



An Coimisiún  
um Rialáil Fóntas  
Commission for  
Regulation of Utilities



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Commission for Regulation of Utilities

# Greenlink Electricity Interconnector “Cap and Floor Regulatory Framework”

## Draft Determination Paper

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## **CRU Mission Statement**

The CRU's mission is to protect the public interest in Water, Energy and Energy Safety.

The CRU is guided by four strategic priorities that sit alongside the core activities it undertakes to deliver on the public interest. These are:

- Deliver sustainable low-carbon solutions with well-regulated markets and networks.
- Ensure compliance and accountability through best regulatory practice.
- Develop effective communications to support customers and the regulatory process.
- Foster and maintain a high-performance culture and organisation to achieve its vision.

## Executive Summary

This draft determination paper builds on the December 2020 decision which determined that a Cap and Floor regulatory framework would be the most appropriate regulatory framework for the Greenlink interconnector and sets out, for consultation the CRU's minded to positions on the regulatory financial framework of the Cap and Floor that would apply to Greenlink in Ireland. Additionally, it sets out the CRU's minded to positions on the Greenlink costs. The paper also includes the CRU's initial estimate of the Cap and Floor levels that would apply to a maximum of 50% of the project costs and revenues reflecting the costs applicable to Ireland.

In this draft determination paper, the CRU first sets out its minded to positions on each of the features of the financial design across four categories ("building blocks"): Revenues, Performance, Costs and Financial. The paper then goes on to the CRU views on the project costs and the initial Cap and Floor levels for the Greenlink Interconnector.

The detailed building blocks of the Cap and Floor are important as they will determine how this new regulatory framework will work day-to-day, but also because the building blocks define key aspects of how risk will be shared between Greenlink and Irish consumers over the project's lifetime. They will also provide clarity and certainty regarding the regulatory framework for Greenlink and its investors to enable the project to progress.

The financial viability of the regime is an important consideration for the development of the Cap and Floor framework as the CRU has found the project to be in Irish consumers' interest<sup>1</sup>, but as a market-led initiative, the decision for the project to go ahead ultimately rests with Greenlink and its investors.

Having carefully considered the Greenlink submissions and stakeholder feedback and commentary on [CRU20042](#) (Greenlink Electricity Interconnector "Cap and Floor request"), the CRU has come to the following minded to positions. These positions are outlined below.

### ***Regulatory Framework – building blocks***

The tables below set out only the key elements of the minded to positions for the Cap and Floor building blocks. Full details of the CRU minded to positions on the framework building blocks are outlined in sections from 3-6 of this paper.

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<sup>1</sup> [CRU18216](#)

**Table E.1: Revenue building block**

Revenue building block	CRU's minded to position
<b>Regime start date</b>	<ul style="list-style-type: none"> <li>The Cap and Floor regime to start from the project's full commissioning date unless that date falls after 31<sup>st</sup> December 2024, the backstop date.</li> <li>If the full commissioning date falls after the backstop date, the backstop date will be the regime start date.</li> </ul>
<b>Regime duration</b>	<ul style="list-style-type: none"> <li>25-year regime duration from regime start date.</li> </ul>
<b>Cap and Floor building blocks</b>	<ul style="list-style-type: none"> <li>Levels built from capital expenditure, operating expenditure, replacement expenditure, development costs, decommissioning expenditure, tax and allowed returns.</li> </ul>
<b>Assessed revenues</b>	<ul style="list-style-type: none"> <li>Assessed Revenues set based on Gross Revenues less Market Related Costs.</li> </ul>
<b>Assessment period length</b>	<ul style="list-style-type: none"> <li>Annual assessment periods, aligning to calendar years from earliest opportunity.</li> <li>Each annual assessment period shall be considered in isolation, with no carry overs between assessment periods.</li> </ul>
<b>Cross-border split</b>	<ul style="list-style-type: none"> <li>The Irish Cap and Floor regime will cover no more than half of Greenlink's costs and revenues.</li> </ul>
<b>Financial model</b>	<ul style="list-style-type: none"> <li>Establish a CRU Ireland-only model covering half the project's costs and revenues, to be run in parallel with an Ofgem GB-only model covering the other half.</li> </ul>
<b>Cap and Floor payment process and terms</b>	<ul style="list-style-type: none"> <li>Cap and Floor payments will be made between the developer and EirGrid as the TSO. Payments to Greenlink or from Greenlink to the Irish customer will be recovered/distributed via transmission use of system charging arrangements.</li> </ul>

**Table E.2: Performance Building block**

Performance Building block	CRU's minded to position
<b>Force Majeure</b>	<ul style="list-style-type: none"> <li>Force majeure consistent with existing Ofgem Cap and Floor licence, amended to include: (i) strikeout; (ii) lockout; and (iii) other industrial disturbance.<sup>2</sup></li> </ul>
<b>Income Adjusting Events</b>	<ul style="list-style-type: none"> <li>Greenlink will be allowed to make Income Adjusting Event claims for efficient costs incurred due to force majeure.</li> </ul>

<sup>2</sup> [Ofgem's decision on proposed changes to our electricity interconnector Cap and Floor regime to enable project finance solutions.. page 27.](#)

Performance Building block	CRU's minded to position
<b>Cap Availability Incentive</b>	<ul style="list-style-type: none"> <li>The cap level may increase or decrease two percentage points depending on performance against an annual target availability level.</li> </ul>
<b>Minimum Availability Incentive</b>	<ul style="list-style-type: none"> <li>Greenlink will lose eligibility for floor top-ups if annual availability falls below 80%. Temporary floor top-ups will be permitted if annual availability is below that level subject to certain conditions.</li> </ul>
<b>Exceptional Event Claims</b>	<ul style="list-style-type: none"> <li>Include an Exceptional Event claim process within the minimum availability incentive. That process would allow Greenlink to make a claim to the CRU for an outage to be excluded from the minimum availability incentive.</li> </ul>
<b>Temporary Floor Top-Ups</b>	<ul style="list-style-type: none"> <li>Allow temporary floor top-ups when annual availability is below the minimum availability threshold.</li> </ul>

**Table E.3: Costs Building block**

Costs Building Block	CRU's minded to position
<b>Setting Cost Allowances</b>	<ul style="list-style-type: none"> <li>The CRU proposes to set Greenlink's cost allowances in its Final Determination. The CRU will provide "firm" values for development costs, capital expenditure, controllable elements of operating expenditure and replacement expenditure, and will set provisional values for developer risk and decommissioning costs.</li> <li>The CRU proposes to conduct a Post-Construction Review, which will assess any changes to Greenlink's capital expenditure, operating expenditure and replacement expenditure, and finalise these allowances. It will also assess and set decommissioning costs.</li> </ul>
<b>Final Determination Stage</b>	<ul style="list-style-type: none"> <li>Sets ex ante allowances for costs for which there is sufficient cost information to make an informed decision. The CRU considers that development expenditure, capital expenditure and substantial portions of operating expenditure and replacement expenditure to fit into this category.</li> <li>Provides an initial assessment of efficient costs where the information provided by Greenlink is less certain at this stage – for example, developer risk and decommissioning – so that provisional Cap and Floor levels can be set.</li> <li>Provides more detailed guidance on how the CRU will further assess any changes to Greenlink's submitted costs as part of the Post Construction Review, in order to determine the final Cap and Floor levels.</li> </ul>
<b>Financial Close Stage</b>	<ul style="list-style-type: none"> <li>Checks, and potentially finalises, costs that were subject to change at the time of Final Determination and determined by factors beyond Greenlink's control e.g., insurances.</li> </ul>
<b>Post Construction Review Stage (PCR)</b>	<ul style="list-style-type: none"> <li>Takes place at either (i) the point at which Greenlink confirms its pre-construction development expenditure and capital expenditure is</li> </ul>

<b>Costs Building Block</b>	<b>CRU's minded to position</b>
	between 85 and 95 percent complete; or (ii) the full commissioning date, whichever is earliest.
<b>Regulatory Reporting</b>	<ul style="list-style-type: none"> <li>Greenlink will be required to provide an Annual Progress Report to the CRU setting out progress in relation to the construction programme post financial close.</li> </ul>
<b>Opex uncertainty mechanism</b>	<ul style="list-style-type: none"> <li>Operating expenditure allowance may be re-opened once in the regime duration, but not within the first 10 years. Either party (the CRU or the developer) may trigger this review.</li> </ul>
<b>Decommissioning costs</b>	<ul style="list-style-type: none"> <li>Sets decommissioning expenditure allowance at Post Construction Review based on prevailing Irish and GB requirements but will need to consider any changes in the forecast cost due to changes in the underlying assumptions since the Final Determination.</li> </ul>
<b>Exchange rate adjustments</b>	<ul style="list-style-type: none"> <li>Use monthly European Central Bank benchmark rates to convert nominal values between currencies.</li> </ul>
<b>Adjustments for inflation</b>	<ul style="list-style-type: none"> <li>CRU will index the final Cap and Floor levels by outturn Irish Harmonised Index of Consumer Prices inflation over the duration of the Cap and Floor regime.</li> </ul>

**Table E.4: Financial Building block**

<b>Financial Building block</b>	<b>CRU's minded to position</b>
<b>Floor rate of return</b>	<ul style="list-style-type: none"> <li>Set an Irish notional floor rate of return as a cost of debt benchmark to differentiate the level of the floor from the cap.</li> </ul>
<b>Cap rate of return</b>	<ul style="list-style-type: none"> <li>Set an Irish cap rate of return using a cost of equity benchmark to differentiate the level of the cap from the floor. Proposed real cap rate of return is 8.19%.</li> </ul>
<b>Interest during construction (IDC)</b>	<ul style="list-style-type: none"> <li>Set Irish interest during construction rate as a weighted average cost of capital to build up the value of the regulated asset value during construction.</li> <li>Finalise rate at Greenlink's Final investment decision with an update to the real cost of debt based on a 20-day rolling average of iBoxx EUR non-financial corporate 3-5 year bond yields and latest Central Bank of Ireland inflation forecasts.</li> <li>Based on iBoxx data to 31<sup>st</sup> January 2021, the CRU proposes a real IDC value of 3.88%.</li> </ul>
<b>Operational discount rate</b>	<ul style="list-style-type: none"> <li>Set a notional operational discount rate based on a short-term cost of debt, based on a benchmark rate (EONIA) and a fixed margin based on a BBB credit rating (50 to 100bp).</li> </ul>
<b>Notional transaction costs</b>	<ul style="list-style-type: none"> <li>Transaction cost allowances added to regulated asset value evaluated at 5.0% for equity and 2.5% for debt, assuming the notional interest during</li> </ul>

Financial Building block	CRU's minded to position
	construction gearing level during construction and 50% gearing during the operational period.
<b>Tax allowance</b>	<ul style="list-style-type: none"> <li>Implement simplified notional tax calculation based on the Irish tax regime.</li> </ul>

### **Cost and Technical Assessment**

Greenlink submitted its final project costs proposal to the CRU in July 2020. Based on that submission, the CRU understands the total 25-year project cost to be **€835.9m<sup>3</sup>**. Given the proposed cross-border split between GB and Ireland, only **50%** of Greenlink's costs will be subject to the Cap and Floor regime in Ireland. For the purposes of assessing the efficiency of submitted costs, and in particular benchmarking them against other comparable projects, the CRU has considered total project costs in the round.

**Table E.5: Greenlink's submitted total project costs (€m)**

Category	€m
Devex	23.8
Construction capex	426.8
Developer Risk	24.2
Opex	335.5
Repex	17.0
Decommissioning costs	8.8
<b>Total cost</b>	<b>835.9</b>

**Source: Greenlink**

Following assessment, the CRU proposes the following costs allowances. Full details on the cost assessment are outlined in section 7 of this paper.

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<sup>3</sup> CRU used the FPA Supporting Evidence spreadsheet provided by Greenlink, to extend Greenlink's total cost estimate out to 25 operating years post construction. Greenlink submitted its devex and capex costs in nominal prices and its post-construction costs in real 2020 prices.

Following careful consideration of the costs and technical details submitted by Greenlink and using CRU benchmarking on comparable projects the CRU has come to the following position on costs.

**Table E.6: Summary of devex and capex (costs in nominal prices, Rol share)**

Cost type		Greenlink Submission (€m)	CRU Provisional Allowance (€m)
<b>Devex</b>		11.9	11.9
<b>Capex</b>	<i>Main project costs</i>	213.4	209.0
	<i>Risk</i>	12.1	12.1
<b>Total</b>		237.4	233.0

*Note: Values are rounded to 1dp.*

**Table E.7: Summary of post-construction costs (costs in real 2020 prices, Rol share)**

Cost type	Greenlink Submission (€m)	CRU Provisional Allowance (€m)
<b>Operating costs</b>	167.8	167.8
<b>Replacement costs</b>	8.5	8.5
<b>Decommissioning costs</b>	4.4	4.4
<b>Total</b>	180.7	180.7

*Note: values are rounded to 1dp.*

The CRU minded to position on costs and proposed disallowances is outlined in Table E.8 below.

**Table E.8: Summary of the CRU minded to position on costs**

Cost Category	CRU's minded to position
<b>Development expenditure (Devex)</b>	<ul style="list-style-type: none"> <li>• CRU is minded to accept Greenlink's submitted development expenditure costs in full at this stage, as they sit within the CRU's benchmark range.</li> <li>• However, as development expenditure costs are at the top end of the benchmark range, the CRU does not expect to allow any subsequent increases in costs as a result of any delay in getting the project to a construction-ready state.</li> </ul>

Cost Category	CRU's minded to position
<b>Capital expenditure (capex)</b>	<ul style="list-style-type: none"> <li>Greenlink's submitted capital expenditure costs appear to sit within a broad top-down benchmarking range. However, the cost of the converter stations (the largest components of capex) are above the top end of the benchmark range.</li> <li>CRU proposes to disallow €7.5m of construction capex (€3.75m Irish-only share) in relation to project management ("PM") costs. This is because the CRU's assessment of PM costs shows that contractor PM costs are at the top end of the benchmark range and the information provided by Greenlink to date has not provided adequate justification for this relatively high level.</li> <li>The CRU also proposes to disallow €1.2 million (€0.6m Irish-only share) in capex due to its concerns around Delay in Start Up insurance. The CRU is concerned that Delay in Start Up insurance may provide Greenlink with consumer-funded protection for risks that it should be able to control or should have allowed for in its risk analysis.</li> </ul>
<b>Operating expenditure</b>	<ul style="list-style-type: none"> <li>The CRU is minded to accept Greenlink's operating expenditure costs in full at this stage, because total operating expenditure costs sit within the CRU's benchmark range.</li> </ul>
<b>Replacement expenditure (repex)</b>	<ul style="list-style-type: none"> <li>The CRU is minded to accept Greenlink's replacement expenditure costs in full at this stage, because total replacement expenditure costs sit within the CRU's benchmark range.</li> </ul>
<b>Decommissioning expenditure (decommex)</b>	<ul style="list-style-type: none"> <li>The CRU is minded to accept Greenlink's decommissioning expenditure costs in full at this stage, but will review an updated estimate and assess any changes submitted by Greenlink at the Post Construction Review.</li> </ul>

### **Cap and Floor levels**

Based on the above, the CRU has calculated initial estimates of an annual cap level of **€32.4 million** and an annual floor level of **€17.4 million** (2019 prices). As shown in Table 9.1 below, the CRU's initial estimates are below the Cap and Floor levels estimates most recently submitted to the CRU by Greenlink.

Table E.9: Draft Cap and Floor levels based on CRU's minded to-position (2019 prices)

	Cap	Floor
<b>Cap and Floor levels submitted by Greenlink</b>	€33.6m	€18.9m
<b>Cap and Floor levels calculated by CRU</b>	<b>€32.4m</b>	<b>€17.4m</b>

### **Next Steps**

Please note that following this draft determination consultation, the CRU will publish a Final Determination on the Greenlink Electricity Interconnector Cap and Floor Regulatory Framework in Ireland. The CRU expects to publish its Final Determination in H2 2021. The Table E.2 below outlines the upcoming milestones and CRU decision points.

The CRU would like to note that there has been positive and constructive engagement with colleagues in Ofgem as part of the assessment of the Cap and Floor Regulatory Framework for Greenlink. Additionally, the CRU notes that it will continue to engage with Ofgem to explore the potential for a regulatory decision-making process and detailed cost assessment that takes both the Irish and GB regulatory separate decision-making processes into account.

The key decisions on the framework require CRU to balance the importance of ensuring that the interconnector is financeable and the need to protect customers from undue costs and risks. The CRU notes that the Cap and Floor regimes in each jurisdiction should be only aligned to the point where Irish and GB consumer benefits from the Greenlink electricity interconnector project remain.

**Figure E.2: Summary of upcoming Greenlink milestones**

	Draft Determination	Final Determination	Final Investment Decision	Financial Close	PCR
Decision timeline	H1 2021	H2 2021	H2 2021 – H1 2022	H2 2021 – H1 2022	2023 - 2024
Process for setting Greenlink's costs	Minded to ex-ante assessment of Greenlink's cost submission	Devex: ex-post assessment Capex, opex and repex: ex-ante assessment		Treatment of uncertain costs at the PCR stage will be established  The key commercial elements of the project will be reviewed	Capex: ex-post review  Ex-ante assessment of uncontrollable changes to opex and repex forecast  Final decommex set
Process for setting Greenlink's financial parameters	Set out minded to position on Greenlink's financial parameters.	Final decision on the actual cost of debt option for Greenlink. Cap rate of return; IDC rate; operational discount rate; transaction costs and tax allowances will be set.	The floor rate of return will be set based on the notional cost of debt at this stage.		

**Source: CRU**

The CRU welcomes comments on this draft determination paper by 17:00 Tuesday, 18 May 2021. Comments on questions posed within the consultation paper should be submitted to [electricityinterconnectors@cru.ie](mailto:electricityinterconnectors@cru.ie).

## Public/Customer Impact Statement

Electricity interconnectors are physical links which allow the transfer of electricity across borders. New interconnectors should be built only to the extent that they benefit the public at large. That is, as long as the benefits of adding interconnection capacity outweigh or equal the costs.

Therefore, the CRU's assessment of each electricity interconnection application balances the potential benefits of a new interconnector to the Irish consumers against its costs. Generally, new electricity interconnectors can offer multiple potential benefits:

- lowering costs for consumers if power can be generated abroad and imported to Ireland at a lower price (lower prices);
- reducing emissions by facilitating the integration of renewable power into the energy system (renewable energy integration); and
- providing an additional layer of security (security of supply).

In relation to **lower prices**, interconnectors can transport power in both directions, i.e., import and export. This allows them to utilise differences in the power systems, and electricity prices, between countries. Electricity between interconnected markets flows from the lower priced market to the higher-priced one. For instance, at times of high electricity price in Ireland, interconnectors can allow cheaper electricity from another country to be imported into Ireland, thereby raising the supply of electricity and lowering its price. Conversely, if Ireland was the lower-priced market, export of its (cheaper) electricity to a higher-priced market would increase the price in Ireland and bring the price down for the consumers abroad.

In summary, a new interconnector tends to increase prices in the lower-priced market and decrease prices in the higher-priced market. As prices converge, consumers in the higher priced market will benefit from lower prices, while the lower-priced market consumers will have to pay a higher price. Therefore, whether a new interconnector lowers electricity prices for Irish consumers would depend on whether it connects to a country where electricity prices are typically lower than in Ireland.

In 2018, the CRU's Cost Benefit Analysis results showed that Greenlink should reduce renewable energy sources curtailment and improve captured electricity prices for Irish consumers, i.e., average annual electricity prices are expected to be lower in the Single Electricity Market when Greenlink is in service compared to prices that would be captured

without Greenlink.<sup>4</sup>

Regarding **renewable energy**, on very windy or sunny days there can be more renewable power available than the electricity system can accept. When this happens, renewable generators are dispatched down or “curtailed off”, that is, blocked from supply, and a large volume of renewable energy goes unused. This is because, at present, renewable energy cannot displace conventional power plants below the minimum level needed for certain grid stability services. Additional interconnection could reduce this effect and allow more renewable energy onto the electricity system (as it can safely be exported).

Finally, with regards to **security of supply**, interconnectors allow physical imports of electricity to meet domestic demand. As such, a new interconnector would give Ireland yet another potential import route for electricity, diversifying Ireland’s energy supply. This diversification can have various dimensions. First, a new interconnector can provide geographic diversification if it links Ireland with a new country or supplies power to a new (different) point on the Irish electricity system. A new interconnector can also provide economic diversification, as it supplies electricity according to the price dynamics between the two interconnected countries. Finally, a new interconnector also provides technological diversification in that it links markets with different technology choices or having different natural resources determining their energy mix. Each of these dimensions enables security of supply risks to be spread and reduced.

Building a new interconnector can be costly for the Irish consumers, depending on the way it is regulated and funded. Interconnectors derive their revenues from sales of interconnection capacity to users who wish to move electricity between markets with different prices (congestion revenues).

There are various approaches to regulate interconnectors and determine who bears the risk of the interconnector being able to earn congestion revenues. In the case of Greenlink the CRU decision on the Cap and Floor means interconnector’s sales revenues that are below the floor are topped up by network tariffs and its sales revenues above the cap are returned to the end consumer.

Interconnectors can have a positive or negative impact on network tariffs, and ultimately on end consumers, depending on their performance. If interconnectors underperform financially, then this can translate into a cost to electricity consumers by increasing network tariffs. In

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<sup>4</sup> [CRU18216](#): Determination that the construction of the Greenlink interconnector is in the public interest.

contrast if electricity interconnectors overperform financially they can reduce electricity network tariffs. Therefore, the risk of underperformance and its potential cost to Irish consumers must be balanced against the potential benefits that a new interconnector may bring in the medium to long term.

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## Glossary of Terms and Abbreviations

Abbreviation or Term	Definition or Meaning
<b>ACOD</b>	Actual cost of debt
<b>BP</b>	Basis point
<b>Capex</b>	Capital expenditure
<b>CAPM</b>	Capital asset pricing model
<b>CBA</b>	Cost Benefit Analysis
<b>CEF</b>	European Union's Connecting Europe Facility
<b>CER</b>	Commission for Energy Regulation
<b>CREG</b>	Belgian Federal Regulator
<b>CRU</b>	Commission for Regulation of Utilities
<b>DC</b>	Direct Current
<b>Decommex</b>	Decommissioning expenditure
<b>Devex</b>	Development expenditure
<b>DSRA</b>	Debt service reserve account
<b>DSCR</b>	Debt service coverage ratio
<b>DSU</b>	Delay in Start Up
<b>ECB</b>	European Central Bank
<b>EPC</b>	Engineering, Procurement and Construction
<b>EU</b>	European Union
<b>EWIC</b>	East West Interconnector
<b>FD</b>	Final Determination
<b>FID</b>	Final investment decision
<b>FIDIC</b>	International Federation of Consulting Engineers
<b>GB</b>	Great Britain
<b>HICP</b>	Harmonised Index of Consumer Prices
<b>HVDC</b>	High Voltage Direct Current

<b>Abbreviation or Term</b>	<b>Definition or Meaning</b>
<b>IAE</b>	Income Adjusting Event
<b>ICB</b>	Irish Central Bank
<b>IDC</b>	Interest During Construction
<b>IPA</b>	Initial Project Assessment
<b>NPV</b>	Net Present Value
<b>NRA</b>	National Regulatory Authority
<b>Ofgem</b>	The Office of Gas and Electricity Markets
<b>OFTO</b>	Offshore Transmission Owner
<b>Opex</b>	Operating expenditure
<b>O&amp;M</b>	Operations and Maintenance
<b>PCI</b>	Project of Common Interest
<b>PCR</b>	Post Construction Review
<b>PM</b>	Project Management
<b>PR</b>	Price Review
<b>RAV</b>	Regulated Asset Value
<b>Repex</b>	Replacement capex
<b>RoI</b>	Republic of Ireland
<b>SMA</b>	Services and Maintenance Agreement
<b>the Act</b>	Electricity Regulation Act 1999
<b>TSO</b>	Transmission System Operator
<b>TRS</b>	Tender revenue stream
<b>TUoS</b>	Transmission Use of System Charge
<b>TYNDP</b>	Ten Year National Development Plan
<b>WACC</b>	Weighted average cost of capital

# 1 Introduction

## 1.1. Commission for Regulation of Utilities

The Commission for Regulation of Utilities (CRU) is Ireland's independent energy and water regulator. The CRU's mission is to protect the public interest in Water, Energy and Energy Safety. The work of the CRU impacts every Irish home and business. The sectors the CRU regulates underpin Irish economic competitiveness, investment and growth, while also contributing to the CRU's international obligations to address climate change.

The CRU is committed to playing its role to help deliver a secure, low carbon future at the least possible cost, while ensuring energy is supplied safely, empowered and protected customers pay reasonable prices and the CRU delivers a sustainable, reliable and efficient future for energy and water.

The CRU is guided by four strategic priorities that sit alongside the core activities the CRU undertakes to deliver on the public interest. These are:

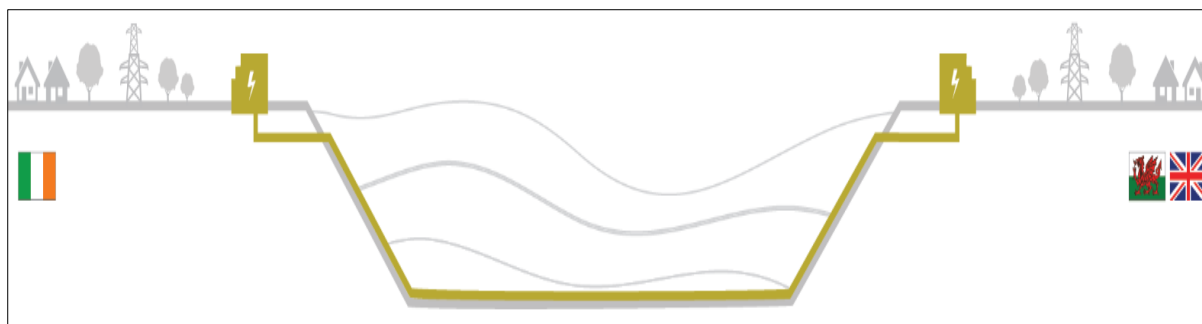
- Deliver sustainable low-carbon solutions with well-regulated markets and networks.
- Ensure compliance and accountability through best regulatory practice.
- Develop effective communications to support customers and the regulatory process.
- Foster and maintain a high-performance culture and organisation to achieve the CRU's vision.

Further information on the CRU's role and relevant legislation can be found on the CRU's website at [www.cru.ie](http://www.cru.ie).

## 1.2. Background

The Greenlink electricity interconnector project (Greenlink) is a proposed 504 MW subsea electrical cable linking the electricity transmission systems of Ireland and Great Britain (GB). It is anticipated that the link will provide a new grid connection between the Great Island transmission substation in Wexford and Pembroke transmission substation in South Wales (see Figure 1.1 below).

**Figure 1.1: Graphical illustration of Greenlink**



**Source: Greenlink**

Greenlink is being developed by Greenlink Interconnector Limited<sup>5</sup>. Greenlink has been designated as a Project of Common Interest (PCI) by the European Commission and has been granted in principle, by Ofgem, a Cap and Floor regulatory regime<sup>6</sup>, which will cover half of the project's costs and revenues relating to the GB assets.<sup>7</sup>

In December 2017, Greenlink's project promoters submitted an interconnector application under Section 2A of the Electricity Regulation Act 1999, as amended (the Act). In its application, they requested the CRU to:

1. Determine if the construction of the Greenlink interconnector is in the public interest, and whether the project may be considered to be part of the transmission system for the purposes of calculating and imposing charges for the use of the transmission system; and
2. Approve the proposed charging methodology for Greenlink pursuant to Section 35 of the Electricity Regulation Act 1999, as amended.

The CRU decided to assess the Greenlink interconnector application in two stages:

- the first stage is testing the public interest case of the proposed interconnector; and
- the second stage is to decide which regulatory approach is justified based on the public interest test.

The first stage of the Greenlink application assessment commenced in June 2018, when the CRU consulted on the public interest test. In assessing the public interest, the CRU

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<sup>5</sup> Greenlink Interconnector Limited is owned jointly by Element Power Holdings, part of Hudson Sustainable Investments, and Partners Group on behalf of its clients. Further information on Greenlink is available on [www.greenlink.ie](http://www.greenlink.ie).

<sup>6</sup> Regulatory framework that sets the maximum (cap) and the minimum (floor) on the level of revenues that can be gained by interconnector project promoters.

<sup>7</sup> Ofgem (2015), Decision on the Initial Project Assessment of the Greenlink interconnector, September

conducted its own cost benefit analysis (CBA) of the Greenlink submission. In October 2018, following consultation, the CRU determined that the construction of the Greenlink interconnector was in the public interest. However, the CRU noted that if any subsequent information were given to the CRU that would lead the CRU to consider that the basis for the public interest decision had materially changed, then the CRU would revisit its determination.<sup>8</sup>

The second stage of the Greenlink application assessment commenced on 30 August 2019, when Greenlink's project promoters submitted a detailed request to the CRU for Cap and Floor regulation of the Greenlink interconnector.

As part of this submission, Greenlink has requested the CRU to consider:

1. Accepting a Cap and Floor revenue regime for the project<sup>9</sup>; and
2. Incorporating closely aligned features<sup>10</sup> to the proposed Cap and Floor regime that Greenlink has been granted (in principle) from Ofgem in GB.

In December 2020, following consultation, the CRU published its decision paper accepting the Greenlink developer's request for a Cap and Floor regulatory regime as the most appropriate regulatory treatment for the Greenlink interconnector.

### **1.3. Purpose of Paper**

The purpose of this paper is to consult on the CRU's minded to position on the regulatory financial design of the Cap and Floor framework that would apply to Greenlink in Ireland. Additionally, this paper sets out the CRU's view on Greenlink's proposed project costs and sets out indicative Cap and Floor levels for the project, which would apply to 50% of the project's costs and revenues.

The CRU seeks views on the appropriateness of its minded to positions and the supporting analysis set out in this draft determination paper. Feedback is also requested on the proposed Greenlink cost allowances.

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<sup>8</sup> In this case, the CRU may re-run its analysis in order to confirm whether or not the project continues to be in the public interest.

<sup>9</sup> Greenlink has requested a closely aligned Cap and Floor regulatory regime in respect of 50% of Greenlink's regulatory asset value, operating costs and revenues, consistent with the approach it has agreed in principle with Ofgem, namely, that the project's costs and revenues would be underwritten by GB consumers and Irish consumers in 50%/50% split under a 25-year Cap and Floor regime.

<sup>10</sup> Irish country specific features e.g., tax, inflation, law.

## 1.4. Legal and Policy Context

The CRU has a statutory role in assessing electricity interconnection projects and deciding on their regulatory treatment. An overview of those responsibilities under Irish and European law is provided in the CRU information paper ([CRU18056](#)). A summary of CRU's responsibilities under Irish legislation is outlined below.

Under the Electricity Regulation Act 1999, as amended, (the Act) interconnector developers may apply directly to the CRU for a determination on their application. The section below briefly outlines the relevant sections of the Act.

**Section 2A** of the Act states that an interconnector owned by a person other than the board (i.e., ESB) may, where the CRU determines that it is in the public interest, be considered to be part of the transmission system for the purposes of calculating and imposing charges for the use of the transmission system (as set out in Section 35 - Charges for connection to and use of transmission or distribution system<sup>11</sup>).

The other sections below provide context for some of the relevant approvals/consents Greenlink would need in order to become fully operational. However, these are not examined at this point.

**Section 16** of the Act states that the CRU may grant or may refuse to grant to any person an authorisation to construct an interconnector, and where the CRU grants such an authorisation, that authorisation shall be subject to such terms and conditions as may be specified in the authorisation.

**Section 16A** of the Act provides that, with the consent of the Minister, the CRU may secure the construction of an interconnector by:

- a competitive tender;
- an authorisation granted to a person without a prior competitive tender where that person demonstrates, to the satisfaction of the CRU, that the granting of an authorisation, subject to such conditions as the CRU deems necessary and appropriate, is in the long-term interests of final customers; or
- requesting the transmission system operator to provide for the construction of an interconnector in its development plan.

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<sup>11</sup> costs can be recovered through customer tariffs.

In addition to the above and in accordance with **Section 14** of the Act, the CRU may grant or refuse to grant a licence to transport electricity and maintain an interconnector.

Finally, pursuant to **Section 9** of the Act, the CRU has responsibilities which include:

- protect the interests of final customers;
- promote competition, efficiency and the use of renewable and sustainable energy;
- not discriminate unfairly between relevant stakeholders;
- contribute to the development of the internal market and to the development of compatible regulatory frameworks between regions of the European Union, by engaging, co-operating and consulting with other national regulatory authorities, the Agency and with the European Commission in regard to cross-border issues;
- cooperate with other regulatory authorities at a regional level to foster operational arrangements to enable an adequate level of interconnection capacity within the region and between regions to allow the development of effective competition and improvement of security of supply; and
- co-operate with other regulatory authorities at a regional level to develop rules on access to cross border infrastructure including allocation of capacity and congestion management.

## 1.5. Related Documents

- [CRU18119](#): Consultation on the Greenlink application and the public interest test.
  - [CRU18119a](#): Greenlink Electricity Interconnector Application.
- [CRU18216](#): Determination that the construction of the Greenlink interconnector is in the public interest.
- [CRU20042](#): Consultation on the CRU's minded to position on the Cap and Floor regulatory regime and its initial views of the regime features requested by Greenlink.
  - [CRU20042a](#): Non-Confidential Greenlink's Cap and Floor Request.
- [CRU20171](#): Greenlink Cap and Floor Regulatory Treatment decision.

## 1.6. Structure of Paper

This paper is structured as follows:

- **Section 1** introduces the CRU and provides background information to this paper.
- **Section 2** sets out the overall scope of this consultation and provides the projections from Greenlink of the cap, the floor and its revenues.
- **Sections 3 to 6** present the CRU's minded to positions for the regulatory financial design of Greenlink in Ireland across four categories: Revenues, Performance, Costs and Financial.
- **Section 7** provides an overview of the CRU's assessment of Greenlink's submitted costs.
- **Section 8** outlines information on the implementation of the Cap and Floor through the Irish Licence.
- **Section 9** provides a summary of the CRU's minded to positions of the proposed Cap and Floor framework for Greenlink.
- **Section 10** presents the next steps with regards to the Greenlink Interconnector application.

## 2. Scope of Consultation

The CRU determined in December 2020 that a Cap and Floor regulatory regime is the most appropriate regulatory treatment for the Greenlink interconnector in Ireland.<sup>12</sup> This paper builds on that decision and sets out, for consultation, the CRU's minded to position on the detailed building blocks of Greenlink's Cap and Floor framework in Ireland.

The detailed building blocks of the Cap and Floor are important as they will determine how this new regulatory regime will work day-to-day, but also because they define key aspects of how risk will be shared between Greenlink and Irish consumers over the project's lifetime. They will also provide clarity and certainty with regard to the regulatory regime for Greenlink and its investors to enable the project to progress. The financial viability of the regime is an important consideration for the development of the Cap and Floor regime as the CRU has found the project to be in Irish consumers' interest<sup>13</sup>, but as a market-led initiative, the decision for the project to go ahead ultimately rests with Greenlink and its investors.

The CRU considers that its minded to positions for the regulatory financial treatment of Greenlink provide a suitable framework for an independent developer to take forward this important interconnection project. It includes a set of key risk sharing mechanisms between the project developer and Irish consumers, who will ultimately benefit from the project. These features have been designed to support the financing of the project using non-recourse project finance, while placing key incentives on the developer to build, operate and maintain this new asset.

### 2.1. CRU Assessment Approach

The CRU's March 2020 consultation on Greenlink's "Cap and Floor Request" set out an initial assessment of the regime features Greenlink requested in its August 2019 submission.<sup>14</sup> Those assessments were based on the project's circumstances and the merits of the 2019 proposals, focusing on four aspects:

- (i) Deliverability;
- (ii) Efficiency;

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<sup>12</sup> [CRU210171](#)

<sup>13</sup> [CRU18216](#)

<sup>14</sup> [CRU20042a](#)

(iii) Incentives; and

(iv) Simplicity.

Greenlink's request has been assessed, both as a package and its constituent features, from the perspective of protecting the interests of the Irish energy consumer. The CRU split the individual component assessment of Greenlink's Cap and Floor request into three categories:

- **Category 1:** Regime features consistent with the GB default regime.
- **Category 2:** Regime features specific to Ireland.
- **Category 3:** Regime features that Ofgem has classified as variations.

In December 2020, this assessment allowed the CRU to conclude that a Cap and Floor regulatory regime is the most appropriate regulatory treatment for the Greenlink interconnector. Since the CRU completed that assessment, substantial work has been completed to develop the detailed design of the Cap and Floor framework for this draft determination.

The CRU notes that the support from Irish consumers through a Cap and Floor regulatory framework is developed on the expectation that the project developer will design, operate and maintain the Greenlink electricity interconnector to a high standard. Additionally, the CRU notes that the purpose of Cap and Floor payments is not to protect the developer from events that are within its reasonable control. It is primarily to help managing the revenue risk of the Greenlink electricity interconnector in Ireland.

As such, the assessment presented in this document focuses on the key elements of a Cap and Floor regulatory framework as they specifically relate to Ireland. Under this approach, this paper employs the four new building blocks introduced below to categorise the regime features, taking the place of the three used in the initial assessment, which were tied to an earlier view of Ofgem's likely regulatory treatment of Greenlink in GB.

The CRU notes that there have been some changes to Greenlink's own proposals for the regulatory financial treatment of the interconnector in Ireland since its August 2019 submission to the CRU. The main update is to align with Ofgem's May 2020 decision on proposed changes to its regime to enable project finance solutions, reinforcing its request for

symmetric regulation by Ofgem in GB and the CRU in Ireland.<sup>15</sup> The CRU notes that this has been taken into account in the development the Cap and Floor framework for Greenlink in Ireland.

## **2.2. Greenlink's Cap and Floor Requests**

In December 2017, Greenlink requested the CRU to grant a closely aligned Cap and Floor regulatory regime regarding 50% of Greenlink's regulatory asset value, operating costs and revenues. Project's costs and revenues would be underwritten by Great Britain (GB) and Irish consumers in 50/50 split under a 25-year Cap and Floor regime<sup>16</sup>.

Key elements of Greenlink's Cap and Floor requests are set out in Table 2.1 below. For further information refer to the Greenlink submission published on the CRU's website<sup>17</sup>.

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<sup>15</sup> Ofgem (2020), Decision on proposed changes to our electricity interconnector Cap and Floor regime to enable project finance solutions, May.

<sup>16</sup> [Greenlink submission](#)

<sup>17</sup> [CRU20042a](#)

Table 2.1. Cap and Floor key design elements

Design feature	Description	Variation to Ofgem model
<b>Cap and Floor mechanism</b>		
<b>Regime length and start date</b>	Regime length – 25-year regime length in Ireland.	No
	Regime start date – Regime starts from either full commissioning or 12 months after the target commissioning date if commissioning is delayed.	No
<b>Assessment periods</b>	Individual, one year, assessment periods are considered in isolation: any excess or shortfall against the Cap and Floor results in a payment and cannot be carried over into the following assessment period.	Yes – Section 5.2
<b>Calculating the Cap and Floor</b>		
<b>Setting the cap</b>	Risk Free Rate (1.90%) – Based on CRU determination for ESB (2016-2020)	Irish specific
	Equity beta (1.38) – Asset beta based on the SEM Committee decision for BNE, re-levered for 50% gearing, per Ofgem approach	Irish specific
	Market risk premium (4.75%) – Based on CRU determination for ESB (2016-2020)	Irish specific
	CAPM calculation using the above parameters	Irish specific
<b>Setting the floor</b>	Greenlink’s actual cost of debt and gearing will be used to set the floor, with any re-financing gains (from the changing cost of debt between construction and operation) will be shared with Irish consumers using a 30% sharing factor.	Yes – Section 6.2
	Euribor swap rate (0.58) – Greenlink assumes Euribor as the underlying market interest rate. Euribor swap rate sourced from Thompson Reuters on June 25 2019	Yes – Section 6.2
	Swap credit spread (0.20-0.45%) – Based on initial lender engagement. These values may be updated to reflect the final views of lenders on project risks. Greenlink has retained a value at the low end of the range presented	Yes – Section 6.2
	Margin (1.5-2.0%, stepped up every 5 years) – Based on initial lender engagement. These values may be updated to reflect the final views of lenders on project risks. Greenlink has retained a value at the low end of the range presented	Yes – Section 6.2
	Inflation (2.71%) – 50:50 weighting of Irish HICP inflation (2%) and GB inflation (3.41% based on UK breakeven inflation, per Ofgem’s Cap and Floor model	Irish specific

<b>Financing transaction costs</b>	Calculated using 50% notional gearing during construction; 5% equity allowance 2.5% debt allowance	No
<b>Grants and subsidies</b>	Relevant grants and subsidies will net off the project investment costs used to set the RAV. For Greenlink this include CEF funding received.	No
<b>Interest During Construction</b>	The Greenlink IDC rate is the project WACC during construction, using the actual cost of debt and gearing. The development and construction premia would be retained in the regime design in Ireland.	Yes – Section 6.4
<b>Re-financing costs/gains</b>	Any re-financing gains will be shared between Greenlink and Irish consumers, applying a 30% sharing factor. Re-financing losses will be covered by Greenlink.	Yes – Section 6.2
<b>Taxation</b>	Irish corporation tax to be applied to Cap and Floor calculation. Additional variation at the floor so that interest feeding into the taxable profit reflects actual cost of debt and gearing (this variation is aligned with the principle of using the actual cost of debt at the floor).	Yes – Section 6.3
<b>Incentives and revenues</b>		
<b>Relevant revenues</b>	Arbitrage revenue, Capacity Market revenue and Ancillary Services revenue (DS3 in Ireland)	No
<b>Minimum availability incentive</b>	Floor payments will be conditional on 80% availability, with temporary top-up payments provided each year to ensure debt service obligations can be met. This advance top-up will be paid back to consumers in future periods from any revenues above the floor, ensuring NPV-neutrality.	Yes – Section 5.1
<b>Incentive to operate when revenues are above the cap</b>	Introduce an incentive that would maintain Greenlink’s incentive to maximise availability each period, even when revenue exceeds the cap. This would be achieved through sharing revenues above the cap between Greenlink and Irish consumers (subject to conditions)	Yes – Section 6.1
<b>Allocation of costs and revenues</b>	Allocation of RAV, operating costs and revenues on a 50/50 basis between GB and Ireland	No
<b>Costs</b>		
<b>Non-controllable costs</b>	Change in taxation, law and regulation to be included as non-controllable costs	Yes – Sections 4.2 and 4.3
<b>Decommissioning</b>	Decommissioning costs will be included in the Greenlink cost estimate and form a building block of the Cap and Floor in Ireland	No
<b>Force Majeure</b>	Force Majeure definition to be jointly agreed between CRU, Ofgem and Greenlink with outages resulting from Force Majeure not counted towards minimum availability requirements	Yes – Section 4.5
<b>Income Adjusting Events</b>	Set at €1m either from a single event or from the combined cost of multiple events	Yes – Section 4.6

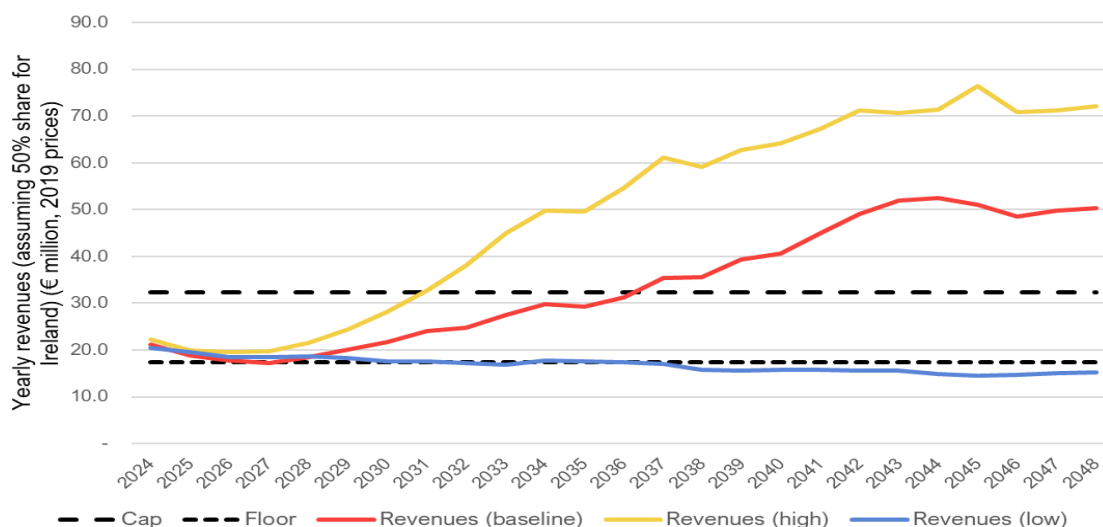
Source: Greenlink, August 2019

## 2.3. Greenlink Revenue Projections

The figure below presents the CRU proposed Cap and Floor levels, set on top of the latest revenue projections<sup>18</sup> provided to the CRU by Greenlink.

<sup>18</sup> These projections may not represent the developer’s latest view, they just cover the most recent values that they submitted. Greenlink’s cap and floor levels are from a draft financial model it shared with the CRU in August 2020; revenue projections are from the Cap and Floor variation model it submitted in September 2019.

**Figure 2.1. CRU draft Cap and Floor compared to Greenlink latest revenue projections, € million, 2019 prices**



**Source: Greenlink submissions and CRU**

Greenlink’s projections show that there is a particular risk that revenues could be near or even below the floor in the initial five years of the project. The higher probability of floor payments in the first five years is not favourable from a consumer benefit perspective as customers will be charged through customer tariffs to top-up revenues to the floor. After the initial five years, there is a wide spread of uncertainty about the level of revenues. In some scenarios, revenues grow rapidly, breaching the cap by the early 2030s (in the “high” scenario) or late 2030s (in the “baseline” scenario). However, in the “low” scenario, revenues remain close to or below the floor level which would trigger payments from consumers.

Greenlink’s projections indicate that there is a high likelihood of consumer costs now and unlocking benefits later. Some of that later benefit is contingent on the scale and speed of decarbonisation in Ireland, but it might also depend on future levels of interconnection. Scenarios with high revenues might not materialise if a further interconnector joined the market. A similar result might occur if Greenlink upgrades its own capacity. The ongoing negotiations surrounding the GB’s future trading arrangements with the European Union (EU) may also impact on Greenlink’s future ability to access congestion income from cross border trading via the interconnector. Notwithstanding this, at this time the CRU remains of the view that there is a public interest aspect to the Greenlink electricity interconnector.

The CRU has set out its minded to-positions in this paper cognisant of the broader context around Greenlink’s revenue projections. The CRU considers that the proposed regulatory framework will enable the efficient development of the Greenlink interconnector while providing protection to Irish consumers.

## 2.4. Cap and Floor Building Blocks

The Cap and Floor regime is a cost-based regulated revenue regime. The maximum (the ‘cap’) and minimum (the ‘floor’) level of revenue which an interconnector operator can accrue in any year is set by applying financial parameters to the efficient costs of developing and operating the project.

The CRU has developed a proposed Cap and Floor regime for Greenlink based on a series of regime features (“building-blocks”). The CRU is consulting on its minded to position for each individual building block across the four themes set out below:

- **Revenue building blocks:** This includes how the Cap and Floor levels will be built-up to, how Greenlink’s revenues will be treated and the CRU’s minded to position on the regime start date and duration.
- **Performance building blocks:** This includes regime features on how the performance of the Greenlink interconnector will be treated. For example, how the Cap and Floor regime for Greenlink in Ireland will deal with interconnector availability and unforeseen events and the financial incentives to ensure the efficient operation of the interconnector.
- **Cost building blocks:** This includes how Greenlink’s costs will be treated within the regulatory regime. This includes the timing and process by which the CRU will assess the efficient level of Greenlink’s project costs in order to set final Cap and Floor levels following this draft determination.
- **Financial building blocks:** This includes the financial parameters for Greenlink within the Cap and Floor regime. For example, the financial rates of return that are used to set the level of revenues at the Cap and Floor.

In addition to the regulatory building blocks that are described above, the CRU has also set out its minded to position on the efficiency of costs submitted by Greenlink at this stage of the project. This view has been supported by a two-stage cost and technical review of Greenlink’s application led by the CRU and its advisors.

## 3. Revenue Building Blocks

This section presents the CRU's minded to positions on the "Revenue" building blocks of the Cap and Floor regime for Greenlink in Ireland that determine how the Cap and Floor levels will be built up and revenues compared against them. This section includes the following building blocks:

**3.1 Regime start date:** Sets the point in which the Cap and Floor regime commences for Greenlink.

**3.2 Regime duration:** Sets the length of the Cap and Floor regime duration for Greenlink.

**3.3 Cap and Floor building blocks:** How the regime building blocks fit together to generate Cap and Floor levels for Greenlink.

**3.4 Assessed revenues definition:** A definition of what revenue for Greenlink will be assessed against the Cap and Floor levels.

**3.5 Assessment period length:** The duration of time over which Greenlink's assessed revenue will be compared against the Cap and Floor levels.

**3.6 Financial model:** A model to bring together the Cap and Floor building blocks and calculate the resulting Cap and Floor levels for Greenlink in Ireland.

**3.7 Cross border Split:** The split in the regulatory coverage of Greenlink between Ireland and GB.

**3.8 Cap and Floor payment process and terms:** the process by which Cap and Floor payments are made between EirGrid as transmission system operator (TSO) and Greenlink.

The CRU concludes this section with key considerations for consultation.

### 3.1. Regime Start Date

Cap and Floor regimes apply when a project is generating market revenues. As such, no payments to or from Irish consumers should begin until after the start of commercial operations.

Potential for delays in the construction and commissioning of the project make it difficult to set the regime start date in advance. However, the CRU's own CBA of the project assumed

operations start in 2023,<sup>19</sup> as such, the CRU considers that there should be limits set on that date. A backstop limit – a final date by which the project should have been fully commissioned in order for the interconnector to be fully eligible for consumer support – would also encourage the developer to manage the project timelines effectively, avoiding unnecessary delay.<sup>20</sup>

The CRU proposes to define the “regime start date” as when the “regime duration” begins (see Section 3.2). Under this proposal, the regime start date would apply from the *earlier of* the full commissioning date or a backstop date chosen by the CRU.

The full commissioning date would be set retrospectively as the date that falls:

- after the successful completion of good industry practice procedures and tests to demonstrate that the interconnector is available at the rated capacity; and
- before the successful completion of 60 days of continuous operation with technical availability at the rated capacity (excluding interruptions that Greenlink demonstrates are due to force majeure).

A regime start backstop date would set a point beyond which the regime duration would start automatically. Revenues (if any) would start to count towards the cap from that date, but the project would not be eligible for floor payments until after the full commissioning date.

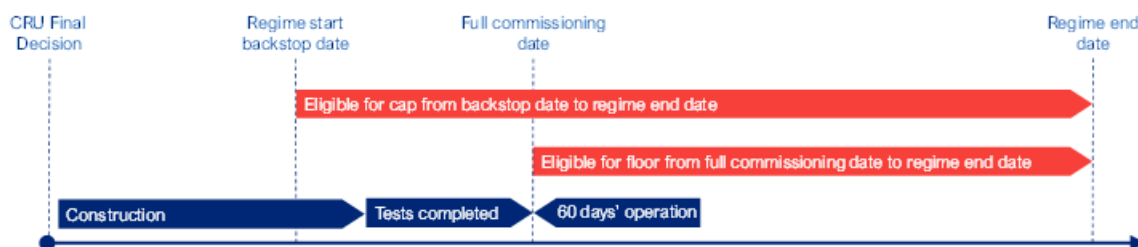
The implication of this approach is that if Greenlink has its full commissioning date after the backstop, it could lose eligibility for some floor payments. As a consequence, the CRU’s decision on the backstop date may have commercial impacts for Greenlink if it fails to commission the project by the backstop date and, as a consequence, the terms on which Irish consumer underwriting of the project is provided. The figure below illustrates a case where full commissioning occurs after the backstop date, and the implications for eligibility for the cap and the floor.

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<sup>19</sup> [CRU/18/216](#), ‘Greenlink Electricity Interconnector Determination’, page 33

<sup>20</sup> Delays in the construction and commissioning of the interconnector may under certain circumstances lead to cost escalation which could negatively impact consumers.

**Figure 3.1: Regime start backstop date illustration**



**Note: timeline not to scale. As 60 days' operation occurs after tests are complete, this means the Full Commissioning date is determined retrospectively.**

The CRU notes that in this example, eligibility for the cap is triggered from the regime start backstop date. This also sets the regime end date both for the cap and for the floor. The developer only becomes eligible for floor payments after the full commissioning date. It is not able to claim any floor payments relating to any period before then.

The effect of this policy is that beyond the backstop date, delays to commissioning start to eat into the potential financial support the project would receive from Irish consumers.

The proposed approach as set out above aligns with Ofgem's approach which it will apply in GB with the exception of the backstop date which the CRU is minded to set at 31<sup>st</sup> December 2024. Ofgem's current regime start date is 1<sup>st</sup> January 2021, however, a force majeure claim from Greenlink is currently being considered which may result in an extension of this date. Ofgem's approach to the backstop date is linked to having confirmed its regulatory framework for Greenlink at an earlier date than the CRU.

Using a pre-defined backstop date diverges from Greenlink's request to set this based on one year after a target commissioning date – a date it is yet to define. However, Greenlink's regulatory submissions to date have indicated a commissioning date during 2023 and so the CRU considers setting the backstop date at the end of 2024 will allow some further headroom beyond that, while facilitating the use of consistent calendar year reporting periods across the full project in the case of delay.

Given some remaining uncertainty in the expected timeline of Greenlink's construction programme – particularly in light of the ongoing Covid-19 pandemic – the CRU will continue to engage with Greenlink on its timelines for developing the project and whether the proposed backstop date remains appropriate.

## 3.2. Regime Duration

Regulatory decisions around the regime duration for standalone interconnectors differ compared to regulated onshore networks. For regulated onshore networks, there is generally no fixed end date—they cover a portfolio of assets delivering services that may be required in perpetuity. For an interconnector, however, investors will need to be confident of recovering the project's upfront costs before the asset reaches the end of its operational life.

The CRU notes that Greenlink has requested a 25-year Cap and Floor regime. The CRU proposes to set a 25-year regime duration for the Greenlink electricity interconnector project, a period shorter than Greenlink's expected asset life: 40 years. The CRU considers a 25-year regime duration<sup>21</sup> will protect Irish electricity consumers by spreading the capital cost of the project across a long period, while potentially enabling the project developer to finance the project at a more liquid debt maturity with competitive rates.<sup>22</sup> The CRU followed a similar approach in the CRU's regulation of the East West Interconnector (EWIC)<sup>23</sup> interconnector, whose regulated revenue requirement assumes the remuneration of capital costs within the first 20 years. However, it should be noted that the context in which the EWIC interconnector arose was different to the Greenlink Interconnector.<sup>24</sup>

Combined with the regime start backstop date in Section 3.1 above, a 25-year regime duration implies a regime end date no later than 31<sup>st</sup> December 2049.

This proposal is consistent with the approach Ofgem will apply to Greenlink in GB. However, Ofgem's current policy on the regime start date and the CRU's minded to position as set out above, may mean the Cap and Floor will expire earlier in GB than in Ireland. In this situation, Greenlink's Cap and Floor regime in Ireland would continue to apply to half the interconnectors costs and revenues.

Figure 3.2 below illustrates the potential impact of the interaction of the regime start date and regime duration on the effective duration of the initial regulatory regime in Ireland.

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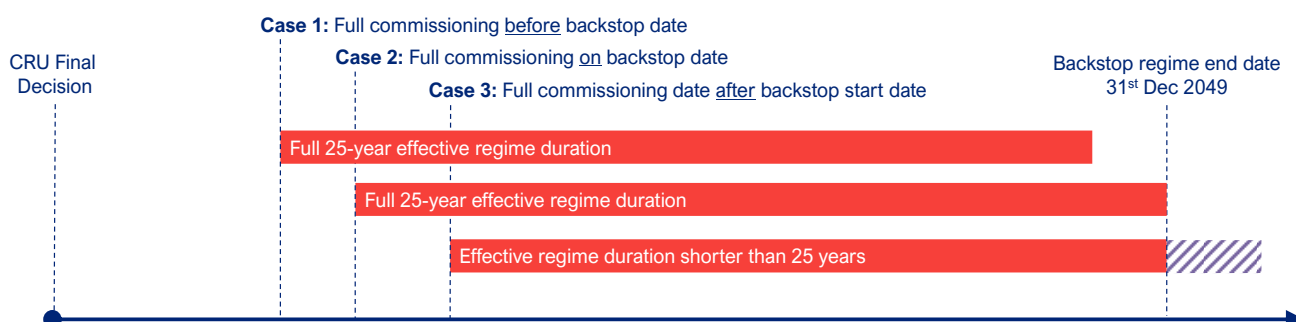
<sup>21</sup> CRU followed a similar approach in the CRU's regulation of the EWIC interconnector, whose regulated revenue requirement assumes the remuneration of capital costs within the first 20 years. There are also parallels in how the new Renewable Electricity Support Scheme in Ireland provides revenue support to renewable generation projects for up to 15 years, a period that many projects will expect to outlive.

<sup>22</sup> CRU considers that 25 years is also consistent with the duration of exemptions from aspects of European legislation that the European Commission typically applies to merchant interconnectors (e.g., limits on use of revenues or third-party access). Keeping with 25-years helps align the time horizon of the regime in line with that of a merchant developer developing a comparable project.

<sup>23</sup> <https://www.eirgridgroup.com/customer-and-industry/interconnection/>

<sup>24</sup> The EWIC was developed following an instruction from the Irish Government in 2006 to develop a 500MW regulated interconnector as critical infrastructure. [https://www.ceer.eu/documents/104400/3742146/E07\\_NR\\_Ireland-EN\\_0.doc/02ebfbb2-3e2c-2406-e59e-885967bf1ca9?version=1.0](https://www.ceer.eu/documents/104400/3742146/E07_NR_Ireland-EN_0.doc/02ebfbb2-3e2c-2406-e59e-885967bf1ca9?version=1.0)

**Figure 3.1: Effective regime duration**



**Note:** Timeline not to scale

### 3.3. Cap and Floor Building Blocks

Setting Cap and Floor levels for an interconnector has some parallels with the CRU's onshore network price control decisions. In those decisions, the CRU constructs allowed revenue limits using a set of cost and financial building blocks. However, the context for the Cap and Floor is different as it applies to a single asset (not a portfolio) and the project should generate commercial revenues, rather than receiving all revenues through network tariffs.

The CRU proposes to set the Cap and Floor levels as annual Euro-denominated values, with allowances indexed each year for Irish Harmonised Index of Consumer Prices (HICP) inflation.

The CRU will build up the Cap and Floor levels based on annual allowances for:

- ongoing operating cost and decommissioning costs;
- annual depreciation of a regulated asset value (RAV);
- return on the RAV; and
- corporation tax.

In setting the annual values of the Cap and Floor, the CRU will:

- only apply the Cap and Floor levels after the Greenlink electricity interconnector project has achieved its full commissioning date;
- apply two rates of return on the RAV for the regime duration — one to produce the cap (the “cap rate of return”) and another to produce the floor (the “floor rate of return”);

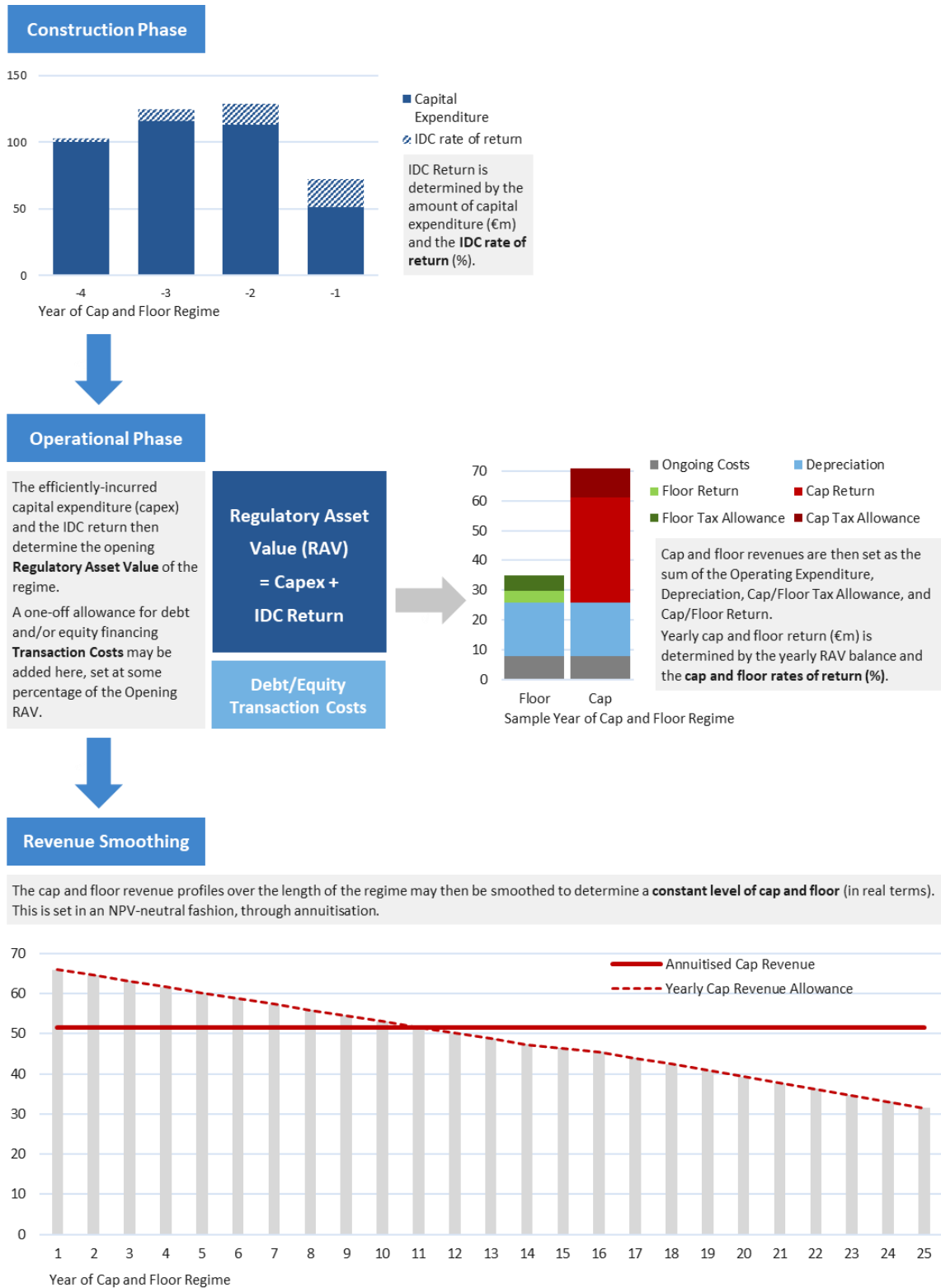
- build up the RAV during construction based on development costs, capital expenditure, spares, transaction costs and capitalised interest during construction;
- depreciate the RAV (including any approved replacement capital expenditure) within the time horizon of the 25-year regime duration;
- include allowances for operating costs and decommissioning costs in the years they are expected to be incurred;<sup>25</sup> and
- set the resulting real Cap and Floor levels as flat annual values, first by calculating an annuity value of all allowances except tax, and then adding a second annuity of the forecast tax liability under those two revenue profiles.

The CRU summarises this approach below in Figure 3.3.

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<sup>25</sup> The CRU notes that it will not include operating costs beyond the end of the regime duration and for the purpose of calculating cap and floor levels will assume decommissioning costs are incurred during the final year of the regime. Those costs will be smoothed over the regime duration as part of creating the cap and floor annuities.

**Figure 3.3: Key mechanisms of a Cap and Floor regime**



Source: CRU

This is the approach Ofgem proposes to apply in GB, except for setting the Cap and Floor in Euros and inflating values using Irish HICP, the general measure of inflation the CRU uses in onshore price controls. The CRU's approach is also consistent with Greenlink's request for Cap and Floor regulation in Ireland.

The CRU proposes to adopt this approach as:

- the level of complexity of the calculations is sufficient to build up cost-based revenue thresholds for the project, while remaining proportionate for the regulation of a single-asset;
- the outputs should integrate well with annual charge setting processes in Ireland;
- adopting a real, flat Cap and Floor profiles takes a neutral approach to the profile of commercial revenues in the regime duration;
- Irish consumers do not need to contribute to project costs if it is not completed and fails to achieve a full commissioning; and
- allowing the accelerated recovery of the RAV (over 25-year duration rather than the technical life of the asset) recognises the uncertainty on the project's technical life.

The CRU notes that the positions set out above apply only to the 25-year regime duration.

### **3.4. Assessed Revenues Definition**

Payments in a Cap and Floor regime are based on how the project's "Assessed Revenue" compares to the Cap and Floor. As such, the regulatory framework will need to be explicit about how that value is built up. It must also recognise that the project may receive revenues from a range of sources and that there may be some related costs not captured in the building blocks of Cap and Floor levels.

The CRU proposes to define "Assessed Revenue" for Greenlink as the project's "Gross Revenue" less "Market Related Costs". The total value would have a lower limit at zero, ensuring Greenlink cannot claim payments larger than the floor.

The CRU proposes that "Gross Revenue" would be set to capture the widest range of revenues earned by Greenlink including, but not limited to:

- congestion revenue from capacity allocation in any timeframe;
- capacity market revenue;
- revenue generated from the provision of ancillary services (e.g., DS3); and

- receipts that substitute revenues (e.g., income from business interruption insurance and constraint payments).

The CRU proposes that “Market Related Costs” would be set to cover certain costs related to firmness of the capacity sold by Greenlink:

- “firmness costs”, or the cost of compensating parties who have purchased interconnector capacity that cannot subsequently be provided;
- “error accounting costs”, or the cost incurred in settling any energy imbalance due to any difference in metered volume between the physical flow on the interconnector and the aggregate position of all interconnector users (e.g., due to scheduling errors or unplanned outages); and
- “trip contract costs”, or the cost of transactions related to managing trip events (e.g., contracts with a third party to deliver or off-take power on either side of the interconnector when it is down).

The CRU notes that netting “Market Related Costs” off “Gross Revenue” means that they are treated as a partial pass-through cost for Greenlink. The CRU proposes that “Market Related Costs” will only affect net Cap and Floor payments when “Assessed Revenue” is above the cap or below the floor. When “Assessed Revenue” is between the cap and the floor levels, Greenlink will be fully exposed to “Market Related Costs” and will be incentivised to deliver firm capacity at the lowest cost

The approach set out above is consistent with Ofgem’s proposed treatment of Assessed Revenue for Greenlink in GB. The CRU does not intend to additionally include costs related to market coupling as a “Market Related Cost”, as requested by Greenlink.<sup>26</sup>

The CRU considers that this approach supports Greenlink’s ability to offer firm capacity products to the market, while retaining incentives for it to restore any breaks in availability in a timely manner. Additionally, to support this revenue assessment the CRU proposes to put in place regulatory reporting arrangements, as discussed further below in Section 5.3.

### **3.5. Assessment Period Length**

Assessment period length sets how often the CRU will compare the interconnector’s revenues against the Cap and Floor. This affects both the frequency and size of payments in

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<sup>26</sup> CRU20042a, page 47

the regime. For example, shorter assessment periods are more likely to trigger Cap and Floor payments than longer periods—they effectively narrow the corridor between the Cap and Floor. But more frequent settlements reduce the delay until payments are made and may avoid large cumulative balances building up above the cap or below the floor.

The CRU notes that reviewing annual assessment submissions could potentially pose an extra administrative burden on the CRU. However, taken into account the following considerations, the CRU proposes to implement annual assessment periods for the Greenlink electricity interconnector project.

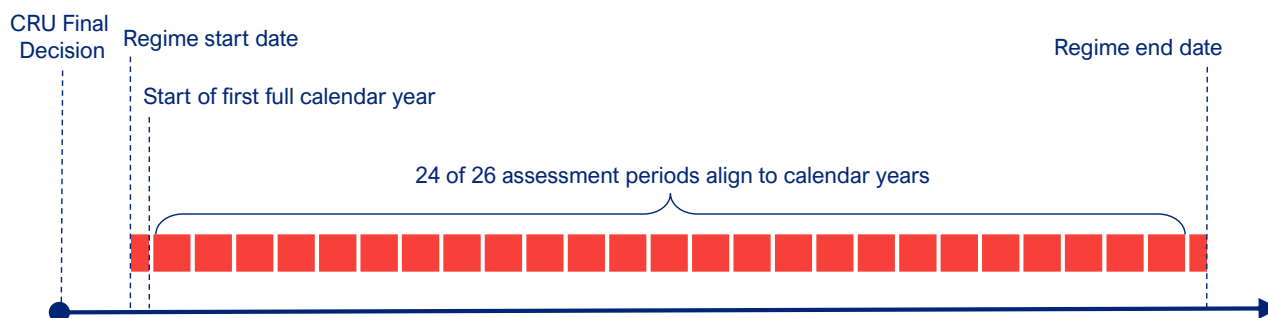
- **Project deliverability:** Annual assessment aligns with the regular debt payments Greenlink anticipates as part of its project financing. It reduces the need to hold reserves sufficient for meeting those obligations in the case of low revenue scenarios. Avoiding those increased financing costs improves the viability of the project for its sponsors, reducing the risk of project delay or suspension.
- **Interjurisdictional symmetry:** Using the same assessment period in both countries aligns better when the Cap and Floor bind in each regime. This improves the likelihood that availability incentives work harmoniously. Ofgem has approved an annual assessment request and Greenlink has requested that both regulators align on this point as close as possible.
- **Balanced consumer bill impact:** This request applies to the cap as well as the floor. It increases the chance of cap payments as well as floor payments compared to if longer assessment periods were adopted. Annual assessment may mean more frequent payments to or from Greenlink but reduces the risk of larger cumulative payments building up over time. The maximum floor payment in any one year would be the value of the floor.

The CRU proposes to align the annual assessment periods to calendar years.<sup>27</sup> Figure 3.4 below illustrates this arrangement in the case of a regime start date occurring mid-way through 2023 or 2024. Assessment periods would align to a calendar year basis by default if full commissioning occurs after the end of 2024, or the regime start backstop date (see Section 3.1).

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<sup>27</sup> This may mean implementing assessment periods shorter than a year at the start and end of the regime duration.

**Figure 3.4: Alignment to calendar years**



**Source: CRU**

The CRU proposes to align to calendar year assessment periods from the earliest opportunity after the regime start date as this will facilitate the coordinated implementation of the Cap and Floor regime in parallel with Ofgem<sup>28</sup> and will apply a backstop regime start date at the end of a calendar year. The CRU considers that this proposal will result in Cap and Floor payments being better aligned between the regimes and give more consistent financial incentives for the availability of the project.

Supporting the use of annual assessment periods, the CRU is minded to require Greenlink to submit revenue forecasts<sup>29</sup> and provide independent audit statements to verify the accuracy of its submissions needed to calculate Cap and Floor payments. This regulatory reporting should also be accompanied by annual reporting on the project's availability and costs, as discussed in Section 5.3.

The CRU considers that annual revenue forecasts from Greenlink would have two benefits:

- **Improved predictability of bill impacts:** Any detriment to Irish consumers from tariff volatility may be reduced if those movements can be known further in advance.
- **Further improvements in project deliverability:** Estimates might be used to allow Cap and Floor payments to appear in Irish network charges with a shorter delay than if it needs to wait for final audited values to be approved. Reconciling adjustments could be made in the following year.

The CRU considers that independent audit statements would have two benefits:

<sup>28</sup> Ofgem has also decided to allow annual assessment periods in GB.

<sup>29</sup> CRU notes that annual revenue forecasts will be based on management accounts rather than audited full-year accounts.

- **Increased confidence in the accuracy of information provided:** The CRU and other stakeholders would benefit from knowing the evidence had been verified by an independent party.
- **Efficient use of CRU Resources:** The CRU would need to dedicate fewer resources to assessing information provided each year before allowing it to flow through to network charges. The CRU considers that this would also be efficient for customers, Greenlink and other stakeholders.

Once the assessment period has been decided upon, the CRU will discuss these arrangements with Greenlink and the national TSO to determine how Cap and Floor payments will operate.

### **3.6. Financial Model**

A financial model is required to bring together the Cap and Floor building blocks and calculate the resulting Cap and Floor levels for Greenlink in Ireland.

The CRU proposes to take a two-step approach to implement the appropriate financial model for Greenlink:

- **Step 1:** Establish a CRU Ireland-only model covering half the project's costs and revenues, to be run in parallel with an Ofgem GB-only model covering the other half of costs and revenues.
- **Step 2:** When each regulator has settled its own policy positions on the form of the Cap and Floor for Greenlink, if the positions are compatible with each other, consider whether it would be possible for the CRU and Ofgem to agree to develop and implement a single model, blending Irish and GB regulatory parameters.

The first step of establishing separate financial models in the two regulatory regimes will be for each regulator to offer Greenlink a Cap and Floor that is in the interest of its respective consumers' interests. As a project due to be developed using project-finance, the developer has asked the CRU and Ofgem to implement certain novel regime features that go beyond what either regulator has implemented to date. As such, it will be important for each authority to develop its own position, recognising its own unique circumstances and responsibilities.

The second step can only be considered once each regulator has settled its own policy positions on the Cap and Floor regime for Greenlink. If the positions are compatible with each other, it may be possible for the CRU and Ofgem to agree to develop and implement a

single model, blending Irish and GB regulatory parameters. The CRU notes that such an approach was used by Ofgem and the Belgian federal regulator (CREG) for NemoLink. The CRU also notes that a joint model may have some benefits in terms of the clarity of the operation and implementation of the regulatory regime. However, the ultimate choice of financial model must respect the different legal and regulatory frameworks in each jurisdiction and protection for final customers.

The Cap and Floor regime for Greenlink will require both the CRU and Ofgem to reach decisions pertaining to the same assets and with the same supporting evidence base.

The CRU proposes that in the situation where the CRU and Ofgem implement two financial models working in parallel, that an agreement or other suitable instrument should be put in place to set out how the two regulators will work together to implement the Cap and Floor regime for Greenlink in a coordinated and consistent manner. The CRU notes that it will have ongoing engagement with Ofgem to determine cost splitting and working together arrangements.

### **3.7. Cross-border Split**

The Cap and Floor is a cross-border regulatory regime applied to a single asset. To avoid gaps in coverage (or double counting) of Greenlink's costs or revenues, the CRU and Ofgem will need to be clear how those values will be allocated between Ireland and GB.

The CRU proposes to apply the Cap and Floor regime to half of Greenlink's costs and revenues. This should ensure full coverage of the project as Ofgem has already agreed in principle to a regime covering half the costs and revenues of the project.<sup>30</sup>

The CRU notes that this position is also consistent with its assessment of the public interest case of the Greenlink electricity interconnector project,<sup>31</sup> which was based on the Greenlink's request for the project to be half underwritten by GB consumers and half underwritten by Irish consumers.

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<sup>30</sup> ([Ofgem decision on the Initial Project Assessment of the Greenlink interconnector, page 3](#))

<sup>31</sup> [CRU18119](#) and [CRU18216](#)

### 3.8. Cap and Floor Payment Process and Terms

The CRU notes that EirGrid's response to the CRU's consultation last year flagged the Cap and Floor Payment Process and Terms as an area where clarity was required to establish how it would work in practice.<sup>32</sup>

Section 35 of the Electricity Regulation Act 1999 ("the 1999 Act"), provides for the CRU's role in the determination of charges for the connection to and use of Ireland's electricity network.

The CRU is aware that this will require a process to establish the payment terms and size of adjustments to Transmission Use of System (TUoS) charges once the Cap and Floor payments are known. The CRU proposes that Cap and Floor payments will be made between Greenlink and the national TSO and will be recovered/distributed via TUoS charging arrangements.

The CRU notes that it has ongoing engagement with EirGrid in relation to the Cap and Floor Payment Process and Terms. The CRU expects to have discussions with Greenlink during the consultation period to clarify the necessary details to allow for payments to flow to Greenlink or from Greenlink to Irish customers. The CRU notes that further details on this process will be provided in the final determination paper.

### 3.9. Consultation Questions for the "Revenue" Building Blocks

The CRU welcomes comments on its minded to positions set out in this section. The CRU welcomes comments from stakeholders on the questions below.

#### Revenue Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's proposed "Revenue" building blocks?
- **Question 2:** Is the CRU's proposed backstop date at the end of 2024 appropriate in the context of the ongoing COVID-19 pandemic? Might a later backstop date or alternative approach be justified?

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<sup>32</sup> [CRU20171c](#)

### Revenue Building Block Consultation Questions

- **Question 3:** Does the CRU's proposed regulatory treatment of Greenlink in Ireland create any concerns? Are there any further arrangements needed to address such concerns?

## 4. Performance Building Blocks

This section presents the CRU's minded to positions on the "Performance" building blocks of the Cap and Floor regime for Greenlink in Ireland that determine how unexpected events such as outages are treated and high availability is incentivised by the regime. This section includes the following building blocks:

**4.1 Force majeure definition:** A term used to trigger certain regulatory accommodations when Greenlink is affected by certain events or circumstances beyond Greenlink's reasonable control.

**4.2 Income Adjusting Events:** A mechanism for Greenlink to claim for efficient costs incurred due to force majeure.

**4.3 Cap Availability Incentive:** A financial incentive for Greenlink to maintain high interconnector availability even when Assessed Revenues are above the cap.

**4.4 Minimum Availability incentive:** A financial incentive for Greenlink to maintain at least a minimum level of availability when Assessed Revenues are below the floor.

The CRU concludes this section with key considerations for consultation.

### 4.1. Force Majeure Definition

Force majeure describes an unforeseen and unavoidable circumstance that prevents a party from fulfilling a contract. Greenlink's Cap and Floor framework in Ireland will need a force majeure definition as part of the treatment of "Income adjusting event claims" and "Exceptional Events" exclusions that apply as part of the proposed minimum availability incentive.

The CRU proposes to adopt a force majeure definition consistent with the default GB Cap and Floor regime, expanded to include three events: (i) **strikeout**<sup>33</sup>; (ii) **lockout**<sup>34</sup>; and (iii) **other industrial disturbance**<sup>35</sup>. The CRU considers that adopting a common force majeure definition will allow both regulators to implement the Cap and Floor in a consistent fashion.

The GB default Cap and Floor regime force majeure definition is as follows:

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<sup>33</sup> a refusal to work organised by a body of employees as a form of protest, typically in an attempt to gain a concession or concessions from their employer.

<sup>34</sup> the exclusion of employees by their employer from their place of work until certain terms are agreed to.

<sup>35</sup> something that interrupts someone or makes someone feel worried.

*“Force Majeure” means an event or circumstance which is beyond the reasonable control of the licensee, including act of God, act of the public enemy, war declared or undeclared, threat of war, terrorist act (or threat of), blockade, revolution, riot, insurrection, civil commotion, public demonstration, sabotage, act of vandalism, governmental restraint, provided that lack of funds of the licensee or performance or non-performance by an electricity transmission licensee or equivalent entity shall not be interpreted as a cause beyond the reasonable control of the licensee and provided that weather and ground conditions which are reasonably to be expected at the location of the event or circumstance are also excluded as not being beyond the reasonable control of the licensee”.*<sup>36</sup>

The CRU considers that the above definition is, in its view, sufficiently broad and tested in the GB context that it provides an appropriate basis for setting the commercial principles and threshold for the CRU following an unavoidable event.

The CRU also considers that adopting a common force majeure definition may allow the CRU and Ofgem to implement the Cap and Floor in a symmetrical fashion in relation to a force majeure event in each regime.<sup>37</sup>

The CRU understands the importance of the force majeure provision and its interaction with the Income Adjusting Event (IAE) and Exceptional Claims process. As such, the CRU will carefully consider this definition and its practical effect ahead of its Final Determination.

## **4.2. Income Adjusting Event Claims**

The CRU proposes to allow Greenlink to make “Income Adjusting Event” (IAE) claims for the Cap to cover efficient costs incurred in the case of a force majeure event. An IAE claims process would allow Greenlink to submit to the CRU evidence to support its claims for efficient costs caused by a force majeure event. The CRU would assess whether a force majeure event had occurred, and the efficiency of the costs incurred by Greenlink.<sup>38</sup>

The CRU proposes to limit IAE claims to cases where the approved value exceeds five percent of the value of the floor for the relevant year. The CRU notes that implementing such a threshold recognises the non-negligible costs of administering IAE claims and the incentive

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<sup>36</sup> [Ofgem’s decision on proposed changes to our electricity interconnector Cap and Floor regime to enable project finance solutions., page 27.](#)

<sup>37</sup> Adopting a force majeure definition from the GB Cap and Floor regime would enable the CRU to take advantage of the case precedent from Ofgem’s use of this definition in the Offshore Transmission Owner (OFTO) regime, where there have been a number of claims related to outages of subsea cables.

<sup>38</sup> CRU notes that only efficient costs would be approved.

benefits of exposing Greenlink to some financial impacts from force majeure events. The CRU notes that when a force majeure event occurs, Greenlink should be able to reduce its impact by the way it designs and operates the project.

The CRU proposes that the process would involve the following steps:

1. Greenlink would need to notify the CRU that it expects to make an IAE claim. Having done so, Greenlink would need to make a comprehensive submission to the CRU setting out the circumstances of the claim, why it considers the event to be force majeure – as defined by Greenlink’s operating licence – and the proposed adjustments it is seeking to the Cap and Floor.
2. The CRU would expect to take a period of time to assess the claim and its merits and would then publish either a draft or Final Determination by the end of this period. In the event of making a draft determination on the IAE claim, the CRU would consult on its minded to positions.
3. In the event that the CRU chooses to consult on its decision, this would provide an opportunity for Greenlink and other stakeholders to comment on the CRU’s draft determination on the IAE claim. In light of the consultation submissions, the CRU would make a Final Determination on the IAE claim based on its conclusions as to whether the event is considered force majeure.

The CRU would expect to complete its determination process within six months following the date at which Greenlink made its initial submission to the CRU. However, the CRU notes that this timetable for completing a Final Determination may, in certain circumstances, need to be extended should the CRU conclude it is required to consult on its minded to positions.

In the case of an approved IAE claim, the CRU proposes to treat the resulting cost in the same manner as Market Related Costs, netting the value of Gross Revenue (subject to the Assessed Revenue value being no less than zero). As such, Greenlink would only receive top-ups (reduce its cap payments) from IAE claims if it pushes total Assessed Revenue below the floor (above the cap). Table 4.1 below illustrates the impact of the IAE mechanism on floor top-ups in four scenarios.

**Table 4.1: IAE claim top-up worked examples (assuming a €5m IAE claim and a €17.4m floor)**

	<b>Scenario 1</b> Assessed Revenue well above floor	<b>Scenario 2</b> Assessed Revenue close to floor	<b>Scenario 3</b> Assessed Revenue below floor	<b>Scenario 4</b> Assessed Revenue close to zero
Floor level – for top-up assessment	€17.4m	€17.4m	€17.4m	€17.4m
Assessed Revenue (before IAE claim)	€26.0m	€19.4m	€16.0m	€2.0m
Assessed Revenue (including approved IAE)	€21.0m	€14.4m	€11.0m	€0.0m
Floor top-up payment before impact of IAE	€0.0m	€0.0m	€1.4m	€15.4m
Additional floor top-up due to IAE	€0m	€3.0m	€5.0m	€2.0m
Share of IAE claim covered by consumers	0% IAE does not push Assessed Revenue below floor	60% IAE only pushes Assessed Revenue partly below floor	100% IAE falls fully under floor but does not breach zero bound	40% IAE partially covered given overall top-up limit

*Note: the values used here are for illustrative purposes only.*

The CRU proposes that insurance receipts be included in the definition of Gross Revenue (see Section 3.4), meaning that the impact of the IAE mechanism on Irish consumers will be reduced where Greenlink has insurance in place and a successful claim can be made.

### 4.3. Cap Availability Incentive

The CRU proposes to apply a cap availability incentive to incentivise Greenlink to maintain high availability even when Assessed Revenue is above the cap. The proposed incentive would modify the level of the cap based on the interconnector’s performance against an annual target level of availability. Within two percentage points of that availability target, actual annual availability performance would be rewarded (or penalised) with one-for-one percentage changes in the level of the cap.

The CRU’s technical advisor has calculated an overall system availability of 96.7% for the Greenlink interconnector, as shown in Table 4.2 below. This means that Greenlink should be available for 96.7% of each year. This availability target is based on the technical advisor’s

experience of technical assessments of other interconnector projects, benchmark values for failure modes and repair times, as well as on updated reliability guarantees provided by Greenlink’s preferred equipment provider.<sup>39</sup>

**Table 4.2: Calculated overall system availability**

Asset component	Performance
Cable unplanned unavailability	2.09%
Substation unplanned unavailability	0.67%
Planned unavailability (system)	0.55%
Total unavailability	3.30%
Overall system availability	96.70%

Table 4.3 below shows worked examples of how this proposed mechanism would work using an annual cap level of €32.4 million (2019 prices) and the annual availability target of 96.7 percent.

**Table 4.3: Cap availability incentive worked examples**

	Scenario 1 On target	Scenario 2 Above target, within range	Scenario 3 Above target and range
Availability target	96.7%	96.7%	96.7%
Actual availability	96.7% (on target)	97.7% (target +1%)	99.5% (target +2.8%)
Cap incl. incentive	€32.4m	€32.7m	€33.0m
Impact on cap	+/- 0% When availability is on target, cap is in line with building blocks value.	+1% One-for-one change in cap level with availability within incentive range.	+2% Cap level may not increase more than 2%.

**Note: the values used here are for illustrative purposes only.**

<sup>39</sup> Non-confidential technical advisor’s analysis is published on the CRU’s website alongside this draft determination paper.

To operate the proposed incentive, the CRU would require annual regulatory reporting from Greenlink regarding its availability levels (see Section 5.3).

The CRU considers that availability should be treated on a whole-system basis in GB and Ireland. The CRU notes that the Greenlink electricity interconnector is of no use if it is available in Ireland, however there is an issue with it in GB.

The CRU understands that Ofgem will carry out its own assessment of the availability target for Greenlink, using an established methodology that has been applied to other recent Cap and Floor interconnector projects.

The CRU proposes to apply an availability incentive target of 96.7% for Greenlink's Cap and Floor framework. The CRU notes that it will further engage with Ofgem on the availability target for Greenlink and the final value to apply in Ireland will be considered ahead of its Final Determination.

The CRU notes that the future development of the electricity system in Ireland and neighbouring systems is uncertain and it may, in future, be beneficial for Greenlink and Irish consumers for the interconnector to be incentivised to adopt certain operational modes if continually operating at the cap that are not strictly linked to the asset's availability. With this in mind, the CRU is considering including within the Cap and Floor regime's change process, an option to include an additional (or modified) cap incentive should it find the arrangements proposed above fail to encourage Greenlink to operate efficiently when Greenlink earns revenues above the cap.

The CRU will carefully consider how this could be developed prior to the Final Determination and would only expect to introduce a change in the regime at a later date following extensive consultation with Greenlink and other stakeholders. Any such change in the regime at a future date would not be financially detrimental to Greenlink but is intended only to better align the interests of Irish consumers and Greenlink.

#### **4.4. Minimum Availability Incentive**

Support from Irish consumers through a Cap and Floor regime is founded on the expectation that the project developer and operator will design, operate and maintain the interconnector to a high standard. The CRU is of the view that the developer should have limited recourse to payments from Irish consumers should that not be the case. The purpose of Cap and Floor payments is primarily to manage the revenue risk of interconnectors, not to protect the developer from events (e.g., outages) that are within its reasonable control.

The CRU proposes to implement a minimum availability incentive that requires the interconnector to achieve 80 percent annual availability to be eligible for floor payments in a given year. In doing so, the CRU proposes to incorporate the following features:

- An Exceptional Event claim process for the developer to request unavailability due to force majeure to be excluded from this incentive (see Section 4.4.1); and
- A limited facility for the developer to receive temporary floor top-ups when availability is below 80 percent (see Section 4.4.2).<sup>40</sup>

The CRU considers 80 percent minimum requirement for the developer to receive and keep floor payments (except in the case of force majeure) gives a good incentive to the developer to run the interconnector to the required standards where Irish consumers are asked to potentially provide financial support in order to receive the benefit of the interconnector. The minimum availability incentive would apply only to the floor. If availability is below 80 percent but revenue is still above the cap, the developer would still be required to make cap payments to Irish consumers.

Following the Final Determination, the CRU will engage with Ofgem to ensure that the above proposed features are implemented in a consistent manner in Ireland and GB insofar as is possible.

#### **4.4.1. Exceptional Event Claims**

The risk profile of subsea transmission lines means a force majeure event could produce an outage that results in Greenlink's availability being below 80 percent, triggering the minimum availability incentive. However, the CRU notes that in some circumstances, the outage may be outside of Greenlink's control.

The CRU proposes to include an Exceptional Event claim process within the minimum availability incentive for Greenlink. That process would allow Greenlink to make a claim to the CRU for an outage to be excluded from the minimum availability incentive. For the CRU to approve such a claim, Greenlink would need to demonstrate that:

- the reduction in availability was due to force majeure;

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<sup>40</sup> This is not a feature of the 'standard' Cap and Floor regime. It is a variation that Greenlink has requested to ensure it can project finance the investment. Assuming that the interconnector is restored to full availability it will have to pay the money back though if Greenlink is below 80% availability.

- it has acted in line with good industry practice;<sup>41</sup>
- it complied with agreed procedures regarding notifying the outage to the CRU.

The CRU considers that having an Exceptional Event claims process is in the Irish consumers' interest as it provides Greenlink an incentive to restore outages in a timely manner, and supports the investment case for the project by reducing the risk of financial penalties for events outside the developer's control.

In its Final Determination, the CRU will set out its decision on whether the Exceptional Event claims process will be contained within Greenlink's operating licence.

#### **4.4.2. Temporary Floor Top-Ups**

The ability to top-up revenues to a minimum level is a central feature of the Cap and Floor regime for interconnector investors. It is particularly valuable for lenders, which do not receive a direct benefit when revenues are high but may face losses in the case of low revenues where the project is unable to pay its debts on time.

The minimum availability incentive means top ups to the floor may not always be available. The Exceptional Event claims process described above should be limited to when low availability is due to factors within Greenlink's control. The risk of losing eligibility for the floor may be cause for concern for the project's lenders. Indeed, Greenlink has highlighted to the CRU that its initial market sounding exercise showed the minimum availability incentive to be one of the biggest barriers to its proposed use of project finance.

As such, the CRU proposes to allow Greenlink to receive temporary floor top-ups when annual availability is below the minimum availability threshold. However, for this concession to be in Irish consumers' interest, any such top-ups would be subject to conditions:

- Greenlink would repay its outstanding balance of temporary top-ups with priority from revenues above the floor in future years, with that treatment extending beyond the end of the Cap and Floor regime, if needed;
- The balance of outstanding temporary top-ups would accrue interest at the operational discount rate plus a margin;

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<sup>41</sup> Including acting to restore the link in an efficient and prudent manner.

- Greenlink would not be able to claim any temporary top-ups that result in the balance of outstanding temporary top-ups exceeding four times the annual floor; and
- Greenlink would be prohibited from paying any dividend or distribution to shareholders if it has an outstanding balance of temporary floor top-ups.

The CRU proposes to require Greenlink to put in place performance security that can be called by the CRU under certain circumstances (e.g., where Greenlink builds up a liability with the consumer for temporary floor payments under the minimum availability incentive). Additionally, the CRU proposes to require Greenlink to demonstrate it has appropriate insurances in place to be eligible for the top-up payments (see subsection below).

The CRU considers that these set of conditions strike an appropriate balance between ensuring that investors have the required security and limiting Irish consumers' liability to support the project should it not be developed or operated to the required standard and compensating Irish consumers appropriately for the support they provide.

### *Repayment of any Temporary Floor Top-ups*

The CRU proposes the following mechanism for repayments of any temporary top-ups:

- When Assessed Revenue is below the floor and availability is less than 80 percent, Greenlink will be eligible for temporary top-ups from consumers.
- Greenlink will be required to repay those top-ups from any revenues that exceed the floor level in future annual assessment periods.

Greenlink would therefore not be able to keep revenue above the floor until it had fully repaid the balance of temporary top-ups.<sup>42</sup>

Additionally, the CRU notes that the design life of the Greenlink electricity interconnector is 40 years.<sup>43</sup> The CRU notes that any outstanding balance at the end of the initial regulatory regime should not simply be forgiven.<sup>44</sup> Greenlink will be required to repay any balance from

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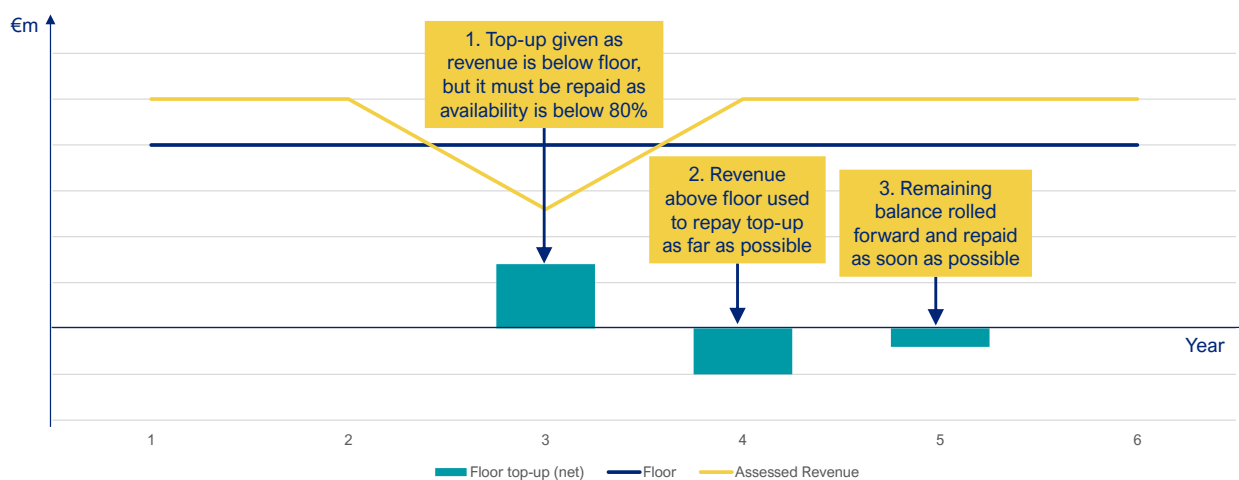
<sup>42</sup> This effectively retains quite a sharp minimum availability incentive but allows for its impact to be spread over time — the net top-up from consumers is zero, or negative once interest is taken into account.

<sup>43</sup> 15 years longer than the regime duration.

<sup>44</sup> The CRU notes that if the project decommissions without having repaid the temporary top-ups, Irish consumers may face a loss in having paid for a period when availability did not meet the required standard.

revenues with priority beyond the end of the Cap and Floor regime.<sup>45</sup> Figure 4.1 below provides a simplified illustration of this mechanism.

**Figure 4.1: Temporary floor top-up mechanism**



**Source: CRU**

### *Interest on Temporary Floor Top-ups*

In providing a temporary floor top-up to Greenlink, Irish consumers would assume some repayment risk. The CRU proposes that it would require Greenlink to repay temporary top-ups with interest accruing at the operational discount rate plus an additional margin, as discussed further in Section 6.4.

### *Limit on Temporary Floor Top-up Balance and Priority Payment over Shareholders*

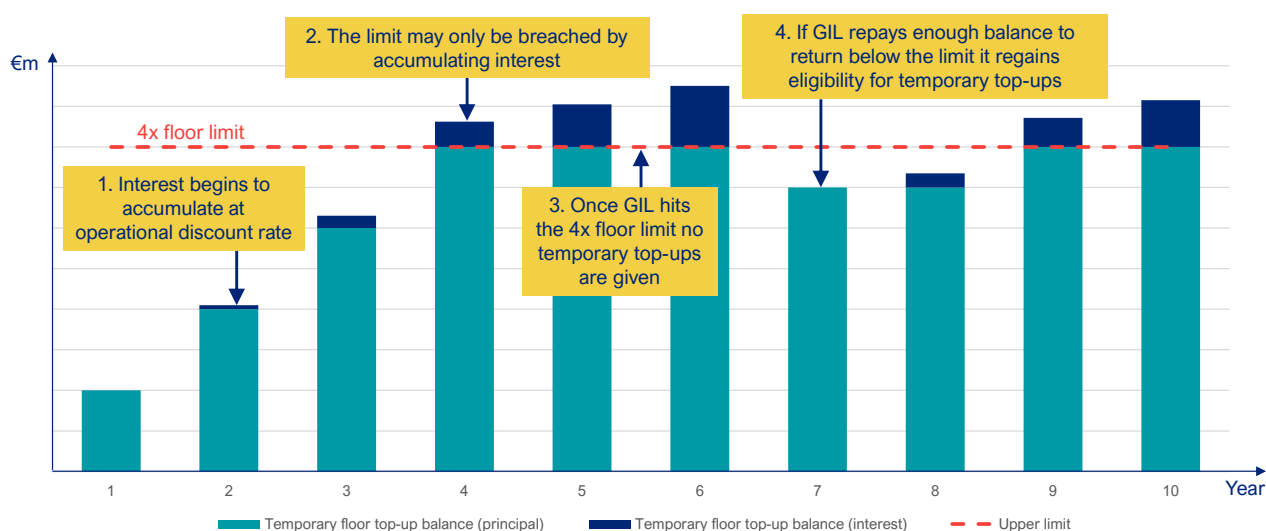
The CRU considers that limiting the outstanding balance of temporary floor top-ups to four times the annual floor limits Irish consumers' financial exposure to worst-case scenarios. Moreover, the CRU notes that it also aligns with the Ofgem decision. Additionally, the CRU also considers that this gives a clear incentive to the developer to design and operate the asset in a way that reduces the risk of such a scenario arising. The CRU notes that exposing lenders to that risk increases the pressure for lenders to complete robust due diligence and place tough conditions on Greenlink before they commit their support.

The CRU proposes that any accumulated interest on the outstanding balance would count towards the limit on outstanding temporary top-ups. The CRU considers that setting the limit

<sup>45</sup> The CRU would envisage that there would be a bullet payment of any outstanding balance of temporary top-up payments in the first financial year following the completion of the Cap and Floor duration. However, it expects to clarify this issue with Greenlink ahead of its Final Determination.

on the outstanding temporary floor top-ups at four times the annual floor gives Greenlink substantial cashflow protection against low availability scenarios. Figure 4.2 below illustrates this mechanism in a case where the interconnector reaches the limit within four years and makes a partial repayment in later years.

**Figure 4.2: Temporary top-up balance illustration**



**Source: CRU**

To protect Irish consumers, the CRU proposes to implement a restriction on Greenlink making any distribution to shareholders in the case it has an outstanding temporary top-up balance.

### *Performance Security and Insurance Requirements*

Under the proposed minimum availability incentive, there may be circumstances where Greenlink will build up a liability to the Irish consumer as a result of any temporary top-up payments provided.

There may be circumstances – e.g., if a series of major failure events were to occur in a relatively short period – where the project cannot obtain comprehensive insurances and the project owner has to meet potentially significant asset repair costs from its own resources as subsequent failure events to the initial event occur. The CRU notes that in major failure events the project owner may fail to rectify the unavailability of the system and/or pay back the top-up payments to consumers.<sup>46</sup>

<sup>46</sup> For example, if the financial decision to occur the repair costs did not make sense for the asset owner, given the expected future returns from the asset.

To protect against this scenario, the CRU considers creating a regulatory obligation on the project owner to put in place a performance security that could be called by the CRU to cover the liabilities that Greenlink accrues to Irish consumers should certain conditions be met. The CRU considers that this performance security obligation would limit the Irish consumer's exposure to Greenlink's failure to pay back the temporary top-up payments.<sup>47</sup>

The CRU notes that performance securities are used in other infrastructure project finance contexts. For example, Ofgem has a requirement in the Offshore Transmission Owner (OFTO) licence that in the final 5-years of the 20-year tender revenue stream (TRS) period, the OFTO must put in place a performance security – e.g., a cash reserve or letter of credit – equal to 50% of the annual TRS that can be called by Ofgem to meet any availability credits that the OFTO may owe the GB consumer by the end of the 20-year regulatory period. The OFTO licence requires each OFTO to obtain Ofgem's regulatory approval for the terms and conditions (and the form) of the security at the time it is put in place.

The CRU notes that the exact terms of any performance security requirement in Greenlink's context would require further discussion and analysis. As an alternative or additional requirement, the CRU is also considering making eligibility for the top-up payments under the minimum availability incentive conditional on Greenlink being able to demonstrate, to the CRU's reasonable satisfaction, that it has suitable insurances in place and/or sufficient resources to 'self-insure' against future failure events. This could be a defined set of minimum insurances or reserves<sup>48</sup> and/or a requirement to demonstrate that Greenlink is acting in accordance with good industry practice in its procurement of insurance.

The CRU notes that a minimum insurance requirement and/or performance security is not part of Greenlink's Cap and Floor submission, and the CRU understands that it has not been proposed by Ofgem to date. However, given Greenlink's proposed commercial and financial delivery model for its asset, the CRU considers it is appropriate to implement these additional requirements as part of the Cap and Floor framework that is being made available for the Greenlink project in Ireland.

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<sup>47</sup> This could be extended to also cover additional payments under an actual cost of debt mechanism, should the CRU decide to take this forward as part of the regulatory framework.

<sup>48</sup> Ofgem for example requires OFTOs to put in place LEG3 insurance at the time of the initial tender process.

## 4.5. Consultation Questions for the “Performance” Building Blocks

The CRU welcomes comments on all of the minded to positions set out in this section. The CRU welcomes comments from stakeholders on the questions below.

### Performance Building Block Consultation Questions

- **Question 1:** What are your views on the CRU’s proposed “Performance” building blocks?
- **Question 2:** What are your views on CRU’s proposed IAE and Exceptional Event claims processes and the timetable for completion of each process?
- **Question 3:** Should the CRU put in place a performance security and/or requirements on minimum insurance in order for Greenlink to be able to qualify for the minimum availability incentive?

## 5. Cost Building Blocks

This section outlines the CRU's minded to position on the "Cost" building blocks of the Cap and Floor regime for Greenlink in Ireland that determine how Greenlink's costs will be set and treated in the Cap and Floor regulatory regime following this draft determination. This section includes the following building blocks:

**5.1 Setting cost allowances:** The procedure that CRU will follow to set Greenlink's cost allowances.

**5.2 Stages in the determination:** Detail on the process followed in each stage of the cost assessment approach.

**5.3 Cost reporting:** The cost reporting that Greenlink will be required to make to the CRU.

**5.4 Opex uncertainty mechanisms:** Mechanisms to adjust Greenlink's opex costs during the Cap and Floor regime.

**5.5 Decommissioning Costs:** Treatment of the costs of decommissioning the interconnector at the end of the asset life.

**5.6 Exchange rate adjustments:** Treatment of exchange rates for costs and revenues incurred in different (non-euro) currencies.

**5.7 Adjustments for Inflation:** treatment of inflation within the Cap and Floor regime.

The CRU concludes this section with key considerations for consultation.

### 5.1. Setting Cost Allowances

Under the Cap and Floor regime, the CRU will set efficient cost allowances which are used as an input to set the Cap and Floor levels for Greenlink. This section explains how the CRU proposes to set and finalise those cost allowances in order to underwrite only those costs which are efficient and essential and thereby protect the interests of Irish consumers.

In addition to identifying the efficient and essential cost of the project, the CRU considers that the cost assessment process should:

- where practicable and appropriate, give Greenlink certainty on costs before it raises finance to construct the project;
- put in place strong controls and incentives for Greenlink to manage its costs to an efficient level and to mitigate cost escalation; and

- be clear and consistent on the regulatory treatment of costs throughout the process and proportionate to the circumstances given the scale and total project costs of the Greenlink interconnector.<sup>49</sup>

To achieve these objectives, the CRU proposes to assess the Greenlink project costs in three stages.

The first stage is **Final Determination** stage. The CRU will make a Final Determination which will contain the detailed basis on which it will grant Greenlink the Cap and Floor regime. As part of this decision, where there is sufficient information, the CRU will consider the efficiency of Greenlink's submitted costs. The CRU will set cost allowances to provide certainty and for other costs where the information provided is less certain at the Final Determination stage, the CRU will set out its initial efficiency assessment to determine the preliminary Cap and Floor levels.

The CRU notes that a cost assessment has already been undertaken based on Greenlink's Final Project Assessment submission. The CRU's draft findings are provided in Section 7 of this document, views on the levels of the Cap and Floor are provided in Section 2.3. These draft findings and responses received following this consultation, will be considered and a Final Determination will then be issued, after which the CRU envisages only limited changes to allowed costs.

The second stage is the **Financial Close** stage. This is where the CRU expects to undertake a final review of the availability of construction insurances and hedging arrangements. Additionally, the CRU will request Greenlink to provide final assurances that it has a robust plan to deal with any major failure events and can provide assurance that if such an event were to occur, the risk of Greenlink seeking compensation from the Irish consumer is well managed.

The third stage is the **Post Construction Review (PCR)** stage. This is where the CRU will review any changes to the construction costs since its Final Determination and will assess whether any additional costs were efficiently incurred and are eligible to be included in the Cap and Floor levels.

The CRU notes that it will undertake a limited<sup>50</sup> assessment of the efficiency of Greenlink's post-construction costs. The CRU notes that once opex and repex allowances have been set

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<sup>49</sup> That is, that the process is consistent with better regulation principles.

<sup>50</sup> Items outside of Greenlink's control and which cannot be fully mitigated or avoided.

in the Final Determination, the CRU expects any changes to be limited to items which are outside of Greenlink’s control and which cannot be fully mitigated or avoided. The CRU will use the cost allowances finalised at the PCR stage to set the final Cap and Floor levels.

Table 5.1 below summarises when CRU would set Greenlink’s cost allowances and the nature of those allowances as either *ex-ante* or *ex-post*.

**Table 5.1: Nature of cost allowances set at Final Determination and PCR**

	Stage 1 Final Determination allowances	Interim – Financial Close assessment	Stage 2 PCR allowances
Ex-post allowance	Development expenditure (devex)		Assess outturn capital expenditure (capex) for changes due to risks or uncertainties which were unforeseeable, uncontrollable and unavoidable; and  Assess changes to opex and repex that are outside of Greenlink’s control and cannot be avoided.
Ex-ante allowance	“Firm” capital expenditure (capex)  Operating expenditure (opex)  Replacement capex (repex)  Both opex and repex will be considered firm (as for capex) where costs are substantially in the control of Greenlink.	Seek assurance that risks are well managed.	Decommissioning expenditure (decommex)

Source: CRU

## 5.2. Stages in the Determination of Cost Allowances

This section describes how the CRU proposes to implement the three-stage approach to setting cost allowances.

### 5.2.1. Final Determination Stage

As part of the Final Determination on whether to grant Greenlink the support of a Cap and Floor regime, the CRU is proposing to:

- Set ex ante allowances for costs where there is sufficient cost information in order to make an informed decision. This includes:

- development costs (“devex”) and capital expenditure (“capex”) in relation to construction of the asset: i.e., the Engineering, Procurement and Construction (EPC) contract and Greenlink’s own capitalised costs;
- operating expenditure (“opex”) and replacement expenditure (“repex”) in relation to the ongoing costs of operating the asset after construction where CRU is setting an expectation that substantial components of these cost e.g., those proposed for the O&M contracts, (which are substantially controllable) will be considered firm at this point.
- Provide an initial assessment of efficient costs where the information from Greenlink is less certain at this stage – for example, its developer risk and decommissioning costs – so that provisional Cap and Floor levels can be set.
- The CRU will also provide more detailed guidance on how it expects to assess any changes to Greenlink’s submitted costs as part of the PCR, in order to determine the final Cap and Floor levels.

The CRU notes that Greenlink has provided to the CRU total project costs. The CRU has benchmarked Greenlink’s costs against other comparable projects by cost category and assessed the effectiveness of the process that Greenlink ran to select and award the EPC contract. The CRU’s draft findings are outlined in Section 7.

The CRU expects that by the time of the Final Determination Greenlink’s devex and capex estimates will be firm, as these costs reflect the pricing submitted by the preferred bidder for the EPC contract to build the interconnector. Additionally, the CRU expects that Greenlink will have relatively firm opex and repex estimates for the first five to seven years of the operational period of the project, e.g., where these reflect the pricing submitted by the preferred bidder for the Services and Maintenance Agreement (SMA) contract to operate and maintain the interconnector.

The CRU considers that setting firm allowances for devex, capex, and the more controllable aspects of opex and repex in the Final Determination, will help Greenlink in securing the project financing arrangements and proceeding to construction. It will also place strong incentives on Greenlink to manage its costs to an efficient level and to mitigate the possibility of cost escalation.

Beyond the initial term of the SMA, the CRU recognises that there is scope for Greenlink’s efficient operating costs to change in a way that we cannot reasonably expect Greenlink to forecast accurately this far in advance. To ensure an appropriate balance of risk between

Greenlink and Irish consumers, the CRU proposes to allow for a reopening of opex once, at any point at least 10 years after the start of the Cap and Floor regime (see Section 5.4). Nonetheless, the CRU also proposes to allow scope for a limited review of opex at the PCR, where it will consider changes that were beyond Greenlink's control or ability to avoid.

In relation to capex, the CRU recognises that there are specific categories of cost that are uncertain, some capex costs may only arise if certain risks materialise. The CRU will not have a complete picture on these costs until the PCR takes place ("**risk capex**").

In such cases, the CRU will use the Final Determination to set out an initial determination based on opening assumptions for the project and will undertake a final assessment of these costs in the PCR stage, with a focus on assessing why the costs have changed relative to the assumptions made in its Final Determination, and the steps taken by Greenlink to mitigate any additional costs.

CRU considers that this proposed approach will provide Greenlink with the appropriate level of comfort as to how uncertain costs will be managed. It will also allow the CRU to produce the initial Cap and Floor levels so the expected level of support being provided by Irish consumers is understood and communicated.

### **5.2.2. Financial Close Stage**

As discussed in Section 4.4 above, the CRU notes that Greenlink's insurance arrangements are expected to play an important role in its commercial risk management strategy. The CRU considers that having a comprehensive insurance package in place during the construction and operational phases of the project, will increase the resilience of the project developer and limit the level of compensation that could be sought from the Irish consumer, either at the PCR stage or as part of an Income Adjustment Event and/or Exceptional Event claim.

As such, the CRU proposes an interim assessment stage that will take place shortly before Financial Close. The CRU will require Greenlink to provide evidence of its insurance arrangements. Additionally, the CRU will review Greenlink's proposed insurance strategy.<sup>51</sup> The CRU notes that while it is for Greenlink to determine the overall approach and programme for the appropriate insurance to be implemented, the CRU will require Greenlink to demonstrate the following:

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<sup>51</sup> CRU considers that the senior lenders to the project would also expect to see a comprehensive insurance package in place, and as a consequence, Greenlink's approach should be well developed by the point of Financial Close.

- Greenlink has insured the asset – during construction and operation – following good industry practice (e.g., based on advice from Greenlink’s insurance provider);
- insurances are (or are expected to be) placed through a reputable insurer of good standing;
- how insurance is integrated within the Greenlink’s general risk management strategy (both during construction and operation);
- how events/risks are **not** covered by its insurance, other third-party contracts (e.g., supply chain warranties) are managed as an equity risk;
- how risk and liabilities have been allocated between parties where insurance is held jointly between Greenlink and its contractors;
- trade-offs Greenlink has made between the level of deductibles on certain elements of the insurance packages versus the level of insurance premiums expected and how deductibles will be funded if an insurance claim(s) is/are made; and
- Greenlink would continue to have in force a comprehensive insurance package over the life of the regulatory regime (i.e., 25-year Cap and Floor); or
- Greenlink’s proposed arrangements and expectations should any elements of the proposed insurance package become unavailable in future.

The CRU considers it reasonable, given the proposed project finance structure, to seek assurance that:

- the project has been insured in line with good industry practice and at a reasonable cost for the purposes of setting the Cap and Floor; and
- the degree of risk transfer to Greenlink and its supply chain versus the Irish consumer is proportionate and aligned with which party is best placed to manage it.

### **5.2.3. Post Construction Review (PCR) Stage**

The CRU notes that there is a strong incentive on the Greenlink developer to efficiently manage and minimise costs within the construction phase of the project, and that this incentive extends to unexpected costs. However, the CRU considers that it is necessary to assess the costs incurred in dealing with unexpected events. The PCR is to ensure that the costs have been efficiently incurred and represent good value for Irish consumers. Additionally, the PCR will ensure that Greenlink undertook a proper process to examine the

need for and most efficient option for dealing with unanticipated events, that risk-related expenditure was well-documented, and that costs incurred were not excessive or unjustified.

The PCR will set the final cost allowances that will be used to set the final Cap and Floor levels for the project in Ireland. The CRU will review any changes to Greenlink's capex since its Final Determination, taking into account the ex-ante risk allowance that was included in the Cap and Floor level set in its Final Determination, and other relevant factors such as whether Greenlink should have foreseen or could have avoided any increase in costs. Alongside the capex review, the CRU will undertake a limited assessment of changes to the non-controllable aspects of Greenlink's opex and repex costs post the Final Determination. The CRU expects that at the PCR stage Greenlink to be able to provide better evidence to support its assessment of the efficiency of its decommissioning costs, such that the CRU can set a final allowance.

### *Timing of the PCR*

The PCR will take place once Greenlink has a high degree of confidence and certainty on the outturn cost of developing and constructing the project. Therefore, the CRU proposes to begin the PCR process at the point at which Greenlink confirms its pre-construction devex and capex is 85% to 95% complete;<sup>52</sup> or the full commissioning date, whichever is earliest.

### *Approach to the PCR of capex*

The CRU intends to assess the capital costs incurred in construction on an ex-post basis, to both validate what the expenditure has delivered, and to assess the efficiency of this expenditure. This process will allow reasonably incurred costs to feed into the Cap and Floor levels but will disallow costs that are not justified or efficiently incurred.

The CRU notes that it is important to provide Greenlink with clear guidance on the CRU's expected approach to the PCR before it takes its final investment decision. The CRU expects to provide this more detailed guidance as part of the Final Determination. The guidance will outline the principles and eligibility criteria of the CRU's approach to assessing any differences between the ex-ante capex allowances that the CRU set in the Final Determination and Greenlink's submitted capex costs as part of the PCR.

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<sup>52</sup> This approach is followed by Ofgem in setting the timing of the PCR for Nemo Link interconnector. Ofgem (2019) [Post Construction Review of the Nemo Link interconnector to Belgium](#), page 15.

Given that much of Greenlink's capex costs are relatively firm at this stage, the CRU expects any difference to be driven largely by expenditure incurred in relation to certain "risk" or "uncertain" events. As a general principle, the CRU expects to consider whether any additional expenditure is covered by the ex-ante risk allowance that will be set in the Final Determination. The CRU also expects certain risks might be covered by:

- Greenlink's insurance; and
- supply change contracts and warranties.

Therefore, certain events may not necessarily be deemed as eligible.

The CRU proposes that for risk-related expenditure to be eligible at the PCR, it would expect:

- Greenlink to have appropriate risk management arrangements in place, to take "efficient actions" in response to unforeseen events; and
- Greenlink to fully justify the choice of "efficient actions" taken.

Additionally, the CRU proposes that Greenlink will need to demonstrate:

- additional costs exceeding any contractual damages received;
- it had adequate risk monitoring processes in place and took timely action to minimise the cost; and
- it would not have been possible to insure against the scale of the issue that arose.

The CRU notes that Ofgem has developed a set of principles<sup>53</sup> which underpin its assessment of whether certain risk-related events and associated capex is eligible for admittance into the Cap and Floor, illustrated in Table 5.2 below. The CRU proposes to use these principles as the starting point for the development of its guidance. However, the CRU notes that it may adopt a different set of principles if it considers that it is in the best interests of Irish consumers to do so.

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<sup>53</sup> [Ofgem's guidance for Viking Link interconnector.](#)

**Table 5.2: Examples of Ofgem’s guidance for PCR assessment of "risk" capex**

Examples expected to be eligible	Examples considered on a case-by-case basis	Examples expected to be ineligible
<ul style="list-style-type: none"> <li>• Soil conditions are significantly different to those indicated by the developer’s relevant survey(s) or studies, and therefore additional rock placement or ploughing/burial equipment is required.</li> <li>• TSOs at either end change the connection arrangements or requirements, which leads to new design requirements and/or delays.</li> <li>• Grid reinforcement works by TSOs are delayed.</li> <li>• A significant number of unexploded ordnances are discovered that were not detected by the developer’s initial studies or surveys.</li> </ul>	<ul style="list-style-type: none"> <li>• Weather conditions (cable): harsh weather conditions offshore beyond statistical expectations for that time of year.</li> <li>• 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.</li> <li>• Contractors or other related parties fail to deliver on their contracted expectations or obligations.</li> <li>• Knock-on effects from contractor delivery of other major projects cause delays/additional costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Performance of the project organisation leads to delays or additional costs.</li> <li>• The cable or converter design is unsatisfactory, leading to additional costs or delays.</li> <li>• Cable or converters are damaged during transport (unless this is due to third party actions or weather events beyond usual expectations).</li> <li>• Cable laying vessels break down or are not available as scheduled.</li> <li>• Cable is damaged during manufacturing.</li> <li>• Cable damage during installation due to inappropriate practices/use of inappropriate equipment.</li> </ul>

*Source: CRU based on Ofgem documentation*

Moreover, to provide confidence that it is demonstrating good oversight and management of the construction phase, Greenlink will also be required to provide regular progress reports to the CRU. These progress reports should include updates on:

- costs relative to the Final Determination;
- risk-related events; and
- indication of steps that Greenlink has taken to manage any such events.

### *Setting Post-Construction Costs*

Although the CRU will set ex ante allowances for opex and repex in its Final Determination, changes to post-construction costs will be assessed in detail as part of the PCR. The CRU expects Greenlink to provide an updated forecast of its post-construction costs, clearly highlighting any changes from the position established in the CRU's Final Determination. The CRU will expect the forecast to be supported by a clear, reasoned and well-evidenced submission to demonstrate the efficiency of any changes, with a detailed breakdown of additional cost requirements backed by a comprehensive commentary which sets out the degree of control that Greenlink has over those costs and the extent to which it has sought to mitigate or avoid them. The CRU does not expect to amend its Final Determination opex or repex allowances for aspects of those costs over which Greenlink has substantial control.

As part of the PCR, the CRU will set Greenlink an ex-ante allowance for decommissioning costs. It is expected that Greenlink will provide an updated estimate of the cost of its GB and Irish obligations, and the CRU will carry out a detailed review of Greenlink's submission.

Following the CRU's updated assessment of the post-construction costs, the economic and efficient allowances will be used to set the final Cap and Floor levels.

## **5.3. Regulatory Reporting**

The CRU proposes to put in place a set of regulatory reporting arrangements for Greenlink. The CRU proposes to have a two stage reporting process for Greenlink:

- Reporting during construction; and
- Reporting post commissioning.

As discussed above, the CRU proposes that Greenlink provide an Annual Progress Report<sup>54</sup> to the CRU detailing the progress of the construction programme post financial close. The Annual Progress Report should include an update on Greenlink progress against milestones, including an update on the outturn risk and performance against target costs following the Final Determination assessment. The CRU considers that this reporting requirement will give

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<sup>54</sup> CRU does not consider the submission of an Annual Progress Report to be an excessive administrative burden for Greenlink. CRU expects that its lenders will require something similar.

the CRU visibility of progress against the planned timelines and will identify at an early stage any project development risk that might materialise during the construction process.<sup>55</sup>

Following the PCR, the CRU proposes to maintain annual reporting requirements. To facilitate annual assessment periods, the CRU will require Greenlink to report on its revenues, availability rates and ongoing costs on an annual basis. In addition to this requirement, the CRU will require Greenlink to provide annual revenue forecasts.<sup>56</sup> The CRU considers that the revenue forecasts will improve the predictability of impacts on Irish consumers and lead to further improvements in project deliverability. For example, forecast estimates could be used to allow Cap and Floor payments to be recovered via the ROI network charges at the earliest opportunity, thereby reducing the need for additional reserves arising because of the tariff-setting cycle.

The CRU will require Greenlink to structure reporting on an annual basis. The CRU considers that this approach will increase confidence in the accuracy of information provided.

Finally, the CRU will require Greenlink to submit independent audit statements on costs and revenues to verify the accuracy of its cost, availability and revenue reporting submissions used to calculate Cap and Floor payments. These statements should accompany both the Annual Progress Report submitted during the construction period, any information on costs that feed into the PCR including Greenlink's annual reporting requirements to the CRU.

The CRU considers that the requirement for audit statements in addition to the annual statement will ensure that payments are made promptly. The CRU expects Greenlink to retain rights in its subcontracts to access any and all information required to prepare comprehensive annual reports from its subcontractors.

## **5.4. Opex Uncertainty Mechanisms**

The CRU considers that a large portion of Greenlink's costs will occur once construction is fully completed and its operations and ongoing maintenance starts. The CRU expects Greenlink to submit a well-informed, evidence-based forecast of its post-construction costs,

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<sup>55</sup> The CRU notes that Ofgem has a similar requirement in place following a positive Initial Project Assessment (IPA) decision, where interconnector projects are required to provide quarterly written reports on progress against a number of key development milestones, including development work, consenting and permitting, procurement, financing, operational management plans and costs, project management and other factors that have an impact on its "IPA welfare assessment".

<sup>56</sup> See section 3.5 above.

but the CRU acknowledge that it is not in the interest of Irish consumers to hold Greenlink to its post-construction cost forecasts over 25 years without scope for change.

As such, the CRU proposes to include two uncertainty mechanisms:

1. A one-off controllable opex re-opener.
2. Five-yearly pass through adjustments for non-controllable opex.

The CRU considers that these mechanisms will allow the CRU to set Greenlink an efficient opex allowance which protects it against changes in costs which are outside its control, whilst providing protection for consumers by limiting the circumstances where the Cap and Floor can be reopened. Each mechanism is discussed in the subsections below.

#### **5.4.1. Controllable Risk Re-opener**

The CRU will set an opex allowance in the Final Determination for the full length of the Cap and Floor regime. However, the CRU notes that setting the opex allowance for the full regime duration increases the risk that the allowance becomes less cost reflective over time because of factors which are only partly within Greenlink's control. This could include, for example, major shifts in the pricing of insurance contracts covered in the opex allowance.

The CRU proposes to include the option for Greenlink or the CRU to trigger an opex redetermination once during the life of the Cap and Floor regime.<sup>57</sup>

Neither party will be permitted to trigger this redetermination within the first 10 years of the regime and, once triggered, it may result either in an increase or a decrease in the Cap and Floor levels. The CRU considers that this approach will give Greenlink clarity on the level of opex allowances and reduce risk as it secures project financing, while protecting Irish consumers by ensuring the Cap and Floor levels could go down, not just up. The CRU expects that any opex redetermination request should be submitted to both regulators (CRU and Ofgem) at the same time.<sup>58</sup>

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<sup>57</sup> The CRU notes that it expects Greenlink to manage costs where it has substantial control and will require Greenlink to provide it with a submission that documents the need for change and provides compelling evidence for it.

<sup>58</sup> CRU considers that it would not be appropriate for it to trigger this request in one regime but not the other.

### **5.4.2. Non-controllable Opex Passthroughs**

The CRU notes that Greenlink's opex allowance will need to cover certain items it cannot avoid, and where the cost of such items is both uncertain and outside its control: "non-controllable" opex.

The CRU proposes to treat a set of qualifying opex items on a pass-through basis (subject to the efficiency review) relative to a baseline forecast set in the PCR. The CRU considers that this will help to achieve an appropriate balance of risks between consumers and Greenlink and ensure an efficient Cap and Floor level. Additionally, the CRU considers that setting the pass-through relative to a baseline will ensure that any windfall gains are passed back to Irish consumers.

The CRU proposes to assess the efficiency of Greenlink's expenditure and calculate resulting payments only every five years, adjusting for differences in timing using the operational discount rate (see Section 6.4).

The CRU notes that Greenlink has not yet made a formal submission to justify its view of opex pass-through costs in Ireland or provided forecasts of their baseline levels. The CRU will engage with Greenlink on these points prior to the Final Determination. In anticipation of this submission, the CRU expects to limit the pass-through mechanism to Foreshore Licence costs and other similar fees, and certain policy or specifically defined tax related costs. Additionally, the CRU proposes to limit the non-controllable opex pass-through mechanism in Ireland to such costs arising from Irish authorities. The CRU considers that this limitation will avoid the CRU needing to determine the efficiency of such costs in GB, particularly in the case the Cap and Floor regime ends in GB before it does in Ireland.

### **5.5. Decommissioning Costs**

The CRU notes that the Greenlink electricity interconnector has a technical design life of 40 years, but it is possible that it could be decommissioned at the end of the Cap and Floor regime once the support from Irish consumers has been withdrawn. As such, the CRU will include the costs associated with Greenlink's decommissioning obligations in the Cap and Floor.

The steps Greenlink will need to take to decommission the project will depend on the prevailing legislation and regulation in Ireland at the time. There is a risk that those requirements could change by the end of the regime. It is also possible that Greenlink could decide to decommission the project several years after the Cap and Floor regime ends.

To address this, the CRU proposes to set a decommissioning allowance for Greenlink in the PCR based on the prevailing legislative and regulatory requirements for the project in Ireland.

## **5.6. Exchange Rate Adjustments**

The CRU considers that currency exchange could be important for the Greenlink project as it will receive revenues and incur costs in multiple currencies.

In splitting those values between Irish and GB regimes, the CRU believes it needs to be clear on how exchange rates will be used.

The CRU will make a decision on how foreign exchange hedging costs may be captured in Greenlink's cost allowances in the Final Determination and the PCR, once the scale and justification for these costs are better understood, as explained below.

### **5.6.1. Reference Exchange Rates**

For the split of values between Ireland and GB, the CRU proposes both authorities use monthly foreign exchange reference rates published by the ECB, applied to nominal values in each currency. It will be important that both authorities use a consistent approach to ensure the values are treated in a way that does not lead to gaps in coverage or double counting. The CRU will engage with Ofgem on this point prior to its Final Determination.

### **5.6.2. Currency Hedging Costs**

The CRU will set firm allowances for Greenlink in Euros. However, the CRU recognises that the actual costs incurred will depend on prevailing exchange rates due to nature of the Greenlink project which spans both Ireland and GB.

The CRU considers that Greenlink is best placed to manage foreign exchange risk. The CRU expects that Greenlink intends to enter foreign exchange hedging arrangements at Financial Close. The CRU is proposing to reflect the cost of these hedging arrangements in Greenlink's Cap and Floor levels on the condition that Greenlink provides evidence before Financial Close to show that it has run an efficient hedging process.

However, the CRU recognises that there may be movements in exchange rates between its Final Determination and the project's Financial Close which will affect the actual costs incurred during construction. The CRU is proposing to consider updating the cost allowances set in its Final Determination for actual exchange rates at Financial Close. However,

Greenlink will be required to demonstrate, to the satisfaction of the CRU, that it took mitigating action to manage any escalation in costs.

The CRU also understands that, if the profile of construction payments were to significantly change during construction, then there may be a need for Greenlink to incur costs related to any restructuring of the hedging contracts. If such a risk were to materialise, the CRU may consider reflecting the costs associated with restructuring the hedging contracts when setting the final Cap and Floor levels at the PCR. The CRU notes that Greenlink will need to demonstrate to the CRU that any additional costs were a result of some event beyond its ability to control or avoid.

## **5.7. Adjustments for Inflation**

The CRU proposes to index the final Cap and Floor levels by outturn Irish HICP inflation over the duration of the Cap and Floor regime. The CRU considers that:

- the calculation of the Cap and Floor in a real price base should only seek to remunerate Greenlink for its efficiently incurred costs at the appropriate floor or cap rate of return; and
- any adjustments for inflation should not be an opportunity for Greenlink to artificially increase the RAV given that it has submitted its capital costs in nominal prices and its exposure to inflation risk is limited within its proposed contracting strategy.

As such, the CRU proposes to:

- monitor the price base which Greenlink reports its costs to the CRU and ensure that Greenlink is fully transparent in how it has treated inflation adjustments in its updated Cap and Floor calculations; and
- carefully review this component of the revenue modelling ahead of its Final Determination and setting of the final Cap and Floor level following the PCR.

## **5.8. Consultation Questions for the “Cost” Building Blocks**

The CRU welcomes comments on all of the minded to positions set out in this section. The CRU welcomes comments from stakeholders on the questions below.

### Cost Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's "minded to" position as set out in this section?
- **Question 2:** Do you agree that the process set out in this section to review the costs which will be used to set the Cap and Floor levels is proportionate, will provide sufficient certainty to allow Greenlink to raise finance for the project, and will provide appropriate protection for Irish consumers?
- **Question 3:** What are your views on the level of guidance that Greenlink would reasonably require around the scope of the PCR?
- **Question 4:** Do you agree that the proposed opex uncertainty mechanisms achieve the right balance between protecting Irish electricity consumers and providing sufficient certainty to allow Greenlink to raise finance for the project?

## 6. Financial Building Blocks

This section outlines the CRU's minded to position on the "Financial" building blocks of the Cap and Floor regime for Greenlink in Ireland that determine how financial parameters will be treated in the Cap and Floor regulatory regime for the Greenlink electricity interconnector in Ireland. This section includes the following building blocks:

**6.1 Floor rate of return:** The financial rate of return applied to the RAV at the floor.

**6.2 Cap rate of return:** The financial rate of return applied to the RAV at the cap.

**6.3 Interest during construction (IDC):** The capitalised interest rate applied during construction to build up the RAV.

**6.4 Operational discount rate:** Discount rate used to move values between years, after the final Cap and Floor values are set.

**6.5 Notional transaction costs:** An allowance added to the RAV to capture upfront financing costs that are not captured in the rates of return.

**6.6 Tax allowances:** The notional tax costs for Greenlink.

**6.7 Other financial and commercial considerations:** Considerations related to insurance, refinancing and a change in ownership and control.

The CRU concludes this section with key considerations for consultation.

### 6.1. Floor Rate of Return

The CRU notes that the floor rate of return is the key component that differentiates the level of the floor from the level of the cap. The floor rate of return is set based on a cost of debt benchmark. This approach helps facilitate the use of debt finance in the project, while limiting the scope for the floor to fund shareholder returns.

Greenlink has requested the CRU to closely align the floor rate of return with Ofgem's decision on Cap and Floor regime features designed to help facilitate project finance solutions. In GB, Ofgem will allow Greenlink to choose between two approaches for setting the floor rate of return at financial close.<sup>59</sup>

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<sup>59</sup> Ofgem (2020), [Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#), May

- **Approach 1:** A notional cost of debt based on a published corporate bond index, applied to the full RAV.<sup>60</sup>
- **Approach 2:** A cost of debt based on the project's actual debt service, plus a debt service coverage margin.<sup>61</sup>

Under Ofgem's proposal, Approach 2 would mean that Greenlink would only be able to benefit from top-up payments based on an actual cost of debt floor on a temporary basis. Once the interconnector begins to earn revenues above the actual cost of debt floor, then the project would be expected to pay the difference between the notional cost of debt floor (Approach 1) and the actual cost of debt floor (Approach 2) back to the Irish consumer, with interest. In this way, any top-ups above the notional cost of debt floor would only be temporary but provide additional interim support to the project's actual debt service costs.

The CRU notes that Ofgem is still working with Greenlink on the detail of its implementation of the actual cost of debt (ACOD) model (Approach 2) and recently opened a consultation on the licence changes required in GB to give that option effect.<sup>62</sup> The CRU considers that the proposed ACOD model is complex and will require substantial further consideration<sup>63</sup> from the CRU. Additionally, the CRU notes that during the consultation in March 2020<sup>64</sup>, the majority respondents disagreed with Greenlink's proposal to use the ACOD as opposed to the default notional cost of debt in setting the floor level of the regulatory regime.<sup>65</sup>

As such, the CRU is only consulting on the ACOD model as an option rather than a minded to position at this stage. The CRU is seeking comments from stakeholders on considering an ACOD model as an option for the Irish Cap and Floor regulatory framework.

In particular, the CRU is seeking evidence and justification from Greenlink on why the proposed ACOD model is a key parameter for project financeability.

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<sup>60</sup> Under the notional approach, Ofgem will use a 10-year+ BBB corporate bond yield index, moving away from the A/BBB blended credit rating it has used for other interconnectors. Ofgem's decision was based on feedback from lenders which raised concerns that the default notional floor may not provide a sufficient return. For example, if actual financing costs exceed the notional cost of debt then equity providers will need to make up the difference. If lenders assess that the balance of debt and equity is insufficient for the project to progress, they may reconsider their willingness to lend to projects.

<sup>61</sup> If Approach 2 has been selected, it would need to refund consumers in later years any payments beyond those that would have resulted under Approach 1. Any shareholders would not be allowed to recover their investment or take any dividend until such payments had been refunded.

<sup>62</sup> Ofgem (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](#), February

<sup>63</sup> Make a determination that it is in the public interest for an ACOD model to be used in the Irish Cap and Floor regulatory framework.

<sup>64</sup> [CRU20042](#): Consultation on the CRU's minded to position on the Cap and Floor regulatory regime and its initial views of the regime features requested by Greenlink.

<sup>65</sup> [CRU20171](#): Greenlink Cap and Floor Regulatory Treatment decision.

The CRU notes that it will continue to engage with Ofgem and Greenlink on this approach and following consideration of responses received to this draft determination paper, will reach a final view on this aspect of the framework as part of its Final Determination. In parallel, the CRU requires Greenlink to submit to the CRU a detailed estimate of its ACOD costs so the CRU can assess the potential level of the ACOD floor under this mechanism.<sup>66</sup>

Considering the above, the CRU is proposing as its minded to position to use Approach 1 and set out the cost of debt to the Greenlink project based on a “notional cost of debt” floor. The subsections below set out in further detail the CRU’s minded to position on the floor rate of return.

### **6.1.1. Notional Cost of Debt (Approach 1)**

#### *Assessment of Approach to Setting the “notional cost of debt”*

In its onshore price controls, the CRU often uses evidence on A and BBB rated corporate bond indices to set the allowed cost of debt. The CRU notes that its analysis of EUR iBoxx indices shows that the average yield on corporate bonds has been falling over time (notwithstanding a temporary increase coinciding with the onset of the Covid-19 pandemic). Figure 6.1 shows this fall.

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<sup>66</sup> To date the CRU has only received limited information on this point from Greenlink.

**Figure 6.1: EUR non-financial iBoxx BBB 10+ year corporate indices (2016-2020)**



**Source: CRU analysis of iBoxx data**

Greenlink has requested that the notional cost of debt is indexed to an Irish equivalent to the iBoxx benchmark.<sup>67</sup> Based on recent market evidence, the CRU considers that Greenlink’s request to set the “notional cost of debt” on BBB rated indices could be justified because:

- A corporate BBB benchmark gives some weight to the possibility that an interconnector using project finance may face higher debt financing costs, given the risk profile of investing in standalone project finance interconnectors; and
- The premium to a broader A/BBB benchmark may provide some additional provision for the costs that may be incurred from lenders requiring the interconnector to set aside reserves to cover debt service requirements in the event of cash flow disruption.

However, for the CRU to adopt a BBB rating for the Final Determination, the CRU will expect Greenlink to provide further evidence to justify its case, potentially including:

<sup>67</sup> The CRU notes that Greenlink has requested a 15-year benchmark, rather than the 10 year + benchmark adopted by Ofgem in its default regime.

- further supporting evidence that its debt financing costs are likely to materially exceed a broader A/BBB corporate benchmark – this evidence should reflect benchmarks for the operational, and not construction, cost of debt for the project; and
- evidence to demonstrate the financial impacts/detriment it may face if the CRU were to set the notional cost of debt using an A/BBB benchmark.

The CRU notes that the objective of requiring this additional information is to provide Greenlink with the opportunity to demonstrate to the satisfaction of the CRU that BBB rated indices could be justified.

### *Estimate of BBB Corporate “notional cost of debt”*

Under the ‘notional cost of debt approach’, and assuming a BBB benchmark is accepted for the Final Determination, the CRU proposes to set the cost of debt based on the 20-day average yield on EUR non-financial iBoxx BBB 10+ year corporate indices. The CRU proposes to update this rate with the most recent market evidence at the date of Greenlink’s Final Investment Decision.

The CRU has completed a scoping assessment of the expected level of the notional floor rate of return if set using a BBB corporate benchmark. Using market data from 2020 and 2021, the table below illustrates the average yield on EUR non-financial iBoxx BBB 10+ year corporate indices across different sample periods.

**Table 6.1: EUR non-financial iBoxx BBB 10+ year corporate indices (2016-2020)**

	20-day average	1-year average
EUR BBB non-financial 10+ year yield (%)	0.80%	1.34%

*Note: The 1-year average runs from 03/02/2020 to 31/01/2021 and the 20-day average runs from 05/01/2021 to 31/01/2021*

To set the cost of debt in real terms, expected inflation needs to be taken into account. The CRU proposes to adjust for average expected inflation over the average length of the yield to maturity of the iBoxx index. This expected inflation rate would be applied to the floor rate of return for the entire duration of the Cap and Floor regime. This analysis would also be updated at the Final Investment Decision. To construct an illustrative real rate of return, the CRU has made the following set of high-level assumptions on inflation:

- Inflation would increase from 0.6% in 2021 to 0.8% in 2022.<sup>68</sup>
- Inflation in Ireland in the long run would equal 1.8% in line with the ECB’s target rate of inflation set at “below, but close to, 2% over the medium-term.”<sup>69</sup>
- The CRU has included a 5-year glidepath between 2022 and 2027 for inflation in Ireland to increase from 0.8% to the ECB rate of 1.8%.

The assumptions outlined above give an average expected inflation rate over the iBoxx length to maturity horizon of 1.45%. Table 6.2 below illustrates the real cost of debt rate for Greenlink.<sup>70</sup>

**Table 6.2: Notional cost of debt estimates**

Estimate	Value (%)	Explanation
Notional cost of debt (nominal)	0.80%	Based on EUR non-financial iBoxx BBB 10+ year corporate indices of 14-year average maturity
Expected inflation	1.45%	Calculated based on a mixture of CBI baseline forecasts and ECB survey of professional forecasters.
Notional cost of debt (real)	-0.64%	

*Source: CRU analysis of iBoxx, CBI and ECB data*

The CRU highlights that the estimates presented in the table above would need to be updated at the Final Investment Decision. The CRU will finalise its approach to setting the notional cost of debt rate ahead of its Final Determination.

## 6.1.2. Actual Cost of Debt (Approach 2)

### *Assessment of Option to Set Floor Using the Actual Cost of Debt*

As outlined above, Greenlink has requested that the CRU also offer the option to set the floor rate of return on actual financing costs. Ofgem has offered Greenlink the option at

<sup>68</sup> Central Bank of Ireland (2021) Quarterly Bulletin Q1 – January 2021, available on [centralbank.ie](https://www.centralbank.ie)

<sup>69</sup> ECB, Inflation monetary policy, available on [ECB.europa.eu](https://www.ecb.europa.eu)

<sup>70</sup> These estimates are however subject to change. The CRU will need to set the notional cost of debt based on the most up-to-date market information at financial close.

financial close to set the cost of debt in the GB regime on their actual financing costs. Ofgem's decision states that if Greenlink chooses to set its cost of debt based on actual financing costs, then Greenlink will be required to repay GB consumers from future market revenues over the floor level such that the total impact on consumers is broadly the same under both approaches.

Giving Greenlink the option of selecting Approach 2 at financial close would add additional complexity to the Cap and Floor regime in Ireland. However, in light of Greenlink's request, the CRU is seeking comments on the option of offering Greenlink the option of setting the floor rate of return based on an actual cost of debt (ACOD) floor.

The CRU understands that there are aspects of Greenlink's proposal that would require further development and consultation with Greenlink. Moreover, the CRU understands that Greenlink is currently having discussions with Ofgem on some ACOD approach points. The CRU considers that the key considerations that still need to be resolved with the ACOD approach are as follows:

1. The expected profile of the floor and the assumptions on how many years Greenlink will take to repay the debt – Greenlink in its submission to Ofgem has assumed a “kinked” cost of debt floor and 20-year tenor.
2. Whether and how debt service reserve account (DSRA) costs should be included within Greenlink's actual financing costs for the purpose of setting the floor rate of return.
3. The applicable discount rate that Irish consumers would be compensated at should Greenlink receive additional revenues above the notional cost of debt floor under Approach 2.
4. How the mechanism would operate in practice, e.g., the functioning of payments to shareholders and/or any variations to the floor in the event of Greenlink refinancing the project.
5. Whether the measures proposed by Ofgem adequately mitigate the risk that setting the cost of debt on actual financing costs would lead to higher costs for the consumer.

### *The Expected Profile and Assumptions of the ACOD Floor*

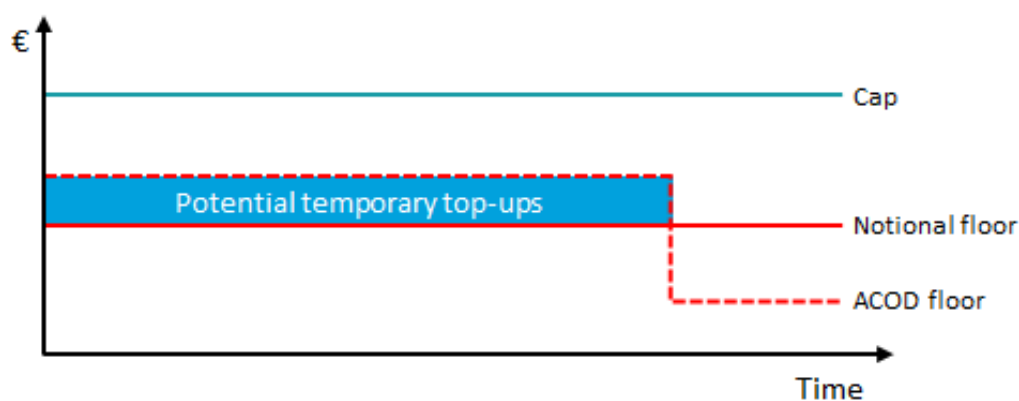
Greenlink's proposed ACOD mechanism seeks to implement a “kinked” Cap and Floor (see Figure 6.2 below). This is a result of Greenlink requesting a 25-year Cap and Floor regime

while also indicating that it plans to structure its debt to be repaid in full within c. 20-years. The CRU notes that there are some important implications of this proposal:

- The approach leads to a higher floor level than if the debt was assumed to be paid back over 25-years or paid back over the regime duration minus a “debt tail”;<sup>71</sup>
- This increases the chance of floor payments early in the duration of the regime, albeit that Greenlink would be required to pay back the additional top-up at a later date when revenues are above the floor.

The CRU understands that Greenlink’s proposal considerably increases the contingent support the regulatory regime provides to the actual debt financing costs of the project. However, the CRU notes that it may increase the risk profile of the regime for Irish consumers in the event that the temporary top-up payments – ACOD vs. “notional cost of debt” – cannot be repaid by Greenlink at a future date, e.g., in particularly low projected revenue scenarios.

Figure 6.2 Greenlink’s requested ‘kinked’ Cap and Floor



**Note:** The floor payments in the final years of the regime (post ‘kink’) reflect opex and decommissioning costs.

The CRU considers that two further points should be clarified:

1. Greenlink should provide an explanation for why it has requested a 25-year regime but expects the project debt to be fully repaid in 20-years. A debt tail is not unusual in project financing, but the assumptions that underlie Greenlink’s proposed 20-year repayment profile should be further justified.

<sup>71</sup> Providers of senior debt in project financing solutions may require a cushion in the form of a debt tail between the term of the debt (e.g., 23 years) and the duration of the project contract / revenue stream (e.g., 25 years).

2. Greenlink has requested that the CRU would set an allowance for the transaction cost of equity as part of the actual financing costs that would be funded at the floor by consumers. This would be part of the calculation for the notional floor if the CRU were to follow the GB default regime. However, given that other components of this calculation are based on actual, rather than notional, costs, Greenlink should justify the five percent notional allowance it has assumed in its current financial model.

### *Including Reserve Facility Costs in the Actual Financing Costs*

Greenlink has requested that reserve account costs be included in the actual financing costs for the floor. Greenlink's ACOD Cap and Floor model submission to Ofgem includes a Debt Service Reserve Facility and a Cap and Floor Liquidity Facility. In its recent decision on project finance variations for interconnectors, Ofgem noted that:

*“lenders would usually require projects to set aside reserves to make debt payments in the event of a disruption of cashflows.”<sup>72</sup>*

Additionally, Ofgem in its decision indicated that:

*“as we expect cashflows disruption to be unlikely as a result of approving [an ACOD mechanism], we would expect reserving requirements from lenders to be minimal.”<sup>73</sup>*

The CRU notes that the level and structuring of reserve accounts remunerated through the floor – including the assumptions on which they are provided by lenders – may benefit from further clarification from Greenlink. In particular, the CRU understands that the Cap & Floor Liquidity Facility is a liquidity line that Greenlink has included in its financing plan to address the specificity of the Cap & Floor regime in the GB market. The CRU understands this is included in Greenlink's proposed financing structure given that:

*“under the current rules regulating NETSO payments, the actual payment of potential top-up amounts from NETSO, in case Greenlink's revenue falls below the floor in a given assessment period, may be received up to 2 years after the end of the relevant assessment period. Consequently, lenders will certainly require available funds in place to bridge such period and will request an amount to satisfy the maximum possible delay period.”<sup>74</sup>*

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<sup>72</sup> Ofgem (2020), [Decision on proposed changes to our electricity interconnector cap and floor regime to enable project finance solutions](#), page 29.

<sup>73</sup> Ibid, page 29.

<sup>74</sup> Ibid, page 24.

The CRU is not clear whether this facility is also required to provide a bridge for the Irish proportion of Greenlink's revenues which will depend on the payment terms with the TSO in Ireland and so is seeking further clarification from Greenlink on this issue.

### *Applicable Discount Rate*

Greenlink has proposed that the "operational discount rate" for its Irish Cap and Floor regime would be the ECB deposit rate which would apply to the repayment of any temporary top-up payments under the ACOD mechanism (see Figure 6.2 above). The CRU notes that underpricing the risk consumers face from this mechanism could incentivise Greenlink towards a structure that would call on this consumer support more often (e.g., by increasing debt).

As discussed above, in effect, Greenlink's proposal provides the project with an additional source of contingent callable capital that can be used for debt service coverage. The CRU considers that given the costs of capital would likely be higher for the developer if this were sourced elsewhere by the developer (e.g., additional reserving), using the operational discount rate may, in effect, provide an additional subsidy to Greenlink.

### *Operation of the Mechanism in Practice*

In addition to the key assumptions that set the floor in the ACOD mechanism, the CRU has also identified concerns as to how Greenlink envisages the regime would operate in practice, these require further clarification:

- **Debt service coverage ratio (DSCR):** Greenlink has assumed that the floor would provide for a DSCR above one. This is a standard requirement of project finance lenders. Greenlink's submissions to date suggest the uplift would be paid in cash-terms *the first year* it is utilised and would then be recycled in future years if still needed. However, the detailed mechanics of how the recycling would operate in practice over the regime duration requires further clarification.
- **Refinancing:** In previous submissions to the CRU, Greenlink proposed a reopener mechanism for the floor in the event of a refinancing of the project. This does not appear to be a part of the current proposed ACOD mechanism. While this may help to improve the simplicity of the regime, in what is already a relatively complex regulatory proposal, the absence of a refinancing mechanism could result in a

mismatch between the ‘actual’ cost of debt assumption at the floor and Greenlink’s actual costs, post refinancing.<sup>75</sup>

- **Restrictions on equity distributions:** As discussed above, under Ofgem’s proposed ACOD mechanism, it is intended that Greenlink would need to reimburse consumers the difference between the actual and notional cost of debt from future revenues above the floor before they can recover equity investment and any dividends. How this restriction will be implemented from a legal / practical perspective, e.g., in the licence, requires further clarification.
- **Alignment of indexation of ACOD floor and financing:** The CRU sets the notional floor in real (HICP) terms but note it is possible Greenlink’s preferred financing solution might be fixed in nominal terms. If the CRU were to offer Greenlink the option of an ACOD floor, it might be appropriate to consider delinking the debt servicing portion of the floor from the inflation indexation that applies to other items (e.g., opex). Allowing for such alignment might help avoid additional costs related to hedging inflation as a source of misalignment between Greenlink’s revenues and financing commitments.

## 6.2. Cap Rate of Return

The cap rate of return is the key component that differentiates the level of the cap from the floor. It is set based on a notional cost of equity rate of return. Greenlink has requested the CRU to set a real cap rate of return of 8.46%, calculated using a capital asset pricing model (CAPM), tailored for the Irish context.

The CRU proposes to use set the cap rate of return using the CAPM model and has estimated a real cap rate of return of 8.19% for the Greenlink’s Cap and Floor regime in Ireland, the midpoint of the range shown in Table 6.3 below.

**Table 6.3: CRU’s approach to setting the cap rate of return**

Component	Greenlink request	CRU recommendation
Risk-free rate (real)	1.9%	-0.8%

<sup>75</sup> It is not untypical for project financing structures to incentivise refinancing by the loan stepping up the applicable margin over the life of the loan. This is sometimes referred to as a soft mini perm.

Component	Greenlink request	CRU recommendation
Total market returns (real)	6.65% <sup>76</sup>	6.45% to 6.75%
Equity beta	1.38	1.15 to 1.25
Cap returns (real)	8.46%	7.54% to 8.64%
Adjustment for inflation expectations	-	0.00% to 0.20%
Cap returns (real - adjusted)	8.46%	7.54% to 8.84%

Source: CRU analysis

The following subsections provide further detail on the “market-wide” and “tailored” parameters underlying the CRU minded to position on the cap rate of return.

### 6.2.1. Market-wide Parameters

The CRU proposes to use the cost of capital ranges developed for the PR5 Final Determination to set the market-wide parameters for Greenlink. The CRU notes that while the PR5 Determination will only last for five years, the Cap rate of return for the Greenlink electricity interconnector project will be set for a 25-year period. As such, a number of adjustments to the PR5 recommendations are proposed.

- Focusing on the longer time horizon of the Cap and Floor regime, we place more focus on the top end of the PR5 range, focusing on evidence from the ten-year average of German Government inflation-linked bond.<sup>77</sup>
- The bottom end of the PR5 ranges were informed by the shorter-term nature of the dividend growth model. By focusing on the evidence from long-term equity returns, this revises up the lower end of total market returns.

The CRU proposes to include an additional adjustment to account for possible differences in expected Irish and Eurozone inflation. If expected inflation in Ireland is below Eurozone rates, then the ‘real’ cash return from equity investments that are indexed by Irish inflation may end up below equity investments made elsewhere in the Eurozone that may be indexed by Eurozone inflation. The CRU considers this to be an issue if investors perceive that

<sup>76</sup> Implied from total market returns assumption of 4.75 percent.

<sup>77</sup> CEPA (2020), [Financial issues for PR5 Final Determination](#), pages 32 to 33

inflation in Ireland is below Eurozone rates as they then may demand a higher premium in order to invest in Ireland. For PR5, the CRU estimated an inflation wedge of between 0.0% and 0.4% based on a comparison of outturn inflation, central bank forecasts and breakeven inflation.

The CRU proposes a range of between 0.0% and 0.2% for Greenlink to account for the difference from one end of the wedge to the other, after adjusting the top of the range down to account for the longer time period of the Cap and Floor regime. The CRU considers that this adjustment will help ensure that the rate of return is set at a rate that means that expected returns allow the recovery of inflation expectations from a Eurozone-wide perspective.

The CRU's proposed market-wide parameters along with those used in PR5 are presented in Table 6.4 below.

**Table 6.4: CRU's approach to setting the market-wide parameters for the cap rate of return**

Component	PR5	CRU's recommendation
Risk-free rate (real)	-1.2% to -0.8%	-0.8%
Total market returns (real)	5.70% to 6.75%	6.45% to 6.75%
Adjustment for inflation expectations	0.0% to 0.4%	0.00 to 0.20%

*Source: CRU analysis*

## 6.2.2. Tailored parameters

The CRU's proposed equity beta range for setting the cap is between 1.15 and 1.25. The top end of the proposed range is anchored by the value used for the default Cap and Floor regime in GB.

The bottom end of the proposed equity beta range reflects the features proposed for the Cap and Floor regime in Ireland which would narrow the range of potential returns for Greenlink relative to the default GB Cap and Floor regime. These features include the proposed use of annual assessment periods (instead of five-yearly ones), the proposed use of BBB credit ratings to benchmark the floor rate of return and the potential to retain some level of consumer support in the case of low availability.

The CRU welcomes stakeholder comments on this equity beta range for Greenlink.

## 6.3. Interest During Construction

Interest during construction (IDC) sets the allowed cost of capital level during the construction phase of the interconnector. Greenlink has requested an IDC rate of 8.79%, calculated as a real weighted average cost of capital (WACC).

The CRU proposes a real IDC rate of 3.88% (based on iBoxx data to 31<sup>st</sup> January 2021), the midpoint of the range shown in Table 6.5 below.

**Table 6.5: CRU's approach to setting IDC**

Component	Greenlink request	CRU recommendation
Risk-free rate (real)	-0.34%	-1.2% to -0.8%
Total market returns (real)	6.65%	5.70% to 6.75%
Asset beta	0.69	0.50 to 0.75
Gearing	37.5%	37.5%
Equity beta	1.48	0.80 to 1.20
Cost of equity (real)	10.01%	4.32% to 8.26%
Cost of debt (real)	2.90%	-0.66% <sup>78</sup>
Development & construction risk premium	1.45%	-
Adjustment for inflation expectations	-	0.0% to 0.4%
<b>IDC</b>	<b>8.79%</b>	<b>2.45% to 5.32%</b>

Source: Greenlink and CRU analysis

### 6.3.1. Market-wide Parameters

The CRU proposes to use the market-wide parameters from its PR5 determination without adjustment for a longer time horizon. This includes the following ranges:

- Risk-free rate (real) of between -1.2% to -0.8%.

<sup>78</sup> Based on analysis to 31 January 2021.

- Total market returns (real) of between 5.7% and 6.75%.
- Adjustment for inflation expectations of between 0.0% and 0.4%.

The CRU considers that this proposal is appropriate as Greenlink's construction period is due to fall fully within the duration of PR5 (2021 to 2025).

### **6.3.2. Tailored Parameters**

#### *Asset beta*

The CRU proposes an asset beta range of between 0.50 and 0.75 is appropriate for Greenlink's construction phase cost of capital, as applied in an Irish regulatory framework.

The CRU notes that this range is informed by previous work undertaken into cost of capital ranges for new assets in GB.<sup>79</sup> The CRU considers that this appropriate to the Irish context also. Furthermore, the CRU notes that this analysis considered evidence on the asset betas of construction and engineering firms as potential comparators for the risk profile of new, large, high-value transmission assets. This analysis gave an asset beta range of between 0.45 and 0.55. It also considered appropriate additional uplifts to this range for projects operating in a marine environment due to the additional challenges faced by these projects.

The CRU notes that Greenlink's request for an asset beta of 0.69 falls within this proposed range. However, the CRU highlights that a 0.50 beta does have recent regulatory precedent in Ireland in the CAR's 2019 determination for Dublin Airport.<sup>80</sup>

#### *Gearing*

The CRU proposes that it is appropriate to use a 37.5% gearing assumption for Greenlink's IDC. This rate is consistent with Greenlink's proposal and is also informed by previous work into the cost of capital ranges for new network assets in GB.<sup>81</sup>

#### *Cost of debt*

The CRU proposes to use the cost of debt for IDC following the same proposed approach to setting the notional floor rate of return. The CRU proposes to use evidence for a shorter corporate bond maturity of 3-5 years. The purpose of using a shorter maturity is to align with the expected duration of the construction period. The approach to the notional floor rate of

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<sup>79</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/07/cepareport\\_newassets\\_july2018\\_final\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/cepareport_newassets_july2018_final_0.pdf)

<sup>80</sup> <https://www.aviationreg.ie/fileupload/2020-2024%20Determination.pdf>, page 93.

<sup>81</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/07/cepareport\\_newassets\\_july2018\\_final\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/cepareport_newassets_july2018_final_0.pdf)

return effectively assumes the project will be refinanced at the start of operations. As such, the IDC cost of debt can focus on a shorter period of time.

The CRU proposes to set the IDC cost of debt based on the average yield of the iBoxx EUR BBB non-financial corporate 3-5-year index over the 20 trading days prior to Greenlink's Final Investment Decision.<sup>82</sup> Consistent with the approach to set the floor rate of return, that rate would be deflated into real terms using Irish HICP forecasts that cover the forecast period consistent with the average duration to maturity of the corporate bond index.

As a worked example of this approach, the annual yield to maturity of the iBoxx 3-5 year series for the 20 days to 31 January 2021 was 0.21%, with a duration to maturity of 3.9 years. Using the same inflation forecasts used to estimate the real, notional cost of debt covering a period of 3.9 years, gives an average inflation forecast of 0.87%. The CRU calculates a corresponding real cost of debt of -0.66 percent.

The CRU notes that its proposed approach sets a value lower than proposed by Greenlink (2.90%, real). However, the CRU highlights that Greenlink's request is high based on current market evidence where there is a moderate level of gearing.

### *Development and Construction Risk Premia*

Greenlink has proposed that the cost of equity should include these risk premia *“to reflect the level of risk associated with the development of an interconnector compared to other assets such as OFTOs.”*<sup>83</sup>

The CRU notes that Ofgem has included these premia in the IDC calculations for Window 1 interconnectors, including Greenlink.

The CRU does not propose to include development and construction risk premia within the IDC calculation. However, the CRU considers that construction risk for interconnectors is better captured through the asset beta than a stand-alone adjustment to the IDC. This view is supported by analysis conducted for new network assets in GB. The CRU notes that Ofgem has since revised its calculations for Window 2 interconnectors, using an asset beta

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<sup>82</sup> Ofgem's capacity market rules definition FID as “a decision by the board of directors (or equivalent body in the case other than a company) of the Capacity Provider, and (where relevant) of each other Joint Owner, to fully proceed with the investment for the project, including the decision that sufficient financial resources are available to meet the Total Project Spend”. This may be distinct from financial close, which it defines as “the legal, valid and binding decision point to progress with the project, achieved where all relevant project and financing documentation has been signed and all conditions precedent contained within them have been satisfied”.

<sup>83</sup> Greenlink (2019) [Application for Cap and Floor Regulation in Ireland](#), page 94.

range consistent with this analysis, but without the additional risk premia.<sup>84</sup> The CRU considers that this approach is appropriate for the Cap and Floor regime applied to Greenlink in Ireland.

## **6.4. Operational Discount Rate**

After the final Cap and Floor levels are set, the CRU may need to use a discount rate to move certain values between years, for example to adjust for the delay between an assessment period and when it will result in payments through Irish TUoS.

The CRU proposes to perform those calculations using a dedicated operational discount rate instead of repurposing the other rates of return used to set the Cap and Floor levels. The CRU is also considering a second higher rate to the balances of any “temporary” floor top-ups Greenlink may accrue during the life of the regime (see Sections 4.4 and 6.1).

### **6.4.1. Operational Discount Rate**

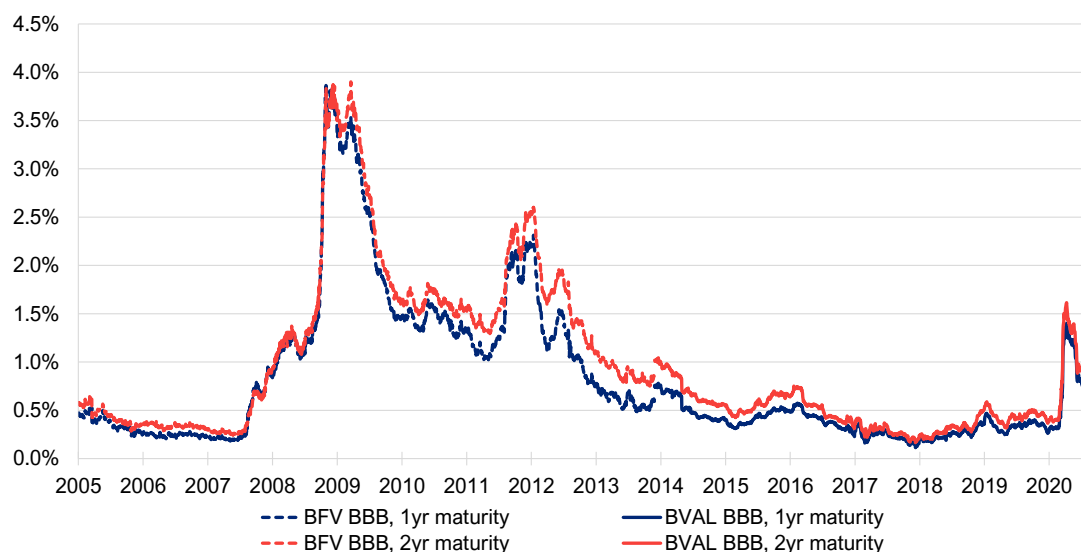
Greenlink has requested that the CRU sets the operational discount rate based on the ECB deposit rate. However, the CRU considers that this rate may be too low to reflect the time value of money for Greenlink. Instead, the CRU proposes to adopt a short-term cost of debt measure based on the floating overnight Euro rate (EONIA). The CRU proposes to add a fixed margin to this to capture the BBB credit rating that the CRU propose to use to set the notional floor rate of return.

Based on analysis of BBB rated non-financial corporate bond yields and EONIA swaps over the corresponding maturities, the CRU currently estimates the appropriate margin to be in the region of 50 to 100 basis points (bps). The chart below shows how margins on one-year and two-year maturity corporate bonds have moved relative to EONIA swaps of the corresponding maturity from 2005 to the end of August 2020. The CRU focuses on the average of yields on BBB rated debt, examining margins for non-financial corporate debt of that rating once they become available in late 2013. The CRU focuses on short maturities given the short assessment period length proposed for Greenlink.

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<sup>84</sup> [Decision on Interest During Construction \(IDC\) rates to be applied during 2021 to offshore transmission projects and electricity interconnectors granted the cap and floor regime.](#)

**Figure 6.3: BBB margins over EONIA swaps (Jan 2005 - Aug 2020)**

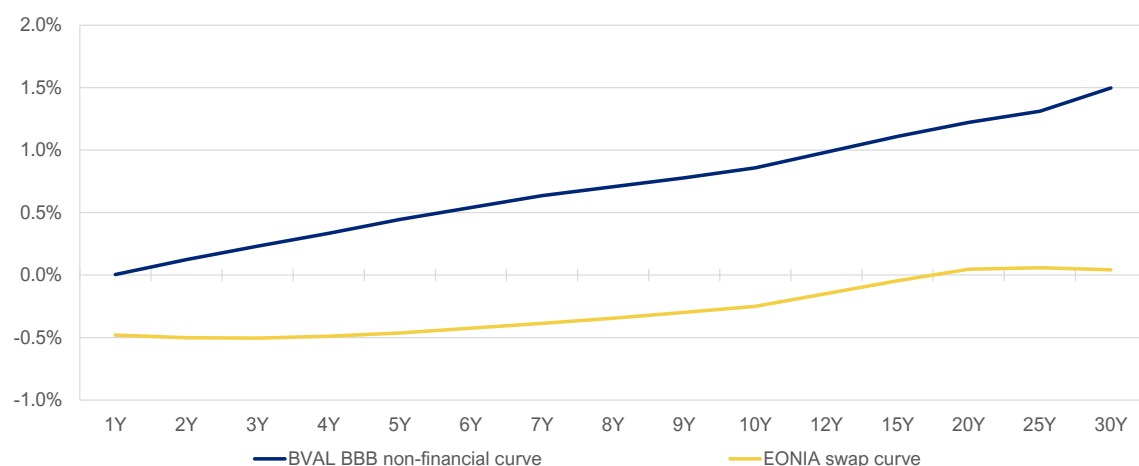


**Source: CRU analysis of Bloomberg data**

As shown in Figure 6.3, margins over EONIA jumped in early 2020, ending several years of relative stability where they fell broadly in the region of 50bp. It is not possible to know how these may move during the life of the Cap and Floor regime but the CRU notes that the recent jump appears to have been smaller and shorter lived than those seen in the Global Financial Crisis or the European debt crisis.

Figure 6.4 below shows the margin of the Bloomberg BBB non-financial corporate bond yields over EONIA swaps on 31 August 2020 over a one to thirty-year horizon. The modest rate of increase of the curve shows that financial markets were only pricing in a modest increase in the margin over its current level.

**Figure 6.4 BBB corporate bond yield margins over EONIA swaps (31st August 2020)**



**Source: CRU analysis of Bloomberg data**

Considering the evidence above, the CRU finds a 50 to 100bp margin over EONIA should provide a reasonable measure of the short-term cost of debt for a BBB rated corporate, and so the notional operational discount rate for Greenlink. The CRU proposes using EONIA for the Cap and Floor framework. The CRU welcomes comments from interested parties on this proposed approach.

#### **6.4.2. Additional Margin for Temporary Top-ups**

The CRU is consulting on applying a further margin on top EONIA to set the operational discount rate applied to any outstanding balance of temporary floor top-ups provided to Greenlink through the minimum availability incentive or the ACOD floor mechanism, should that be adopted in the regime.

The CRU is considering whether to apply a further margin in those cases to capture how temporary top-ups may fill a role akin to junior debt, noting the role of the payments in supporting the credit quality of Greenlink's senior debt financing and the possibility that Greenlink could decommission the project with outstanding temporary top-up balances under either mechanism, having used those temporary top-ups to service its senior debt.

One option the CRU is considering is to set this margin to match the average of the cap rate of return and the notional floor rate of return, the approach is used in the GB default Cap and Floor regime.

The CRU will develop this proposal further for the Final Determination in discussion with Greenlink. The CRU welcomes comments on the use of a margin for temporary floor top-ups within the Cap and Floor regime.

#### **6.5. Notional Transaction Costs**

A transaction cost allowance added to the RAV captures certain upfront financing costs not covered in the various rates of return.

For the cap and the notional floor, the CRU proposes to apply an allowance for debt and equity financing transaction costs: 5.0% for equity and 2.5% for debt, as Ofgem applies in the GB regime. The CRU notes that the calculation of the allowance would vary based on the level and timing of approved expenditure during construction. It would also assume the notional IDC gearing level during construction and a re-gearing to 50% gearing during the operational period.

## 6.6. Tax Allowance

Tax allowances incorporate notional tax costs into the level of the Cap and Floor. Greenlink has requested the CRU set tax allowances based on a stylised tax calculation at the Cap and the Floor, incorporating local tailoring to the Irish context.<sup>85</sup>

The CRU expects a detailed request from Greenlink that would demonstrate to the CRU's satisfaction that:

- the proposals accurately represent the Irish tax regime; and
- the respective allowances provide a reasonable approximation of the tax liability of an efficient company earning revenues consistently at the cap or at the floor.

The CRU proposes to use a simplified notional approach to calculate the tax allowances at the Cap and Floor in order to avoid setting an allowance that is spuriously accurate. The tax regime may change in Ireland and the allowances do not seek to capture the company's actual tax costs in any one period, they assume the company is either earning revenues consistently at the floor or at the cap.

## 6.7. Other Financial and Commercial Considerations

In addition to the above, the CRU is considering a series of further financial and commercial considerations to be developed as part of the Final Determination:

- insurance coverage assurance;
- refinancing gain share in any ACOD mechanism; and
- change of ownership/control protections.

The CRU welcomes comments on how these considerations in the context of the Cap and Floor regime for Greenlink.

### 6.7.1. Insurance Coverage

As discussed above, the CRU considers it important that Greenlink provide assurance that it has or will have an appropriate insurance strategy in place during both construction and operation.

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<sup>85</sup> The CRU notes that it has not provided a detailed proposal for this item.

The CRU expects that Greenlink’s investors will similarly wish to ensure that insurance arrangements are put in place, but given the proposed project finance structure, the CRU will seek its own comfort that the insurance package is comprehensive, consistent with good industry practice as well as the CRU’s expectations of risk transfer between Greenlink and Irish consumers. The CRU proposes to use the window ahead of Greenlink’s Financial Close milestone (see Section 5.2.2) to complete this assessment of Greenlink’s proposed insurance.

The CRU is cognisant of the potential for certain risks that Greenlink may face resulting in them becoming uninsurable over the life of the regulatory regime, either following a major failure event of the electricity interconnector itself or following events and shifts in sentiment in the insurance market for similar assets as Greenlink (e.g., OFTOs and other electricity interconnectors). In such a circumstance, there is the potential for Greenlink to be less resilient to major failure events, absent of the CRU and/or Ofgem extending the scope of IAE and Exceptional Events claim process – i.e., adopting a broader definition of force majeure under the regulatory regime.

As a consequence, as part of the Final Determination, the CRU proposes to set out requirements for Greenlink to:

- have in force comprehensive insurances over the life of the regulatory regime;<sup>86</sup>
- notify the CRU if risks that it had expected to be covered by insurance, e.g., at the time of Financial Close or at the point of the PCR, become ‘uninsurable’; and
- propose mitigations and actions it would take in the case it does not have in force as comprehensive an insurance package as expected.

As noted in Section 4.4, the CRU considers creating a regulatory obligation on the project owner to put in place a performance security that could be called by the CRU to cover the liabilities that Greenlink accrues to Irish consumers should certain conditions be met. The CRU considers that this performance security obligation would limit the Irish consumer’s exposure to Greenlink’s failure to pay back the temporary top-up payments.<sup>87</sup>

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<sup>86</sup> The CRU notes that “comprehensive” insurances would need to be defined at a later date.

<sup>87</sup> This could be extended to also cover additional payments under an actual cost of debt mechanism, should the CRU decide to take this forward as part of the regulatory framework.

## **6.7.2. Refinancing Gains**

The CRU is seeking views on how an ACOD mechanism (see Section 6.1.2) should operate in the event of a major refinancing of the project. For example, a major refinancing of the project after the original financial close could result in a mismatch between the ‘actual’ cost of debt assumption at the floor and Greenlink’s actual costs, post refinancing.

The CRU notes that it is not atypical for project financing structures to incentivise refinancing by the loan stepping up the applicable margin over the life of the loan. Other infrastructure contracts – such as PPP/PFI and later stage OFTOs – typically include refinancing clauses in the contract to reflect this and may assume a share of any refinancing benefit would accrue to consumers.

In that context, the CRU is seeking views on the inclusion of a refinancing gain share mechanism within the Cap and Floor regime in the event that an ACOD mechanism is provided.

## **6.7.3. Change of Ownership / Control**

The CRU is seeking views on how the Cap and Floor regime might address a change in control of the interconnector during the duration of the regulatory framework.

Change of control restrictions and/or confirmation processes can be found in various regulatory regimes and contracts for critical infrastructure services and assets. The CRU considers that a similar form of regulation may be appropriate in Greenlink’s case. In particular, the CRU is considering what (if any) restrictions on the transfer of equity might be appropriate in the case of an outstanding balance of temporary floor top-ups.

This proposed decision paper has considered two mechanisms that might lead to Greenlink holding such temporary top-up balance:

- Under Ofgem’s proposed ACOD mechanism, it is intended that Greenlink would need to reimburse consumers for the difference between the ‘ACOD floor’ and the ‘notional floor’ from future revenues above the floor before they can recover equity investment and any dividends. In the event that a similar ACOD mechanism is provided in Ireland, the CRU is considering if it would be appropriate to consider restrictions on the transfer of equity before such repayments are made.
- Under the proposed minimum availability incentive, there is a prohibition on paying dividends or distribution to shareholders in the event that there is an outstanding

balance of temporary floor top-ups. In this situation, the CRU may also wish to restrict the transfer of equity.

The CRU welcomes views on the merits of any such restrictions on the change of ownership / control of Greenlink within the Cap and Floor regime in Ireland, particularly in the context where the customer has provided additional support to Greenlink which must be repaid.

## **6.8. Consultation Questions for the “Financial” Building Blocks**

The CRU welcomes comments on all of the minded to positions set out in this section. The CRU welcomes comments from stakeholders on the questions below.

### **Financial Building Block Consultation Questions**

- **Question 1:** What are your views on the CRU’s “minded to” positions as set out in this section?
- **Question 2:** What are your views on the proposed use of the ACOD mechanism to set the floor rate of return? Given the added complexity and administrative burden that this will add to the Irish Cap and Floor regime, do you consider that this mechanism is required by Greenlink to ensure that the project is viable? Do you have any views on the impact of this mechanism on Irish electricity consumers?
- **Question 3:** Does the CRU’s proposed treatment of Greenlink’s financial parameters provide sufficient return to ensure that the project is viable and will be able to raise project finance?
- **Question 4:** Do you agree with the CRU’s proposed approach to the operational discount rate, including the application of a further margin for temporary top-up balances? What evidence should the CRU consider when setting that additional margin?
- **Question 5:** Do you agree that it is appropriate for the CRU to place requirements on the insurances held by Greenlink? What considerations should the CRU take into account in developing its position on any such requirements?

## 7. Cost Assessment

This section sets out the CRU's minded to position on the efficient level of cost that should be used to set the Cap and Floor levels for the Greenlink interconnector at this stage of the project. This section includes the following sub-sections:

**7.1 Greenlink's submitted costs:** An overview of the cost proposal submitted by Greenlink to the CRU.

**7.2 CRU's assessment of efficient costs:** Overview of the approach that CRU followed to assess the efficiency of Greenlink's costs.

**7.3 Development expenditure (devex):** Initial assessment of the efficiency of the devex proposed by Greenlink.

**7.4 Capital expenditure (capex):** Initial assessment of the efficiency of the capex proposed by Greenlink.

**7.5 Operating expenditure (opex):** Initial assessment of the efficiency of the opex proposed by Greenlink.

**7.6 Repair expenditure (repex):** Initial assessment of the efficiency of repex proposed by Greenlink.

**7.7 Decommissioning expenditure (decommex):** Initial assessment of the efficiency of decommissioning expenditure proposed by Greenlink.

The CRU concludes the section with key considerations for consultation.

### 7.1. Greenlink's Submitted Costs

Greenlink submitted its final project costs proposal to the CRU in July 2020. Based on that submission, the CRU understands the total 25-year project cost to be €835.9m<sup>88</sup> as shown in Table 7.1 below.

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<sup>88</sup> CRU used the FPA Supporting Evidence spreadsheet provided by Greenlink, to extend Greenlink's total cost estimate out to 25 operating years post construction. Greenlink submitted its devex and capex costs in nominal prices and its post-construction costs in real 2020 prices.

**Table 7.1: Greenlink's submitted total project costs (€m)**

Category	€m
Devex	23.8
Construction capex	426.8
Developer Risk	24.2
Opex	335.5
Repex	17.0
Decommissioning costs	8.8
<b>Total cost</b>	<b>835.9</b>

*Source: Greenlink*

Given the proposed cross-border split between GB and Ireland, only 50% of Greenlink's costs will be subject to the Cap and Floor regime in Ireland. However, for the purposes of assessing the efficiency of submitted costs, and in particular benchmarking them against other comparable projects, the CRU has considered total project costs in the round.

## 7.2. CRU's Assessment of Efficient Costs

In preparation for this draft determination, the CRU has examined Greenlink's application and come to a "minded to" position on the efficiency of its submitted costs. The CRU completed a two-stage cost and technical review of Greenlink's application in conjunction with its advisors:

- A Phase 1 review was completed in Q2 2020. This was a broad but shallow review of Greenlink's submission to identify any concerns which required more detailed investigation.
- A Phase 2 review was subsequently completed in Q4 2020. This review focused on the specific points and concerns identified in Phase 1 and was directed towards forming an evidence-based view of the efficient level of project costs.

The non-confidential Phase 2 review is published on the CRU's website alongside this draft determination paper.

The CRU considered each of the cost categories shown in Table 5.1 above and the main components therein, except decommissioning costs which will be assessed at the PCR stage. The CRU used a combination of top-down and bottom-up benchmarking approaches to develop an overall assessment of project costs. The analysis has benefited from an ongoing engagement with Greenlink and from a sharing of questions and answers separately raised by Ofgem.

The following sub-sections set out the CRU’s assessment and minded to position on each cost category in turn.

### 7.3. Development Expenditure

Development expenditure (“devex”) is the capitalised costs associated with items such as studies, assessments and resourcing costs that are incurred prior to the project’s final investment decision (i.e. bringing the project to a construction ready state). Greenlink’s submission is net of grants such as the European Union’s Connecting Europe Facility (CEF) grant which is available to this project. Greenlink submitted a total of €23.8m of costs associated with devex as part of its final submission (or 2.8% of total project costs).

The CRU’s analysis shows that Greenlink’s submitted costs are just inside the top end of the range implied by other Cap and Floor interconnector projects, as shown in Figure 7.1 below.

Figure 7.1: Greenlink’s devex submission compared to other Cap and Floor interconnector projects (2020 prices)



As devex costs are within the benchmark range the CRU does not propose any disallowance and is minded to accept Greenlink’s submitted costs in full at this stage. However, because they are close to the top end of the range, the CRU is minded to disallow any subsequent increases as a result of any further delay in getting the project to a construction-ready state.

### 7.4. Capital Expenditure

Greenlink proposed a total of €451m of capex costs associated with construction as part of its final submission. Construction capex covers all the costs incurred under the EPC

contracts for the construction of the interconnector. These “turnkey”-style contracts include sums for the contractor’s project management and risk. The EPC contract alone makes up the majority of the total “upfront” project costs, and in the region of half of the 25-year cost. Construction capex also includes the Greenlink’s project management costs and €24.2m of developer risk.

### 7.4.1. Assessment of EPC Costs

The CRU’s assessment of these costs found that, using a simple top-down capex benchmarking approach, (adjusting for capacity differences between projects) Greenlink’s submitted capex sits within the benchmark range.

However, a more granular review of the main components of the EPC contract found that whilst the subsea cable costs are below the benchmark range, the cost of the converter stations is substantially above the top end of the benchmark range. The CRU requests further associated evidence from Greenlink to explain the significant variation from the CRU cost benchmarks.

Figure 7.2: Top-down comparative benchmarking of capex costs (€m)



### 7.4.2. Assessment of Project Management Costs

Greenlink’s capex submission includes €69.2m of contractor project management (“PM”) costs and €19.2m of developer PM costs.

The CRU’s assessment of PM costs show that contractor PM costs are towards the top end of the benchmark range, even after those costs were adjusted to put on a comparable basis to those included in other interconnector projects.<sup>89</sup>

<sup>89</sup> Based on a more detailed explanation of Greenlink’s approach, CRU’s consultants decided to remove ‘Installation Services’ and ‘Installation Supervision’ from the contractor PM figure, but included Site Management’, ‘Facilities’ and ‘Logistics’.

The CRU recognises that a view of Greenlink's PM costs should be taken in the round, i.e., combining those in the EPC contract with Greenlink's own PM costs. This is because the relative share of PM costs may depend on the role that each party takes in the project.

Based on Greenlink's submission, the CRU calculates a total combined PM cost of €75.2m (16.7% of total capex) and compared this to its benchmarks which suggested PM costs for the offshore oil and gas industry of 8-16% of total costs.<sup>90</sup> The CRU's advisors also suggested a range of 13-19% of total capex based on their previous experience of adopting a turnkey contract form.<sup>91</sup>

As a result, Greenlink's total PM costs for this project are relatively high. By way of illustration, reducing the allowance to between 14% and 16% would result in a reduction of between €3m and €12m. Taking the mid-point of these two benchmark ranges, the CRU proposes to disallow €7.5m of construction capex, to account for the relatively high combined project management costs that were Greenlink have not yet sufficiently demonstrated to the CRU as being necessary. However, the CRU notes that if Greenlink can justify why its costs are high in the range – i.e., point to some special factor which means it is different from other offshore projects and why that is efficient, prior to the Final Determination, the CRU will review this justification.

### **7.4.3. Assessment of Other Capex Costs**

Greenlink's submission also includes a category of 'other' developer costs, which covers activities undertaken by Greenlink ahead of the interconnector becoming operational, and the cost of construction insurances held by Greenlink.

The CRU has concerns around the benefits of Delay in Start Up (DSU) insurance which provides Greenlink with cover for lost revenues in the event of delay to the commencement of operations. The CRU understands that the main purpose of DSU insurance is to protect the projected revenues of the developer. The CRU considers that this insurance is beneficial for Greenlink, in the event of a loss of projected revenue, however it does not accept that it is a necessary cover for the Greenlink electricity interconnector project. The CRU considers that this insurance has limited benefits for Irish consumers. Additionally, the CRU notes that in the event that Greenlink would use its DSU insurance, any revenue from it would not be

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<sup>90</sup> Turner & Townsend (February 2011) "Analysing project management costs" available [online](#)

<sup>91</sup> Non-confidential technical advisor's analysis is published on the CRU's website alongside this draft determination paper.

considered part of the Cap and Floor and therefore the Cap and Floor levels would not be lowered to reflect the revenue from this source.

The CRU therefore proposes to disallow a further €1.2m of construction capex in relation to DSU insurance. However, the CRU notes that if Greenlink can provide compelling evidence to justify its value from a consumer perspective prior to the Final Determination, the CRU will review this information.

#### 7.4.4. Assessment of Risk Contingency

Developer risk is a contingency allowance that is held in reserve by Greenlink for possible increases in construction costs. Greenlink’s submission includes a risk allowance of €24.2m, which is similar in relative size to the allowances in other recent Cap and Floor interconnectors. Therefore, the CRU proposes to accept Greenlink’s submitted risk costs.

### 7.5. Operating Expenditure

Operating expenditure (“opex”) are costs incurred once the asset is operational. Greenlink estimates opex of €336m over 25 years. This covers centralised costs such as Greenlink personnel, as well as insurances, and operations and maintenance (O&M) costs.

Greenlink’s O&M submission was a particular focus of the CRU’s analysis. Greenlink’s approach differs from that on other interconnector projects and therefore comparable benchmarks are not available and adjustment was required. Greenlink proposes to outsource/contract more of the day-to-day operations and routine maintenance activities than has typically been the case on other interconnector projects.

The CRU’s analysis shows that Greenlink’s O&M costs are at the high end of the benchmark range, even after adjusting for Greenlink’s ‘outsourced’ approach. However, limited benchmarking of Greenlink’s overall opex costs sit below the benchmark range implied by other Cap and Floor interconnector projects, as shown in Figure 7.3 below.

Figure 7.3: Top-down comparative benchmarking of opex costs (€m, 2020 prices)



As such, the CRU is satisfied that opex costs of €336m are economic and efficient and is minded to accept Greenlink’s submitted costs in full.

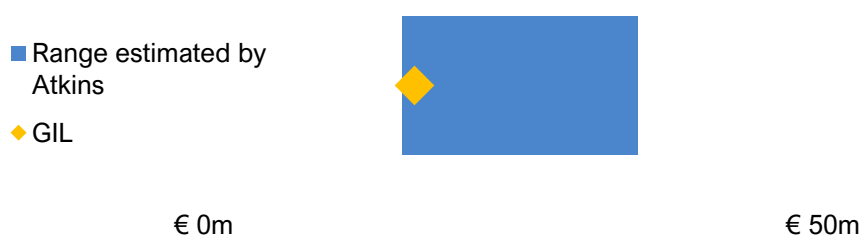
Greenlink’s submitted costs are relatively firm for the first five to seven years of the project under the SMA it has negotiated, which gives the CRU confidence that there is sufficient information on which to set an ex-ante cost allowance in its Final Determination. The CRU considers that this will reduce uncertainty for Greenlink as it secures financing for the project.

The CRU notes that Greenlink’s opex submission is a 25-year forecast and that some degree of change is to be expected over time. The CRU will therefore undertake a limited assessment of opex as part of the project’s PCR. The CRU’s current expectation is that the scope of the PCR will be limited to assess only changes in opex costs that Greenlink could not reasonably control, mitigate or avoid. Greenlink will have a further opportunity to make an application to reopen its opex allowance after ten years of operations through the controllable opex reopener (see section 5.4.1).

## 7.6. Replacement Expenditure

Replacement expenditure (“repex”) includes the cost of equipment items which will need to be replaced during the life of the interconnector. Greenlink submitted a total of €17m of costs associated with repex as part of its final project costs submission. The CRU’s analysis showed that Greenlink’s submitted costs sit within the benchmark range, as shown in Figure 7.4.

Figure 7.4: Greenlink’s submitted repex costs against the CRU’s benchmark range (€m, 2020 prices)



As such, the CRU is satisfied that repex costs of €17m are economic and efficient at this stage. Similar to the CRU’s position on opex, the CRU will assess any changes to Greenlink’s repex forecast as part of the project’s PCR. The CRU’s current expectation is that the scope of the PCR will be to assess only changes in repex costs that Greenlink could

not reasonably have foreseen at the time of the Final Determination, and which it cannot control, mitigate or avoid.

## 7.7. Decommissioning Expenditure

Greenlink is liable for its decommissioning obligations, and the value of the Cap and Floor levels are based on the CRU's assessment, at the PCR stage, of the legislative requirements relating to the decommissioning of the interconnector. Decommissioning expenditure ("decommex") relates to the economic and efficient costs associated with such requirements.

Greenlink submitted a total of €8.8m of costs associated with decommex as part of its final project costs submission. Greenlink profiled these costs evenly across the 25-year Cap and Floor period, but the CRU notes that these costs would in practice be incurred at the end of the asset's useful life. The CRU proposes to accept Greenlink's submitted decommex costs of €8.8m as economic and efficient at this stage. The CRU notes that it will undertake a further detailed assessment of decommex costs as part of the project's PCR.

## 7.8. Consultation Questions on Greenlink's Costs

The CRU's minded to efficiency assessment of Greenlink's cost submission is given in Tables 7.2 and 7.3 below.

Table 7.2: Summary of devex and capex (costs in nominal prices, Rol share)

Cost type	Greenlink Submission (€m)	CRU Provisional Allowance (€m)
<b>Devex</b>	11.9	11.9
<b>Capex</b>	<i>Main project costs</i>	213.4
	<i>Risk</i>	12.1
<b>Total</b>	237.4	233.0

*Note: Values are rounded to 1dp.*

Table 7.3: Summary of post-construction costs (costs in real 2020 prices, Rol share)

Cost type	Greenlink Submission (€m)	CRU Provisional Allowance (€m)
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<b>Operating costs</b>	167.8	167.8
<b>Replacement costs</b>	8.5	8.5
<b>Decommissioning costs</b>	4.4	4.4
<b>Total</b>	180.7	180.7

*Note: values are rounded to 1dp.*

The CRU welcomes comments on all of the minded to positions set out in this section, including the efficiency assessment outlined in the Tables above.

The CRU welcomes comments from stakeholders on the questions below.

#### **Greenlink's costs Consultation Questions**

- **Question 1:** What are your views on the CRU's "minded to" position on Greenlink's costs as set out in this section?
- **Question 2:** Do you agree with the CRU's view on the efficient level of costs for the project at this stage?

## 8. Interconnector Operating License

Under Section 14(i) of the Electricity Regulation Act 1999 (as amended) the CRU is responsible for granting a licence to transport electricity across and to maintain an interconnector.

As per decision paper [CER/11/055](#), the CRU

*“will grant this [interconnector operating licence] upon application to those that already have been issued with an authorisation to construct an interconnector pursuant to Section 16 of the 1999 Act, who by this process, would be automatically eligible to receive a licence to operate the same interconnector.”*

The CRU notes that the draft Interconnector Operating Licence is expected to be subject to public consultation. Additionally, the CRU notes that elements of the Final Determination on the Greenlink Electricity Interconnector Cap and Floor Regulatory Framework that may be identified as informing licence conditions will be incorporated where appropriate.

## 9. Summary

### 9.1. Summary Minded to Position

This section summarises out the CRU's minded to position for each building block of the Cap and Floor regime, the combination of which will drive the Cap and Floor levels that will ultimately apply to the Greenlink electricity interconnector in Ireland. This section also summarises the CRU's minded to position on the project costs in Ireland. The CRU considers that the proposed regulatory framework will enable the efficient development of the Greenlink interconnector while providing protection to Irish consumers.

Based on these proposals, the CRU has calculated an initial estimates of an **annual cap level of €32.4 million** and an **annual floor level of €17.4 million** (2019 prices). As shown in Table 9.1 below, the CRU's initial estimates are below the Cap and Floor levels requested by Greenlink.

**Table 9.1. Draft Cap and Floor levels based on CRU's minded to-position (2019 prices)**

	Cap	Floor
Cap and Floor levels submitted by Greenlink	€33.6m	€18.9m
Cap and Floor levels calculated by CRU	€32.4m	€17.4m

*Source: Greenlink submissions and CRU*

The CRU's initial estimates of Greenlink's Cap and Floor levels have been developed using a financial model designed<sup>92</sup> to implement the CRU's minded to Cap and Floor framework in Ireland. The CRU emphasises that these levels reflect the CRU's minded to position which is being consulted on in this document and may not reflect the final settlement for Greenlink<sup>93</sup>.

The following sub-sections summarise the CRU's minded to position for each building-block grouped by theme.

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<sup>92</sup> Possible shorter the Cap and Floor regime duration for Greenlink in GB.

<sup>93</sup> CRU notes that the financial model used to develop the Cap and Floor levels has not at this point in time been subject to an independent audit and represents a working draft only. The model will be shared with the project developer for comment on a confidential basis as part of developing the CRU Final Decision. The assumptions used within the model is subject to change and the Cap and Floor levels may not reflect the final settlement for Greenlink. The Cap and Floor levels that have been calculated should therefore be treated with caution.

### 9.1.1. Revenue Building Blocks Summary

Building block	CRU's minded to position
<b>Regime start date</b>	<ul style="list-style-type: none"> <li>• The Cap and Floor regime starts from the project's full commissioning date unless that date falls after 31<sup>st</sup> December 2024 backstop date.</li> <li>• If the full commissioning date falls after the backstop date, the backstop date will be the regime start date.</li> <li>• The cap will come into effect from the regime start date, but eligibility for floor top-ups only starts from the full commissioning date.</li> <li>• Various tests will need to be met for the project to be deemed to have achieved full commissioning, including commissioning tests and procedures in line with good industry practice.</li> </ul>
<b>Regime duration</b>	<ul style="list-style-type: none"> <li>• 25-year regime duration from regime start date.</li> <li>• Regime expires at end of regime duration no later than 31<sup>st</sup> December 2049.</li> </ul>
<b>Cap and Floor building blocks</b>	<ul style="list-style-type: none"> <li>• Cap and Floor levels set in real Euro terms.</li> <li>• They will be profiled so they are flat in real terms, indexed each year using annual Irish HICP inflation.</li> <li>• Levels built from capex, opex, repex, devex, decommex, tax and allowed returns.</li> <li>• Different rates of return used to differentiate the cap and the floor.</li> </ul>
<b>Assessed revenues</b>	<ul style="list-style-type: none"> <li>• Assessed revenues will be used to determine Greenlink's eligibility for Cap and Floor payments.</li> <li>• Assessed Revenues set based on Gross Revenues less Market Related Costs.</li> <li>• Gross Revenue covers the full range of revenues Greenlink may receive related to products/services sold both in GB and Ireland. This may include, but is not limited to, revenue from capacity allocation, capacity markets and ancillary services. Receipts that substitute revenue will also be included, for example, business interruption insurance and constraint payments.</li> <li>• Market Related Costs cover expenses related to interconnector capacity firmness.</li> </ul>
<b>Assessment period length</b>	<ul style="list-style-type: none"> <li>• Annual assessment periods, aligning to calendar years from earliest opportunity.</li> <li>• Each annual assessment period shall be considered in isolation, with no carry overs between assessment periods.</li> </ul>

Building block	CRU's minded to position
<b>Cross-border split</b>	<ul style="list-style-type: none"> <li>The Irish Cap and Floor regime will cover half of Greenlink's costs and revenues.</li> </ul>
<b>Financial model</b>	<ul style="list-style-type: none"> <li>Establish a CRU Ireland-only model covering half the project's costs and revenues, to be run in parallel with an Ofgem GB-only model covering the other half of costs and revenues.</li> <li>The CRU will assess as part of its Final Determination if it would be in Irish Consumers' interest to adopt a single model implemented in partnership with Ofgem, covering the whole costs and revenues of the project.</li> </ul>
<b>Cap and Floor payment process and terms</b>	<ul style="list-style-type: none"> <li>Cap and Floor payments will be made between the developer and the national TSO and will be recovered/distributed via transmission use of system charging arrangements (TUoS).</li> </ul>

### 9.1.2. Performance Building Blocks Summary

Building block	CRU's minded to position
<b>Force Majeure</b>	<ul style="list-style-type: none"> <li>Define force majeure consistent with existing GB Cap and Floor licence, amended to include: (i) strikeout; (ii) lockout; and (iii) other industrial disturbance.<sup>94</sup></li> </ul>
<b>Income Adjusting Events</b>	<ul style="list-style-type: none"> <li>Greenlink will be able to make Income Adjusting Event claims for efficient costs incurred due to force majeure.</li> <li>Claim value must exceed five percent of the annual floor.</li> <li>Approved costs will be netted off Gross Revenue similar to Market Related Costs.</li> </ul>
<b>Cap Availability Incentive</b>	<ul style="list-style-type: none"> <li>The regulatory framework will have in place an availability incentive designed to incentivise Greenlink to maximise availability of the interconnector when revenues are high.</li> <li>Propose that the cap level may increase or decrease two percentage points depending on performance against an annual target availability level.</li> <li>This means that availability above (or below) the target availability level will result in a one-for-one percentage increase (or decrease) in the cap level, up to +/- 2%.</li> <li>Develop a common availability incentive target rate in partnership with Ofgem, that will apply in both the Ireland and GB regimes.</li> </ul>

<sup>94</sup> [Ofgem's decision on proposed changes to our electricity interconnector Cap and Floor regime to enable project finance solutions.. page 27.](#)

Building block	CRU's minded to position
<b>Minimum Availability Incentive</b>	<ul style="list-style-type: none"> <li>• Greenlink will lose eligibility for floor top-ups if annual availability falls below 80%.</li> <li>• CRU may reinstate that eligibility following an “Exceptional Event” claim from Greenlink relating to periods of outage due to a force majeure event.</li> <li>• Temporary floor top-ups will be permitted if annual availability is below that level subject to certain conditions.</li> <li>• Temporary top-ups must be repaid with priority from revenues above the floor in future years, with the requirement to repay Irish consumers outliving the initial regime duration if needed.</li> </ul>
<b>Exceptional Event Claims</b>	<ul style="list-style-type: none"> <li>• Include an Exceptional Event claim process within the minimum availability incentive. That process would allow Greenlink to make a claim to the CRU for an outage to be excluded from the minimum availability incentive.</li> </ul>
<b>Temporary Floor Top-Ups</b>	<ul style="list-style-type: none"> <li>• Allow temporary floor top-ups when annual availability is below the minimum availability threshold.</li> <li>• Any outstanding balance of temporary floor top-ups to be repaid with priority from revenues above the floor, with that treatment extending beyond the end of the Cap and Floor regime if needed.</li> <li>• The balance of outstanding temporary top-ups would accrue interest at the operational discount rate plus a margin.</li> <li>• The balance of outstanding temporary top-ups shall not exceed four times the annual floor.</li> <li>• Greenlink will be prohibited from paying any dividend or distribution to shareholders if it has an outstanding balance of temporary floor top-ups.</li> </ul>

### 9.1.3. Cost Building Blocks Summary

Building Block	CRU's minded to position
<b>Setting Cost Allowances</b>	<ul style="list-style-type: none"> <li>• CRU proposes to set Greenlink's cost allowances in its Final Determination. The CRU will provide “firm” values for devex, capex, controllable elements of opex and repex, and will set provisional values for developer risk and decommissioning costs.</li> <li>• CRU proposes to conduct a Post-Construction Review (PCR) which will assess any changes to Greenlink's capex, opex and repex costs, and finalise these allowances. It will also assess and set decommissioning costs.</li> <li>• In respect of cost items which are uncertain at the time of the CRU's Final Determination e.g., insurance, CRU proposes to conduct a limited further review, and to set out the expected regulatory treatment of those items, ahead of Financial Close.</li> </ul>

Building Block	CRU's minded to position
<b>Final Determination Stage</b>	<ul style="list-style-type: none"> <li>• Sets ex ante allowances for costs for which there is sufficient cost information to make an informed decision. The CRU considers that devex, capex, and substantial portions of opex and repex to fit into this category.</li> <li>• Provides an initial assessment of efficient costs where the information provided by Greenlink is less certain at this stage – for example, developer risk and decommissioning – so that provisional Cap and Floor levels can be set.</li> <li>• Provides more detailed guidance on how the CRU will further assess any changes to Greenlink's submitted costs as part of the PCR, in order to determine the final Cap and Floor levels.</li> </ul>
<b>Financial Close Stage</b>	<ul style="list-style-type: none"> <li>• Reviews the key commercial elements of the project's structure to ensure that the company has a robust plan to deal with any major failure events and can provide assurance that if such an event were to occur, the risk of Greenlink seeking compensation from the Irish consumer is well managed.</li> </ul>
<b>Post Construction Review Stage (PCR)</b>	<ul style="list-style-type: none"> <li>• Takes place at the earlier of: (i) the point at which Greenlink confirms its pre-construction devex and capex is between 85 and 95 percent complete; or (ii) the full commissioning date.</li> <li>• Assesses any changes in Greenlink's capital costs incurred in construction on an ex-post basis, to both validate what the expenditure has delivered, and to assess the efficiency of this expenditure, taking into account the provisional developer risk allowance set in the Final Determination.</li> <li>• Limited assessment of changes in post-construction costs compared to the assumptions underlying the Final Determination. Greenlink would be required to provide an updated forecast of its post-construction costs supported by a clear, reasoned and well-evidenced submission to demonstrate the efficiency of any changes since the Final Determination and explaining why such changes are both uncontrollable and unavoidable.</li> </ul>
<b>Regulatory Reporting</b>	<ul style="list-style-type: none"> <li>• Greenlink will be required to provide an Annual Progress Report to the CRU of progress on construction programme post financial close.</li> <li>• The Annual Progress Report should provide, amongst other items, an update on Greenlink progress against milestones, risk provision and performance against the cost allowances set in the Final Determination document.</li> </ul>
<b>Opex uncertainty mechanism</b>	<ul style="list-style-type: none"> <li>• Opex allowance may be re-opened once in the regime duration, but not within the first 10 years. As at PCR stage the CRU, would expect Greenlink to present a strong and evidenced case for change if this uncertainty mechanism is used.</li> <li>• Either party (the CRU or the developer) may trigger this review.</li> </ul>

Building Block	CRU's minded to position
	<ul style="list-style-type: none"> <li>• Pass-through adjustments allowed for certain non-controllable opex costs relative to a baseline, following five-yearly efficiency assessments.</li> </ul>
<b>Decommissioning costs</b>	<ul style="list-style-type: none"> <li>• Sets decommex allowance at PCR based on prevailing Irish and GB requirements but will need to consider any changes in the forecast cost due to changes in the underlying assumptions since the Final Determination.</li> <li>• Update allowance during regime for changes in requirements from Irish Authorities.</li> </ul>
<b>Exchange rate adjustments</b>	<ul style="list-style-type: none"> <li>• Use monthly ECB benchmark rates to convert nominal values between currencies.</li> <li>• Consider changes in hedging costs at the PCR on a case-by-case basis.</li> </ul>
<b>Adjustments for inflation</b>	<ul style="list-style-type: none"> <li>• CRU will index the final Cap and Floor levels by outturn Irish HICP inflation over the duration of the Cap and Floor regime.</li> <li>• Ensure that any inflation adjustments do not remunerate inflation risk which Greenlink has passed down its supply chain.</li> </ul>

#### 9.1.4. Financial Building Blocks Summary

Building block	CRU's minded to position
<b>Floor rate of return</b>	<ul style="list-style-type: none"> <li>• Set an Irish notional floor rate of return as a cost of debt benchmark to differentiate the level of the floor from the cap.</li> <li>• Finalise the notional rate at Greenlink's final investment decision (FID) with an update based on a 20-day rolling average of iBoxx BBB EUR non-financial corporate 10yr+ bond yields and latest Central Bank of Ireland baseline forecasts for Irish HICP inflation.</li> <li>• The CRU is consulting on a potential offer to Greenlink of an actual cost of debt (ACOD) floor. With the ACOD floor, Greenlink would be able to receive temporary top-ups vs. a higher floor calculated based on its actual debt service. The CRU has not reached a minded to position on whether to include an ACOD floor in Greenlink's regime and is instead seeking as part of this consultation further justification from Greenlink of why it considers this additional regime feature is needed for the project.</li> <li>• A decision on the ACOD floor will be provided in the CRU's Final Determination considering consultee responses.</li> </ul>
<b>Cap rate of return</b>	<ul style="list-style-type: none"> <li>• Set an Irish cap rate of return using a cost of equity benchmark to differentiate the level of the cap from the floor.</li> <li>• Set value in the Final Determination using CAPM framework.</li> </ul>

Building block	CRU's minded to position
	<ul style="list-style-type: none"> <li>Proposed real cap rate of return is 8.19%.</li> </ul>
<b>Interest during construction</b>	<ul style="list-style-type: none"> <li>Set Irish IDC rate as a weighted average cost of capital to build up the value of the RAV during construction.</li> <li>Finalise rate at Greenlink's FID with an update to the real cost of debt based on a 20-day rolling average of iBoxx EUR non-financial corporate 3-5 year bond yields and latest Central Bank of Ireland inflation forecasts.</li> <li>Based on iBoxx data to 31<sup>st</sup> January 2021, the CRU proposes a real IDC value of 3.88%.</li> </ul>
<b>Operational discount rate</b>	<ul style="list-style-type: none"> <li>Set a notional operational discount rate based on a short-term cost of debt, based on a benchmark rate (EONIA) and a fixed margin based on a BBB credit rating (50 to 100bp).</li> <li>Apply a further margin in the case of temporary top-ups due through the minimum availability mechanism or the ACOD floor (should the latter be adopted).</li> </ul>
<b>Notional transaction costs</b>	<ul style="list-style-type: none"> <li>Transaction cost allowances added to RAV evaluated at 5.0% for equity and 2.5% for debt, assuming the notional IDC gearing level during construction and 50% gearing during the operational period.</li> <li>The ACOD floor if adopted would use only well-evidenced values for actual transaction costs incurred.</li> </ul>
<b>Tax allowance</b>	<ul style="list-style-type: none"> <li>Implement simplified notional tax calculation based on the Irish tax regime.</li> <li>Develop detailed calculations for Final Determination pending a detailed request from Greenlink that would demonstrate to the CRU's satisfaction that: (i) the proposals accurately represent the Irish tax regime; and (ii) the respective allowances provide a reasonable approximation of the tax liability of an efficient company earning revenues consistently at the cap or at the floor.</li> </ul>

### 9.1.5. Cost Assessment Summary

Cost Category	CRU's minded to position
<b>Development expenditure (Devex)</b>	<ul style="list-style-type: none"> <li>CRU is minded to accept Greenlink's submitted devex costs in full at this stage, as they sit within the CRU's benchmark range.</li> <li>However, as devex costs are at the top end of the benchmark range, the CRU does not expect to allow any subsequent increases in costs as a result of any further delay in getting the project to a construction-ready state.</li> </ul>

Cost Category	CRU's minded to position
<b>Capital expenditure (capex)</b>	<ul style="list-style-type: none"> <li>Using a simple top-down capex benchmarking approach, Greenlink's submitted capex costs appear to sit within a broad top-down benchmarking range.</li> <li>However, the cost of the converter stations (the largest components of capex) is above the top end of the benchmark range. CRU requests further evidence to explain the significant variation from its cost benchmarks.</li> <li>CRU proposes to disallow €7.5m of construction capex (€3.75m Irish-only share) in relation to project management ("PM") costs. This is because the CRU's assessment of PM costs shows that contractor PM costs are at the top end of the benchmark range and the information provided by Greenlink to date has not provided adequate justification for this relatively high level.</li> <li>CRU also proposes to disallow €1.2 million (€0.6m Irish-only share) in capex due to its concerns around Delay in Start Up (DSU) insurance. CRU is concerned that DSU insurance may provide Greenlink with consumer-funded protection for risks that it should be able to control or should have allowed for in its risk analysis.</li> </ul>
<b>Operating expenditure</b>	<ul style="list-style-type: none"> <li>CRU is minded to accept Greenlink's opex costs in full at this stage, because total opex costs sit below the CRU's benchmark range.</li> </ul>
<b>Replacement expenditure</b>	<ul style="list-style-type: none"> <li>CRU is minded to accept Greenlink's repex costs in full at this stage, because total repex costs sit within the CRU's benchmark range.</li> </ul>
<b>Decommissioning expenditure</b>	<ul style="list-style-type: none"> <li>CRU is minded to accept Greenlink's decommex costs in full at this stage, but will review an updated estimate and assess any changes submitted by Greenlink at the PCR.</li> </ul>

### 9.1.6. Project Cost and Technical Assessment Summary

Following careful consideration of the costs and technical details submitted by Greenlink and using CRU benchmarking on comparable projects the CRU has come to the following position on costs.

Cost type	Greenlink Submission (€m)	CRU Provisional Allowance (€m)
<b>Devex</b>	11.9	11.9
<b>Capex</b>	<i>Main project costs</i>	213.4
	<i>Risk</i>	12.1
		209.0
		12.1

<b>Total</b>	237.4	233.0
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<b>Cost type</b>	<b>Greenlink Submission (€m)</b>	<b>CRU Provisional Allowance (€m)</b>
<b>Operating costs</b>	167.8	167.8
<b>Replacement costs</b>	8.5	8.5
<b>Decommissioning costs</b>	4.4	4.4
<b>Total</b>	180.7	180.7

<b>Cost Category</b>	<b>CRU's minded to position</b>
<b>Development expenditure (Devex)</b>	<ul style="list-style-type: none"> <li>• CRU is minded to accept Greenlink's submitted development expenditure costs in full at this stage, as they sit within the CRU's benchmark range.</li> <li>• However, as development expenditure costs are at the top end of the benchmark range, the CRU does not expect to allow any subsequent increases in costs as a result of any delay in getting the project to a construction-ready state.</li> </ul>
<b>Capital expenditure (capex)</b>	<ul style="list-style-type: none"> <li>• Greenlink's submitted capital expenditure costs appear to sit within a broad top-down benchmarking range. However, the cost of the converter stations (the largest components of capex) are above the top end of the benchmark range.</li> <li>• CRU proposes to disallow €7.5m of construction capex (€3.75m Irish-only share) in relation to project management ("PM") costs. This is because the CRU's assessment of PM costs shows that contractor PM costs are at the top end of the benchmark range and the information provided by Greenlink to date has not provided adequate justification for this relatively high level.</li> <li>• The CRU also proposes to disallow €1.2 million (€0.6m Irish-only share) in capex due to its concerns around Delay in Start Up insurance. The CRU is concerned that Delay in Start Up insurance may provide Greenlink with consumer-funded protection for risks that it should be able to control or should have allowed for in its risk analysis.</li> </ul>
<b>Operating expenditure</b>	<ul style="list-style-type: none"> <li>• The CRU is minded to accept Greenlink's operating expenditure costs in full at this stage, because total operating expenditure costs sit within the CRU's benchmark range.</li> </ul>
<b>Replacement expenditure (repex)</b>	<ul style="list-style-type: none"> <li>• The CRU is minded to accept Greenlink's replacement expenditure costs in full at this stage, because total replacement expenditure costs sit within the CRU's benchmark range.</li> </ul>
<b>Decommissioning expenditure (decommex)</b>	<ul style="list-style-type: none"> <li>• The CRU is minded to accept Greenlink's decommissioning expenditure costs in full at this stage, but will review an updated</li> </ul>

<b>Cost Category</b>	<b>CRU's minded to position</b>
	estimate and assess any changes submitted by Greenlink at the Post Construction Review.

## 10. Next Steps

The CRU welcomes stakeholders' comments on its minded to positions for the regime "building blocks" that have been set out in this draft determination paper. The CRU also welcomes views on the impact of the draft Cap and Floor levels on Irish electricity consumers and on the commercial operations of the Greenlink interconnector. The CRU emphasises that these levels reflect the CRU's minded to position which is being consulted on in this document and may not reflect the final decision for Greenlink.<sup>95</sup>

Please note that following this draft determination consultation, the CRU will publish a Final Decision on the Greenlink Electricity Interconnector Cap and Floor Regulatory Framework in H2 2021.

The CRU welcomes comments on the questions raised in this draft determination paper.

### Revenue Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's proposed "Revenue" building blocks?
- **Question 2:** Is the CRU's proposed backstop date at the end of 2024 appropriate in the context of the ongoing COVID-19 pandemic? Might a later backstop date or alternative approach be justified?
- **Question 3:** Does the CRU's proposed regulatory treatment of Greenlink in Ireland create any gaps in the overall coherence of its regulatory treatment? Are any further arrangements needed to address such concerns?

### Performance Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's proposed "Performance" building blocks?

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<sup>95</sup> CRU notes that the financial model used to develop the Cap and Floor levels has not at this point in time been subject to an independent audit and represents a working draft only. The model will be shared with the project developer for comment on a confidential basis as part of developing the CRU Final Decision. The assumptions used within the model is subject to change and the Cap and Floor levels may not reflect the final settlement for Greenlink. The Cap and Floor levels that have been calculated should therefore be treated with caution.

### Performance Building Block Consultation Questions

- **Question 2:** What are your views on proposed CRU's IAE and Exceptional Event claims processes and the timetable for completion of each process?
- **Question 3:** Should the CRU put in place a performance security and/or requirements on minimum insurance in order for Greenlink to be able to qualify for the minimum availability incentive?

### Cost Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's "minded to" position as set out in this section?
- **Question 2:** Do you agree that the process set out in this section to review the costs which will be used to set the Cap and Floor levels is proportionate, will provide sufficient certainty to allow Greenlink to raise finance for the project, and will provide appropriate protection for Irish consumers?
- **Question 3:** What are your views on the level of guidance that Greenlink would reasonably require around the scope of the PCR?
- **Question 4:** Do you agree that the proposed opex uncertainty mechanisms achieve the right balance between protecting Irish electricity consumers and providing sufficient certainty to allow Greenlink to raise finance for the project?

### Financial Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's "minded to" positions as set out in this section?
- **Question 2:** What are your views on the proposed use of the ACOD mechanism to set the floor rate of return? Given the added complexity and administrative burden that this will add to the Irish Cap and Floor regime, do you consider that this

### Financial Building Block Consultation Questions

mechanism is required by Greenlink to ensure that the project is viable? Do you have any views on the impact of this mechanism on Irish electricity consumers?

- **Question 3:** Does the CRU's proposed treatment of Greenlink's financial parameters provide sufficient return to ensure that the project is viable and will be able to raise project finance?
- **Question 4:** Do you agree with the CRU's proposed approach to the operational discount rate, including the application of a further margin for temporary top-up balances? What evidence should the CRU consider when setting that additional margin?
- **Question 5:** Do you agree that it is appropriate for the CRU to place requirements on the insurances held by Greenlink? What considerations should the CRU take into account in developing its position on any such requirements?

### Financial Building Block Consultation Questions

- **Question 1:** What are your views on the CRU's "minded to" position on Greenlink's costs as set out in this section?
- **Question 2:** Do you agree with the CRU's view on the efficient level of costs for the project at this stage?

The CRU will consider all the submissions it receives prior to making a Final Decision on the Greenlink Electricity Interconnector Cap and Floor Regulatory Framework which is expected to be in H2 2021.

The deadline for submitting responses to the CRU regarding the Greenlink electricity interconnector Cap and Floor Regulatory Framework is 17.00 Tuesday, 18 May 2021.

Responses to this consultation should be sent to [electricityinterconnectors@cru.ie](mailto:electricityinterconnectors@cru.ie).

Please note that following this draft determination consultation, the CRU will publish a Final Determination on the Greenlink Electricity Interconnector Cap and Floor Regulatory Framework in Ireland. The CRU expects to publish its Final Determination in H2 2021. The Table 10.1 below outlines the upcoming milestones and CRU decision points.

The CRU will also continue to engage with the Ofgem to explore the potential for a regulatory decision-making process and detailed cost assessment that takes both the Irish and GB regulatory separate decision-making processes into account.

**Table 10.1: Summary of upcoming Greenlink milestones**

	Draft Determination	Final Determination	Final Investment Decision	Financial Close	PCR
Decision timeline	H1 2021	H2 2021	H2 2021 – H1 2022	H2 2021 – H1 2022	2023 - 2024
Process for setting Greenlink's costs	Minded to ex-ante assessment of Greenlink's cost submission	Devex: ex-post assessment  Capex, opex and repex: ex-ante assessment		Treatment of uncertain costs at the PCR stage will be established  The key commercial elements of the project will be reviewed	Capex: ex-post review  Ex-ante assessment of uncontrollable changes to opex and repex forecast  Final decomm set
Process for setting Greenlink's financial parameters	Set out minded to position on Greenlink's financial parameters.	Final decision on the actual cost of debt option for Greenlink. Cap rate of return; IDC rate; operational discount rate; transaction costs and tax allowances will be set.	The floor rate of return will be set based on the notional cost of debt at this stage.		

**Source: CRU**

## **CRU Disclosure Requirements**

Unless marked confidential, all responses from companies or organisations may be fully published on the CRU's website. Respondents may request that their response is kept confidential.

The CRU shall respect this request, subject to any obligations to disclose information. Respondents who wish to have their responses remain confidential should clearly mark the document to that effect and include the reasons for confidentiality.

Responses from identifiable members of the public will be anonymised prior to publication on the CRU website unless the respondent explicitly requests their personal details to be published.

The CRU privacy notice sets out how it protects the privacy rights of individuals and can be found [here](#).