Consultation

Consultation on changes to the financial parameters of the cap and floor regime for Window 3 electricity interconnectors and risk considerations for Offshore Hybrid Assets

Publication date:	01 September 2023
Response deadline:	29 September 2023
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We are consulting on the financial parameters of the cap and floor regime for Window 3 electricity interconnectors and risk considerations for offshore hybrid assets. We would like views from people with an interest in these topics. We particularly welcome responses from developers of, and key counterparties of these projects. We would also welcome responses from other stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at ofgem.gov.uk/consultations. If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

Any enquiries related to the text of this publication should be sent to Ofgem at:

10 South Colonnade, Canary Wharf, London, E14 4PU.

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Contents

Introduction

The cap and floor regime for electricity interconnectors

1.1 The cap and floor regime is the regulated route to develop electricity interconnectors in Great Britain. It is a developer-led regime that balances commercial incentives and appropriate risk mitigation for project developers by providing a yearly maximum (cap) and minimum (floor) level of revenue that an interconnector project can earn over a 25-year period. Revenues above the cap are passed back to network users, benefitting consumers, while revenues below the floor are topped-up by consumers.

1.2 The focus of this publication is the proposed approach to setting the cap and floor levels – using the cap and floor financial model and input parameters – for licensees of the third application window for electricity interconnectors (**third window**).

The Interconnector Policy Review (ICPR)

1.3 In August 2020, Ofgem launched a review of its regulatory policy and approach to new electricity interconnectors – our Interconnector Policy Review (**ICPR**).[1]

1.4 The objectives of the review were two-fold: firstly, to establish if there was the need for future GB interconnection capacity beyond the currently approved projects; and secondly to consider Ofgem's approach to the regulation of future GB interconnection. Following public consultation and stakeholder engagement on the analysis and proposals of the four ICPR workstreams, we published a decision in December 2021.[2]

1.5 In the ICPR decision we concluded that future interconnector investment is likely to be beneficial, and that we would explore adjustments to the cap and floor regime. We found that the principles of the cap and floor remain appropriate to incentivise further interconnector development, however, we would review our approach to enable the regime to become simpler, more consistent, and more flexible. We decided that this third cap and floor application window will be targeted, focusing on mature projects that are able to connect within the next

[1] Open letter: Notification to interested stakeholders of our interconnector policy review Open letter: Notification to interested stakeholders of our interconnector policy review | Ofgem
[2] Interconnector Policy Review – Decision Interconnector Policy Review - Decision | Ofgem

decade, following our long-term decision to better integrate future interconnector planning within wider strategic network planning.

1.6 We also concluded that the cap and floor regime would, in principle, be a suitable framework for regulating Multi-Purpose Interconnectors (**MPIs**) and therefore chose to open an MPI pilot investment window that is now known as the Offshore Hybrid Asset (**OHA**) pilot window.

Implementation of the Interconnector Policy Review

1.7 Since January 2022, Ofgem has refined and implemented the decisions outlined in the ICPR decision paper. For the third application window, we have adjusted the regime's eligibility criteria and consulted on adjusting the timelines and incentives mechanism.

1.8 For the OHA pilot scheme, we created a staged assessment framework. We consulted in June 2023, although we have not yet decided on the regulatory regime(s) that will apply to OHAs.

1.9 We held five interactive stakeholder workshops throughout spring 2022 on the details of the regime, and the needs case framework applicable to the third window and the OHA Pilot Regulatory Framework. Throughout these workshops, responses to our proposals were broadly positive. Suggestions to increase flexibility and simplicity within the regime were also welcomed and we have worked to reflect stakeholder feedback in our final positions.

1.10 In August 2022 (with updated text in October 2022), we set out the policy direction for the Cap and Floor Financial Models (**CFFM**) and updates for input parameters in our Application Guidance for the Third Cap and Floor Window for Electricity Interconnectors.[3] Since then, we have further reviewed our approach to the determination of input parameters for the **CFFM**[4] such as inflation rate, taxes, interest during construction (IDC), and cap and floor levels.

[3] Application Guidance for the Third Cap and Floor Window for Electricity Interconnectors: Application Guidance for the Third Cap and Floor Window for Electricity Interconnectors | Ofgem

[4] The Cap and Floor Financial Models (CFFMs) are Microsoft excel based models that Ofgem uses to transform cost and other inputs into the cap and floor levels. There are two CFFMs, model 1 (CFFM1) and model 2 (CFFM2). The earlier is updated for each project at the FPA and PCR stages, whilst the latter is used for our assessment of revenues and any allowed adjustments to cap and floor levels during the operational period.

Interaction with the OHA pilot regulatory framework

1.11 We recently consulted on the regulatory framework that would apply to the OHA pilot scheme.[5] [6] Two types of assets are included: MPIs and Non-standard interconnectors (**NSIs**).

1.12 Whilst OHA assets are novel in nature and may require a different approach to regulation than currently applied to point-to-point interconnectors, we acknowledge similarities in the assets.

1.13 In our June 2023 consultation we proposed a set of regime options that could be applied to OHAs, together with a list of high-level design parameters. The design parameters were chosen on the basis of our recommended regime options. These are similar to the cap and floor regime applied to current electricity interconnectors but reflect the different balances of revenue and cost, as well as different levels of risk, while protecting consumer interests. As part of the June 2023 consultation, we aimed to gather feedback on more detailed proposals for these design parameters, as they could additionally be applied to OHA pilot projects.

What are we consulting on?

1.14 As a result of the above work, the focus of this consultation is to set out our regime design proposals for our third application window. The design proposed in this document is based on proposed changes to the regime design that applied for Window 2 interconnector projects. Any changes to the regime design will be reflected in the CFFM at the relevant stage of the cap and floor assessment stages. Amongst other aspects, we are particularly proposing a change to the inflation indexation. We also propose to adopt this change to the interest during construction and thus aim to consult on this and any other relevant IDC changes in due course.

[5] Consultation on the Regulatory Framework, including Market Arrangements, for Offshore Hybrid Assets: Multi-Purpose Interconnectors and Non-Standard Interconnectors: Consultation on the Regulatory Framework, including Market Arrangements, for Offshore Hybrid Assets: Multi-Purpose Interconnectors and Non-Standard Interconnectors | Ofgem

[6] As explained in the OHA consultation published on 2 June 2023, in order to reflect the asset classification stated in the Energy Bill, we have updated Ofgem's MPI pilot scheme to include two distinct categories of projects: multi-purpose interconnectors (MPI) and non-standard interconnectors (NSI). These are referred to together as offshore hybrid assets (OHA) and the pilot scheme has been named the OHA pilot to account for the expansion in scope.

1.15 We welcome stakeholders' views on these proposals. We will consider stakeholders' views to inform our final decision on regime parameters. This will be either before or alongside our consultation on our initial project assessment for third application window projects and OHA pilot scheme projects.

Section 1: Proposed changes to the cap and floor regime design parameters for Window 3 interconnector projects

1.16 We present in Section 1 the changes we are proposing to introduce to our default regime parameters, including inflation, reasonable and efficient transaction costs as well as and cap and floor rates. The changes we are proposing in this document will only be applicable for successful projects in our third window and potentially future windows.

Questions

Q1. Do you agree with our proposal to move away from the use of RPI to CPIH as the inflation measurement for the cap and floor regime, and is there a better proxy to use for CPIH than CPI?

Q2. Do you agree with the changes we are proposing to introduce to the way we calculate the floor rate? If not, could you please explain why and provide evidence for your reasons?

Q3. Do you have any alternatives to our proposed changes? If so, could you please elaborate on them and present evidence on the potential impact these might have on the current floor rate?

Q4. Do you agree with the issues raised and the proposed changes to the cost of equity? If not, could you please explain why and provide evidence for your reasons as well as provide alternatives?

Q5. Do you agree with our analysis on impacts related to the risk-reward balance?

Q6. Do you agree with CEPA that the equity transaction costs should not be higher than 3%? If not, could you explain why and provide evidence for your reasons?

Section 2: Risk considerations for pilot OHAs' regime parameters

1.17 The purpose of Section 2 is to explore and gather evidence on what risks we should consider for NSI projects and how these risks could be reflected in the

financial parameters applicable to any of the packages we proposed for NSIs. We will consider MPI risks and financial parameters at a later stage.

Questions

Q1. Are NSI revenue sources different from the revenue sources of point-to-point interconnectors?

Q2. Is there evidence we should consider on how revenue and volume risks should be reflected in our choice of financial parameters for NSIs?

Q3. Do you agree that there are no material additional operational risks for NSIs relative to point-to-point interconnectors because any greater uncertainty on the operation and maintenance costs of the offshore converter platform would be addressed by any regulatory regime of the connecting state?

Q4. Should the regulatory risks (arising from matters such as the substantial policy discussion ongoing within the UK and extending to the EU over the envisioned meshed grid in the North Sea, how Offshore Bidding Zones will interact with trading arrangements, and whether those trading arrangements continue on an explicit or implicit basis) be reflected in the financial parameters for NSIs, and if so how should this be done?

Context and related publications

Open letter: Notification to interested stakeholders of our interconnector policy review | Ofgem

Interconnector policy review: Working paper for Workstream 1 – review of the cap and floor regime | Ofgem

Interconnector Policy Review - Decision | Ofgem

Application Guidance for the Third Cap and Floor Window for Electricity Interconnectors | Ofgem

Multi-purpose Interconnectors Pilot Regulatory Framework | Ofgem

Consultation on the Regulatory Framework, including Market Arrangements, for Offshore Hybrid Assets: Multi-Purpose Interconnectors and Non-Standard Interconnectors | Ofgem

Consultation stages

Figure 1: Consultation stages

Stage 1	Stage 2	Stage 3	Stage 4
Consultation open	Consultation closes (awaiting decision). Deadline for responses	Responses reviewed and published	Consultation decision/policy statement
01/09/2023	29/09/2023	November 2023	November 2023

How to respond

1.18 We want to hear from anyone interested in this consultation. Please send your response to the person or team named on this document's front page.

1.19 We've asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.

1.20 We will publish non-confidential responses on our website at www.ofgem.gov.uk/consultations.

Your response, data and confidentiality

1.21 You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

1.22 If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you *do* wish to be kept confidential and those that you *do not* wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we'll get in touch with you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.

1.23 If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its

statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 4.

1.24 If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

General feedback

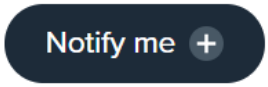
1.16. We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

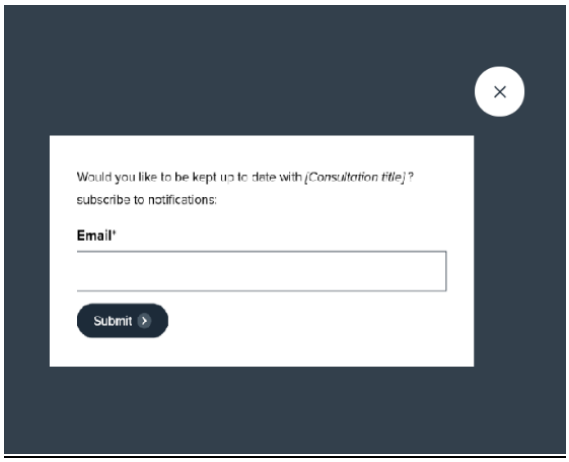
1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6.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

Please send any general feedback comments to stakeholders@ofgem.gov.uk

How to track the progress of the consultation

You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website. Ofgem.gov.uk/consultations





Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:

Upcoming > **Open** > **Closed** (awaiting decision) > **Closed** (with decision)

Section 1: Proposed changes to the cap and floor regime design parameters for window 3 interconnector projects

Questions

Q1. Do you agree with our proposal to move away from the use of RPI to CPIH as the inflation measurement for the cap and floor regime, and is there a better proxy to use for CPIH than CPI?

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The financial parameters of the cap and floor regime

1.25 The cap and floor regime sets a yearly maximum (cap) and minimum (floor) level for the revenues that an interconnector can earn on an annual basis during a 25-year period, which is the duration of the regime. The allowed return on equity drives the "cap return", and the "floor return" is based on an allowed return for debt and operational costs, which is underwritten by consumers. In our default regime, the cap and floor levels are set based on project costs using a typical Regulated Asset Base (**RAB**) model. We then apply different notional financial parameters to set the cap and the floor independently using the CFFMs.

1.26 Furthermore, for the pre-operational period, which is characterised by the lack of a revenue stream, the regime also provides an allowance called Interest During Construction (**IDC**). This allowance enables relevant licensees to recover a notional cost of capital based on the regulated asset value (**RAV**) balance at the end of each pre-operational year.

1.27 The approaches we use to set parameters and to calculate return rates in the regime are designed to adhere to the following principles[7]:

- Reflect the risk-reward balance between consumers and developers;
- Incentivise investment by providing certainty and clarity to developers and investors;
- Incentivise developers to deliver high-quality projects on time and to maximise interconnector capacity availability for electricity flows;
- Reflect the prevailing market conditions.

1.28 Whilst bearing in mind these principles, we have reviewed the regime design parameters by conducting a quantitative and qualitative assessment. In this assessment, we looked at recent market trends, analysed risk profiles, and compared our current approach to parameters set with that of other regulatory regimes applied by Ofgem in GB.

1.29 By doing this, in addition to reflecting current market conditions and risks, we intend to align our approach where appropriate across the cap and floor regime, other regulatory regimes applied by Ofgem, and regimes applied by other utility regulators in GB. We have sought to consider the specific risk profile that interconnection activities have in the pre-operational and operational phases.[8] Our intention to align our methodological approach also follows recent approaches in RIIO-2 decisions[9] to align cost of capital across Ofgem and GB regulation, following recommendations from the UK Regulators Network (**UKRN**),[10] where relevant.

1.30 On balance, we consider this alignment will provide more consistency, simplicity and clarity to investors and developers.

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[7] Ofgem (2021), Interconnector Policy Review: Decision Interconnector Policy Review: Decision (ofgem.gov.uk) Section 3.51

[8] The IDC rate applies during construction (3-5 years) whilst the Cap and Floor rates apply during operations (25 years).

[9] Ofgem (2021), RIIO-2 Final Determinations – Finance Annex (REVISED: https://www.ofgem.gov.uk/sites/default/files/docs/2021/02/final_determinations_-_finance_annex_revised_002.pdf#page=112; and Ofgem (2022), RIIO-ED2 Final Determinations Finance Annex: https://www.ofgem.gov.uk/sites/default/files/2022-11/RIIO-ED2%20Final%20Determinations%20Finance%20Annex.pdf

[10] UKRN (2023), UKRN guidance for regulators on the methodology for setting the cost of capital: https://ukrn.org.uk/app/uploads/2023/03/CoC-guidance_22.03.23.pdf

1.31 We present in the below sections the changes we are proposing to introduce to our default regime parameters, including inflation, reasonable and efficient transaction costs as well as and cap and floor rates. It is important to note that the changes we are proposing in this document will only be applicable for successful projects in our third window and potentially future windows. The changes we are proposing are based on the current methodologies and parameters used for projects under our Window 1 and Window 2 application rounds. We welcome stakeholder responses to the questions we ask relating to each section.

Inflation index

1.32 We currently use the Retail Prices Index (RPI) as the inflation index for the cap and floor regime for W1 and W2 projects to do the following:

- Set the cap, floor and interconnector IDC rates and levels in real terms
- Adjust the cap and floor levels, as set at Final Project Assessment (**FPA**) and Post Construction Review (**PCR**) stage, to account for inflation. We set the levels in real GB annuities. To compare those levels against the actual revenues, we multiply them by an index factor to express them in nominal prices for each year of the regime.

1.33 RPI is one of the measures of consumer inflation produced by the United Kingdom's Office for National Statistics (**ONS**). It measures the change in prices for goods and services over time. However, it is no longer seen as a credible measure of inflation and considered a legacy measurement.[11]

1.34 The ONS publishes two other measures of consumer inflation, the Consumer Prices Index (**CPI**) and the CPI including owner occupiers' housing costs (**CPIH**). CPI and CPIH are considered more accurate measures of inflation than the RPI. CPIH is considered more comprehensive than the CPI and has been adopted as the UK's lead inflation index.[12] Historically, the difference between CPI and CPIH measures of inflation has been small.

[11] Transformation of consumer price statistics: April 2022 Transformation of consumer price statistics - Office for National Statistics

[12] Consumer Price Inflation (includes all 3 indices – CPIH, CPI and RPI) QMI: Consumer Price Inflation (includes all 3 indices – CPIH, CPI and RPI) QMI - Office for National Statistics

Proposal

1.35 We propose to move from the use of RPI to CPIH as the inflation measurement for the cap and floor regime. This change brings the methodology in line with the approach used in the RIIO-2 price controls.[13]

1.36 While CPIH is now considered as the UK's lead inflation index, there are currently limited estimates of CPIH inflation available to regulators and market participants. Given the historically close relationship between CPI and CPIH inflation, and in line with the approach used in the RIIO-2 price controls, we propose to use CPI forecasts from reliable sources (such as the Office of Budget Responsibility and HM Treasury) as a suitable proxy of estimates of CPIH inflation - until such time as CPIH-based estimates are reliably available.

Impacts

1.37 As we set the allowed return on equity and debt in real terms, the choice of inflation metric will have an impact on this element of return. Using RPI would mean we are using an unreliable inflation index, while applying CPIH would address this. This is in line with the regime's aim of striking the right balance between commercial incentives and appropriate risk mitigation for project developers to encourage interconnector investment. All other things being equal, the total return that investors can expect at the cap and at the floor should not be impacted by the change in inflation metric.

Floor rate

1.38 The floor is the minimum amount of revenue an interconnector can earn on an annual basis over the duration of the regime. It is set to allow an interconnector with a notional financing structure to recover only its costs and rate of return equal to a cost of debt index.[14] The cost of debt rate, resulting from the calculation of this index, is then applied to the whole RAV to set the yearly return allowance (provided an 80% minimum availability threshold is met).

[13] RIIO-2 framework decision: RIIO-2 framework decision | Ofgem

[14] The rationale behind the methodology used to calculate the cost of debt for W1 and W2 projects can be found in our Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo: https://www.ofgem.gov.uk/publications/decision-cap-and-floor-regime-gb-belgium-interconnector-project-nemo

Proposal

1.39 We are proposing the following changes to the methodology and input parameters used to calculate the cost of debt rate:

- Change the tenor of the iBoxx GBP non-financial corporate yields from 10+ years to 15+. This is for both yield types that we use at each end of the cost of debt index range we set, i.e., the A-rated index yield for the low-end and BBB-rated index yield for the high-end. We propose this change to align the maturity length of the yield indices more closely with the length of the cap and floor regime, which is 25 years.
- Depending on our final decision, and to maintain consistency across regime parameters, use CPIH as the main deflator to express the Floor in CPIH-real terms.
- Modify the cost of debt index calculation order to be able to incorporate the proposed changes on the inflation index. This change is required because our current calculation order is based on the data availability for RPI, which is available daily, whereas CPIH and CPI data, is available monthly. Any change to the calculation order will be subject to the decision we will make on the inflation index.

1.40 The elements we use to determine the cost of debt index for Window 1 and Window 2 projects are set out in Table 1, alongside the changes we are proposing to introduce for Window 3 respective rationale to support them.

Table 1: Aspects used to set the floor rates for W1 and W2 projects and proposed changes for W3

Aspect	Design W1 and W2	Proposed changes W3	Rationale of proposal
Source	iBoxx	Same as W1 and W2	N/A
Tenor	10+ years	**Change** to 15+ years	Yield to maturity of 15+ indices closer to the length of the regime (25 years)
Index	Average of A- and BBB-rated GBP non-financials index yield	Same as W1 and W2	N/A
Averaging	20-day simple trailing average	Same as W1 and W2	N/A
Deflator	10-year breakeven RPI (data published by the Bank of England)	**Change** to CPIH	Maintain consistency with other relevant regimes administered by Ofgem such as RIIO2.
Order of calculations	1. For each trading day, average of A and BBB yields 2. For each trading day, deflate A/BBB average using breakeven RPI inflation. 3. Average deflated A/BBB averages across the 20 trading days	**Change order to:** 1. Low end: average A yields across 20 trading days 2. High end: average BBB yields across the 20 trading days 3. Deflate low end and high end using CPIH	Technical change required due to switch from RPI (for which daily breakeven rates are available) to CPIH (for which no daily rates are available)
Return locked down	At final investment decision or financial close	Same as W1 and W2	N/A

Cap rate

1.41 The cap is the maximum amount of revenue an interconnector can earn on an annual basis over the duration of the regime. It is set to allow an interconnector with a notional financing structure to recover only its costs and rate of return

equal to the cost of equity observed in assets with a similar risk profile. The equity return rate is estimated using a Capital Asset Pricing Model (**CAPM**) approach.[15] To determine allowed returns at the cap, we apply the equity return rate to 100% of the RAV.

Proposal

1.42 We are proposing the following changes to the methodology and input parameters used to calculate the cost of equity rate:

- When calculating the Risk-free-Rate (**RfR**) component of the CAPM model, use a 20-day simple trailing average of the 20-year index-linked gilts (**ILGs**), expressed in CPIH-real terms. We are proposing this change to update our measure with what is commonly known the best representation of 'risk-free' returns. Furthermore, the type of gilts and their tenor are in line with our approach for RIIO-2 and the UKRN recommendations. To note, the reference date to calculate this rate will be each project's final investment decision (**FID**) or Financial Close (**FC**), as appropriate.
- Currently, to set the total market return (**TMR**) for interconnector projects we use the latest available value of arithmetic mean of the UK real equity returns from Dimson, Marsh and Staunton (**DMS**) for the data series starting in 1900.[16] We propose for the TMR range to be aligned with the range estimated for the RIIO-2 price controls for transmission and gas distribution networks, as confirmed at FID or FC, as appropriate.

Asset beta

1.43 In addition to the changes that we are proposing above, we are interested in hearing stakeholders' views on our proposed approach for updating the asset beta for the operational period.

1.44 Currently, the cap seeks to limit excess returns above the level earned by an independent generator. It is important that the returns available at the cap match the nature and extent of risks. At the time of our assessment in 2013,[17] we

[15] The rationale behind the methodology used to calculate the cost of equity for W1 and W2 projects can be found in our Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo: https://www.ofgem.gov.uk/publications/decision-cap-and-floor-regime-gb-belgium-interconnector-project-nemo
[16] Published in the Credit Suisse Global Investment Returns Sourcebook.
[17] Cap and Floor Regime for Regulated Electricity Interconnector Investment for application to project NEMO: Cap and Floor Regime for Regulated Electricity Interconnector Investment for application to project NEMO | Ofgem

considered that a generator would be an appropriate comparator to measure the risk these types of projects have. At the margin, the risks for an interconnector developer operating at the cap can be considered similar to those faced by a generator. This also recognises that the floor provides some downside protection for developer revenues. Following our assessment that a generation stock is the most suitable comparator for setting the cost of equity, we used Drax Group plc as a comparator. Drax is the only UK independently listed generation stock. We therefore fixed our equity beta at 1.25, reflecting the level of Drax's re-levered equity beta over the then recent years.

1.45 In 2018, we commissioned Cambridge Economic Policy Associates (**CEPA**)[18] to undertake further analysis on the cap returns. In their report, CEPA recommended investigating whether an equity beta of 1.25 remained a reasonable reflection of rates of return for electricity generators or similar asset classes.

1.46 Accordingly, we are now reconsidering our beta assumptions (both asset beta and equity beta) when capping interconnector returns. We therefore seek stakeholder views on our proposals on the following beta issues:

- The notional equity beta of 1.25 can be traced back to our NEMO (now Nemo Link) decision in December 2014:[19] Paragraphs 5.15 and 5.16 together imply a debt beta of zero and unlevered/asset beta of 0.625, given the gearing assumption of 50%. By contrast, RIIO-2 final determinations for electricity transmission networks use a debt beta of 0.075.[20]
- Drax's risk profile, and related beta estimates, may rise and fall over time, in particular given changes over time in generation type and subsidy landscape.
- New evidence may emerge that helps us to better estimate the risk of an electricity interconnector.
- A notional equity beta of 1.25 is very sensitive to our gearing assumption of 50%: a lower gearing value would suggest a lower notional equity beta.

[18] REVIEW OF COST OF CAPITAL RANGES FOR NEW ASSETS FOR OFGEM'S NETWORKS DIVISION: cepareport_newassets_july2018_final.pdf (ofgem.gov.uk)
[19] Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo: https://www.ofgem.gov.uk/sites/default/files/docs/2014/12/final_cap_and_floor_regime_design_for_nemo_master_-_for_publication_1.pdf#page=39
[20] See here: https://www.ofgem.gov.uk/sites/default/files/docs/2021/02/final_determinations_-_finance_annex_revised_002.pdf#page=40

- The equity beta of 1.25 has been applied to 100% of the RAV, which suggests 0% gearing rather than 50% gearing: we welcome views on these different gearing assumptions.
- CEPA estimated a cap equity beta of 1.07.[21]

Table 2: Aspects used to set the cap return for W1 and W2 projects and proposed changes for W3 projects

Aspect	Design W1 and W2	Proposed design W3	Rationale of proposal
Risk-free rate	Long-term real risk-free rate: 1.6%	**Change to:** A 20-day average of the 20-year index-linked gilts (ILGs), expressed in CPIH-real terms.	• In line with UKRN and RIIO-2 approach • ILGs are the best representation of 'risk free' returns
Total market return	• Latest available value of arithmetic mean UK real equity returns from Dimson, Marsh and Staunton (DMS), which is published in the Credit Suisse Global Investment Returns Sourcebook, for the data series starting in 1900	**Change to**: Align TMR for Cap rates with the range estimated for the RIIO-2 price controls.	• To seek alignment with RIIO-2
Equity beta (notional)	Fixed equity beta of 1.25 (assuming 50% notional gearing).	Open to views and evidence	N/A
Return locked down	At final investment decision or financial close	Same as W1 and W2	N/A

Impact of proposed changes on the cap and floor rates

1.47 The parameters we use to calculate the cap and floor rates and their respective proposed changes have a variable nature. Therefore, the final values of some parameters will only be observable at the time each project takes FID or FC, as appropriate, and will likely differ on a project-by-project basis.

[21] See here: https://www.ofgem.gov.uk/sites/default/files/docs/2013/03/cepa-report---financeability-study-for-cap-and-floor-regime_0.pdf#page=86

1.48 Given that impact analysis based on forecast numbers has a high level of uncertainty, we have opted for a qualitative approach. For this, we sought to understand how our proposed changes may impact the main principles we used to design our regime – we mentioned these principles in the introduction of this section.

1.49 We think that the changes we are proposing to both cap and floor methodologies will retain the risk-reward balance between consumers and developers, while incentivising investment. At the floor it is our intention that there will be better alignment between the length of the regime and the average maturity of the bonds we use to calculate the cost of debt.

1.50 At the cap, our proposal is that the RfR value would be set at each project's FID or FC, as appropriate, and so better reflect current market conditions as well as consider the particularities of an interconnector with a cap and floor regime in place over its operational period.

1.51 We believe that these proposed changes will better reflect current market conditions.

Equity Transaction cost

1.52 The cap and floor regime has a transaction cost allowance for raising equity finance. This allowance is calculated by applying 5% to the opening RAV at the start of the operational period.

1.53 In 2018, we commissioned CEPA to undertake further analysis on the Cap and Floor regime parameters. In their report,[22] CEPA suggested allowing up to 3% of the required equity amount in the form of transaction costs. They also noted that this could be achieved through an uplift to the RAB, allowing the cost to be recovered over the full asset life.

1.54 We are now seeking to understand whether it would be appropriate to use a lower equity transaction cost allowance in line with the CEPA recommendation. To inform our decision, we would welcome evidence on actual transaction costs from stakeholders.

[22] Review of Cost of Capital Ranges for New Assets for OFGEM's Networks Division – Final Report by CEPA July 2018: cepareport_newassets_july2018_final.pdf (ofgem.gov.uk)

Section 2: Risk considerations for pilot OHAs' regime parameters

Questions

Q7. Are NSI revenue sources different from the revenue sources of point-to-point interconnectors?

Q8. Is there evidence we should consider on how revenue and volume risks should be reflected in our choice of financial parameters for NSIs?

Q9. Do you agree that there are no material additional operational risks for NSIs relative to point-to-point interconnectors because any greater uncertainty on the operation and maintenance costs of the offshore converter platform would be addressed by any regulatory regime of the connecting state?

Q10. Should the regulatory risks (arising from matters such as the substantial policy discussion ongoing within the UK and extending to the EU over the envisioned meshed grid in the North Sea, how Offshore Bidding Zones will interact with trading arrangements, and whether those trading arrangements continue on an explicit or implicit basis) be reflected in the financial parameters for NSIs, and if so how should this be done?

1.55 OHAs involve the combination of interconnection with transmission of offshore wind generation. There are many similarities between OHAs and point-to-point interconnectors because they:

- utilise similar technologies,
- operate in the offshore environment, and
- offer bi-directional flows of electricity.

1.56 However, unlike point-to-point interconnectors, MPIs involve an offshore converter platform, which connects to the offshore generator in GB. NSIs, on the other hand, connect to an offshore platform in the connecting jurisdiction and conduct interconnection activities in GB and the connecting state.

1.57 In our consultation on the regulatory framework for Offshore Hybrid Assets[23] (the **OHA consultation**), we set out the regulatory regime options we could use for these types of projects. The options set out for MPIs are as follows:

- Option 1 – RAB for the combined assets of the MPI
- Option 2 – Home Market with narrow cap and floor
- Option 3 - OBZ with partial RAB / cap and floor and Wind-Adjusted Financial Transmission Rights
- Option 4 - OBZ with narrow cap and floor and amended CfD
- Option 5 - Narrow cap and floor and amended CfD.

1.58 The options for NSIs are as follows:

- Option 6 - NSI with narrow cap and floor
- Option 7 - NSI with a RAB.

1.59 We recommended the following regulatory regime packages:

- **For MPIs** – a narrow cap and floor for the cable and onshore converter station elements and a RAB-type arrangement for the offshore converter platform (Option 4)
- **For NSIs** – a narrow cap and floor regime (Option 7).

1.60 We also noted that if we were to implement a narrow cap and floor approach, we would see great benefit in aligning the design parameters of the cap and floor regime for Window 3 point-to-point interconnectors with the ones applied to OHAs. This alignment would maintain consistency across our regulatory approaches. However, we acknowledge there may be certain divergences to reflect different levels of risk.

1.61 Whilst we are currently analysing stakeholders' responses to our OHA consultation and considering our decision on the specific regulatory regime packages to implement for both NSIs and MPIs,[24] we are keen to further progress our policy thinking on NSIs.

[23] See Consultation on the Regulatory Framework, including Market Arrangements, for Offshore Hybrid Assets: Multi-Purpose Interconnectors and Non-Standard Interconnectors | Ofgem
[24] This decision is expected to be published in autumn 2023

1.62 The purpose of this consultation section is to explore and gather evidence on what risks we should consider for these types of projects and how these risks could be reflected in the financial parameters applicable to any of the packages we proposed for NSIs. We will consider MPI risks and financial parameters at a later stage.

1.63 We think that the financial parameters consultation for Window 3 projects set out in Section 1 of this document presents us with a good opportunity to also discuss financial parameters for NSIs.

Considering risks of NSI projects

1.64 We aim to establish the most appropriate regulatory mechanism – between RAB and cap and floor approaches – to address the risks of OHA pilot projects, after mitigating strategies by developers. We acknowledge that risks faced by NSIs may differ depending on various aspects. We would welcome stakeholders' views on the following high-level considerations when assessing NSI risks:

1.65 **Regime design** – both proposed regulatory packages have characteristics that would require different risk considerations, especially around revenue certainty. For example, we would expect to account for lower levels of revenue risk in a regulatory package with higher levels of revenue certainty i.e., in the RAB approach. We also understand there may be further risks to consider for any regime design, such as treatment of inflation risk, frequency of revenue assessment periods, timing of revenue adjustments, availability requirements and incentives, as well as decommissioning costs and asset life.

1.66 **Risks during different project cycle stages** – we intend to consider risks borne specifically by developers over the construction and operational period of their pilot NSI projects. In particular, we would like to understand if these risks are different to interconnector developers and if yes, then to what extent and what possible quantifiable impact they would have.

1.67 **Financing options** – While currently we are working on the development of the regulatory regime for the pilot window NSI projects, we seek to design a regime that is impartial and unbiased to all types of developers (i.e., TSO and non-TSO developers), whilst protecting consumers. We understand that risks and costs of funding may vary depending on a project's financial structure, i.e., project finance vs balance sheet. We are keen to hear stakeholders' views on how a

regime could accommodate a wide range of financing options, without imposing additional costs on consumers.

Considering risks to set financial parameters for NSI projects

1.68 To set financial parameters, we would like to further understand the specific risks that NSI projects are exposed to under any of the proposed regulatory packages. We would like to ask stakeholders to provide us with their views and, if possible, evidence regarding the risk categories below, and how they differ from point-to-point interconnectors:

Construction period

- We would expect project developers to take suitable measures to mitigate cost over-runs, completion delays and technology risk. We would expect to address any remaining, materially high, construction risks through how we would set the IDC allowance.

Operational period

- **Revenue and volume risk**

1.69 NSIs are expected to receive revenue from the following sources:

- congestion rent from cross-border trade (capturing the price difference between two connecting states)
- capacity markets
- ancillary services
- onshore TSO compensation in the event of capacity reductions.

1.70 We do not believe that the revenue sources of an NSI are substantially different from those of a point-to-point interconnector.

1.71 In terms of volume risk, the capacity of the NSI cable in comparison to the output of the connecting offshore windfarm in the foreign jurisdiction may result in additional risks for NSIs from reduced capacity available for cross-border trade when that windfarm is generating power. This may create a significantly different risk profile for NSIs compared to point-to-point-interconnectors, albeit depending on how costs and revenues are shared between the parties in GB and the other jurisdiction and how the windfarm pays for transmission capacity.

- **Operational cost risk**

1.72 We do not anticipate material additional cost risks for NSIs relative to point-to-point interconnectors because in the case of NSIs we expect that any greater uncertainty on the operation and maintenance costs of the offshore converter platform would be addressed by any regulatory regime of the connecting state.

- **Financial risk**

1.73 The regulatory regime and market arrangements for OHAs are being developed with the ability of these projects to raise finance in mind and drawing on interconnector, Offshore Transmission Owner (OFTO) and other project precedents.

1.74 Whilst NSIs are a new asset class, closely related assets like point-to-point interconnectors and OFTOs are familiar assets to financiers, which could mitigate this risk. For example, the floor component of the cap and floor regime provides a strong downside protection to point-to-point interconnector revenues and would have a similar risk mitigating effect for financiers, if adopted. RAB structures also provide a high level of confidence and would provide risk mitigation, thus certainty on returns on investment for financiers.

1.75 We will consider the potential impact on cost of finance of the relevant risks of NSIs as discussed above, subject to the risk mitigation offered by any regulatory regime.

- **Regulatory risk**

1.76 There is substantial policy discussion ongoing within the UK and extending to the EU over the envisioned meshed grid in the North Sea, how Offshore Bidding Zones will interact with trading arrangements, and whether those trading arrangements continue on an explicit or implicit basis. We invite developers to assess these policy developments and any risk associated with them, how they impact project development, and whether and how these risks should be reflected in the financial parameters for NSIs.

Appendices

Index

Appendix 1 – Privacy notice on consultations

Personal data

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

1. The identity of the controller and contact details of our Data Protection Officer

The Gas and Electricity Markets Authority is the controller, (for ease of reference, "Ofgem"). The Data Protection Officer can be contacted at dpo@ofgem.gov.uk

2. Why we are collecting your personal data

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

3. Our legal basis for processing your personal data

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. i.e., a consultation.

4. For how long we will keep your personal data, or criteria used to determine the retention period.

Your personal data will be held for *six months after the relevant decision has been published.*

5. Your rights

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it

- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3rd parties
- tell us your preferred frequency, content and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at https://ico.org.uk/, or telephone 0303 123 1113.

6. Your personal data will not be sent overseas

7. Your personal data will not be used for any automated decision making.

8. Your personal data will be stored in a secure government IT system.

9. More information

For more information on how Ofgem processes your data, click on the link to our "ofgem privacy promise".