FID), and
  - Our oversight of the debt raising process prior to financial close.

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<sup>6</sup> By post-construction costs we mean costs associated with operational expenditure (opex), replacement expenditure (repex) and decommissioning expenditure (decommex).

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- 1.4. The following areas will be assessed and decided at the PCR stage and are therefore not within the scope of this document:
- Any eligible adjustments to the devex and capex costs that have been presented in NBL's March 2022 submission, and
  - Adjustments to the post-construction costs presented in NBL's March 2022 submission.
- 1.5. The preliminary cap and floor levels have not been presented in this document. We will provide an update with preliminary cap and floor levels for NeuConnect after financial close.

### **Our decision on the FPA**

- 1.6. We received two responses to our April 2022 NeuConnect FPA consultation. We have reviewed and considered these responses and can now confirm our view on cost allowances for the project. We have set the GB share of NeuConnect's development and capital costs at £989m, a reduction of £80.6m from the submitted £1,069.6m.
- 1.7. We will confirm the financial parameters that will apply to the NeuConnect project after NeuConnect's financial close. These financial parameters (such as the actual cost of debt and gearing) will underpin our calculation of the actual cost of debt floor level for NeuConnect. Our May 2020 regime variations policy decision allows the relevant financial parameters to be confirmed at NeuConnect's financial close.<sup>7</sup> Financial close is when we expect to know the detail of all the necessary financing arrangements and details that NeuConnect will agree with its lenders with Ofgem having oversight of the process.
- 1.8. We have also decided to set a target of 94.37% for NeuConnect's availability incentive, based on our review of the project's technical design. The cap level can increase or decrease by up to 2% based on performance against this target.

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<sup>7</sup> [Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions \(May 2020\)](#)

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## Related publications

[Decision to roll out a cap and floor regime to near-term electricity interconnectors](#)

Published: August 2014

[Cap and floor regime: An update on 'Window 1' interconnector projects](#)

Published: June 2017

[Decision on the Initial Project Assessment of the GridLink, NeuConnect and NorthConnect interconnectors](#)

Published: January 2018

[Statutory consultation on our proposal to insert new special conditions into the electricity interconnector licences held by Greenlink Interconnector Limited and NeuConnect Britain Limited to implement the cap and floor regime](#)

Published: February 2021

[Decision on proposed changes to the electricity interconnector licences held by Greenlink Interconnector Limited and NeuConnect Britain Limited](#)

Published: June 2021

[NeuConnect Britain Limited – Decision on a request for a later regime start date for the NeuConnect interconnector project](#)

Published: August 2021

[NeuConnect Britain Limited – Decision on a request for a later regime start date for the NeuConnect interconnector project](#)

Published: March 2022

[Consultation on the Final Project Assessment of the NeuConnect interconnector to Germany](#)

Published: April 2022



## General feedback

1.9. We welcome any comments about this decision. We'd also like to get your answers to these questions:

1. Do you have any comments about this documents tone and content?
2. Was it easy to read and understand? Or could it have been better written?
3. Were its conclusions balanced?
4. Did it make reasoned recommendations for improvement?
5. Any further comments?

Please send any general feedback comments to [stakeholders@ofgem.gov.uk](mailto:stakeholders@ofgem.gov.uk)

## 2. Cost assessment

### Section summary

This section provides an overview of our cost assessment, which includes an assessment of firm costs and our initial views on uncertain costs.

### Scope of our cost assessment

- 2.1. During the IPA, NBL submitted its high-level estimates for the project's costs, based on the information that was available to them at that time. We did not undertake a detailed assessment of these costs. At the FPA stage, the cost estimate provided by NBL is much more mature, enabling us to undertake a detailed review of the costs.
- 2.2. Since the cap and floor levels are largely based on NBL's costs, at the FPA stage we assess the project costs to ensure these are economic and efficient and that consumers do not underwrite any inefficient costs. We then use the GB share of these assessed costs to inform the cap and floor levels for the GB share of the project.
- 2.3. We note that our FPA assessment will only affect the notional cap and floor levels. A separate floor level (Actual Floor Level [AFL]) will be set to ensure that NBL is able to meet its yearly debt obligations to lenders. The AFL does not allow recovery of equity investment in the project or a return on that investment.
- 2.4. If the AFL is higher than the Notional Floor Level (NFL), NBL is required to repay consumers the difference between the two floor levels before any equity distributions. Borrowing by NBL's shareholders or equivalent that may seem like a workaround the restrictions on equity distributions or dividends payment will not be allowed.

### Phased FPA process

- 2.5. On 2 October 2018, we published our FPA timing update letter for Window 1 (W1) projects. We decided to conduct a phased FPA process for the NeuConnect project. This allowed the developer to submit information for our FPA in three stages.
- 2.6. To enable alignment with the timelines for NBL's financing process, NBL submitted an overview of the project, including ownership structure and procurement strategy details, in phase 1 (Stage 1) and supplemented this with capacity, performance and technical details in phase 2 (Stage 2) of its FPA submission. We have updated our

assessment of information submitted for Stage 1 and Stage 2 to reflect up-to-date information. This update is part of our Stage 3 assessment.

- 2.7. NBL submitted their initial cost information in December 2021 to start the Stage 3 process and then submitted updated costs in March 2022. The updated costs represent the position following NBL's signing of the engineering, procurement, and construction (EPC) contract for cables and the current position from advanced negotiations on the EPC contracts for the converter stations.
- 2.8. During this assessment, we have reviewed elements of the project where costs are sufficiently mature. We have also reviewed devex, capex and some aspects of opex. Where cost elements are based on early estimates, we have carried out a high-level review at this stage and, if there were not any significant issues in relation to assumptions that had been made, we have provided placeholder values for these costs.
- 2.9. This decision confirms our FPA view on the economic and efficient costs for NeuConnect including firm project costs and placeholder values.
- 2.10. We will conduct a final assessment of the project's costs at the PCR stage. We expect the majority of NBL's costs will be fixed at that time. Alongside our review of the eligible capex costs, we will assess NBL's post-construction costs in more detail at the PCR stage.

## **Our view on NeuConnect's submitted costs**

- 2.11. We have reviewed and updated our minded-to position regarding some cost areas of the project as a result of additional information and justification provided in response to our consultation. Table 1 below outlines the aspects of our minded-to position that have been revised to reflect our updated and final position.

**Table 1: Summary of revised minded-to positions**

Element	Minded-to position	Final position
Land costs	We proposed a disallowance of £3.8m of costs relating to the purchase of the converter station site.	We have decided to reduce our disallowance by £2.2m to £1.6m following review of additional information provided in response to our consultation.

2.12. We will provide more detail on the factors that we considered in reaching a decision on the above changes as well as:

- an overview of the cost assessment process,
- final position on the project costs,
- the determined values for the Post-Construction Adjustment (PCA) terms, and
- the final cap and floor levels for NeuConnect.

2.13. Tables 2 and 3 provide an overview of our view on the economic and efficient costs for the GB share of the NeuConnect project.

**Table 2: Summary of devex and capex (2022 prices, GB share)<sup>8</sup>**

Cost type		NBL IPA Submission	NBL FPA Submission	Ofgem FPA Allowance
Devex (£m)		12.5	104.3	31.9
Capex (£m)	Main project costs	681.4	931.2	923.0
	Risk		34.1	34.1
<b>Total (£m)</b>		<b>693.9</b>	<b>1069.6</b>	<b>989.0</b>

<sup>8</sup> For all values in this document, due to rounding, the figures may not add up precisely to the totals indicated.

**Table 3: Summary of post-construction costs (2022 prices, GB share)**

Cost type	NBL IPA Submission	NBL FPA Submission	Ofgem FPA Allowance
Operating costs (£m)	287.0	492.8	492.8
Replacement costs (£m)		10.7	10.7
Decommissioning costs (£m)		69.3	69.3
<b>Total (£m)</b>	<b>287.0</b>	<b>572.9</b>	<b>572.9</b>

2.14. NBL’s FPA submission set out its rationale for the devex costs incurred to date, and the projected devex and capex spend for the remainder of the project’s development and its construction. Most of these costs relate to the EPC contracts that NBL has signed and awarded for the project. We present our review of these costs in the sections below, which cover the assessments of:

- devex costs,
- capex costs, and
- post-construction costs.

2.15. Where cost elements are based on early estimates, we have undertaken a high-level review at this stage and, if there were not any significant issues in relation to assumptions that had been made, included placeholder values within this decision.

2.16. Table 4 provides a breakdown of the project’s devex and capex costs, on a component basis, including our FPA cost allowances.

**Table 4: Devex and capex costs and Ofgem adjustments (2022 prices, GB share)**

Cost Area	Submitted Cost (£m)	Adjustment (£m)	FPA Value (£m)
Subsea cables	495.1	0.0	495.1
Land cables	36.1	0.0	36.1
Converter stations	324.8	-4.8	320.0
Substations	9.0	0.0	9.0
Other	170.4	-75.7	94.6
Risks	34.1	0.0	34.1
<b>Total</b>	<b>1,069.9</b>	<b>-80.6</b>	<b>989.0</b>

## Assessment of devex costs

- 2.17. As presented in Table 2, NBL submitted £104.3m of costs associated with development expenditure (devex) as part of its FPA submission.<sup>9</sup>
- 2.18. We consider devex to cover costs associated with items such as environmental and planning studies, engineering and design assessments, and resourcing costs that have been incurred prior to the project taking FID. The devex costs also include any eligible grants that have been awarded to the developer, such as the European Union's Connecting Europe Facility (CEF) grant.<sup>10</sup>
- 2.19. Due to the timing of our assessment, some of NBL's devex costs have already been incurred, and therefore can be considered as fixed, whilst others remain as estimates. These estimated costs reflect the period between NBL's Stage 3 submission to us and the anticipated date for the project's FID.
- 2.20. We have reviewed the costs associated with both the fixed and estimated devex costs in our assessment. We are satisfied that the total cost associated with the project's fixed devex costs are economic and efficient, and proposed to allow £10.9m associated with these costs in our consultation. Following consideration of additional information provided by NBL in response to our consultation, we have decided to allow an additional £0.5m relating to land acquisition for the converter station. This brings the total sum of allowed fixed devex costs to £11.4m. The rationale for this decision is provided in paragraphs 2.33 to 2.36.
- 2.21. In our consultation, for the remaining £92.9m of NBL's estimates of the devex costs, we proposed to allow £20.5m of costs provided that the actual incurred costs associated with these development works do not deviate significantly from these estimates. We also propose to disallow the remaining £72.3m of estimated devex costs associated with originator success fees, additional fees payable to the original developer, sponsor development fees for existing shareholders as a development premium and a proportion of costs associated with the acquisition of converter station land.
- 2.22. In response to our consultation, NBL disagreed with our minded-to view to disallow the above costs relating to originator success fees, additional fees payable to the original developer, and sponsor development fees for existing shareholders as a development

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<sup>9</sup> Unless otherwise stated, all costs referred to in this section reflect the GB share.

<sup>10</sup> Grants such as the CEF grant are presented as negative values within NBL's submission.

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premium. It reiterated that these costs are part of private finance norms and developer premiums, and that they reflect the level of risk in the early stages of project development. It also argued that disallowing these costs would lower the cap and increase developer risk. Another respondent encouraged the careful consideration of the treatment of costs it considers to be customary costs specific to financing arrangements and to the sector.

2.23. We have considered these responses but remain of the firm view that these costs are outside the scope of our default cap and floor regime costs allowance process and should therefore not be borne by consumers. We note the regime already provides a generous one-off debt (2.5%) and equity financing transaction fees (5%), as well as Interest During Construction (IDC).

### **Assessment of capex costs**

2.24. NBL submitted £965.4m of capex costs as part of its FPA submission. At this stage of the project, NBL have not yet incurred any capex costs, and therefore, this value is based on estimates.

2.25. We have made a provisional allowance for the majority of these costs, based on our assessment and the maturity of the estimates provided to us in NBL's submission. However, for non-firm costs that are based on initial estimates, we are using a placeholder value for these costs at this stage and will revisit these cost areas during the project's PCR.

2.26. Our assessment of the capex costs considered the following elements:

- the suitability of the tender process of the project's main contract(s), and
- the efficiency of the estimated capex costs on an overall basis and by component.

2.27. We provide further details on our assessment, and how we came to our position below.

### **Firm capex costs**

2.28. The vast majority of NBL's capex costs can be attributed to the works associated with the project's main EPC contracts.

2.29. We reviewed NBL's procurement process and found it to be robust. However, as stated in our consultation, our assessment found that the combination of outturn and

expected costs of the contracts were at a higher level than expected for a project of this size. We accepted NBL's justification from these higher-than-expected costs which include:

- increased cable length,
- longer construction period due to ground conditions,
- supply chain constraints,
- higher metal prices than originally estimated, and
- increased insurance costs due to constraints in the insurance market.

2.30. We maintain the view that these costs are reasonable in the context of the above constraints and refer to them as firm costs within this decision document due to their maturity. We will provide the full allowance for the outturn value of the awarded contracts provided that the final contract costs are not significantly different to current expectations. This is currently estimated as £839.1m (GB share). This means that we will not re-assess the final signed contract(s) unless costs are significantly different.

2.31. The price schedules within NBL's EPC contract(s) include various staff and vessel rates the contractor(s) propose(s) to use if Variation Orders (VOs) are required during construction. We expect to see further details on these rates during the project's annual submissions throughout the construction period.

2.32. We maintain our view, as set out in our FPA consultation, that NBL will need to demonstrate that any VOs, and rates used to generate them, are economic and efficient. We will assess VOs as they arise during the project's annual submissions and make a final decision on these costs at the project's PCR.



### *Land Costs*

- 2.33. As part of our consultation, we proposed to allow £1.3m out of NBL's submitted £5.1m (GB share) of costs relating to the acquisition of the converter station land. This was on the basis that the efficient cost of land needed by NBL for the converter stations was equivalent to the cost of only 26% of the total area of land acquired. This would result in a disallowance of £3.8m of costs relating to the acquisition of converter station land.
- 2.34. In its response to our consultation, NBL:
- Clarified that there were legal costs included in the devex proportion of the converter station land acquisition costs that should be excluded from our calculation above. We agree that these costs are justified and have excluded them from our initial disallowance.
  - Clarified that some German-side converter station costs were incorrectly included within the GB converter station costs and therefore incorrectly included within the calculation to ascertain the efficient land costs. We have revised our calculation to exclude these costs and reinstated them in full.
  - Argued that a proportion of the converter station land acquired on the GB side should be allowed as it intends to use for Biodiversity Offset purposes. We disagree with this argument and consider that the basis on which this land was acquired remains surplus to the requirements of the project and its associated costs will remain disallowed.
  - Argued that the value assigned to the per-acre cost for the project was undervaluing the land that the converter station sits on and provided a consultant's report to support this argument. We have taken this information onboard and considered it as part of our decision.
- 2.35. As a result of the above considerations, we have increased our allowance for converter station land acquisition by £2.2m from £1.3m to £3.6m. This results in a disallowance of £1.6m of costs relating to the acquisition of the converter station land.
- 2.36. We have confirmed our consultation view to disallow the costs relating to the land remediation of the proportion of land containing an existing landfill site. These costs were incorrectly indicated to be £2.4m in our consultation due to a transcription error and have been corrected to £3.2m.

### **Non-firm capex costs**

2.37. Following our review of NBL's submission and consideration of the consultation responses, we maintain our view from the consultation to disallow £4.1m and use the remaining £117.3m as a placeholder value for the capex costs that we deemed to be non-firm. These costs relate to the following areas:

- Developer project management,
- Developer insurance, and
- Risks.

### **Developer project management**

2.38. This covers the costs associated with NBL's own resourcing, as well as all relevant external contractors and advisers, during the project's construction phase.

2.39. We maintain our view in our consultation that, when compared to similar-sized projects, NBL's developer project management costs appear reasonable and that the assumptions that sit behind these estimates are appropriate. However, as set out in the consultation, the combined sum of both developer and contractor project management costs appear to be towards the higher end of the range than we would expect for costs of this type.

2.40. We have not made an adjustment to the developer's project management costs at this stage. We will instead closely monitor these costs throughout the project's annual submissions and its PCR, to ensure that they are economic and efficient. Where the costs are not substantiated with robust justifications, then we make cost adjustments at the PCR stage.

### **Developer insurance**

2.41. This covers costs associated with the insurance coverage that NBL expect to place for the construction phase of the project, of which NBL's share is £44.2m.

2.42. NBL is yet to procure this insurance coverage and the above cost is still based on estimates derived from communication with its insurance broker. We have decided not to make an adjustment to these costs at this stage in acknowledgement of the current

constrained conditions in the interconnector insurance market. We will therefore undertake an in-depth analysis of all insurance costs during the PCR stage.

2.43. In our consultation, we proposed to disallow £4.1m of costs related to NBL's Delayed Start-Up Insurance (DSU). This is consistent with our treatment of these costs on previous interconnector projects as we do not consider that this insurance provides a benefit to consumers.

2.44. In its response to the consultation, NBL raised three main points in disagreement with our treatment of these costs as follows:

2.44.1. Not procuring DSU insurance would result in higher insurance cost from a smaller pool of potential insurers.

2.44.2. NeuConnect is project financed and therefore payments resulting from DSU insurance would service its debt unlike balance-sheet funded projects where DSU insurance payments would be retained by the developer.

2.44.3. Not purchasing DSU insurance would result in a potential risk that consumers would not benefit if the project's revenue did not exceed the Actual Cost of Debt (ACOD) floor and would also potentially increase lenders margins.

2.45. We have considered NBL's response above but remain of the firm view that the cost of DSU insurance and the proceeds therefrom should sit outside the cap and floor values. We consider that the risk of delay that necessitates DSU insurance is best managed by the developer and should not be borne by consumers.

## **Risks**

2.46. As part of its FPA submission, NBL is forecasting to incur £34.1m (GB share) due to some risks materialising during construction. This includes, for example, costs for unforeseen ground conditions or those due to extreme weather conditions.

2.47. We have decided to maintain our consultation view to consider £34.1m as an appropriate placeholder to NBL's share of the eligible risks for the project. We will monitor the project's risk profile and materialised risk expenditure throughout the annual submissions and take a view on the level of economic and efficient risk costs at the PCR stage. We will apply the principles for risk eligibility that are set out in Appendix 2 of this document.

2.48. Our £34.1m allowance is based on NBL's detailed analysis of its construction risks, and our view on these risks. We remain of the view that the register provides realistic risk coverage for the selected delivery mode of a project of NeuConnect's size and complexity. We maintain, therefore, that we do not expect the project's materialised risk expenditure to exceed this amount.

### **Assessment of post-construction costs**

2.49. Our view on NBL's post-construction costs has not changed following our consultation on the NeuConnect project.

2.50. NBL submitted a total estimate of £572.9m (GB share) for the project's post-construction costs as part of its FPA submission, which consisted of:<sup>11</sup>

- £492.8m for opex,
- £10.7m for repex, and
- £69.3m for decommex (decommissioning costs).

2.51. We have reviewed these costs and NBL's justification for them. However, as the project is still several years away from being operational, some of these costs are based on early estimates. Where this is the case, we have only undertaken a high-level assessment at this stage to ensure that the placeholder values that we use for these are appropriate.

2.52. We have decided not to make any adjustments to NBL's estimated post-construction costs at this stage.

### **Firm post-construction costs**

2.53. We explained in our consultation that NBL is procuring service and maintenance contracts at an estimated cost of £50.7m (GB share) for the project's operational phase. These costs are of the same maturity as the capex costs associated with the EPC contract(s) and are for the service and maintenance of the project's converter stations and cables.

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<sup>11</sup> All post-construction costs reported within this section, and within this document, are in real 2020 prices.

2.54. In line with our consultation, we have concluded that we will assess the final costs following completion of the procurement exercise and subject to the final costs not being significantly different to current expectations, we will provide the full allowance (currently estimated as £50.7m (GB share)) for the outturn value for these services. This means that we will not re-assess the costs for these services unless outturn costs are significantly different from this value.

**Non-firm post-construction costs**

2.55. Following our review of NBL's submission, we have decided to use a placeholder value of £522.2m for post-construction costs that we have deemed to be non-firm, in line with our view at consultation.

2.56. This placeholder covers costs associated with the following elements during the project's operational phase:

- Subsea cable surveys;
- Personnel, commercial and business services;
- Insurance;
- Property and route;
- Non-controllable opex;
- Repex; and
- Decommex.

2.57. We reviewed the main assumptions and considerations that informed these cost estimates at a high level and have decided not to make any adjustments to these costs at this stage. We will use a placeholder value of £522.2m for the project's non-firm post-construction costs, with a view to undertake an in-depth review of these cost elements during the project's PCR, where we expect these costs to be more mature. This will enable us to complete a thorough assessment of their eligibility and efficiency. However, we do not expect that these costs will increase significantly from these estimates

### 3. Other aspects of our Final Project Assessment

#### Section summary

This section sets out our views on the financial and technical aspects of the FPA including our review of the technical design and our setting of the project-specific target for the availability incentive.

#### Needs case review for NeuConnect

- 3.1. As part of our needs case re-assessment set out in our April consultation, we requested NBL to provide updated socio-economic modelling (CBA) reflecting current project costs and connection date, and any additional independent analysis to the overall project. NBL submitted a report from FTI Consulting ("FTI") on the socio-economic welfare impact of the NeuConnect interconnector. The report has been published alongside this decision document as an appendix to NBL's response. In general, we believe FTI have competently performed the analysis, which reinforces the potential benefits of NeuConnect.
- 3.2. The findings of the report show an increase in benefits coming from a reduction in wholesale prices (Benefits A). According to the report, NeuConnect will deliver £2.09bn of consumer benefit for the British consumer until 2050.
- 3.3. The report also shows an increase in benefits coming from enabling a reduction in carbon emissions, renewable integration, and increased system flexibility (Benefits B). The report found that NeuConnect will deliver a 13.3 Mt reduction of carbon emissions over the same period.
- 3.4. Alongside the CBA submission, we received two responses regarding our needs-case assessment in section 4 of the NeuConnect FPA consultation. Both NBL and TI supported our preferred option to progress NeuConnect under their current timelines (option 1), which would see them connect in March 2028. Both stakeholders echoed our concerns regarding the consequences of a delay to the current timelines (option 2) and the benefits consumers would forego as a result.
- 3.5. **Considering the results of the CBA report submitted by NBL and both consultation responses, we can confirm our decision to progress with option 1 and allow NeuConnect to progress in line with the current timelines.**

## Technical Assessment

3.6. We received no response regarding our technical assessment in section 4 of the NeuConnect FPA consultation. We therefore do not propose any changes to the technical specification of the interconnector as outlined in NBL's submission and summarised in the consultation.

## Availability incentive

3.7. We received no response regarding our Availability incentive in section 4 of the NeuConnect FPA consultation. We therefore do not propose any changes to the availability incentive target of 94.37% set at consultation stage.

## Risk eligibility and scope of PCR

3.8. We received one response to section 5 of our consultation: Annual Reporting and our Post Construction Review. NBL put forward the view that there should be a mechanism to re-examine residual allowances, two years after the commissioning of the project, and re-assess retrospectively. This process would take place outside of the PCR.

3.9. We welcome the suggestion from NBL regarding a new mechanism for the PCR phase of the cap and floor regime, however we are unable to implement a new mechanism at this stage of Window 2. We expect NBL to comply with the annual reporting requirements laid out in the consultation. We also expect NBL to maintain the scope and timings of the PCR as specified in the consultation document.

## Appendices

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## Appendix 1 – Regime summary for NeuConnect

In this appendix we provide a summary of the key cap and floor regime features that will apply for NBL. Financial parameters not provided will be estimated following FID using the FID date as reference date. We will calculate and publish these after FID, together with the preliminary cap and floor levels that will apply for NBL.

**Table 1: Key regime features**

Feature	Default regime	NBL regime variations
Regime duration and start date	<ul style="list-style-type: none"> <li>The regime duration is 25 years.</li> <li>The cap level will come into effect automatically on the RSD.</li> <li>The floor level will come into effect following a successful completion of a proving period and will be retrospectively applied from the date when the successful proving period started.</li> <li>Except for delays caused by force majeure events, we will start the 25-year cap and floor period from the earlier of the actual commissioning date or 31 March 2028. This means that if non-FM delays cause the connection date to be delayed beyond 31 March 2028, the regime start date will still be 31 March 2028.</li> <li>We will grant interest during construction (IDC) and additional incurred costs associated with delays if NBL can demonstrate they were efficiently incurred. Our final view on the application of IDC to the project's spend will be confirmed at the PCR stage.</li> </ul>	<ul style="list-style-type: none"> <li>No change – same as default regime</li> <li>We published our decision to approve NeuConnect's second request for relief to the Regime start date in March 2022. This pushed the regime start date forward to 31 March 2028</li> </ul>
Amount of project covered by the regime	<ul style="list-style-type: none"> <li>The GB cap and floor regime broadly covers 50% of the project's costs – with minor deviations set out below – and will cover 50% of the total revenues earned by the interconnector.</li> <li>The detailed costs that inform our cap and floor levels are: 50% of NBL's development costs; 50% of the total costs of cable, converters, site</li> </ul>	<ul style="list-style-type: none"> <li>No change – same as default regime</li> </ul>

	<p>preparation (at both GB and Germany); 100% of GB-specific separate costs; and 0% of German-specific separate costs.</p>	
<p>Interconnector revenues</p>	<ul style="list-style-type: none"> <li>• All sources of interconnector revenue, including from selling capacity, capacity market payments and provision of ancillary services will be taken into account for assessment against the cap and floor levels.</li> <li>• Receipts that substitute revenue will also be included, for example: <ul style="list-style-type: none"> <li>○ business interruption insurance, and</li> <li>○ constraint payments.</li> </ul> </li> <li>• Certain market related costs, defined as firmness, error accounting costs and trip contract costs, will be netted off revenues before comparison against the cap and floor levels (which gives the 'assessed revenue').</li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime</li> </ul>
<p>Assessment period (assessing whether interconnector revenues are above the cap or below the floor)</p>	<ul style="list-style-type: none"> <li>• Each assessment period is five years. This means that the interconnector's 'assessed revenue' will be compared to the cap and floor levels on a net present value (NPV) neutral basis, every five years.</li> <li>• Each five-year assessment period shall be considered in isolation, with no carry-overs between assessment periods.</li> <li>• Where the interconnector's revenue is below the floor or above the cap (on a cumulative NPV-neutral basis) during an assessment period, the developer may request a 'within-period adjustment' on the grounds of: <ul style="list-style-type: none"> <li>○ financeability; or</li> <li>○ pre-empting a material end of period adjustment.</li> </ul> </li> <li>• Such a request can cover from year 1 up to year 4 of any five-year assessment period but must reflect whole years only (not partial years).</li> <li>• Ofgem cannot request a within-period adjustment (i.e. only the developer can trigger a within-period adjustment).</li> <li>• Any within period adjustment will be subject to a true-up on a NPV neutral</li> </ul>	<ul style="list-style-type: none"> <li>• Each assessment period is one year. This means the interconnector's 'assessed revenue' will be compared to the cap and floor levels on a net present value (NPV) neutral basis, every year.</li> <li>• The discount rate applied for the NPV-neutrality calculations (the operational discount rate) will be the Bank of England's Sterling Overnight Index Average (SONIA) rate applicable for the period under consideration plus a margin to be determined at financial close (based on a competitive debt raising process and with the approval of the Authority).</li> </ul>

	<p>basis at the end of the relevant assessment period.</p> <ul style="list-style-type: none"> <li>The discount rate applied for the NPV-neutrality calculations (the operational discount rate) will be the notional operational discount rate (ODR), calculated as the simple arithmetic average of the floor return rate and the cap return rate.</li> </ul>	
Regulatory reporting	<ul style="list-style-type: none"> <li>Developers will be required to report annually during the operational phase on revenues, availability, and costs.</li> <li>During construction, developers will also be required to report on construction progress and costs.</li> <li>This reporting must be in line with the 'regulatory instructions and guidance' (RIGs) issued by Ofgem.</li> </ul>	<ul style="list-style-type: none"> <li>No change – same as default regime.</li> </ul>
Cap and floor Payments	<ul style="list-style-type: none"> <li>Cap and floor payments will be made between the developer and NGESO as the system operator and will be recovered/distributed via the relevant transmission charging arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>No change – Same as default regime</li> </ul>

**Table 2: Cap and floor levels**

Principles for setting the cap and floor levels	Default Regime	NBL Regime variations
Building Blocks Approach	<ul style="list-style-type: none"> <li>The cap and the floor levels are built from building blocks of development costs, capital costs, operating and maintenance costs, decommissioning costs, tax and allowed return.</li> <li>The cost-related building blocks (capital costs, operations, maintenance, and decommissioning) as well as the tax and return building blocks are confirmed at FPA and/or PCR stages.</li> <li>The cap and floor levels will be profiled so that they are flat over time in real terms.</li> </ul>	<p>A Notional or Market-based approach is possible:</p> <ul style="list-style-type: none"> <li>Notional approach: No change – same as default regime (but replacing the default benchmark with 'iBoxx GBP Non-financials BBB 10+', with everything else remaining the same as in the default regime).</li> <li>Market-based approach: The cap level is built in the same way as under the default approach; the floor level equals actual debt servicing costs, including interest payments and principal repayment, as well as provision for a reasonable debt service cover ratio and/or reserve and tail requirements, plus the yearly</li> </ul>

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		operational costs incurred during those years in which debt is serviced.
Cap and floor levels are indexed by RPI	<ul style="list-style-type: none"> <li>• Cap and floor levels are indexed by RPI using the CHAW index.</li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime.</li> </ul>
Currency	<ul style="list-style-type: none"> <li>• Cap and floor levels are expressed in Pound Sterling.</li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime.</li> </ul>
Availability incentive and Minimum Availability.	<ul style="list-style-type: none"> <li>• The target availability level for NeuConnect is 94.37%</li> <li>• The cap level will be adjusted annually by up to +/- 2% if interconnector availability exceeds or falls short of a target availability level. This means that availability above (or below) the target level will result in a one-for-one percentage increase (or decrease) in the cap level, up to +/- 2%.</li> <li>• Developers will lose automatic eligibility for floor payments for each individual year if availability is below 80% in that year.</li> <li>• Ofgem will retain the discretion to reinstate eligibility for floor payments if the outage that caused availability to fall below 80% was caused by an 'exceptional event' (i.e. force majeure).</li> </ul>	<ul style="list-style-type: none"> <li>• Same as default with the following exception for the minimum availability threshold: consumers will top up revenues to the floor (in the form of a temporary loan to NBL) to enable debt servicing if NBL is unable to meet the 80% minimum availability target. NBL will have to repay consumers (from future revenues) on a Net Present Value (NPV-neutral) basis for consumer payments received in years where availability is below 80% (before any distribution or payment to equity providers).</li> <li>• Outstanding temporary loans (over the regime duration) to NBL would not be allowed to exceed a maximum of four times the annual floor level.</li> </ul>

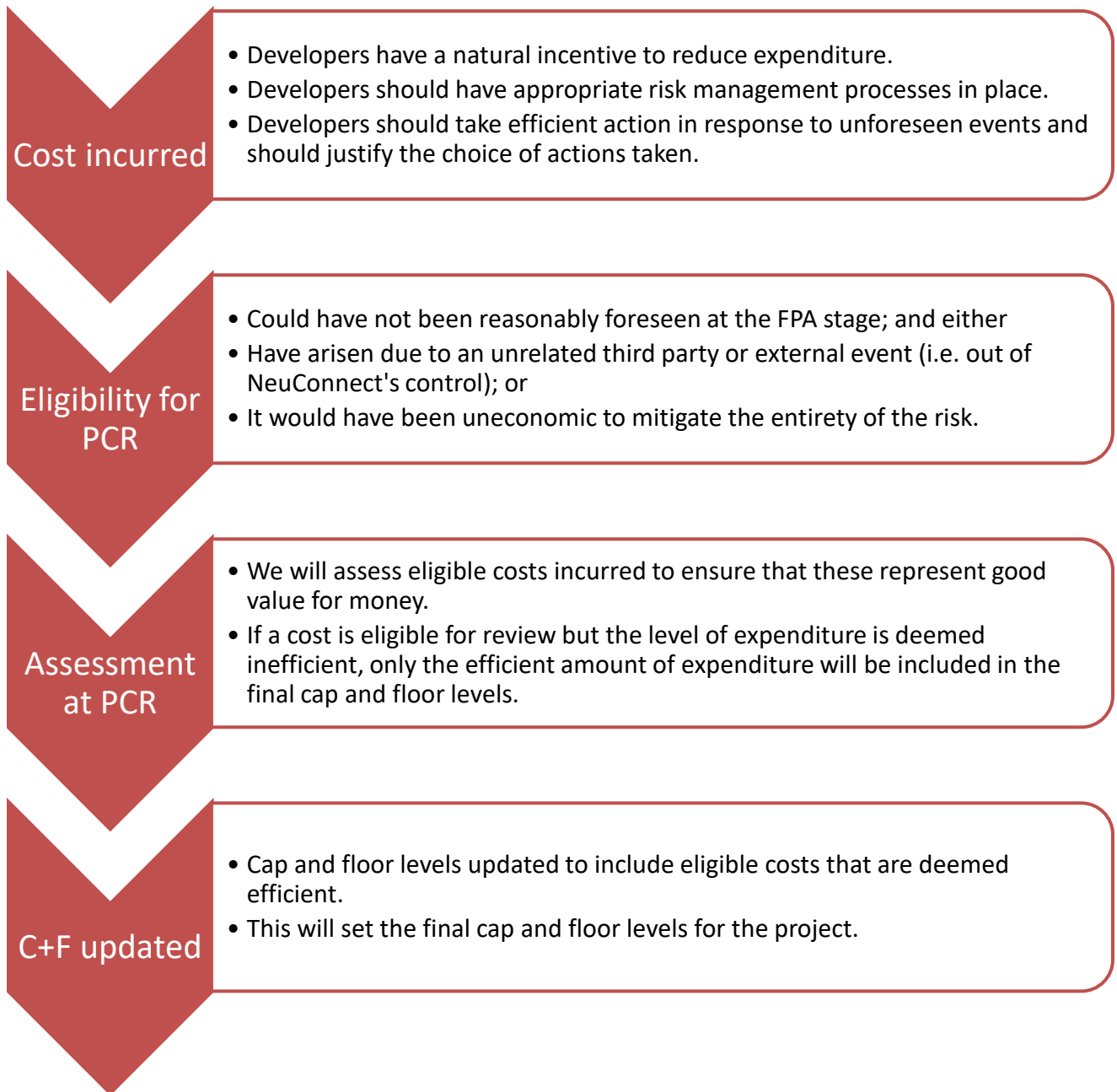
**Table 3: Financial parameters for NeuConnect**

Financial Parameters	Default regime	NBL regime variations
Returns at the floor	<ul style="list-style-type: none"> <li>• The allowed notional return rate at the floor (real-RPI) will be applied to 100% of RAV.</li> <li>• This notional return is calculated using the 20-day trailing average to the FID date of the average yield on two iBoxx GBP Non-Financial indices of bonds with 10+ years to maturity, with credit rating of A and BBB. Inflation used to deflate nominal iBoxx yields from nominal to real-RPI is 10-year breakeven inflation (reflecting the difference between nominal and real gilt yields), as published by the Bank of England.</li> </ul>	<p>A Notional or Market-based approach is possible:</p> <ul style="list-style-type: none"> <li>• Notional approach: no change – same as default regime (but replace the default benchmark with iBoxx GBP Non-financials BBB 10+, with everything else remaining the same as in the default regime).</li> <li>• Market-based approach: return at the floor is based on actual debt financing achieved, its cost and actual gearing, including provision for a reasonable debt service cover ratio and/or reserve and tail requirements, with Ofgem to oversee the competitive funding process.</li> </ul>
Returns at the cap	<ul style="list-style-type: none"> <li>• The allowed notional return rate at the cap (real-RPI) will be applied to 100% of RAV.</li> <li>• This is calculated using capital asset pricing model (CAPM) and comprises the following elements:                             <ul style="list-style-type: none"> <li>○ Equity beta: 1.25</li> <li>○ Risk free rate: 1.6%</li> <li>○ Total market return: latest DMS average of UK equity returns since 1900 available at FID date</li> <li>○ UK RPI formula-effect adjustment: 0.4%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime.</li> </ul>
Interest during construction (IDC)	<ul style="list-style-type: none"> <li>• This is a weighted-average cost of capital calculated using CAPM for the cost of equity and the floor return rate as the cost of debt. The value comprises the following elements:                             <ul style="list-style-type: none"> <li>○ Cost of debt: estimated with reference to FID date</li> <li>○ Risk-free rate: estimated with reference to FID date</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Actual debt financing achieved, its cost and actual gearing.</li> </ul>

	<ul style="list-style-type: none"> <li>○ Total market return: estimated with reference to FID date</li> <li>○ Equity beta (weighted average of a comparator group): estimated with reference to FID date</li> <li>○ UK RPI formula-effect adjustment: 0.4%</li> <li>○ Pre-operational gearing (weighted average of a comparator group): estimated with reference to FID date</li> <li>○ Development risk premium: 0.54%</li> <li>○ Construction risk premium: 0.91%.</li> </ul>	
Tax	<ul style="list-style-type: none"> <li>• Corporation tax rate and write-down allowances used for the purposes of calculating cap and floor values are the UK tax rates as published by HM Treasury.</li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime.</li> </ul>
Transaction costs	<ul style="list-style-type: none"> <li>• The financial transaction costs are calculated as a percentage of the opening RAV. The allowances are 2.5% for debt transaction costs and 5% for equity transaction costs.</li> <li>• The final allowance (in £) will reflect the final RAV at the PCR stage.</li> </ul>	<ul style="list-style-type: none"> <li>• Notional approach: no change – same as default regime.</li> <li>• Market approach: determined through market competition.</li> </ul>

## Appendix 2 – Risk-related eligibility at the PCR

This appendix provides an overview of the principles we'll apply when considering risk-related expenditure at our PCR stage. Risk-related expenditure is allowable within the PCR where the risk is foreseeable, but it would have been uneconomic to mitigate the entirety of it. We present the risk eligibility review process in the diagram below.



## Examples of risks

We recognise that interconnector projects are large, complex assets and that they often face unique construction risks on a case-by-case basis. Therefore we have not sought to include a definitive list of risks that will or will not be eligible for assessment at the PCR stage. Not all projects will face the same risks, and some projects may encounter risk-related expenditure that neither the project developers nor we could have foreseen.

The section below lists some specific risks where we would expect related expenditure to be eligible, considered on case-by-case basis for eligibility or ineligible for assessment at the PCR stage. These lists are non-exhaustive, and it will be the responsibility of project developers to demonstrate that risk-related expenditure meets our eligibility principles in the PCR submission.

### Examples of risks that we would expect to be eligible for our PCR assessment:

- Soil conditions are significantly different to those indicated by the developer's relevant survey(s) or studies,<sup>12</sup> and therefore additional rock placement or ploughing/burial equipment is required.
- Transmission System Operators (TSOs) at either end change the connection arrangements or requirements, which leads to new design requirements and/or delays.
- Grid reinforcement works by TSOs are delayed.
- A significant number of unexploded ordnances are discovered that were not detected by the developer's initial studies or surveys.

### Examples of risks that we would consider on a case-by-case basis for eligibility under the PCR assessment:

- Weather conditions (cable) – harsh weather conditions offshore beyond statistical expectations for that time of year.

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<sup>12</sup> Assuming that the initial surveys or studies were conducted in line with industry good practice and therefore should have been deemed reliable. The onus is on project developers to ensure that their strategy in relation to studies and surveys is appropriate. We would expect the developer to have negotiated suitable rates in advance such that they are not a distressed buyer of services.

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- Weather conditions (converter) – site conditions mean that construction is delayed beyond what could have reasonably been expected. This can cover excessive wind, flooding, snow, avalanche etc. Knock-on effects from contractor delivery of other major projects cause delays/additional costs.

For both above groups of examples, to be considered for inclusion in the PCR, we would expect the following circumstances to apply:

- The additional incurred costs are more than contractual damages received.
- The developer had adequate risk monitoring processes in place and took timely action to mitigate incurred cost.
- It would have been uneconomic to insure against the scale of the contractor failure.

**Examples of risks that we would expect to be ineligible for our PCR assessment:**

- Performance of the project organisation leads to delays or additional costs.
- The cable or converter design is unsatisfactory, leading to additional costs or delays.
- Cable or converters are damaged during transport (unless this is due to third party actions or weather events beyond usual expectations).
- Cable laying vessels break down or are not available as scheduled.
- Cable is damaged during manufacturing.
- Cable damage during installation due to inappropriate practices/use of inappropriate equipment.

**Our PCR assessment of eligible risk expenditure**

We recognise that there is a strong incentive on developers to efficiently manage and minimise costs within the construction phase, and that this incentive extends to unexpected costs. However, we still think it is necessary to assess the costs incurred in dealing with unexpected events. This is to ensure that the costs have been efficiently incurred and represent good value for consumers.

We will look to ensure that proper process was undertaken, that risk-related expenditure is well-documented, and that costs incurred were not excessive for that type of action.

In addition, our dialogue with project developers throughout the construction stage as part of our annual reporting process should provide developers with an opportunity to ensure that costs (including in relation to risk events) are updated regularly and that sufficient supporting evidence is provided to us. Whilst we will not make any final decisions on cost variations (including risk-related expenditure) prior to the PCR stage, we expect developers to provide us with justification as the project progresses. If we notice large variances from the planned expenditure, we may ask for further evidence during this annual process. We would also ask for further evidence and justification if the PCR submission differs from the iterative updates received as part of the annual reporting process.