



An Coimisiún
um Rialáil Fóntais
**Commission for
Regulation of Utilities**

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Commission for Regulation of Utilities

Celtic Electricity Interconnector “EirGrid - Regulatory Framework Request”

Consultation 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 we undertake 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 our vision.

Executive Summary

Introduction

The purpose of this paper is to set out, for consultation, the Commission for Regulation of Utilities' (CRU) proposal regarding the cost recovery model for the Celtic Electricity Interconnector as part of the regulatory framework for the Celtic Interconnector in Ireland.

CBCA Decision

In September 2018, the transmission system operators (TSOs) in Ireland and France submitted an investment request for the development of the Celtic Interconnector to the relevant national regulatory authorities (NRAs), the CRU and the Commission de régulation de l'énergie (CRE) respectively.

As part of their submission, the TSOs requested the NRAs to decide on a Cross Border Cost Allocation (CBCA) of Celtic's investment costs between Ireland and France and their inclusion in each country's tariffs under Article 12 of the TEN-E Regulations (EU) 347/2013. Between 20 December 2018 and 15 February 2019, the NRAs held public consultations on the Celtic Investment Request in Ireland and France.

As part of its consultation,¹ the CRU published its assessment of the Investment Request. In that paper, the CRU noted that including Celtic in the national tariffs would have a significant material impact on the Irish customer, much higher than in other EU countries. This was due to the relatively high investment cost associated with this project, €930m in total for the project at that time, and the small size of the Irish market. As a result of this, and the considerations of the cost benefits analysis modelling scenarios, the CRU noted that the project would require significant EU financial assistance to ensure Irish customers do not face considerably higher transmission charges as a result of this investment.

Following the CBCA decision, the project promoters applied for EU financial assistance under the Connecting Europe Facility (CEF) on 31 May 2019. The Celtic Interconnector was selected to receive a maximum EU financial assistance of €530.7m, which represents 57% of the estimated investment costs. Although the amount of the financial support did not reach 60% of the project's estimated costs, as required by the NRAs in the CBCA decision, the NRAs agreed that the grant was substantial and reflected the positive externalities brought

¹ Celtic Interconnector CRU Assessment of the Celtic Investment Request (CRU/18/265), available at: <https://www.cru.ie/wp-content/uploads/2019/01/CRU18265-Celtic-Interconnector-CRU-assessment-of-the-Celtic-investment-request-Consultation-Paper.pdf>

about by the project, not only to the hosting countries, but also to the European Union (EU) as a whole.

The NRAs, therefore, considered that this level of financial assistance was almost equal to the minimum amount set in the CBCA decision and therefore would not put an excessive risk on the French and Irish customers. The NRAs therefore affirmed the CBCA decision on 10 October 2019.²

The table below outlines the estimated project cost³ that the Irish customer may be required to cover, as part of the development of the Celtic Interconnector as per the CBCA decision.

Project Costs	€m
Project Cost estimate	930 ⁴
Less CEF funding award	538 ⁵
Remaining project costs to be covered by Ireland and France	392
Ireland's share ⁶ of project costs (65%)	255

Table 1 - Project Costs, as at the time of the CBCA submission, to be Covered by Member States (nominal, rounded)

The CRU noted, during its assessment of the Investment Request, that following the outcome of the CBCA assessment, a separate process and consultation would take place regarding the regulatory framework for the Celtic Interconnector in Ireland.

² Review of the coordinated decision on the cross-border cost allocation request submitted by the Celtic Interconnector project following the results of the second Connecting Europe Facility energy call 2019, available at: <https://www.cru.ie/wp-content/uploads/2019/10/CRU19125-revised-CBCA-decision.pdf>

³ At the time of the investment request submission.

⁴ Latest cost estimation for the project is now projected at approx. €1,014.5m plus a risk contingency of approx. €101.5m.

⁵ As per the CBCA decision, the funding should be shared between EirGrid and RTE in a manner that matches the cost-allocation agreement (i.e. 65% for Ireland, 35% for France).

⁶ France share (35%) of project cost estimate is €137m up to the projects estimated costs at the time of the CBCA decision which was €930m. Beyond this, costs are to be shared equally (i.e. 50% each) between Ireland and France. Should the costs increase by 20% or above, the CRU and CRE will review the CBCA decision.

Cost Recovery Model

The focus of this consultation paper is to set out the CRU's proposed regulatory framework for the Celtic Interconnector, specifically with regard to the proposed cost recovery model. Following this consultation, a final decision will be issued, setting out the cost recovery model for the Celtic interconnector. The CRU will continue to engage with EirGrid on the more detailed aspects of this model, and these aspects will be determined, once a final decision on the cost recovery model has been issued. Separate processes will also take place in due course regarding further elements of the regulatory framework including governance, licensing, cost assessment etc.

In April 2020, EirGrid submitted a request to the CRU for a regulatory framework setting out how it envisaged recovering its costs associated with this project. This submission was made under Article 12 of the TEN-E Regulations (EU) 347/2013 which states that network users should cover the costs of certain specified Projects of Common Interest (PCIs) where congestion rent is not sufficient to cover the costs incurred in developing such infrastructure. EirGrid's submission was subsequently updated in February 2021.⁷

In their submission, EirGrid has requested a fully regulated model to underwrite the costs of the interconnector which would return the costs to EirGrid through a Regulated Asset Base⁸ (RAB) x Weighted Average Cost of Capital⁹ (WACC) model. Key elements of EirGrid's request are outlined in the table below.

Cost Recovery Model Request by the TSO	
To be included in EirGrid TSO	The interconnector asset would be integrated into EirGrid's TSO activities.
Regulatory framework	Regulatory treatment of the interconnector to build on RAB x WACC regime for TSO price-controlled activities.
Capex	
Capex net of grant added to RAB	EirGrid's share of all project capex (net of the CEF grant) added to TSO's RAB.
Basis of WACC	Set equal to extant price control WACC, e.g., PR6, PR7, PR8.

⁷ See CRU/21/057a published alongside this paper.

⁸ Regulated Asset Base is a measure of the net value of the assets allowed (those determined to be efficiently incurred by the CRU) that a regulated undertaking has for the operation of its regulated activities at any point in time.

⁹ A fair rate of return that a regulated network company can earn on the efficiently incurred capital investments in its regulated asset base. This is set by the regulator.

Nominal WACC, no indexation	Allowed WACC set in real terms, to which Irish HICP is added and applied in nominal terms, (i.e. no RAB indexation).
WACC inflation	The minimum inflation rate that can be used in the nominal WACC estimate is zero.
Minimum DSCR	Allowed WACC shall be such that Debt Service Coverage Ratio (DSCR) shall be at least 1.8x in each period. ¹⁰
Depreciation	From Final Investment Decision (FID) additions to the RAB will be written down from the date they are incurred and returned to EirGrid over 25 years on a straight-line basis.
Incentive package	Any form of financial delivery incentive – e.g. timely and cost-effective delivery – to be no greater in total than €11.5m and any reward or penalty to be spread over 10 years.
Opex	
Opex	Costs are subject to periodic reset consistent with the wider framework for the determination of efficient costs for the fulfilment of the TSO functions by the CRU

Table 2 - Summary of EirGrid's Requested Cost Recovery Model

The CRU has reviewed EirGrid's request and is of the view that while the requested framework would allow EirGrid to finance the Celtic interconnector, it does not provide sufficient protection to electricity customers from inefficient expenditure, particularly during the construction phase.

It should be noted that the Celtic interconnector is a one-off, technically complex project, involving the laying of a subsea cable, approx. 500km in length, with associated risks of construction delays and cost overruns. The risk to the project during the construction period is greater than when the interconnector is fully operational. During construction, the interconnector will face considerable construction risks, which, if realised, would likely be difficult for an asset light company, such as EirGrid, to bear on its current balance sheet. EirGrid's proposed cost recovery model seeks to secure protections against these construction risks by placing the financial risk on to the electricity customer.

It should be noted that any construction cost overrun by the project would, in the large part, be borne by the Irish customer through an increase in the RAB. Therefore, the CRU must

¹⁰ Note that EirGrid has requested that this apply to all TSO assets and not just the Celtic interconnector.

determine the appropriate cost recovery model to ensure that customers are not exposed to a disproportionate financial risk relative to the benefit of the interconnector.

The project investment cost estimate reviewed, as part of the CBCA decision, was **€930m**. Based on a revised cost estimate recently received by the CRU, the base cost has been revised upwards to **€1,014.5m**. A further review of risk and contingencies has also increased by **€101.5m**. This brings the total revised estimated project costs up to approximately **€1,116m**, including contingencies. Final project costs will not be known until a competitive tender process has taken place. This is expected to be completed in Q4 2021.

The CRU is continuing to engage with EirGrid to understand the latest project cost estimate. A full cost assessment process has been initiated and will be completed before the final decision is given by the CRU for EirGrid to progress to Final Investment Decision (FID).

Recognising the above, the CRU has considered a series of possible regulatory models available, and utilised to date, for electricity interconnectors in the UK and Ireland (e.g. full underwriting, Cap and Floor etc.) to determine a suitable regulatory model for covering the Irish share of the Celtic interconnector, while ensuring customers are protected against disproportionate risks associated with the project.

CRU Proposal

Following careful consideration, the CRU is proposing a fully regulated cost recovery model which draws on EirGrid's request but is adapted to provide additional financial protections for Irish electricity customers. The CRU has sought to achieve this by aligning EirGrid's interests with those of the customers – delivery of the project on time and on cost.

The CRU is proposing a fully regulated model consisting of two-phases:

- Phase 1 – Pre operations (i.e. development & construction); and
- Phase 2 – Operations.

At the outset, the CRU is proposing to carry out a review of the expected costs as part of the cost recovery model, to set an efficient delivery cost for the project. This would involve a technical and cost assessment being carried out by the CRU. This efficient delivery cost would also have regard to the current cost estimates, as the CRU expects EirGrid to be in a position to accurately forecast the cost of the project at this stage. The CRU would also have regard to other information such as the cost estimates at the time of the CBCA. The efficient delivery cost would become the expected efficient cost for the project.

The table below summarises the key elements of this approach across both phases.

Phase 1: Pre-operations	Phase 2: Operational
<p>Opening RAB</p> <ul style="list-style-type: none"> Opening RAB to be set based on Celtic Interconnector’s pre-FID costs subject to prudency review. <p>RAB additions during construction</p> <ul style="list-style-type: none"> Costs incurred logged up in the RAB as additions, as incurred, during the construction period. <p>Investor returns during construction</p> <ul style="list-style-type: none"> EirGrid permitted to recover efficient debt service and liquidity costs as required during construction; EirGrid receives no return on equity until the project is operational. 	<p>Opening RAB</p> <ul style="list-style-type: none"> Opening RAB for operational phase set following a post-construction review of outturn versus efficient delivery cost; Allowed RAB determined following outcome of the post-construction review with the RAB uplifted by €xm depending on EirGrid’s performance under a pre-operations financial delivery incentive. <p>Rate of return and depreciation</p> <ul style="list-style-type: none"> Allowed rate of return on RAB set at 5-year price reviews consistent with the operational risk of the interconnector; Allowed rate of return on the RAB would be set based on principles set ahead of FID; The RAB would be depreciated on a straight-line basis over 25 years from the date of commissioning.

Table 3 - Summary of Proposed Two Phased Regulatory Cost Recovery Model

The CRU is of the view that a fully regulated two-phase funding model strikes the appropriate balance between enabling EirGrid, as an asset light entity, to progress this technically complex project while providing additional protections for the Irish electricity customer. The model would achieve this by incentivising EirGrid to deliver this project on time and on cost, as it has the opportunity to earn additional rewards, thereby aligning its interests as closely as possible to those of customers.

The proposed cost recovery model would regulate the interconnector revenues on a project basis rather than as part of the TSO RAB. While EirGrid has indicated that it will be investing in Celtic at the corporate, EirGrid plc. level, rather than by means of a separate investment vehicle, the CRU considers that the discrete economics and specific circumstances of the investment justify a two-phase cost recovery model that considers the revenue requirements of the project on a separable basis. Ultimately the financing of the Celtic interconnector will need to be underpinned by commitments from the Irish electricity consumer. As a result, the CRU considers it appropriate that the commitments provided, including the determination of an appropriate and specific WACC, are tailored to the specific financing challenges and the risk profile of the interconnector project.

Next Steps

This paper sets out further details of the proposed regulatory cost recovery model for consultation. The CRU is seeking comments from interested parties on the proposed model set out in this paper. Responses should be submitted to electricityinterconnectors@cru.ie by Friday, 25 July 2021. Once responses have been received and considered, the CRU expects to publish a final decision on the Celtic regulatory cost recovery model later this year. The CRU will continue to engage with EirGrid on the detailed aspects of the regulatory cost recovery model and will determine these aspects as well as other elements necessary to allow the project to progress to FID in due course.

Public/Customer Impact Statement

Electricity interconnectors are physical transmission links which allow the transfer of electricity across borders. New interconnectors in Ireland will be necessary for meeting the European Commission's 2030 interconnection targets (15% electricity interconnection target by 2030¹¹) as Ireland transitions to a low carbon economy.¹² Connecting to different markets could be particularly beneficial for Ireland, as it will connect Ireland to the European Union energy market as well as potentially reducing electricity prices and improving security of supply.

However, new interconnectors come at a cost to Irish customers. In order to ensure that the cost is proportionate, the CRU determines how new interconnectors, which require regulatory underpinning, will recover their costs and be regulated. In addition to this, new interconnectors should be built only to the extent that they benefit the public at large.¹³

EirGrid, Ireland's Transmission System Operator (TSO), and its counterpart in France, Réseau de Transport d'Electricité (RTE), are currently carrying out a project to construct an interconnector called the Celtic Interconnector between Ireland and France. It is currently anticipated that this interconnector will be fully operational by 2026. The Irish and French National Regulatory Authorities, CRU and CRE respectively, previously set out the benefits of the project to both countries which included solidarity and security of supply.¹⁴

The expected project costs at the time of the CBCA were €930m.¹⁵ The project has been approved for a total of c. €538m in EU grants, the remainder of the costs must be split between Ireland and France. European legislation sets out that efficiently incurred expenditure in relation to certain specified Projects of Common Interest (PCIs), such as the Celtic Interconnector, should be paid for by network users through tariffs where the costs have not been covered by the income the interconnector itself earns.¹⁶ Therefore, Irish electricity customers, through EirGrid, will be required to cover 65% (or as per the CBCA estimates €255m) of the project costs, less congestion rent (revenue the interconnector will earn itself) and any other revenues, through tariffs. As part of the cost recovery model consulted upon in this paper, the CRU is proposing to carry out a process to set an efficient delivery cost which

¹¹ Defined as import capacity over installed generation capacity.

¹² See : <https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest/electricity-interconnection-targets>

¹³ That is, as long as the benefits of adding interconnection capacity outweigh or equal the costs.

¹⁴ Celtic Interconnector CRU Assessment of the Celtic Investment Request (CRU/18/265), available at: <https://www.cru.ie/wp-content/uploads/2019/01/CRU18265-Celtic-Interconnector-CRU-assessment-of-the-Celtic-investment-request-Consultation-Paper.pdf>

¹⁵ The CRU has since been notified of an increase of €84.5m in base costs and a further €101.5m in additional contingency. The CRU is engaging with EirGrid on these cost increases and will be carrying out cost assessments throughout this project.

¹⁶ Article 12 (1) of the TEN-E Regulations.

will only allow for efficiently incurred costs.

EirGrid is expected to finance the project upfront through a mix of borrowing and equity it has available on its balance sheet (i.e. debt and equity) and recover this expenditure afterwards through a regulatory cost recovery model. The regulatory cost recovery model will determine how much revenue EirGrid will recover in respect of the interconnector for a specified period of time.

There are a number of approaches to regulating interconnectors which can be implemented in various ways. Some regulatory cost recovery models available for interconnectors guarantee the revenue to be earned each year, potentially partly through customer tariffs. Therefore, the CRU has a role to play in ensuring that the costs incurred by the project promoters are efficient and that the regulatory cost recovery model decided upon is fair for customers and the party undertaking the project, in the case of the Celtic Interconnector, that is EirGrid.

EirGrid submitted a request for a fully regulated cost recovery model to the CRU which the CRU has reviewed. The CRU is of the view that a fully regulated model would be appropriate but that aspects of the requested model do not sufficiently protect Irish customers. Therefore, the CRU is proposing, for consultation, a cost recovery model which takes elements of EirGrid's request while modifying the request in order to provide additional protection for electricity customers by incentivising EirGrid to deliver the project on time and in line with a pre-determined cost. This seeks to align the interests of EirGrid with those of the Irish customer as it would allow EirGrid an opportunity to earn additional rewards where it delivers the project on time and on cost. The CRU is of the view that this proposed model would strike an appropriate balance between ensuring EirGrid can finance and progress the project and that Ireland and France can realise the benefits associated with the interconnector, while ensuring customer protection is a priority.

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Glossary of Terms and Abbreviations

Abbreviation or Term	Definition or Meaning
Capex	Capital Expenditure
CAPM	Capital Asset Pricing Model
CBA	Cost Benefit Analysis
CBCA	Cross Border Cost Allocation
CEF	Connecting Europe Facility
CRE	Commission de régulation de l'énergie (French Energy Regulatory Commission)
CRU	Commission for Regulation of Utilities
DSCR	Debt Service Cover Ratio
EU	European Union
EWIC	East West Interconnector
FID	Final Investment Decision
HICP	Harmonised Index of Customer Prices
IDC	Interest during Construction
NRA	National Regulatory Authority
O&M	Operational and Maintenance
Opex	Operational expenditure
PCI	Project of Common Interest
RAB	Regulated Asset Base
RTE	Réseau de Transport d'Electricité (French TSO)
TEN-E	Tans-European Energy Infrastructure (EU Regulation 347/2013)

TSO	Transmission System Operator
TUoS	Transmission Use of System Charge
WACC	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 was originally established as the Commission for Electricity Regulation (CER) in 1999. 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 our 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 our vision.

Further information on the CRU's role and relevant legislation can be found on the CRU's website at www.cru.ie.

1.2. Background

The Celtic Interconnector Project is a project to construct a proposed 700MW subsea electrical cable that would link the electricity transmission systems of Ireland and France to enable the two countries to export or import electricity from each other. This project is being promoted by EirGrid and Réseau de Transport d'Électricité (RTE), who are the Transmission System Operators (TSOs) in Ireland and France respectively. Figure 1 below provides an illustration of the interconnector.



Figure 1 Celtic Interconnector, Source: Celtic Investment Request Figure 1

For Ireland, Celtic would be the first direct energy link to continental Europe and the only link to the European Union energy market post Brexit.

The Celtic Interconnector project is a project of common interest (PCI) which means that it is considered key in completing the European energy market and helping the EU achieve its energy policy and climate objectives. Given their importance, PCIs can benefit from streamlined planning processes, improved regulatory conditions and possible EU financial assistance from the Connecting Europe Facility (CEF).

The Celtic Interconnector project was first designated a Project of Common Interest (PCI) by the European Commission when it was included in its first PCI list in 2013. The project has retained PCI status since then.¹⁷ PCIs are key cross border infrastructure projects that link the energy systems of EU countries. The PCI process is intended to help the EU achieve its energy policy and climate objectives: affordable, secure and sustainable energy for all citizens, and the long-term decarbonisation of the economy in accordance with the Paris Agreement. To qualify for PCI status, a project must have a significant impact on energy markets and market integration in at least two EU countries, boost competition in energy markets and help the EU's energy security by diversifying sources, as well as contribute to the EU's climate and energy goals by integrating renewables.

The TEN-E Regulations (EU) 347/2013 set out the legal framework for PCIs. In particular, Article 12 states that the efficiently incurred investment costs related to a PCI shall be paid for by users of the transmission infrastructure in the Member States to which the project brings a net positive impact insofar as these costs are not covered by congestion rent. This means that investment costs of cross-border PCIs, such as Celtic, are shared between the countries hosting them and included in their national network tariffs to the extent that the

¹⁷ Note that the fifth PCI list is currently being developed and expected to be adopted by the European Commission by the end of 2021. See https://ec.europa.eu/info/news/consultation-list-candidate-projects-common-interest-electricity-and-gas-2021-jan-14_en for further information.

costs are not recovered through congestion rent (i.e. the money which the interconnector earns itself on a commercial basis).

1.3. Cost Allocation Request

In September 2018, Celtic's project promoters (EirGrid and RTE) submitted an Investment Request to the CRU, and separately, to the Commission de régulation de l'énergie (CRE) in accordance with the requirements of the TEN-E Regulations. The submissions included a Cost Benefit Analysis (CBA) and a request for the costs of Celtic to be included in each country's network tariffs, as well as a request for the NRAs to issue a Cross Border Cost Allocation (CBCA) decision. A non-confidential version of the Investment Request has been published.¹⁸

1.3.1. CBCA Decision

In 2018, both the CRU and CRE carried out an assessment of the Celtic Interconnector in order to determine the benefits of the interconnector, as well as a CBCA assessment to determine how the costs should be allocated between Ireland and France for this project. As part of this process, the CRU's modelling found that:

- the potential socio-economic welfare (SEW) benefits of Celtic were uncertain;
- the security of supply benefits associated with Celtic were much lower in comparison to Transmission System Operators' (TSO) estimates; and
- the net benefits for Ireland were relatively consistent with the TSOs' forecast.

Overall, the CBA modelling indicated that Celtic would drive benefits for both Irish and French consumers even when excluding potential security of supply benefits.

In relation to Celtic's costs, and its regulatory treatment, the CRU found that:

- The cost benchmarking suggests that Celtic may turn out being more expensive than projected by the TSOs. The CRU estimated that Celtic's investment cost may be up to 20% more than the TSOs' estimate of €930m (with a -€110m to +€140m uncertainty range)¹⁹;

¹⁸ Celtic Interconnector Project Investment Request File 7 September 2018,(CRU/18/265a), available at: <https://www.cru.ie/wp-content/uploads/2018/12/CRU18265a-Celtic-Investment-Request.pdf>

¹⁹ This means that the assessment found that the likely cost range could be as low as €930m - €110m, i.e. €820m or as high as €930m + €140m i.e. €1,070m.

- Overall, despite its potential benefits, it was found that Celtic would have a significant material impact on the Irish consumers, much higher than in other EU countries given the relatively high investment cost and the small size of the Irish market.

In April 2019, the CRU and the CRE published a coordinated decision on Celtic's Investment Request.²⁰ This decision was issued on the proviso that financial assistance be granted from the CEF fund for at least 60% of the project's estimated investment costs. It was also determined that the project costs, including any CEF grant, up to the project's estimated investment costs (at that time, €930m) should be split with 65% of the investment costs allocated to Ireland and 35% to France. This reflected the benefits of the project to each country.

In October 2019, Celtic was awarded a CEF grant of €530.7m which corresponded to 57% of the total estimated investment cost of the project of €930m. However, this was in addition to €7m already awarded to the project at earlier stages (totalling almost 58% of the total estimated investment cost of the project). As this fell short of the 60% minimum on which the CBCA decision was conditional, the NRAs reviewed the CBCA decision.

The NRAs decided that the level of financial assistance awarded was close to the minimum amount set in the original CBCA decision and therefore did not put excessive risk on French and Irish consumers. It was therefore concluded that there were no grounds to amend the cost allocation of 65% to Ireland and 35% to France.²¹ The following decisions were also affirmed in the revised CBCA decision:

- Any costs above the project's estimated investment costs should be split equally (i.e. 50% each) between EirGrid and RTE;
- The project's operational and maintenance (O&M) costs, and revenues from congestion rents would be shared equally (i.e. 50% each) between Eirgrid and RTE;
- In the event that the cost of the main supply contracts materially exceeds the estimated costs (i.e. by 20%) or that the total costs of the project are reviewed significantly upwards (i.e. by 20%), the CRU and the CRE agree to review their decision in order to reconsider the opportunity to invest in the project and/or the cross-border cost allocation decision regarding cost overruns.

In March 2021, EirGrid provided information to the CRU setting out that the base cost estimate for the project had increased from **€930m** to **€1,014.5m**. A further increase in

²⁰ Available at: <https://www.cru.ie/wp-content/uploads/2019/05/CRU19051-Celtic-CBCA-decision.pdf>

²¹ Available at: <https://www.cru.ie/wp-content/uploads/2019/10/CRU19125-revised-CBCA-decision.pdf>

contingencies of **€101.5m** was also notified to the CRU. A submission outlining these increases has been received and the CRU is engaging with EirGrid to understand the reasons for this cost increase. However, as the costs remain an estimate, and will continue to be until the procurement processes have concluded, the CRU is proceeding to issue a proposal for the cost recovery model which will be put in place for this project. A full cost assessment for the project will take place at a later date when the costs will be assessed in detail.

1.3.2. Funding Requirement

In line with the CBCA decision, Ireland will be required to fund **65%** of the remaining costs of the project when the CEF grant has been taken into account. This equates to approximately **€255m** based on the cost estimation at the time of the CBCA decision.

Funding Requirement	€m
Project Costs (estimate at time of CBCA)	930
Less CEF Funding ²²	538
Total outstanding	392
<i>Ireland (65%) share of costs</i>	255
<i>France (35%) share of costs</i>	137

Table 4 -Indicative Celtic Funding Requirement (rounded)

As the Celtic project is now moving towards Final Investment Decision (FID), EirGrid are seeking confirmation as to the regulatory cost recovery model which will be in place to enable it to recover its expenditure on this project. A decision on this cost recovery model is required to enable EirGrid to put in place the financing arrangements for the project, thus enabling the project to progress.

²² CEF funding to be allocated based on the CBCA allocation, i.e. Ireland 65%, France 35%

The French regulatory model has been defined for the French TSO, RTE, by the French regulator, CRE. A summary of this model is set out below:

- The Celtic project will be treated like other investments of the French TSO and merged onto its asset base;
- RTE will recover its costs through the depreciation of the asset and a remuneration in a RAB x WACC manner, similar to EirGrid's request;
- During construction, the remuneration of the assets is fixed at the cost of debt, which is an effective incentive for the rapid commissioning of the project. For the upcoming regulatory period (2021-2024), the cost of debt is fixed at 2.4%. Once operational, the assets will enter the RAB and RTE will earn the rate of return that will be fixed for the following regulatory periods;
- An incentive to control the costs of the project was defined in June 2019 based on a target budget. This kind of incentive applies to all RTE's major projects and consists of a bonus or penalty attributed to the RTE based on the difference between this target budget and actual expenses.

While it may be considered desirable that the regulatory models applied in both jurisdictions are as consistent as possible, there is no requirement for them to be the same nor may it be beneficial in the broader context of each country's structure for them to be consistent. The CRU has therefore considered the appropriate model for the cost recovery in the Irish context while ensuring that there are no unintended competing aspects between the two frameworks.

In April 2020, EirGrid submitted its regulatory framework request for Celtic which set out its request for the cost recovery model for the investment costs associated with the Celtic Interconnector project. The request was subsequently updated in February 2021 to take into account the CRU's Price Review 5 Decision.²³ A non-confidential version of EirGrid's request is published alongside this paper.²⁴ The CRU has reviewed this request in detail and has engaged directly with EirGrid on the request.

It is currently envisaged that the interconnector will be operational in 2026. In order to achieve this timeline, the CRU has been requested to provide EirGrid with certainty of the regulatory cost recovery model to enable it to commence its process to source the necessary financing for the project.

²³ Available at: https://www.cru.ie/document_group/price-review-5-electricity-networks/

²⁴ See CRU/21/057a published alongside this paper.

1.4. Purpose of Paper

The purpose of this paper is to set out the CRU's assessment of EirGrid's cost recovery model request for the Celtic interconnector and to propose a model, for consultation, on how its costs should be recovered. It should be noted that the purpose of this paper is to set out the proposed model in order to enable the project to progress. The CRU will continue to engage with EirGrid on the more detailed aspects of this model and, following a decision on the model, these detailed aspects will be determined. Further aspects of the overall Regulatory Framework, including licensing, governance and cost assessments, will also be determined in due course.

The CRU is seeking comments from interested parties on the proposed cost recovery model for the Celtic interconnector set out in this paper. Responses should be submitted to electricityinterconnectors@cru.ie by Friday, 23 July 2021. Once responses have been received and considered, the CRU expects to publish a final decision on the cost recovery model for EirGrid's share of the Celtic Interconnector costs later this year.

1.5. Related Documents

- [Regulation \(EU\) 347/2013](#) on guidelines for trans-European energy infrastructure (the TEN-E Regulation), 17 April 2013;
- [CER/17/007](#) - Celtic Interconnector Next Assessment Phase, 2 February 2017;
- [CRU/18/265a](#) – Celtic Interconnector Project Investment Request, 7 September 2018;
- [CRU/18/265](#) – Celtic Interconnector CRU Assessment of the Celtic Investment Request Consultation Paper, 15 February 2019;
- [CRU/19/051](#) – Coordinated decision on the cross-border cost allocation request submitted by the Celtic Interconnector project, 30 May 2019;
- [CRU/19/063](#) – Celtic Interconnector – consultation results Information paper accompanying the coordinated cross-border cost allocation decision under Article 12 of Regulation (EU) 347/2013, 30 May 2019;
- [CRU/19/125](#) – Review of the coordinated decision on the cross-border cost allocation request submitted by the Celtic Interconnector project following the results of the second Connecting Europe Facility energy call 201, 10 October 2019.

1.6. Structure of Paper

This paper is structured as follows:

- **Section 1** provides an introduction to the CRU and background information to this paper;
- **Section 2** sets out, generally, how interconnectors can be treated in terms of cost recovery models and the CRU's approach to determining the appropriate model for each interconnector upon receipt of a request;
- **Section 3** sets out EirGrid's request for a cost recovery model for the Celtic interconnector and the CRU's assessment of this request;
- **Section 4** sets out the CRU's proposal for the appropriate cost recovery model for the Celtic Interconnector; and
- **Section 5** sets out the next steps.

2. Interconnector Regulatory Frameworks

2.1. Overview of Regulatory Framework Options for Interconnectors

Article 12 of the TEN-E Regulations provide for interconnector investment expenditure to be recovered through congestion rent and by network users (electricity customers) through network tariffs.²⁵ The Regulations therefore provide project promoters (EirGrid in the case of the Celtic Interconnector) the basis by which they can recover the costs incurred in developing and constructing interconnector assets.

There is a range of different cost recovery approaches for interconnectors which have been used in practice. The key difference between them is the extent to which the interconnector bears the risk of being able to earn market revenues.

As some models involve interconnector's costs being underwritten by electricity customers, it is important that the regulator determines a fair cost recovery model that includes sufficient protections for customers.

There are three main cost recovery approaches for interconnectors:

- **Merchant model**

In this model, the interconnector is fully reliant on its congestion revenues.²⁶ This means 100% of the risk sits with the interconnector developer and customers provide no underwriting for the project. This exposes the project promoters to risks but equally to the benefits, should they be realised.

The merchant model is the exception in Europe normally taken in the case of interconnectors that are developed by non-TSO private investment, as standalone projects, outside the price-controlled transmission business. As merchant interconnectors bear full revenue risk, the business case depends largely on market participants' willingness to pay for a transmission service between the

²⁵ Operational and maintenance (O&M) expenditure will also be required.

²⁶ There may be other sources of revenues available to interconnectors, e.g. revenues from contracts awarded through capacity auctions. or other services that can be provided by interconnectors.

interconnector's two connected markets. Merchant interconnectors can request an exemption of tariff regulation from the European Commission.²⁷

- **Cap and Floor model**

The cap and floor model is an example of a partly regulated model for interconnectors. In a cap and floor model, a revenue cap and revenue floor are determined. Should an interconnector's commercial revenues fall below the floor, they are topped up by network tariffs. However, should its sales revenues rise above the cap, the excess is returned to the electricity customer. Thus, the model underwrites a component of the project's cost through the revenue floor, but not to the extent that a fully regulated model would, hence reducing some of the risks allocated to customers.

The revenue floor is balanced with a revenue cap that allows the interconnector to earn a greater financial return than under the regulated model, but still offers protection to electricity customers from excess returns to the project owner. Between the revenue cap and revenue floor revenue levels, interconnectors are exposed to the full cost and revenue risk of the asset, which maintains strong incentives around operational availability and cost reduction for the project. This risk-reward balance provides a more attractive option for a range of investors compared to the fully regulated model.

- **Fully regulated model**

Interconnectors developed under the regulated approach have their revenues fully underwritten by network tariffs. These interconnectors are typically developed by Transmission System Operators (TSO). Fully regulated interconnectors do not bear any revenue risk, which is instead allocated to electricity customers.

In the fully regulated approach, the regulator sets a level of revenues that the interconnector is allowed to recover, independent of the revenues received from auctioning interconnector capacity (congestion revenue). The interconnector allocates capacity through conventional market platforms and auctions, but any

²⁷ The IFA interconnector between Britain and France was initially merchant.

difference in auction revenues from the level allowed by the regulator are returned to or paid by customers through network tariffs.²⁸

Electricity customers and interconnector developers' exposure to revenue risk under the different regulatory models is illustrated in Figure 2 below:

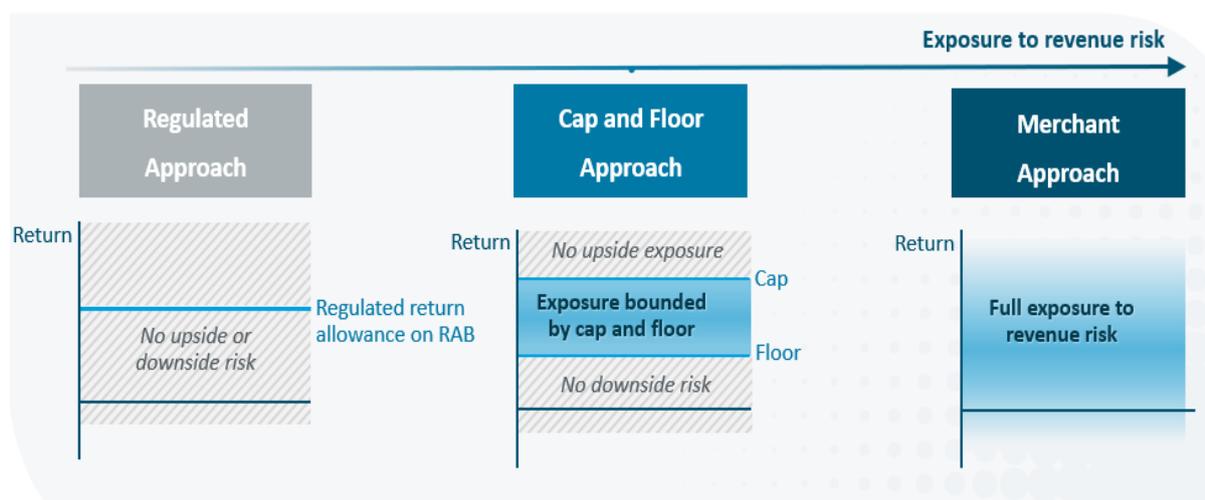


Figure 2 - Electricity customers and interconnector developers' exposure to revenue risk under the different regulatory approaches. Source: CRU

As regulated and partially regulated interconnectors can recover some revenue through customer tariffs, it follows that they can have a positive or negative impact on network tariffs, and ultimately on end customers, depending on their performance. If interconnectors underperform financially, then this can translate into a cost to electricity customers by increasing network tariffs. In contrast, if electricity interconnectors overperform financially, they can reduce electricity network tariffs. Therefore, there is a need to ensure that any regulated cost recovery model includes a performance-based incentive to ensure that customers' interests are aligned with those of EirGrid to the greatest extent possible.

Table 5, on the following page, sets out, at a high-level, the potential positive and negative impacts of the different cost recovery approaches from the perspective of electricity customers and the interconnector developers.

²⁸ The East-West Interconnector (EWIC) between Ireland and Britain operates under a fully regulated approach. The Moyle interconnector between Northern Ireland and Britain is another example of a fully regulated interconnector.

	Positive impact on customers	Positive impact on developers	Negative impact on customers	Negative impact on developers
Regulated Approach	<ul style="list-style-type: none"> No risk of the interconnector earning monopolistic profits as revenue is monitored by Regulatory Authority. 	<ul style="list-style-type: none"> The developer does not bear market risk for the duration of the framework. Potential to align the length of the cost recovery model with financing term (the time period over which the debt must be repaid). Well-established regulatory approach and processes if a similar approach to that of onshore transmission is used. 	<ul style="list-style-type: none"> Customers bear financial risk / market risk. 	<ul style="list-style-type: none"> Greater regulatory burden than merchant approach, including potentially periodic reviews of allowed revenue. Potentially less flexibility to respond to changes in circumstances, depending on how long the regime is fixed for.
Cap and Floor Approach	<ul style="list-style-type: none"> Retains competitive pressure on the developer to minimise capital and operating costs by exposing 	<ul style="list-style-type: none"> Downside revenue risk is mitigated, potentially ensuring that debt obligations could be met. Potential to align the length of the regime with financing 	<ul style="list-style-type: none"> Customers face market risk up to a certain level. 	<ul style="list-style-type: none"> Returns are capped. Greater regulatory burden than merchant approach. The regime is by design fixed for a long period, so

	<p>it to market risk above a certain amount.</p> <ul style="list-style-type: none"> • Risk of interconnector earning monopolistic profits mitigated. • Market risk above a certain amount held by the developer. • Payments can be made contingent on a minimum level of availability being met. 	<p>term (the time period over which the debt must be repaid).</p> <ul style="list-style-type: none"> • Potential to earn revenues above the cost of capital, up to a certain level. 		<p>limited opportunity to respond to changes in circumstances.</p>
<p>Merchant Approach</p>	<p>Positive impact on customers</p>	<p>Positive impact on developers</p>	<p>Negative impact on customers</p>	<p>Negative impact on developers</p>
	<ul style="list-style-type: none"> • Stronger incentives on developers to only pursue projects whose business case stands up without regulatory support. • Market risk placed entirely with the developer. 	<ul style="list-style-type: none"> • No upper limit on revenues. • Regulatory burden limited to standard reporting and licence requirements. • Exemption from certain aspects of EU legislation provides a degree of safeguarding for the business case. 	<ul style="list-style-type: none"> • Risk of monopolistic profits if interconnector is in a position of market power, could result in customers paying higher electricity prices. 	<ul style="list-style-type: none"> • No lower limit on losses. • Market risk is fully borne by the developer.

Table 5 - Comparison of different regulatory approaches to interconnectors - Impact on customers and developers

2.2. CRU Policy on Choosing the Appropriate Regulatory Model for Interconnectors

The CRU's current policy is to determine the regulatory approach for interconnectors depending on the circumstances of the electricity interconnector being considered. This is clearly set out as part of its November 2015 PCI Incentive Methodology²⁹

- *“The CRU has previously noted that while the approach of fully regulated revenue adequately addresses the requirements of the TEN-E Regulation, it may consider the appropriateness or otherwise of the application of existing policy as it applies to different types of assets on a case-by-case basis; and*
- *As such, the right regulatory approach would depend on the circumstances of each interconnector being considered. The right approach may vary depending on legal requirements (e.g. as per the EU Third Package), the markets being connected, the policy environment at the time of investment, and the availability of efficient financing at the time of investment.”*

The CRU has also set out the considerations it used in identifying the appropriate regulatory regime to apply to different interconnectors in a recent consultation for another interconnector:

- *“Facilitating different financing solutions, including from non-TSO developers, as a way of attracting efficient and innovative proposals.*
- *“Providing consistent incentives for the developers across both jurisdictions that the interconnector links to.*
- *“Appropriate allocation of risk between customers, developers and other affected parties (e.g. domestic generators).”³⁰*

Furthermore, the CRU has published the assessment criteria for electricity interconnector applications,³¹ which also sets out that the CRU considers each interconnector application on a case-by-case basis.

²⁹ PCI Incentive Methodology in accordance with Article 13(6) of Regulation (EU) No. 347/2013” (CER/15/269), available at: <https://www.cru.ie/wp-content/uploads/2015/07/CER15269-PCI-Process-CER-Incentives-and-Risk-Assessment-Methodology-for-PCIs.pdf>

³⁰ Greenlink Electricity Interconnector Consultation Paper (CRU/18/119), at page 37, available at: <https://www.cru.ie/wp-content/uploads/2018/06/CRU18119-Greenlink-Interconnector-Application-Consultation-Paper.pdf>

³¹ Policy for Electricity Interconnectors Assessment Criteria for Electricity Interconnection Applications (CRU/18/221), available at: <https://www.cru.ie/wp-content/uploads/2018/09/CRU18221-Policy-for-Electricity-Interconnectors-Assessment-Criteria-for-Electricity-Interconnection-Applications-Decision-Paper.pdf>

It is clear from the above, that the CRU's policy is to determine the appropriate regulatory approach for an interconnector on a case-by-case basis depending on the circumstances of the electricity interconnector making the application. In doing so, the CRU will take a number of factors into consideration. This has been the approach followed by the CRU in determining the appropriate approach for another interconnector application recently made to the CRU and in the case of the Celtic Interconnector, in reaching the proposed cost recovery model which is the subject of this consultation.

3. EirGrid's Regulatory Framework Request: Cost Recovery Model for the Celtic Interconnector

3.1. Eirgrid's Request

EirGrid first submitted its request for a cost recovery model in respect of the Celtic Interconnector in April 2020. The CRU reviewed this submission and engaged with EirGrid on its request. Following the CRU's decision on Price Review 5 in December 2020,³² EirGrid submitted an updated request in February 2021. A non-confidential version of this request has been published alongside this paper.³³ This section summarises EirGrid's request and sets out the CRU's assessment of the request.

3.2. Framework Requested & CRU's Assessment

This section sets out an overview of the cost recovery model for the Celtic Interconnector which EirGrid has requested and the CRU's assessment of that request.

3.2.1. Overview of EirGrid's Request

EirGrid has requested a cost recovery model that is a fully regulated approach i.e. EirGrid is seeking full underwriting for the Celtic interconnector by Irish electricity customers. This has been sought in a RAB x WACC form (the usual approach taken to setting TSOs allowed revenue) and by integrating the Celtic interconnector into its TSO business' current Regulated Asset Base (RAB).

Consistent with EU legislation,³⁴ EirGrid has proposed that the sources of revenue will be congestion rent, supplemented by customer tariffs, where required. A summary of its request is set out in the table below:

³² Available at: <https://www.cru.ie/wp-content/uploads/2019/05/CRU19051-Celtic-CBCA-decision.pdf>

³³ CRU/21/057a published alongside this paper.

³⁴ Article 12 (1) of the TEN-E Regulations.

Cost Recovery Model Request	
To be included in EirGrid TSO	The interconnector asset would be integrated into EirGrid's TSO activities.
Regulatory framework	Regulatory treatment of the interconnector to build on RAB x WACC regime for TSO price-controlled activities.
Capex	
Capex net of grant added to RAB	EirGrid's share of all project capex (net of the CEF grant) added to TSO's RAB.
Basis of WACC	Set equal to extant price control WACC, e.g., PR6, PR7, PR8.
Nominal WACC, no indexation	Allowed WACC set in real terms, to which Irish HICP is added and applied in nominal terms, (i.e. no RAB indexation).
WACC inflation	The minimum inflation rate that can be used in the nominal WACC estimate is zero.
Minimum DSCR	Allowed WACC shall be such that Debt Service Coverage Ratio (DSCR) shall be at least 1.8x in each period. ³⁵
Depreciation	From Final Investment Decision (FID) additions to the RAB will be written down from the date they are incurred and returned to EirGrid over 25 years on a straight-line basis.
Incentive package	Any form of financial delivery incentive – e.g. timely and cost-effective delivery – to be no greater in total than €11.5m and any reward or penalty to be spread over 10 years.
Opex	
Opex	Costs are subject to periodic reset consistent with the wider framework for the determination of efficient costs for the fulfilment of the TSO functions by the CRU.

Table 6 - Summary of EirGrid's Requested Cost Recovery Model

As part of its request, EirGrid considered a number of different revenue models for the interconnector, however, it determined that a RAB x WACC approach would be the most appropriate for the following reasons:

³⁵ Note that EirGrid has requested that this apply to all TSO assets and not just the Celtic interconnector.

- it maximises consistency of the models between onshore and offshore assets as well as arrangements in Ireland and France in relation to the Celtic Interconnector;
- it ensures that EirGrid does not face incentives which could give rise to potential conflicts of interest; and
- it maximises value and benefits to customers through a low cost stable regulatory regime.

3.2.2. Overview of EirGrid's Request – CRU's Assessment

The CRU is of the view that the Celtic Interconnector is an important infrastructural addition to the electricity network of Ireland as it will provide a direct interconnection between Ireland and the European Union energy market, enhancing market integration, security of supply and sustainability. However, it is important that the risk associated with this project is managed in a manner which does not place customers at a disproportionate risk by incurring higher electricity tariffs relative to the benefit to customers of the interconnector.

The CRU is cognisant of EirGrid's current circumstances in undertaking this project. EirGrid is currently an asset light business. Once finance has been secured for the Celtic Interconnector, the interconnector will represent a considerable financing requirement relative to its existing small asset base i.e. it does not have a large asset value against which it can borrow in order to enable it to develop the project and manage cashflow variations. As EirGrid has a small RAB, it consequently earns a relatively small return on that RAB relative to its operating costs. This is in contrast to RTE, the French TSO which has a large asset base. Therefore, the CRU recognises the need for a cost recovery model for EirGrid to be set out, having regard to EirGrid's circumstances, to enable this project to progress towards FID.

The CRU has reviewed EirGrid's request in detail. The CRU understands and acknowledges that EirGrid, as an asset light entity, has structured its request in such a way that it can meet its financing obligations. However, the CRU, in reviewing EirGrid's submission, must balance EirGrid's ability to finance this project with measures to protect customers, having regard to the benefit from the use of the interconnector customers will receive.

The CRU agrees that consistencies between onshore and offshore models as well as the French cost recovery model for the Celtic interconnector should be drawn upon, but only to the extent that it is appropriate to do so. The CRU also acknowledges that, EirGrid, as the TSO and Electricity Market Operator, provides for potential conflicts of interest, or indeed

perceive conflicts of interest, to arise and therefore recognises the need for the cost recovery model to assist in avoiding this. The CRU further agrees that customer values and benefits must be a key consideration in determining a cost recovery model.

In reviewing EirGrid's request, and in developing the CRU's proposed revenue recovery model, the CRU has had regard to three key principles:

- **Feasibility** - the CRU is seeking to ensure that the project can be progressed, having regard to the context in which it is being developed i.e. the regulatory models enables EirGrid to continue to develop the project at an appropriate cost;
- **Financeability** - EirGrid is able to put in place the required funding to progress the project; and
- **Value for money** - that customers only pay for the interconnector insofar as the costs are reasonable, relative to the benefits of the project and that costs have been efficiently incurred.

Recognising these principles, the CRU is seeking to balance feasibility and financeability of the project against the cost risk the Irish customer may be exposed to. The CRU therefore proposes the following:

1. Proposed Regulatory Model

The CRU is of the view that EirGrid, as an asset light undertaking, market operator and TSO, is not in a position to undertake this project if the interconnector were subject to the merchant model or the cap and floor model, as it would not be possible to eliminate potential conflicts of interest. Therefore, the CRU proposes that the interconnector be subject to the fully regulated model.

2. Proposed Cost Recovery Model

In terms of the cost recovery model, the CRU has considered a number of models and considers that a fully regulated form of RAB x WACC cost recovery model (from the time of commissioning) would be appropriate, with amendments to EirGrid's requested approach. In particular, the CRU is proposing that a RAB x WACC approach would only apply once the interconnector has been commissioned. Further details are set out in the remainder of this paper in relation to this. In line with Article 12 of the TEN-E Regulations, the revenue sources for the Celtic Interconnector are congestion rents, supplemented by network tariffs.

3. Regulating Celtic within the EirGrid Structure

The CRU notes that EirGrid's request assumes that the Celtic Interconnector is contained within EirGrid's TSO licence and asset base. The CRU does not agree with this approach. The CRU is of the view that the Celtic Interconnector should be treated as a standalone item on a separate RAB, ring-fenced and with accounting separation from EirGrid plc.'s other business areas. The CRU is proposing this to ensure that the interconnector's regulated revenues are kept separate and to enable transparent oversight of the interconnector's operation and finances separate to the TSO price control. A clear and separate regulated revenue model for the interconnector would aid with transparency and predictability.

The CRU will undertake a separate process in due course which will address areas including governance arrangements around the Celtic Interconnector within EirGrid, however, the information set out above is relevant to the proposed cost recovery model.

3.3. Specifics of Cost Recovery Model

To finance the Celtic Interconnector, EirGrid will need to source financing that will be remunerated through a cost recovery model. EirGrid has proposed a RAB x WACC cost recovery model that would apply from FID.

This section sets out the specifics of the cost recovery model requested by EirGrid and the CRU's assessment of this request.

3.3.1 Depreciation of the RAB

EirGrid Request

EirGrid is seeking an asset life of 25 years for the interconnector (to align with the expected financing term) to be depreciated from the date of incurrence on a straight-line basis, i.e. from the point of expenditure in equal amounts over 25 years.

CRU Assessment

The CRU agrees that the interconnector's RAB should be depreciated over a 25-year period. This is consistent with the CRU's proposed approach to another interconnector application. The CRU also agrees that the asset should be depreciated on a straight-line basis.

However, the CRU does not agree that the interconnector should be depreciated from the time costs have been incurred but rather should be depreciated once the interconnector becomes operational. This has two advantages. First, this would create a stronger incentive for successful implementation, as EirGrid would not be remunerated until Celtic becomes a performing asset. Second, it avoids consumers paying for the interconnector before they can benefit from its services, improving inter-generational equity among Irish electricity consumers. Therefore, the CRU is proposing not to allow depreciation from the time costs have been incurred but rather upon commissioning. However, in the cost recovery model proposed by the CRU in this paper, the CRU has included an equity reward incentive element. Part of the rationale for including this opportunity, for EirGrid to earn an additional equity reward, is to seek to compensate EirGrid for this deferral in depreciation during the construction period once the interconnector becomes operational. This is set out further in section 4.3.3.2 of this paper.

3.3.2 WACC

EirGrid Request

EirGrid has requested the CRU to apply the same WACC as determined by the CRU for its TSO business in its periodic price control determinations. It requests a nominal WACC, meaning: (i) the WACC be set in "real" terms for the TSO business and would be adjusted for the Celtic Interconnector to incorporate HICP inflation; and (ii) the RAB would therefore not be indexed for inflation each year.

EirGrid is further seeking that the minimum inflation to be applied to the WACC be set at zero.

CRU Assessment

The CRU is of the view that a project specific WACC should be applied to the Celtic Interconnector, separate to the allowed WACC applied to EirGrid's TSO assets. The Celtic Interconnector's separate allowed WACC will permit allowed financing costs to be tailored to the specific financing challenges and risk profile of the Celtic Interconnector.

Setting a separate WACC will allow the CRU to capture differences between the Celtic Interconnector business and the wider TSO business. For example, the TSO business requires the remuneration of a portfolio of assets built up over time; the Celtic Interconnector will be a single long-term asset, with its own project risk profile and financing arrangements. While EirGrid has indicated that it will be investing in Celtic at the corporate, EirGrid plc, level, rather than by means of a separate investment vehicle, the CRU considers that the discrete economics and specific circumstances of the interconnector justify a cost recovery model that considers the revenue requirements of the project on a separable basis. For the reasons set out above, ultimately the financing of the Celtic interconnector will need to be underpinned by commitments placed on the Irish electricity consumer. As a result, the CRU considers it appropriate that the regulatory commitments provided are tailored to the specific financing challenges and risk profile of the project.

Different to its normal treatment in onshore price controls, the CRU is proposing to allow a nominal WACC in the specific context of the cost recovery model for the Celtic Interconnector. The CRU considers this to be justified in these specific circumstances as a measure to improve the financeability of the project, recognising the limitations that Celtic may face in raising finance for this project. Using a nominal WACC instead of a real WACC would improve the financeability of the Celtic project by allowing it to recover revenues related to inflation each year, rather than delaying recovery through the RAB. The CRU's proposal to allow this arrangement in these specific circumstances should not be seen as setting a precedent to allow a nominal WACC in other circumstances going forward. The CRU emphasises that the unique circumstances in which this project has arisen, an asset light entity undertaking this large, one-off and technically complex project and the separate financing arrangements in place, is the reason to propose allowing the WACC in this format.

The CRU will consider the detailed elements of the WACC at a later stage, including any lower limits on inflation.³⁶ The CRU will also consider at that point if there should be a different treatment of the debt and equity elements of the WACC,³⁷ and the potential to use Celtic's actual financing costs for setting the allowed cost of debt. Potential options on these points are briefly provided in Section 4, however, the details will be confirmed at a later date, following the final decision on the cost recovery model.

³⁶ For example, in considering the lower limit on inflation, an alternative option to EirGrid's proposal could be to apply a zero lower bound on the rate of inflation applied in the WACC but offset by a compensating adjustment applied in later years when the rate of inflation is positive.

³⁷ It may be appropriate to consider the cost of debt and cost of equity separately to reflect that debt costs may be locked in at financial close and rarely (if ever) reopened. The cost of equity may be better suited to periodic resets to reflect the changing opportunity cost of that capital.

3.3.3 Debt Service Coverage

EirGrid Request

In its request, EirGrid is seeking a regulatory commitment that the revenues will be sufficient to meet a minimum Debt Service Cover Ratio (DSCR) of 1.8x. DSCR is a metric intended to measure a company's ability to service its debt and meet its financial obligations.³⁸ In effect, this means that EirGrid is seeking a commitment from the CRU that it will receive sufficient revenues to enable it to meet this ratio. In its request for a Regulatory Framework for the Celtic Interconnector, EirGrid has requested that the DSCR of 1.8x apply in respect of all TSO assets, not just the Celtic Interconnector.

CRU Assessment

The CRU is engaging with EirGrid to understand the rationale for the DSCR 1.8x requirement. While the CRU accepts that EirGrid must be in a position to meet its obligations of financing the project and is cognisant of the constraints on EirGrid as an asset light entity, the CRU is of the view that providing a commitment of a DSCR of 1.8x for Celtic as well as all other TSO assets would not be appropriate. This is because it would provide a commitment to EirGrid which would not always reflect the current circumstances, which will change from time to time. To do so would also set a precedent as well as fetter the CRU's discretion going forward in all price review processes which could, in turn, have a negative impact on customers. Instead, as set out in the next section, the CRU is proposing an alternative method for EirGrid to meet its financing obligations in respect of this project.

The CRU's proposals set out in section 4 of this paper do not include explicit guidance regarding a DSCR or quantitative financeability tests. However, they do include measures designed to improve the debt financeability of the project relative to other models that might be applied. Equity financeability has also been considered in seeking an investable proposition tailored to the level of capital at risk.

3.3.4 Money at Risk

EirGrid Request

EirGrid is seeking a commitment that the money at risk, in the form of a delivery incentive, be capped at €11.5m and that any reward or penalty be spread over 10 years. This means that any incentive the CRU sets in respect of the delivery of the Celtic Interconnector, the

³⁸ Typically defined as net operating income (less certain expenses), divided by total debt service obligations.

details of which are yet to be determined, will expose EirGrid to a maximum of €11.5m at risk. The €11.5m is based on a calculation carried out by EirGrid which represents 10% of the notional equity under its proposed WACC x RAB model.³⁹

CRU Assessment

In relation to the money at risk, the CRU is of the view that EirGrid must be incentivised to deliver this project on time and at as low a cost as possible to align its interests as closely as possible to those of the customers. The CRU cannot, however, determine the amount of money to be at risk, in isolation from the specific details of the incentive. For that reason, the cost recovery model which the CRU is proposing below in section 4, includes an element of an incentive mechanism, however, the details of the incentive would be finalised at a later date, following a final decision on the cost recovery model and when further details are available.

3.3.5 Opex

EirGrid Request

EirGrid has requested that the opex for the Celtic Interconnector be determined as part of the price review process on a periodic basis as part of the TSOs activities.

CRU Assessment

The CRU is of the view that EirGrid's proposal for the opex in relation to Celtic be determined periodically as part of the price review process is acceptable, however, while it can be determined at the time of the price review, it must be kept entirely separate from the TSO's opex under the price review and be determined in isolation from the TSOs overall opex. This expenditure would be subject to a look back process, following the price review period and an efficiency assessment for future expenditure, similar to how the TSO opex is currently determined. The CRU would therefore have greater transparency and visibility of the costs and revenues of the Celtic Interconnector.

³⁹ EirGrid has indicated that the actual equity being put forward by the business is currently estimated to be at €75m.

3.3.6 Arrangements should the project not proceed

EirGrid Request

If the project does not proceed to completion, EirGrid has sought a decision from the CRU that the expenditure incurred to that point be returned to it through the Transmission Use of System (TUoS) tariffs over a reasonable time period.

CRU Assessment

The CRU is proposing that expenditure be returned to EirGrid should the project not proceed, as long as certain conditions are met. Further details in relation to this are set out in the following section.

3.4. Summary

The table below summarises the CRU’s assessment of EirGrid’s proposal:

	Cost Recovery Model Request	CRU Assessment
To be included in EirGrid TSO	The interconnector asset would be integrated into the EirGrid TSO activities.	Alternative proposed
Regulatory framework	Regulatory treatment of the interconnector to build on RAB x WACC regime for TSO price-controlled activities.	Partially accepted
Capex		
Capex net of grant added to RAB	EirGrid’s share of all project capex (net of the CEF grant) added to TSO’s RAB.	Alternative proposed
Basis of WACC	Set equal to extant price control WACC, e.g. PR6, PR7, PR8.	Alternative proposed
Nominal WACC, no indexation	Allowed WACC set in real terms, to which Irish HICP is added and applied in nominal terms, (no RAB indexation).	Accepted

WACC inflation	The minimum inflation used in the nominal WACC estimate is zero.	To be determined at a later date
Minimum DSCR	Allowed WACC shall be such that DSCR shall be at least 1.8x in each period.	Alternative proposed
Depreciation	From FID, the RAB will be written down and returned to EirGrid over 25 years on straight-line basis.	Partially accepted
Incentive package	Any form of financial delivery incentive – e.g., timely and cost-effective delivery – to be no greater in total than €11.5m and any reward/penalty to be spread over 10 years.	Alternative proposed
Opex		
Opex	Costs are subject to periodic reset consistent with the wider framework for the determination of efficient costs for the fulfilment of the TSO functions by the CRU.	Partially accepted

Table 7 - CRU Assessment of EirGrid's Proposal

As can be seen from the above, the CRU, following its review of EirGrid's request, is of the view that some modifications are required to provide additional customer protection measures to align its interests with those of customers. Therefore, the CRU is proposing an alternative model which draws on some aspects of EirGrid's request.

In the following section, the CRU sets out its proposed cost recovery model for the Celtic Interconnector. It should be noted that the purpose of this paper is to set out, for consultation, the proposed cost recovery model in order to enable EirGrid to progress the project. Following the final decision on the cost recovery model, a further process will take place to determine the details of the model. Governance and costs assessments will also be examined further in a separate process in due course.

Questions for Consultation

- Comments are invited from interested parties on whether they agree with the CRU's proposed approach that the Celtic Interconnector be a fully regulated interconnector. Should a party disagree with this approach, please provide reasons and rationale for this.

4. CRU Proposed Cost Recovery Model

4.1. Introduction

As set out in the previous section, the CRU is of the view that the Celtic interconnector, owned and operated by EirGrid, should be a fully regulated interconnector. This is because a partially or non-regulated interconnector would be exposed to market risks. However, it would not be appropriate for EirGrid, as a TSO and the Market Operator, to be exposed to these risks due to potential conflicts of interest, both actual and perceived.

Having reviewed EirGrid's request, the CRU is proposing a fully regulated cost recovery model for the Celtic interconnector which, it is of the view, balances the need that EirGrid can finance and progress the project while providing a greater amount of protection for customers who will benefit from the interconnector.

The remainder of this section sets out the cost recovery model which the CRU is proposing for consultation.

4.2. Cost Recovery Model Selection

The CRU is proposing a framework which aims to align the interests of electricity customers and EirGrid while enabling EirGrid to progress and finance this project. In reaching this proposal for the cost recovery model, the CRU considered a number of models which may be appropriate for the Celtic Interconnector.

4.2.1. Models Considered

The CRU has considered three fully regulated models for the Celtic Interconnector. This section describes those models, setting out their pros and cons and the CRU's assessment on their appropriateness for this project.

1. *Cost Plus Model*

This model would allow EirGrid to earn a revenue stream that reflects a pass-through of its debt service costs over the life of the financing term. Instead of an allowed

WACC on a RAB, EirGrid would earn a limited equity margin based on its invested equity and the capital at risk from construction and operational (availability) incentives. This model is similar to the model which is currently in place for the East West Interconnector (EWIC).

This model was considered as it has an established regulatory precedent in Ireland in the specific context of EirGrid's business and would achieve close alignment between actual costs incurred and the allowance for financing costs of the Celtic project. It would therefore allow EirGrid to proceed to source finance with a clear commitment that efficient financing costs would be recoverable.

However, as it is a regulatory model largely premised on pass-through costs, the incentive to control costs is lower and revenue is largely fixed. Furthermore, the construction and financing risk of the project largely sits with the customer.

While this model would enable EirGrid to cover its costs in respect of the Celtic Interconnector, the CRU is also cognisant of the context in which the EWIC arose, EirGrid were directed by the Irish Government to build the EWIC. As this is not the case with the Celtic Interconnector and, given the rigidity of this framework in terms of incentivisation, the CRU is proposing that this framework would not be appropriate for the Celtic Interconnector as it would not strike the appropriate risk allocation balance between customers and project promoters appropriately.

2. Construction Risk remaining with EirGrid

As set out in the previous section, the CRU has concerns with EirGrid's proposed cost recovery model as EirGrid's money at risk would be small in the context of the overall investment cost for the project, which may limit EirGrid's incentive to manage construction risk.

A way to manage construction risk in these circumstances would be to fully allocate construction risk to the company. That approach would require EirGrid to fully capitalise the project with equity to a level sufficient to bear that risk. As an asset-light entity, EirGrid might achieve that by bringing in an equity partner for this project or expanding its balance sheet by other means.

The CRU is of the view that this model would not be possible for EirGrid as it believes EirGrid will not be able to put in place such a structure where it has a sufficient equity buffer to raise debt finance and bear full construction risk. Therefore, the CRU is of the view that this model would not be appropriate for the Celtic Interconnector.

3. Two Phase Funding Model

The third model the CRU considered, is the Two-Phase Funding Model. This model would provide two separate approaches for the two phases of the project with Phase 1 being the Pre-operational phase (development and construction) and Phase 2 being the Operational phase.

In Phase 1, the remuneration of the project would be limited to qualifying debt costs, with any returns for equity risk during that period being deferred to Phase 2. In Phase 2, a full RAB x WACC model would apply.

This model would create more of an incentive for equity than the Cost Plus Model, while seeking to ensure costs remain low and the project is delivered on time ensuring customers have some protection during the construction phase. The second phase would allow regulatory cycles/price reviews to match allowed revenues with ongoing efficiently incurred costs, as they vary.

The CRU is of the view that this model would strike an appropriate balance between ensuring some protection to electricity customers during the development and construction phase, when the risk exposure is higher, and allowing EirGrid to finance the project by providing it with sufficient revenue to cover its debt service costs during construction. As noted above, the risk exposure to customers is higher during construction due to EirGrid, an asset light entity, undertaking a large one-off technically complex project. Once commissioned, the ongoing risks associated with the project are significantly reduced.

The CRU is therefore proposing that the Two-Phase Funding Model be the model applied to the Celtic Interconnector to enable it to recover its costs.

4.3. Two-Phase Funding Model

4.3.1. Introduction

As noted above, the Two-Phase Funding Model applies two approaches – one during development and construction and a separate approach once the interconnector is operational. During the development and construction phase, the CRU is proposing that EirGrid would receive sufficient revenue to meet its debt financing obligations, however, once operational, a RAB x WACC model would be implemented and EirGrid would be permitted to begin to depreciate the asset and earn a return on it.

The Celtic Interconnector would be placed on a separate RAB to the TSO with capex added to it based on what was incurred during Phase 1. Once commissioned, EirGrid could begin to depreciate the RAB over 25 years and earn a return on the asset.

An efficient delivery cost for the project would be set, following a detailed cost assessment, at the outset of implementation of the two-phase model. If EirGrid deliver the project on or below the efficient delivery cost, it would earn an additional equity reward, which would be set proportionate to the capital at risk in the project. However, if the project were to exceed the efficient delivery cost, EirGrid are at risk at losing the incentive and potentially a portion of its equity. A similar arrangement would be in place for the delivery of the project on time. This allows for symmetric incentivisation to be applied.

The table below provides a summary of the key elements of the two-phase approach:

Phase 1: Pre-operations	Phase 2: Operational
<p>Opening RAB</p> <ul style="list-style-type: none"> Opening RAB to be set based on Celtic Interconnector’s pre-FID costs subject to prudency review. <p>RAB additions during construction</p> <ul style="list-style-type: none"> Costs incurred logged up in the RAB as additions, as incurred, during the construction period. 	<p>Opening RAB</p> <ul style="list-style-type: none"> Opening RAB for operational phase set following a post-construction review of outturn versus efficient delivery cost; Allowed RAB determined following outcome of the post-construction review with the RAB uplifted by €xm depending on EirGrid’s performance under a pre-operations financial delivery incentive.

Investor returns during construction	Rate of return and depreciation
<ul style="list-style-type: none"> ● EirGrid permitted to recover efficient debt service and liquidity costs as required during construction; ● EirGrid receives no return on equity until the project is operational. 	<ul style="list-style-type: none"> ● Allowed rate of return on RAB set at 5-year price reviews consistent with the operational risk of the interconnector; ● Allowed rate of return on the RAB would be set based on principles set ahead of FID; ● The RAB would be depreciated on a straight-line basis over 25 years from the date of commissioning.

Table 8 - Summary of the key elements of the Two-Phase Funding Approach

4.3.2. Operation of the Two-Phase Model

This section sets out, in further detail, how the two-phase funding model would operate.

Phase 1 – pre operation

- The CRU would establish an opening RAB for the Celtic interconnector equal to EirGrid’s efficient and prudently incurred costs prior to Final Investment Decision for the Celtic interconnector. Capex, net of the CEF grant, during construction would be added to the RAB as incurred over the course of the construction period;
- EirGrid would be permitted to recover its efficient costs of debt⁴⁰ raised to finance the interconnector capex during construction;
- The permitted revenues during construction would be sufficient to cover the efficient and prudently incurred debt interest, fees and any liquidity costs attributable to financing of the Celtic interconnector.⁴¹ The revenues would not provide any return on invested equity in the project; and
- Permitted revenues during construction would be solely funded from the TSO TUoS revenue requirement given that the interconnector would have no market revenues at this phase of the project.

⁴⁰ Efficient cost of debt would include the debt facilities required to finance construction i.e. interest, lender arrangement fees and commitment fees on undrawn amounts. The CRU will engage with EirGrid following a final decision on this in order to determine what is to be included in this.

⁴¹ The CRU assumes that no debt principal payments would apply before the project is commissioned.

Phase 2 – operations

- The CRU would confirm the opening RAB value for the Celtic interconnector for the operational period following a post construction review to compare the outturn cost against the efficient delivery cost. The RAB value determined by the CRU would be subject to EirGrid's performance against an efficient delivery investment cost for Ireland's share of project capex, net of the CEF grant. The allowed opening RAB would be adjusted accordingly;
- During the operational period, EirGrid would be permitted to recover revenues that consist of a series of building blocks:
 - Efficient opex, which would be subject to periodic reset by the CRU at five-year price control review intervals but separate to the TSO's opex;
 - Depreciation of the RAB from the date of commissioning over 25-years on a straight-line basis;
 - An allowed return on a pre-tax basis on the RAB that is periodically reset by the CRU.
- EirGrid's permitted revenues during operation would be funded from the interconnector's market revenues and the TSO TUoS revenue requirement. Revenues provided from TUoS would provide a top-up to the Celtic's interconnector's permitted revenue requirement in the event that the project's market revenues are lower than permitted revenues.⁴²

4.3.3. Detailed Overview: Phase 1 – Development & Construction

This section sets out how the CRU is proposing to treat the Celtic Interconnector during the development and construction phase. It is important to note that during this phase, the interconnector would not be operational and so no congestion rent would be earned. Therefore, the only source of revenue for EirGrid would be directly from customer tariffs. The CRU is therefore of the view that it is important to ensure greater protection for electricity customers, by aligning EirGrid's interests with those of the customer during this phase, by incentivising EirGrid to deliver the project on or below cost and on time, while also ensuring that EirGrid can progress the construction of the project.

⁴² If market revenues exceed the interconnector's permitted revenues, then EirGrid would return the revenues earned above permitted revenues to electricity customers via TUoS charges.

At the outset of implementing the regulatory cost recovery model, the CRU would set an efficient delivery cost. This efficient delivery cost would be set by the CRU based on a detailed assessment of the demonstrable efficient project costs put forward by EirGrid following the outcome of the tender process to deliver the project, having regard to other information such as benchmarking and the previous cost estimates provided by EirGrid. The CRU would carry out a process to assess these efficient costs and determine if they should be allowed. Only efficient costs would be allowed to be included in the efficient delivery cost. By setting an efficient delivery cost, the CRU is seeking to set the project costs, to the greatest extent possible, which EirGrid should deliver the project within.

The latest project cost estimate submitted by EirGrid in April 2020 is projected at €1,014.5m with a further €101.5m in estimated contingencies. The CRU is currently engaging with EirGrid to understand why the cost has increased by €84.5m since the CBCA decision. A final cost estimate will be provided to the CRU following the completion of EirGrid's procurement process later this year.

The remainder of this section sets out further details on the specific aspects of the model for phase 1.

4.3.3.1. Regulated Asset Base

The CRU is proposing that EirGrid would only receive revenues to pay for the efficiently incurred costs to service its debt during construction, i.e. Interest during Construction (IDC), assuming no debt principal will need to be repaid until the interconnector is operational. This means that the RAB would not be depreciated during the development and construction period until the interconnector becomes operational.

The CRU is of the view that the Celtic Interconnector should also be separate to the TSO RAB and therefore, should have its own standalone RAB. This would enhance transparency and predictability, once operational.

Opening RAB

In the proposed two-phase model, the phase 1 opening RAB would be determined based on efficient costs incurred up until the Final Investment Decision (FID) stage. As these costs are currently incurred, they are placed in a side RAB within the TSO price control, which EirGrid are earning a return on. However, the side RAB is not being depreciated. The CRU

is currently reviewing these costs to ensure that only efficient costs are allowed in order to represent value for money for electricity customers.

Under the two-phase funding model, the outcome of the above process would become the opening RAB for the Celtic interconnector. As further costs are incurred during the construction phase of the interconnector, these costs would need to be added to the RAB. The RAB would not be depreciated until the interconnector becomes operational and customers are benefitting from it.

4.3.3.2. Risk to EirGrid

EirGrid's request for the Celtic Interconnector sought a commitment from the CRU that the regulatory framework would limit the amount of money that EirGrid would have at risk through incentives to **€11.5m**. While the CRU understand EirGrid's need for certainty in this regard, the CRU is of the view that it cannot determine this figure in isolation from the detailed incentive at this stage and with the level of uncertainty around the final project costs. However, the CRU agrees that, in principle, there should be a performance incentive associated with the timely and efficient delivery of the Celtic Interconnector and the CRU is proposing that the amount of money at risk as a result of this mechanism, would be capped.

While the CRU cannot provide certainty as to the amount of money at risk regarding incentives, the CRU is proposing to include an incentive element as part of the two-phase funding model in the form of a RAB reward or penalty. This mechanism would be a symmetrical incentive which means that if EirGrid deliver the interconnector on or below cost and in line with the expected timeframe, EirGrid would receive an additional contingent uplift to the RAB (a 'notional equity reward') which would be depreciated and returned to EirGrid once the interconnector becomes operational. However, should the costs increase and/or the interconnector is not delivered on time, EirGrid would be penalised by reducing the equity proportion of the RAB (i.e. the penalty would be netted off the RAB).

The chart below sets out how the model could work, however, it should be noted that figures are yet to be determined and the chart is for illustrative purposes only. In this illustrative example, the notional equity reward uplift to the RAB is set at €xm.⁴³ As the investment cost of the project overrun increases relative to the efficient delivery investment cost for the

⁴³ Note that this is €25m in the figure, however, this is for illustrative purposes only.

interconnector,⁴⁴ this results in increasing deductions to the allowed RAB which EirGrid will be permitted to earn a return on during the operational period.⁴⁵ In this example, up to a €xm cost overrun, the deductions in the RAB first result in a reduction in the notional equity reward uplift component of the RAB (i.e. up to €xm). However, in this example once the investment cost overrun exceeds €xm, then the penalty to the RAB results in a reduction in the invested equity proportion of the RAB. In this example, this means that invested equity capital is only at risk if the cost overrun exceeds €xm.⁴⁶

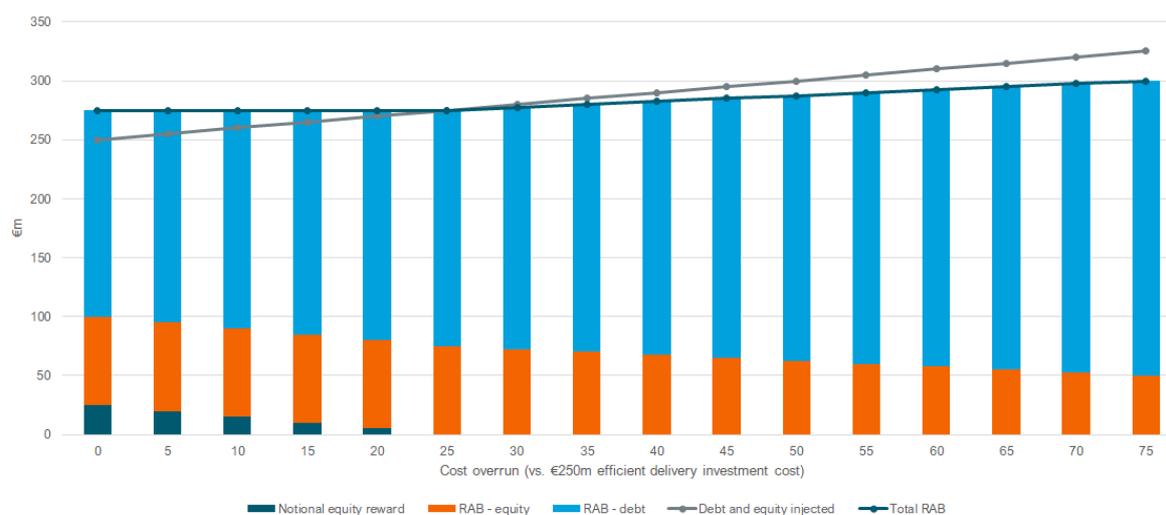


Figure 3 - Two-Phase Funding Model (for illustrative purposes only)

The East West Interconnector (EWIC) project, which EirGrid previously undertook, was also subject to a construction incentive for delivery on time and on the approved cost. EirGrid successfully achieved the incentive as the interconnector was delivered on time and below the approved cost. This demonstrates the success of this approach and the CRU is therefore proposing a similar approach for the Celtic Interconnector, having regard to the specific context in which the Celtic Interconnector arises.

The CRU acknowledges that the reward/penalty available to Eirgrid must be commensurate with its equity provided for this project and the context of its ability to absorb risk. Any reward earned by EirGrid should only be realised in full in the event of successful performance,

⁴⁴ This example uses €250m.

⁴⁵ See section 4.3.4 below for a description of how the second phase of the two-phase regime is proposed to operate.

⁴⁶ If the incentive included a time of delivery as well as efficient delivery cost component, then a similar principle could be applied, whereby the allowed RAB would be reduced by an agreed amount depending on how delayed the actual commissioning date is relative to a target commissioning date.

defined as the successful delivery of an operational asset within the parameters set when the incentive is defined. As well as providing EirGrid with an incentive to deliver the project on time and/or at or below the efficient delivery investment cost, the upfront notional equity reward, in €m terms, would also need to be sized to be sufficient to compensate EirGrid for the cost of its equity invested during construction.⁴⁷

The CRU is proposing the RAB uplift of €xm for two reasons:

1. Incentivise EirGrid to deliver this project on time and on/below cost, thereby aligning EirGrid's interests with those of electricity customers;
2. To compensate EirGrid for the opportunity cost of the equity they are putting forward for this project during construction, i.e. acknowledgement of the alternative use for this equity if it had not been used for the interconnector.

Once operational, the CRU expects to apply other incentives as set out in the following section.

4.3.3.3. Return to EirGrid

As noted above, the CRU is proposing to allow EirGrid to receive Interest during Construction to allow the debt to be serviced during this period. The amount that would be provided to EirGrid during this period would be determined at a later stage based upon information submitted to the CRU by EirGrid demonstrating the amount required for this purpose.

4.3.4. Detailed Overview: Phase 2 – Operation

Once the interconnector becomes operational, the interconnector would be in a position to earn congestion rent, requiring top-ups from electricity customers only in circumstances where the congestion rent does not equal the annual revenue requirement. The CRU is of the view that at this stage, the risk to customers would have significantly decreased and customers would be benefiting from the interconnector. Therefore, the CRU is proposing to

⁴⁷ In net present value terms, this would be to ensure that although EirGrid is only able to start to recover a return on equity during the operational period, its expected equity Internal Rate of Return (IRR) for the project is consistent with its cost of capital, provided that the outturn investment costs of the interconnector do not exceed the upfront efficient delivery investment cost determined by the CRU and/or the project is not delayed beyond a target commissioning date.

allow a RAB x WACC approach for phase 2. This means that EirGrid would recover the following each year:

Depreciation	+	Return ⁴⁸	+	opex	=	Annual Revenue
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This section sets out how phase 2 of the model would operate.

4.3.4.1. Opening Regulated Asset Base (RAB)

Once construction has been completed, the CRU would determine the closing RAB for phase 1. A comparison between the outturn cost and the efficient delivery cost would then take place to determine whether a reward or penalty should be applied to the RAB at its incurred historical cost value. This would then become the opening RAB for phase 2. As the CRU is proposing that the WACC would take inflation into account, the RAB would not be indexed for inflation.

The opening RAB value for the Celtic interconnector at the start of the phase 2 – operations, would be determined as follows:

- The RAB would be fixed at its historical cost value, subject to the adjustments set out below, and would not be subject to inflation indexation.⁴⁹
- The RAB would be set equal to the closing value at the completion of phase 1 – pre-operations, i.e., efficiently incurred pre-FID costs and actual capex (net of grant) incurred by EirGrid for the project during development and construction, subject to an adjustment following a post construction review of the equity proportion of the interconnector’s RAB, depending on how the project’s outturn investment cost compares to an efficient delivery cost for the project; If the total cost is below the efficient delivery cost, the CRU would put in place a mechanism to return the difference to EirGrid and customers.
- The post construction review adjustment would be dependent on the CRU’s assessment of EirGrid’s performance under the phase 1 construction incentive described in section 4.3.2 above:

⁴⁸ Including an allowance for tax.

⁴⁹ This is in contrast to onshore energy networks where the RAB is indexed to inflation.

- If the interconnector is delivered in line with or before its target commissioning date and/or in line with or below its efficient delivery project investment cost, then the RAB will be uplifted by the agreed upfront RAB bonus amount.⁵⁰
- If the interconnector's commissioning date is delayed and/or the investment cost exceeds the efficient delivery investment cost for the project, then as described above, this would result in a reduction in the RAB (initially the upfront RAB bonus and then actual invested equity capital).
- If the interconnector's total investment cost is below the efficient delivery cost, the CRU would put in place a mechanism to return the difference to EirGrid and customers.
- Any adjustment to the equity proportion of the interconnector's RAB under the proposed phase 1 incentive, would be subject to a cap equal to €xm. This would cap EirGrid's exposure to commissioning date and/or construction cost overrun risks compared to the efficient delivery cost set by the CRU ahead of the start of project's construction programme.
- In the case of a cost overrun that exceeded a construction risk incentive cap, the CRU would ensure that only efficiently incurred costs would be passed on to consumers. Should such a case arise, the CRU would initiate an ex-post review of the project's costs to identify any such cases and take steps to ensure that Irish consumers do not bear any such costs.

Depreciation

At this stage, the CRU is proposing to allow the RAB to begin to be depreciated as customers would now be benefitting from the operation of the interconnector. EirGrid has requested that the asset be depreciated on a straight-line basis i.e. the asset would depreciate in equal amounts each year. The CRU is proposing to allow the asset to be depreciated over a 25-year period, on a straight-line basis, to align with the expected financing needs of the asset i.e. the expected length of time it will take to repay the debt required to finance the asset. This is consistent with the CRU's approach to another interconnector.⁵¹ It should be noted, however, that the actual or technical lifetime of the asset is expected to far exceed this time period.

⁵⁰ The notional equity reward amount in Figure 4 above.

⁵¹ Greenlink Electricity Interconnector - Cap and Floor Regulatory Treatment, Decision Paper (CRU/20/171), available at: <https://www.cru.ie/wp-content/uploads/2020/12/CRU20171-Greenlink-Cap-and-Floor-Regulatory-Treatment-decision.pdf>

4.3.4.2. Rate of Return

As noted above, once the interconnector becomes operational, the CRU is proposing to allow EirGrid to earn a return. The CRU is proposing that the WACC be set separately to the TSO WACC and commensurate with the equity put forward by EirGrid for this project. The CRU is proposing that the WACC be applied in nominal terms, as requested by EirGrid. Although a WACC is usually applied in real terms and allowing it to be applied in nominal terms brings the cashflow for EirGrid forward, the CRU is proposing to allow it to be applied in nominal terms in these specific circumstances. This is due to the deferred depreciation and return during phase 1 as well as ensuring EirGrid can meet their financing obligations for the project.

The CRU is proposing that the allowed rate of return on the RAB during phase 2 – operations, would be determined as follows:

- The allowed rate of return would be set equal to a WACC value that is set in real terms, to which Irish HICP would be added (i.e. a nominal allowed rate of return).
- Elements of the allowed rate of return – e.g., market wide parameters of the cost of equity such as the risk-free rate and market risk premium under a Capital Asset Pricing Model (CAPM) – would be reset as part of 5-year price control reviews, while other project specific elements would be fixed over the 25-year depreciation life.

The CRU has identified a series of options for how it could set the project specific elements of the allowed rate of return on the RAB in Phase 2 which are set out below. The CRU is seeking views on these elements in order to provide guidance on the approach for the allowed rate of return. The detailed elements of the model will then be determined following the final decision.

- **Capital structure:** actual or notional;
- **Cost of Debt:** The following options have been identified:
 - Set a Cost of Debt allowance based on a market benchmark rate at a period around the time of commissioning – which is then fixed for the duration of the RAB (25-years);
 - Pass through of the “actual” cost of debt potentially with a gain-share versus a target rate mechanism to incentivise EirGrid to source the cheapest debt as possible at the time it finances for the operational period.

- **Cost of Equity:** Assuming that the Cost of Equity is set using CAPM, there could be a project specific asset beta assumption. This could be reviewed every five-years or, alternatively it could be fixed over the depreciation life following an assessment around the time of commissioning. The asset beta assumption would be expected to reflect the low operational risk and customer underwriting (RAB x WACC) of the Celtic investment.

4.3.4.3. Opex

EirGrid have requested that the opex for the Celtic interconnector be determined on a periodic basis as part of the overall TSO activities. The CRU is proposing that the Celtic Interconnector be provided a separate opex allowance on a periodic basis at the time of the price review process.

4.3.4.4. Other Matters

(a) Operational Incentives

In order to incentivise EirGrid to operate the Celtic interconnector in an appropriate manner, the CRU is proposing that incentives, and the details of these, will be considered further in due course following a decision on the cost recovery model. This is expected to include a form of performance-based incentive, for example, related to a target for the availability of the Celtic Interconnector system. EirGrid would have an opportunity to receive bonuses / penalties depending on the performance of the interconnector against this target.

(b) Arrangements should the Project not proceed to Completion.

As noted above, the CRU is of the view that the risks associated with this project are greatest during development and construction. If certain risks are realised, then it is a possibility that the project may not proceed to completion. EirGrid has requested that in these circumstances, the expenditure incurred to that point would be returned to EirGrid through customer tariffs over a reasonable period of time. The CRU is proposing to allow this approach but only where specific requirements have been met, such as the project not proceeding due to factors outside of EirGrid's control. The CRU would determine these circumstances in due course. If these conditions were not met, the CRU is proposing that EirGrid would be required to absorb all or some of the losses in other areas of its business.

4.4. Conclusion

The CRU is of the view that a fully regulated Two-Phase Funding Model approach strikes an appropriate balance between enabling EirGrid to progress the project while ensuring that its interests are aligned with those of the electricity customer. The model seeks to build upon consistencies in the existing onshore model and the French cost recovery model for the Celtic Interconnector, as determined by CRE, where appropriate to do so, while also having regard to the specific details of the project and the context in which the project arises.

A summary of the CRU proposals is outlined below.

Cost recovery Model – CRU Proposal	
To be separate from EirGrid TSO	The interconnector asset would be regulated separate to EirGrid's TSO activities.
Cost Recovery Model	Fully regulated treatment of the interconnector to enable project to progress while including additional customer protection measures.
Capex	
Capex net of grant separate to TSO RAB	EirGrid's share of all project capex (net of the CEF grant) to be placed in a separate RAB.
Basis of WACC – Separate to TSO	Separate WACC set for Celtic Interconnector.
Real WACC, RAB indexed	Allowed WACC set in nominal terms, (no RAB indexation).
WACC inflation	Details to be determined at a later date.
Minimum DSCR	No minimum DSCR.
Depreciation	From commissioning, the RAB would be written down and returned to EirGrid over 25 years on straight-line basis.
Incentive package	Delivery incentive proposed but amount yet to be set.
Opex	
Opex	Costs are subject to periodic reset.

Table 9 - Summary of CRU's Proposals

Separate to the process for deciding upon the appropriate cost recovery model for EirGrid on the Celtic project, the CRU has initiated a cost assessment process to examine and determine the appropriate efficient costs that EirGrid will be allowed to recover in developing the Celtic Interconnector to date. Further details of this will be published in due course.

Questions for Consultation:

- Comments are invited on whether stakeholders agree that, in the context of a fully regulated model, the Two-Phase Funding Model is the appropriate model to be applied to the Celtic Interconnector.

5. Next Steps

This paper sets out, for consultation, the CRU's proposed cost recovery model for EirGrid in developing the Celtic Interconnector. Comments are invited from interested parties on this proposal until Friday, 23 July 2021. Responses to this consultation should be sent, preferably by email, to electricityinterconnectors@cru.ie

Responses received to this paper will be considered and a final decision will issue later this year. Following this, the CRU will carry out a separate process to determine the details of the cost recovery model as well as the broader framework which will include governance and cost assessments.

The timeline below sets out an indicative timeline for the following stages of this project:



Figure 4 - Indicative Timeline of Next Steps

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](#).