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## Decision on the Final Project Assessment of the Greenlink interconnector to Ireland

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**Contact:** Aliabbas Bhamani

**Team:** Interconnectors

**Tel:** 0141 341 3957

**Email:** [Cap.floor@ofgem.gov.uk](mailto:Cap.floor@ofgem.gov.uk)

This document provides our final decision on the Final Project Assessment (FPA) of the Greenlink interconnector to Ireland.

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## Executive summary

In March 2021 we consulted on our Final Project Assessment (FPA) of the Greenlink interconnector to Ireland.<sup>1</sup> This publication is our final decision on the FPA. We had one confidential response to our consultation. We have taken this response into account in reaching our decision.

This decision provides our position on the FPA for the Greenlink interconnector to Ireland. The Greenlink project is being developed by Greenlink Interconnector Limited (GIL).<sup>2</sup>

### Background and scope

Greenlink is a planned 500MW electricity interconnector between Pembrokeshire in Wales, Great Britain (GB) and Great Island in County Wexford, Republic of Ireland. Our cap and floor regime applies to the GB portion of the project (50% share).

We considered the needs case for Greenlink at our IPA stage and decided in September 2015 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. The IPA decision was *"contingent on progress generally in line with the timelines, cost estimates and commercial arrangements provided in the project submissions"*. Alongside our FPA consultation we reconfirmed the needs case for Greenlink<sup>4</sup> after revisiting aspects of the IPA in response to a material escalation in costs submitted to us at the FPA stage. We also decided to amend the IPA condition for Greenlink relating to the duration of delay to the project's connection date which we would deem material. We have decided to extend this period by a further two years.

This document sets out our decision on the FPA for the Greenlink interconnector. We confirm the cap and floor regime for Greenlink and present our view on Greenlink's proposed costs and technical characteristics. As Greenlink is planned as a project financed interconnector, the provisional cap and floor levels will be calculated when the project reaches financial close.<sup>5</sup> 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.<sup>6</sup> We will then update all the relevant parameters in the Greenlink Cap and Floor Financial Model 1 (GCFFM1) in accordance with the terms and calculations set out in the model.

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<sup>1</sup> [Consultation on Final Project Assessment of the Greenlink Interconnector](#)

<sup>2</sup> "GIL" and "Greenlink" are used interchangeably in this document.

<sup>3</sup> [Decision on the Initial Project Assessment of the Greenlink Interconnector](#)

<sup>4</sup> [Decision on our needs case review of the Greenlink interconnector](#)

<sup>5</sup> [Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions \(May 2020\)](#)

<sup>6</sup> [New proposed special conditions for the electricity licence held by Greenlink Interconnector Limited](#)

In parallel, on the date of this FPA decision, changes to Greenlink's licence will take effect. We issued the decision in respect of these licence changes in June 2021 and said in it that the licence changes will take effect on the date of Greenlink's FPA decision.<sup>7</sup>

### **Next steps**

Alongside the FPA submission, we received a pre-operational force majeure request from GIL. In June 2021<sup>8</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 will issue a decision on GIL's force majeure request in line with the mechanism set out in that decision and confirm the regime start date in the coming weeks.

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

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<sup>7</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>8</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 Greenlink interconnector, including our view on GIL's proposed project costs. We will confirm the financial parameters that will apply to the Greenlink project after Greenlink's financial close.

1.2. The following areas are in the scope of this document:

- 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>9</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 Greenlink's financial close:

- Our decision to retain Greenlink's cap and floor regime in principle;
- Our pending decision on Greenlink's request for force majeure relief to the regime start date.
- Our pending decision on the financial parameters for Greenlink at FID.
- Our oversight of the debt raising process prior to FID

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<sup>9</sup> By post-construction costs we mean costs associated with operational expenditure (opex), replacement expenditure (repex) and decommissioning expenditure (decommex).

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 presented in GIL's August 2020 submission; and
- Adjustments to the post-construction costs presented in GIL's August 2020 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 Greenlink after financial close.

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

1.6. Following our consultation on the Greenlink FPA in March 2020, we received one confidential response. We also received an additional request for cost variations from Greenlink in July and August 2021, which we accepted as part of the FPA process. We have since reviewed and considered the consultation response and additional variation request and can now confirm our view on cost allowances for the project. We have set the GB share of Greenlink's development and capital costs at £217.6m, a reduction of £1.3m from the submitted £218.9m.

1.7. We will confirm the financial parameters that will apply to the Greenlink project after Greenlink's financial close. These financial parameters (such as the actual cost of debt and gearing) will underpin our calculation of the cap and floor levels for Greenlink. Our May 2020 regime variations policy decision allows the relevant financial parameters to be confirmed at Greenlink's financial close.<sup>10</sup> Financial close is when we expect to know all the necessary financing arrangements and details that Greenlink will agree with its lenders.

1.8. We have also decided to set a target of 97.55% for Greenlink'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>10</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: Initial Project Assessment of the FAB Link, IFA2, Viking Link and Greenlink interconnectors](#) Published: March 2015

[Decision on the Initial Project Assessment of the Greenlink interconnector](#) Published: September 2015

[Cap and floor regime: An update on 'Window 1' interconnector projects](#) Published: June 2017

[Cap and floor regime: Open letter on procedural changes to our Final Project Assessment stage](#) Published: November 2017

[Cap and floor regime: An update on the timing of the Final Project Assessment \(FPA\) for 'Window 1' interconnector projects](#) Published: October 2018

[Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#) Published: May 2020

[Consultation on the Final Project Assessment of the Greenlink interconnector to Ireland](#) Published: March 2021

[Decision on our needs case review of the Greenlink interconnector](#) Published: March 2021

[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



## 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, GIL 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 GIL 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 Greenlink's costs, at the FPA stage we assess the project costs to ensure these are economic and that consumers do not underwrite inefficient costs. We then use the GB share of these costs to inform the cap and floor levels for the GB share of the project.

### Phased FPA process

2.3. Further to the letter that we published on 2 October 2018, we agreed to conduct a phased FPA process for the Greenlink project, under which the information that we required Greenlink to submit to conduct our FPA was provided in three main stages. This allowed our FPA process to more effectively reflect:

2.3.1. the phased nature of Greenlink's procurement process; and

2.3.2. the timing of the equivalent decision-making process progressing within the Irish regulator, the Commission for Regulation of Utilities (CRU).

2.4. Stage 1 and stage 2 of GIL's FPA submission provided qualitative and contextual information, including an overview of key technical and regulatory updates since Greenlink's IPA submission. These submissions also included an early view on the project's costs. These submissions allowed us to begin our assessment of the project and to engage with GIL through discussions to ensure that we had a complete basis for our assessment.

2.5. Stage 3 was submitted to us in April 2020. We were also provided with a cost update to the stage 3 submission in August 2020, as explained in further detail below. At the time of the April 2020 stage 3 submission, Greenlink had received its final tender returns and had appointed a preferred bidder to complete the majority of the manufacturing and construction works for the project. The stage 3 submission contained updated cost and risk information, as well as wider updates on the project and the final stages of the procurement process.

2.6. At this stage, Greenlink had made the majority of the key technical decisions for the project, and we had costs of a sufficient level of maturity to conduct a thorough and detailed cost assessment.

2.7. Our initial review of the April 2020 stage 3 submission confirmed that there had been a significant cost increase when comparing costs between Greenlink's IPA submission and its FPA stage 3 submission. Having acknowledged our view on this cost change, GIL provided us with an updated cost submission in August 2020.

2.8. This updated submission included some cost reductions when compared to the April 2020 stage 3 submission. However, as detailed in the decision letter<sup>11</sup> accompanying our consultation in March 2021, we considered that there had been a material cost increase to Greenlink's project costs between its IPA submission and the August 2020 cost update. We therefore decided to re-visit the project's needs case by undertaking a cost benefit analysis of the project and concluded that Greenlink was still in the interest of current and future consumers. This view remains the same at this FPA decision point.

2.9. In our assessment for the FPA consultation and this FPA decision, we reviewed the project's elements where costs are of a sufficient maturity. We undertook a detailed review of the project's development expenditure (devex), capital expenditure (capex) and aspects of its operational expenditure (opex).

2.10. Where cost elements were based on early estimates, we undertook a high-level review at this stage and, provided that there were not any significant issues in relation to assumptions that had been made, included placeholder values within our consultation. The consultation provided our provisional view on the project costs.

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<sup>11</sup> Decision on needs case review of the Greenlink interconnector:  
<https://www.ofgem.gov.uk/publications/consultation-final-project-assessment-greenlink-interconnector-ireland-and-decision-greenlinks-needs-case-review>

2.11. After careful consideration of the consultation response and GIL's updated cost and risk information, we have set out our FPA decision on these costs, setting out our view on the economic and efficient costs for delivering the Greenlink project. We will conduct a final review of the project's costs at the PCR stage. At the PCR stage we would expect that the vast majority of GIL's costs would be fixed. Therefore, alongside a review of the capex costs, we will complete our detailed assessment of GIL's post-construction costs at the PCR. We will then determine the final cap and floor levels for Greenlink.<sup>12</sup>

## Our view on Greenlink's submitted costs

2.12. Table 1 and Table 2 provide an overview of our view on the economic and efficient costs for the GB share of the Greenlink project.

**Table 1: Summary of devex and capex (costs are in 2020 prices, GB share)<sup>13</sup>**

Cost type		GIL IPA Submission	GIL FPA Submission	GIL update Submission	Ofgem FPA Allowance
Devex (£m)		8.9	10.3	11.3	11.3
Capex (£m)	Main project costs	143.7	185.6	201.0	200.2
	Risk		10.5	6.6	6.1
<b>Total (£m)</b>		<b>152.6</b>	<b>206.5</b>	<b>218.9</b>	<b>217.6</b>

**Table 2: Summary of post-construction costs (costs are in 2020 prices, GB share)**

Cost type	GIL IPA Submission	GIL FPA Submission	GIL update Submission	Ofgem FPA Allowance
Operating costs (£m)	68.0	145.9	150.9	150.9
Replacement costs (£m)		7.4	7.4	7.4
Decommissioning costs (£m)		3.8	3.8	3.8
<b>Total (£m)</b>	<b>68.0</b>	<b>157.2</b>	<b>162.2</b>	<b>162.2</b>

2.13. GIL'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. The majority of these costs relate to the engineering, procurement and

<sup>12</sup> By post-construction costs we mean costs associated with operational expenditure (opex), replacement expenditure (repex) and decommissioning expenditure (decommex).

<sup>13</sup> For all values in this document, due to rounding, the figures may not add up precisely to the totals indicated.

construction (EPC) contracts that GIL will award for the project. We present our review of these costs in the sections below, which cover the assessments of:

- 2.13.1. devex costs;
- 2.13.2. capex costs; and
- 2.13.3. post-construction costs.

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

2.15. Table 3 provides a breakdown of the project’s devex and capex costs, on a component basis, including our FPA cost allowances.

**Table 3 – Devex and capex costs and Ofgem adjustments (2020 prices, GB share)<sup>14</sup>**

Cost Area	Submitted Cost (£m)	Adjustment (£)	FPA Value (£)
Subsea cables	█	0.0	█
Land cables	█	0.0	█
Converter stations	█	0.0	█
Substations	█	0.0	█
Other	█	-0.8	█
Risks	█	-0.5	█
<b>Total</b>	<b>218.9</b>	<b>-1.3</b>	<b>217.6</b>

### Assessment of devex costs

2.16. As presented in table 1, GIL submitted £10.3m of costs associated with development expenditure as part of its FPA submission.<sup>15</sup> This was increased to £11.3m in GIL’s submission following our consultation to include costs due to a delay in financial close for the project.

2.17. We consider devex to cover costs associated with items such as studies, assessments and resourcing costs that have been incurred prior to the project taking FID.

<sup>14</sup> Due to rounding, the figures in this table may not add up precisely to the totals indicated.

<sup>15</sup> Unless otherwise stated, all costs referred to in this section reflect the GB share.

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>16</sup>

2.18. Due to the timing of our assessment, some of GIL'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 GIL's Stage 3 submission to us and the anticipated date for the project's FID.

2.19. 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 we are minded to allow the total sum of £9.4m associated with these costs.

2.20. We are also satisfied with GIL's estimates for the remainder of the devex costs. Therefore, provided that the actual incurred costs associated with these development works do not deviate significantly from these estimates, we are also minded to accept the total sum of £1.9m associated with these costs.

### **Assessment of capex costs**

2.21. GIL submitted £196.2m of capex costs as part of its FPA submission. This was revised to £207.6m in GIL submission following our consultation. At this stage of the project, GIL have not yet incurred any capex costs. Therefore, this value is based on estimates.

2.22. 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 GIL'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.

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

- 2.23.1. the suitability of the tender process of the project's main contract(s);
- and

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<sup>16</sup> Grants such as the CEF grant are presented as negative values within GIL's submission.

2.23.2. the efficiency of the estimated capex costs on an overall basis and by component.

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

### **Firm capex costs**

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

2.26. The procurement process for these works is largely complete. We have undertaken a detailed assessment of GIL's approach to procurement and find that the process and the expected outturn value of the contracts appear reasonable. Due to the maturity of the costs associated with these works, we refer to these as firm costs within this document.

2.27. Based on the competitive nature of the procurement process and our comparison of GIL's cost estimates with other similar projects, we expect the final contract costs to be economic and efficient.

2.28. We reviewed the contract costs at the current stage of the procurement exercise and are satisfied that the process has been run competitively despite an £11.4m increase since our FPA consultation. GIL has provided adequate justification for this increase which is also partially offset by a corresponding reduction in risk costs of £3.9m. We will provide the full allowance for the outturn value for the awarded contracts and not re-assess the costs for these services unless outturn costs are significantly different.

2.29. The price schedules within Greenlink's EPC contracts include various staff and vessel rates the contractors proposes to use, if Variation Orders (VOs) are required to enable the completion of the works.<sup>17</sup> However, a number of these rates are yet to be finalised. We expect to see further details on these rates during the project's annual submissions.

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<sup>17</sup> A VO is issued when there is an alteration to the scope of works within a construction contract. This may be in the form of an addition, substitution or omission from the original scope of works, and could bring either an increase or a decrease in costs.

2.30. GIL will need to demonstrate that any rates are economic and efficient during our consideration of any VOs. We will assess VOs as they arise during the project's annual submissions. We will then make a final decision on these costs at the project's PCR.

2.31. Further to the above, we have also reviewed GIL's land costs. Subject to the final costs for these works not being significantly different to current expectations, we will provide the full allowance for the outturn value of these costs. This is currently estimated at £2.5m. This means that we will not re-assess this cost area unless outturn costs are significantly different.

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

2.32. Following our review of GIL's submission, we are minded to apply a reduction of £1.3m compared to GIL's submitted value for these cost areas.

2.32.1. Developer project management;

2.32.2. Developer insurance; and

2.32.3. Risks.

### **Developer project management**

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

2.34. We consider that, when compared to similar projects, GIL's developer project management costs appear reasonable. We also believe that the assumptions that sit behind these estimates are appropriate.

2.35. However, when combining the developer project management costs with the contractor's project management costs, we consider that Greenlink's combined project management costs appear to be towards the higher end of the range that we would expect for such costs.

2.36. We do not propose to adjust these developer project management costs at this stage. However, we will closely monitor these costs throughout the project's annual submissions, and its PCR, to ensure that they do not increase significantly. If we do see



cost increases in this area that are not substantiated with robust justifications, then we may propose cost adjustments.

### **Developer insurance**

2.37. This covers costs associated with the insurance coverage that GIL expect to place for the Greenlink construction phase.

2.38. GIL are yet to procure these various forms of insurance coverage. Therefore, the costs included within its submission are estimates, based on communication with its insurance broker.

2.39. Greenlink submitted a cost of £0.8m for Delay in Start Up (DSU) insurance for the project. After assessing this cost and following discussions with GIL, we do not believe that this insurance provides a tangible benefit to consumers and have disallowed this cost. We acknowledge that this insurance could prove to be beneficial for Greenlink, in the event of a loss of projected revenue, but we do not believe it is a necessary cover for the project. Our view is that in the event that Greenlink do make a claim based on their DSU insurance, any revenue from this would not be considered part of the cap and floor and therefore any revenue from this source would not be considered against the cap and floor levels. We will not revisit our assessment of the requirement for DSU insurance during our PCR.

2.40. Other than the costs associated with the project's DSU insurance, we have not made any further adjustments to GIL's developer insurance costs. However, as these costs are still early estimates, we will undertake an in-depth analysis of all other insurance costs during the PCR.

### **Risks**

2.41. GIL is forecasting to incur £6.6m, down from £10.5m at FPA submission for costs (GB share) as a result of some risks being closed and the costs associated with others materialising and therefore moving into other cost areas. There are still a number of risks that could materialise during the construction phase including, for example, costs for unforeseen ground conditions or those due to extreme weather conditions.

2.42. The cap and floor levels should not include risk allowances that result from inefficiencies. Furthermore, for risks which consumers should be (at least in part) underwriting, the developer should have appropriate mitigation measures in place.

2.43. We have assessed the risks included in GIL's FPA submission, based on the criteria mentioned above. Our position is that some of these risks should not be included in the FPA cap and floor calculation. For example, we are proposing to reject high impact, low probability risk costs, as these should not be taken into account when calculating the preliminary cap and floor levels. As well as removing ineligible risks, we are also proposing to reduce various costs for other risks, by adjusting the assumptions that sit behind these risks so that they are economic and efficient.

2.44. Our decision is to consider £6.1m as an appropriate placeholder to cover GIL's share of the eligible risks for the project, representing a £0.5m reduction from GIL's proposed value.

2.45. We will monitor the project's risk profile and materialised risk expenditure throughout the annual submissions and take a view on the materialised risks at the PCR stage, applying the principles for risk eligibility that are set out in Appendix 2.

2.46. Our £6.1m allowance is based on GIL's detailed analysis of its construction risks, and our view on these risks. We do not expect the project's materialised risk expenditure to exceed this amount.

### **Assesment of post-construction costs**

2.47. GIL submitted a total estimate of £157.2m (GB share) for the project's post-construction costs as part of its FPA submission. This has since increased by £5m to £162.2m in an update from GIL following our consultation and it consists of:<sup>18</sup>

- £150.9m for opex;
- £7.4m for repex; and
- £3.8m for decommex.

2.48. We have reviewed these costs and GIL'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

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<sup>18</sup> All post-construction costs reported within this section, and within this document, are in real 2020 prices.

at this stage, to ensure that that the placeholder values that we use for these are appropriate.

2.49. We have not made any adjustments to GIL's post-construction costs at this stage.

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

2.50. Through the procurement process previously mentioned in this section, GIL is also procuring service and maintenance services for the project's operational phase. The costs associated with these services are therefore of the same maturity as the capex costs associated with the main EPC contract(s). These are for the service and maintenance of the project's converter stations and cables.

2.51. Based on the competitive nature of the procurement process and the comparison of GIL's expected costs with other similar projects, we expect the final costs for these services to be economic and efficient.

2.52. We reviewed costs at the current stage of the procurement exercise and we will provide the full allowance 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.

### **Non-firm post-construction costs**

2.53. Following our review of GIL's submission, we will use a placeholder value of £127.2m for post-construction costs that we have deemed to be non-firm.

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

- 2.54.1. Subsea cable surveys;
- 2.54.2. Personnel, commercial and business services;
- 2.54.3. Insurance;
- 2.54.4. Property and route;
- 2.54.5. Non-controllable opex;

2.54.6. Repex; and

2.54.7. Decommex.

2.55. We have reviewed the main assumptions and considerations that have informed these cost estimates. Following our review, we believe that GIL's estimates for these areas appear reasonable. We also believe that the assumptions that sit behind these estimates are appropriate.

2.56. Therefore, we will not make any adjustments to these costs at this stage. We propose to use a placeholder value of £127.2m for the project's non-firm post-construction costs.

2.57. We will undertake an in-depth review of these cost elements during the project's PCR. We expect these costs to be more mature at the PCR, which 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 the current 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.

#### Risk eligibility and scope of PCR

3.1. We received no responses to section 5 of our consultation: Annual Reporting and our Post Construction Review. We will therefore expect GIL to comply with the annual reporting requirements laid out in the consultation. We also expect to maintain the scope and timings of the PCR as specified in the consultation document.

#### Technical Assessment

3.2. We received no response regarding our technical assessment in section 6 of the Greenlink FPA consultation. We therefore do not propose any changes to the technical specification of the interconnector as outlined in GIL's submission and summarised in the consultation.

#### Availability incentive

3.3. We received one response to section 6 of our FPA consultation regarding the availability incentive. The respondent disagreed with our decision to go with a 'low' risk factor for Greenlink's Cable Burial Risk Assessment (CBRA) rather than an 'average' setting, which has been used for previous interconnector projects.

3.4. We maintain our decision to use a 'low' risk factor for the CBRA. This is the same risk factor adopted in the recent Viking Link CBRA and we expect future projects that follow similar industry best practice will also have a 'low' failure rate selection factor. Growing service history for subsea cables has increasingly supported reduced failure rates for protected subsea cables.

## Appendices

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## Appendix 1 – Regime summary for Greenlink

In this appendix we provide a summary of the key cap and floor regime features that will apply for GIL. 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 GIL.

Following this decision we will issue a decision on a request from GIL for relief to the Regime Start Date due to pre-operational force majeure events. The outcomes of that decision may impact the regime summary as set out below and will be implemented via the mechanisms set out in our June 2021 decision.

**Table 1: Key regime features**

Feature	Default regime	GIL regime variations
Regime duration and start date	<ul style="list-style-type: none"> <li>• The regime duration will be confirmed after we have considered GIL’s force majeure request.</li> <li>• The cap level will come into effect automatically on the regime start date.</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 1 January 2021. This means that if non-FM delays cause the connection date to be delayed beyond 1 January 2021, the regime start date will still be 1 January 2021.</li> <li>• We will grant interest during construction (IDC) and additional incurred costs associated with delays if developers can</li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime</li> <li>• A decision on a request for relief to the Regime Start Date will be issued shortly.</li> </ul>

	<p>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.</p>	
<p>Amount of project covered by the regime</p>	<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 GIL's development costs; 50% of the total costs of cable, converters, site preparation (at both GB and Ireland); 100% of GB-specific separate costs; and 0% of Irish-specific separate costs.</li> </ul>	<ul style="list-style-type: none"> <li>No change – same as default regime</li> </ul>
<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</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</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> </ul>



<p>the cap or below the floor)</p>	<p>no carry-overs between assessment periods.</p> <ul style="list-style-type: none"> <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 basis at the end of the relevant assessment period.</li> <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>	<ul style="list-style-type: none"> <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>Regulatory reporting</p>	<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>• Developers will also be required to report during construction 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>
<p>Cap and floor Payments</p>	<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 prevailing 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	GIL 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 operational costs incurred during those years in which debt is serviced.</li> </ul>
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 Greenlink is 97.55%</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> </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 GIL) to enable debt servicing if GIL is unable to meet the 80% minimum availability target. GIL will have to repay consumers (from future revenues) on a Net Present Value (NPV-neutral) basis for consumer</li> </ul>

	<ul style="list-style-type: none"> <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>	<p>payments received in years where availability is below 80% (before any distribution or payment to equity providers).</p> <ul style="list-style-type: none"> <li>• Outstanding temporary loans (over the regime duration) to GIL would not be allowed to exceed a maximum of four times the annual floor level.</li> </ul>
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**Table 3: Financial parameters for Greenlink**

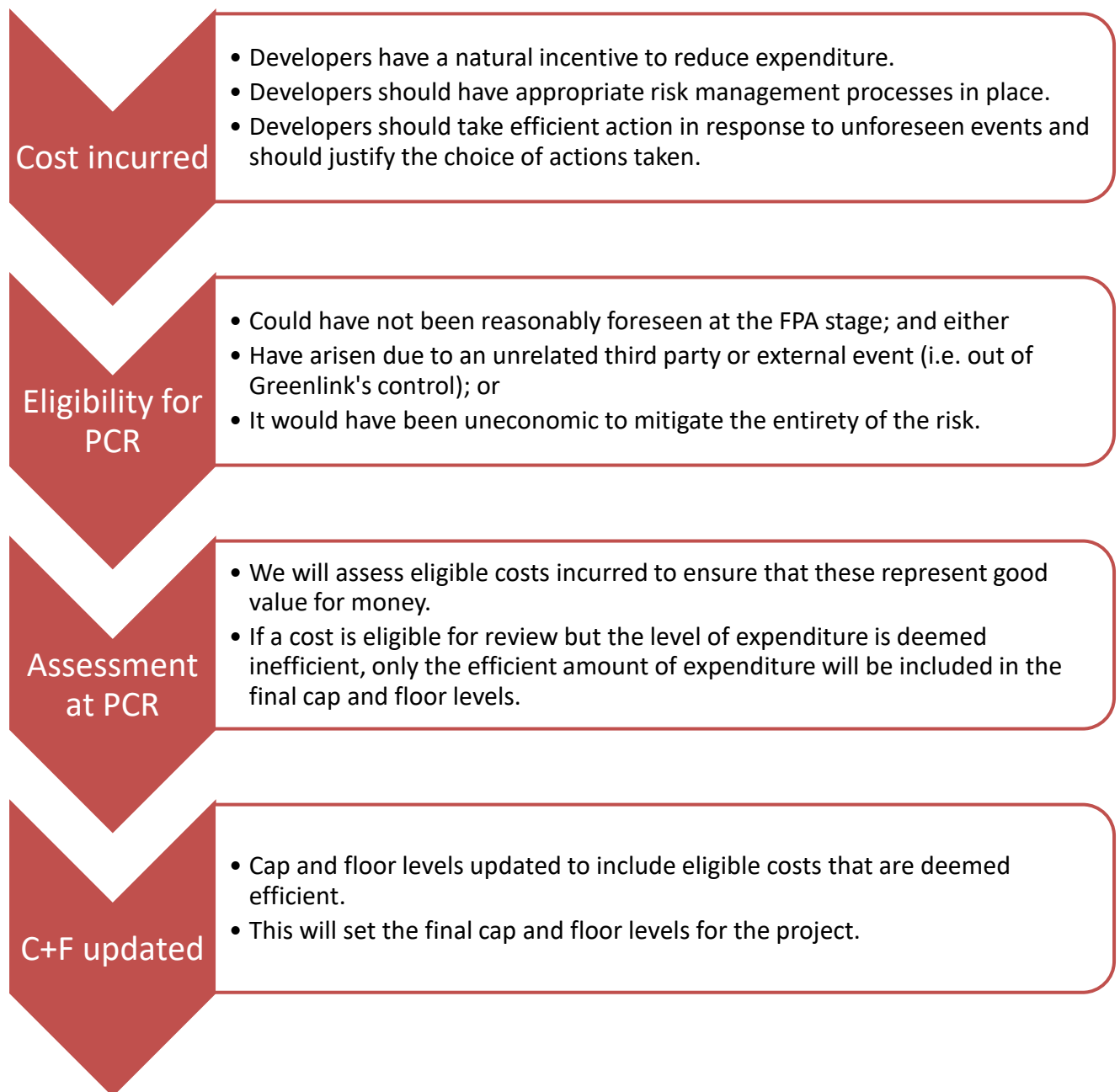
<b>Financial Parameters</b>	<b>Default regime</b>	<b>GIL regime variations</b>
Returns at the floor	<ul style="list-style-type: none"> <li>• The allowed notional return rate at the floor (real-RPI) will be applied to 100% of RAV.</li> <li>• This notional return is calculated using the 20-day trailing 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> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• No change – same as default regime.</li> </ul>

	<ul style="list-style-type: none"> <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>	
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> <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> </li> </ul>	<ul style="list-style-type: none"> <li>● Actual debt financing achieved, its cost and actual gearing.</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</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>

	<p>costs and 5% for equity transaction costs.</p> <ul style="list-style-type: none"><li>• The final allowance (in £) will reflect the final RAV at the PCR stage.</li></ul>	
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## 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. This is why 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>19</sup> and therefore additional rock placement or ploughing/burial equipment is required.
- 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>19</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.

- 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 caused delays/additional costs.

For both of the 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 in excess of 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.