Decision

# Further detailed regime parameters for the Offshore Hybrid Asset pilot scheme - Decision

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| Contact: | Kevin Magner, Nick Pittarello |
| Team: | Future Interconnection |
| Email: | Cap.Floor@ofgem.gov.uk |

This decision document summarises the responses to the consultation on further detailed regime parameters for the Offshore Hybrid Asset (**OHA**) pilot scheme published on 20 September 2024, describes our consideration of those responses and our further analysis, and provides our final decision on these regime parameters. These detailed regime parameters are additional to the high-level regime parameters included in Section 7 and Appendix 1 of our decision on the Regulatory Framework for the Non-Standard Interconnectors (**NSIs**) of the OHA pilot scheme, of 8 February 2024.

Any future OHAs (either NSIs or Multi-Purpose Interconnectors) are outside the scope of this decision which applies only to the two projects of our OHA pilot scheme.

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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# Executive Summary

## Background

Ofgem ran a pilot scheme for Offshore Hybrid Assets (**OHAs**) between 2022 and 2024. We selected two pilot Non-Standard Interconnectors (the **Pilot NSIs**) which are:

- a new class of project which provide both cross-border interconnection and, in the connecting country only, offshore transmission
- the proposed **LionLink** and **Nautilus** projects. These are to run from GB to offshore high-voltage direct current (**HVDC**) converter stations, linked to offshore wind farms, in the Netherlands and Belgian waters respectively.

OHAs can play an important role in enabling the development of offshore renewables to meet our decarbonisation policy ambition and targets. As our seas become more crowded, ongoing efforts to better coordinate the development and delivery of offshore infrastructure has become more important. The potential for OHAs to reduce the number of transmission assets required to connect future offshore renewables, and consequently reduce investment costs and environmental and societal impacts, is becoming increasingly relevant.

No OHAs have yet been built in GB waters. The Kriegers Flak project between Germany and Denmark in the Baltic Sea is an early international example of an OHA. However, this was developed in discrete stages, operates under different regulatory frameworks than those in GB, and does not include an offshore bidding zone[1] (**OBZ**) as will be linked to the Pilot NSIs. Its cross-border links are high voltage alternating current rather than HVDC as in the case of the Pilot NSIs. Consequently, the OHA pilot scheme involves finding a suitable regulatory framework and risk/reward balance for a new type of project with very little direct precedent and none in listed company market data.

The form of the Pilot NSIs in GB has similarities with point-to-point (**P2P**) interconnectors. However, there are also key differences including in their development, how their revenues will be earned, the technologies that will be used, and the commercial and construction arrangements. Therefore, in this decision we are setting the adjusted form of the cap and floor regulatory regime for the Pilot NSIs to reflect these differences (see Sections 2-4). This is in line with our earlier work on OHAs and the Pilot NSIs, as described in Section 1.

[1] An offshore bidding zone is a form of market arrangement for the offshore wind power connecting to an OHA – see paragraph 1.9

## Overview of the September 2024 Consultation

We consulted in September 2024 on further detailed regime parameters for the Pilot NSIs (the **September 2024 Consultation**). We use the term "regime parameters" in this document to refer to key inputs that will determine the cap and floor levels for the Pilot NSIs, and therefore have a strong influence on the likely return to investors in these projects (see Section 1).

## Summary of decisions on further detailed regime parameters for the Pilot NSIs and scope of the decisions

In making our decisions described in this document we have had to balance considerations of:

- the lack of direct precedents for the cost of capital for an OHA (and in particular of a Pilot NSI as only part of an OHA) and the narrowness of the sources of responses to the September 2024 Consultation; with
- the benefits to consumers of enabling the first OHA projects connecting to GB to proceed to the next stage of their assessment and approval by making this decision with appropriate conditions. Multi-purpose projects have been under consideration since at least 2015.[2]

We consider that these decisions will best balance our duties to protect the interests of existing and future consumers while enabling investment and supporting growth, and having regard for relevant other duties in particular security of supply, sustainable economic growth, and net zero targets.

We have decided to make changes to the structure and level of our proposals in the September 2024 Consultation. These changes will simplify the structure of the regime parameters by removing references to elements of our RIIO-ET[3] regime. Specifically, we have decided to change the methodology for calculating the interest during construction (**IDC**), floor, and cap rates.

These changes have been developed based on the feedback received to the September 2024 Consultation and on our further analysis. This feedback included evidence, as described in Section 3, of higher risks and returns for the Pilot NSIs than was recognised in our September 2024 Consultation. Accordingly, the level of return provided by the regime parameters at the floor in this decision is higher than those in the September 2024 Consultation – see comparison charts in Section 4. We have also made decisions on equity and debt transaction costs for the Pilot NSIs – see Section 4.

[2] Integrated Transmission Planning and Regulation (ITPR) project: final conclusions | Ofgem
[3] "Revenues = Incentives + Innovation + Outputs" regime for Electricity Transmission

## Scope of this decision

This decision and the further detailed regime parameters herein are only applicable to the Pilot NSIs. Future NSIs and OHAs may have different regimes and/or different regime parameter values. These will be communicated as part of the relevant regulatory processes. This decision and the further detailed regime parameters (or any of the regime parameters) for the Pilot NSIs are not applicable to the proposed cap and floor regime for Long Duration Energy Storage or any other technology.

The Pilot NSIs remain subject to our approval processes, including our Final Project Assessment (**FPA**) and Post Construction Review approvals.

## Next steps

Following this decision the Pilot NSIs are expected to proceed with development towards the FPA stage, subject also to progressing in line with their IPA conditions.

We intend to conduct further work to adjust the mechanism of the Reasonable Delay Event for the Pilot NSIs, which may result in licence changes. This is to reflect the exposure of the developer to additional coordination risks with other parties in the construction of these projects beyond what would be expected for a P2P interconnector.

We will develop relevant licence conditions for the Pilot NSIs, in particular the special conditions of the electricity interconnector licence which will reflect the NSI regime parameters.

# 1. Introduction

**Section summary**

This section provides the purpose, scope and context of the decisions in this document, including reference to earlier consultations and decisions and the OHA pilot scheme. It also provides background information on the nature of the Pilot NSIs and how they differ from point-to-point interconnectors.

## Purpose and scope of this decision

1.1. The purpose of this decision is to set key regime parameters for the narrow cap and floor regime applicable to the Pilot NSIs. These regime parameters will be key to setting revenues of these projects and hence potential returns for their investor(s).

1.2. This decision, and the further detailed regime parameters herein, are only applicable to the Pilot NSIs. Future NSIs and OHAs may have different regimes and/or different regime parameter values. These will be communicated as part of the relevant regulatory processes. This decision and the further detailed regime parameters (or any of the regime parameters) for the Pilot NSIs are not applicable to the proposed cap and floor regime for Long Duration Energy Storage or any other technology.

1.3. Our expectation based on engagement to date is that these projects will be corporate financed and this decision has been taken on that basis. As in the cap and floor regime for point-to-point interconnectors, regime variations may be requested by developer(s) of the Pilot NSI(s) in certain specified areas.

1.4. If NGV were to apply for variations related to non-recourse project financing for an OHA pilot scheme project in respect of the use of project-specific actual cost of debt and gearing, then Ofgem may need to revisit certain aspects of this decision to ensure that the approach is consistent with the objectives of our OHA pilot scheme and to ensure that our approach is developed coherently considering our previous decisions on project financing for interconnectors. This criteria does not restrict group or holding-company level financing arrangements and only applies to individual OHA project entities.

## Context and related publications

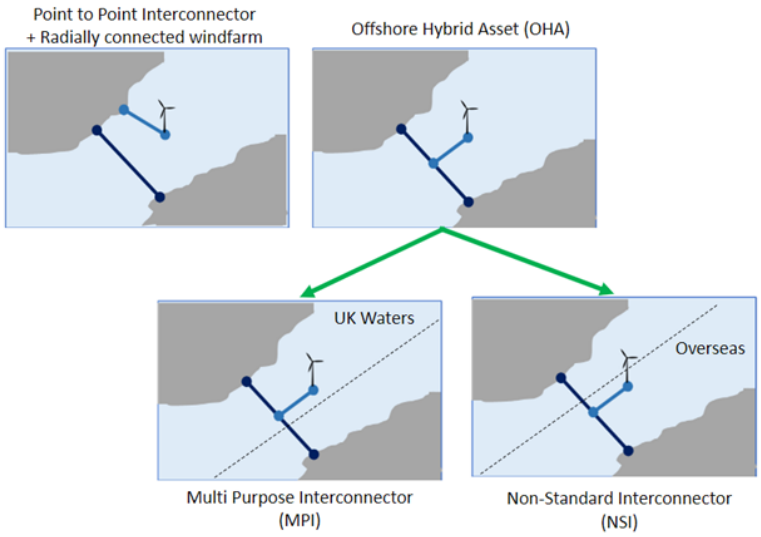
OHAs

1.5. OHAs are referred to in recital 66 of the EU Electricity Regulation[4] and are described as "offshore electricity infrastructure with dual functionality (so-called 'offshore hybrid assets') combining transport of offshore wind energy to shore and interconnectors".

1.6. Within the high-level description as an OHA, each of the two projects in the OHA pilot scheme are NSIs. An NSI is an electricity interconnector which is connected to an offshore converter station in the connecting jurisdiction and which does not subsist for the purposes of offshore transmission activities in Great Britain.[5]

1.7. Each of the Pilot NSIs forms part of an overall OHA[6] linking GB, the connecting country and the connecting offshore wind generation as shown in the OHAs in Figure 1 below (upper right and lower right diagrams).

**Figure 1: Schematic diagrams showing the configuration of cross-border assets**



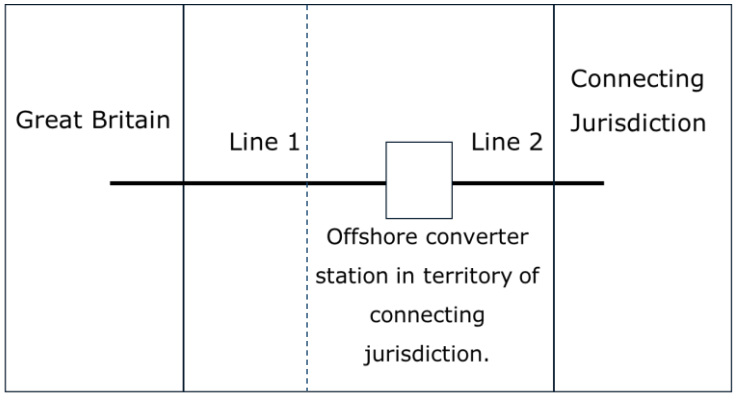

[4] Recital 66 of the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast): Regulation (EU) 2019/ 943 of the European Parliament and of the Council - of 5 June 2019 - on the internal market for electricity | Europa.eu. The same wording appears in recital 66 of the assimilated Electricity Regulation and it can be accessed here: https://www.legislationRegulations originating from the EU - Regulation (EU) 2019/943 | www.legislation.gov.uk

[5] For more information, please see page 17 of the NSI decision: Decision on the Regulatory Framework for the Non-Standard Interconnectors of the Offshore Hybrid Asset pilot scheme | Ofgem

[6] In this document we use the term "wider OHA" to refer to the entire transmission asset connecting: (i) an onshore sub-station in GB; to (ii) an onshore sub-station in the connecting jurisdiction; with (iii) an offshore sub-station (connected to an OWF) in the connecting jurisdiction on the route of the transmission asset. Each of the Pilot NSIs forms part of such a wider OHA. This is not intended to limit the use of the term OHA to such a configuration.

1.8. The Pilot NSIs each comprise the portion of Line 1 that is in GB jurisdiction, which is part of the overall OHA, as shown in Figure 2 below. The dashed line in Figure 2 denotes the international boundary in the sea between the UK and the connecting jurisdiction.

**Figure 2: Schematic diagram of an OHA - a Pilot NSI comprises the portion of Line 1 that is in GB jurisdiction**




1.9. For the Pilot NSIs, congestion revenues will arise in a different way than for P2P interconnectors due to the expected presence of an OBZ. The OBZ contains the offshore wind farm (**OWF**) and the point where the OWF connects to the offshore converter station. A result of this is that when the cross-border flow of electricity is from GB to the connecting country the congestion revenues arise on Line 2 only (see Figure 2 in paragraph 1.8). Conversely, when the cross-border flow is from the connecting country to GB then the congestion revenues arise on Line 1 only. The status of the Line 2 revenues and the ability to share them with GB parties has previously been an area of uncertainty for the Pilot NSIs relative to P2P interconnectors and the arrangements to resolve this matter are still subject to further approvals by the relevant national regulatory authorities (**NRAs**). OBZ market arrangements are still in development and yet to be implemented.

## The Interconnector Policy Review and OHAs

1.10. In our Interconnector Policy Review (**ICPR**)[7] we stated that "OHAs could play an important role in enabling the development of offshore renewables to meet our decarbonisation policy ambition and targets. As our seas become more crowded, ongoing efforts to better coordinate the development and delivery of offshore infrastructure has become more important."

1.11. OHAs provide the potential for coordination and transmission asset efficiency benefits, compared to that of standalone point-to-point interconnectors and

[7] Interconnector Policy Review - Decision | Ofgem – pp 21-26

radial offshore wind connections. We consider OHAs are a valuable step toward a meshed grid in the North Sea, which will best enable the efficient sharing of renewable electricity resources between countries in north-west Europe. There is significant strategic value in coordinated development to reach collective offshore wind ambitions for 2050. Development of the technical, regulatory and commercial structures of OHAs will be a significant step forward toward this goal.

## The OHA pilot scheme

1.12. In the ICPR we concluded that an adjusted cap and floor regime would, in principle, be a suitable framework for regulating OHAs (at the time all referred to as Multi-Purpose Interconnectors (**MPIs**)) and we opened the OHA pilot scheme application window (previously known as the MPI pilot scheme) for applications on 1 September 2022.

1.13. One of the aims of the OHA pilot scheme is to create a regulatory framework to support the early development of OHAs connecting to GB. Following the closure of the application window in October 2022, the OHA projects that were successful in passing the eligibility stage progressed to the Initial Project Assessment (**IPA**)[8] stage.

## The cap and floor regime for electricity interconnectors

1.14. The cap and floor regime is a regulated route[9] 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 (the cap) and minimum (the 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.

1.15. The cap and floor regime takes into account all of the revenues of a project, which can include congestion revenues, capacity market revenues and ancillary services provided to NESO[10], subject to its licence.

[8] Initial Project Assessment of the Offshore Hybrid Asset Pilot Projects | Ofgem
[9] Interconnectors | Ofgem
[10] the National Energy System Operator for Great Britain

## OHA pilot scheme regulatory framework and regime parameters

1.16. We consulted in June 2023 on the regulatory framework that would apply to OHAs[11] [12] (the **June 2023 Consultation**). Two types of assets were identified as OHAs: MPIs and NSIs. Following that consultation, our decision[13] on the regulatory regime for the NSIs of the OHA pilot scheme was published in February 2024. That decision includes high level regime parameters, and the detailed regime parameters are addressed in this decision – see Section 2.

1.17. In September 2023 we consulted (the **September 2023 Consultation** – Part 2) on whether there are any additional or specific risks associated with OHAs and how these risks could be reflected in the financial parameters applicable to the regulatory regime for NSIs[14].

1.18. In February 2024 we published our Decision on the Regulatory Framework for the NSIs of the OHA pilot scheme (the **Pilot NSI Regime Decision**) in which we outlined high-level regime parameters (see its Section 7 and Appendix 1) for our preferred narrow cap and floor regime regulatory model. In that decision[15]:

- we stated that a narrow cap and floor regime should apply to the Pilot NSIs, but we had not decided in detail how this should be done because relevant project and regime development work was still in progress;
- we decided that the high-level regime parameters for the Pilot NSIs shall be as described in the June 2023 Consultation; and
- we noted that many of the responses to the June 2023 Consultation had focused on risk factors that could justify different detailed regime parameters for Pilot NSIs relative to P2P interconnectors. We said that the further detailed regime parameters will be developed for the Pilot NSIs, also taking into account the responses to part 2 of the September 2023 Consultation, and further analysis.

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

[12] As explained in the OHA regulatory framework consultation published on 2 June 2023, in order to reflect the new asset classification stated in the Energy Bill, we 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 renamed the *OHA pilot scheme* to reflect this clarification of categorisation.

[13] Decision on the Regulatory Framework for the Non-Standard Interconnectors of the Offshore Hybrid Asset pilot scheme | Ofgem

[14] 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 | Ofgem

[15] Decision on the Regulatory Framework for the Non-Standard Interconnectors of the Offshore Hybrid Asset pilot scheme | Ofgem, pp 28-34

1.19. In our September 2024 Consultation[16] we sought feedback on our proposals for the further detailed regime parameters for the OHA pilot scheme and this document is our decision on the matters in that consultation.

1.20. In November 2024, following consultation, we published the IPA decision granting a regulatory regime in principle to each Pilot NSI.[17]

## Responses received to the September 2024 Consultation

1.21. We received three responses to the September 2024 Consultation, from:

- National Grid Ventures (developer of the Pilot NSIs)
- Elia (developer of the OHA of which the Nautilus Pilot NSI will form part)
- WindGrid (an Elia group company).

1.22. We thank the respondents for their feedback. Relevant parts of the feedback received are discussed at Section 2.

## Other matters

1.23. In our Pilot NSI Regime Decision, we also said that the availability target for the Pilot NSIs would be considered within this consultation as part of our considerations on incentives. However, we now intend to deal with setting the availability incentive at a later date, when there has been an opportunity for a suitable technical assessment to support such a level.

1.24. Whilst the adjusted cap and floor regime is an example of one of the incentives and risk mitigation that could apply to the Pilot NSIs, we are currently considering what other incentives could apply, to ensure the timely delivery of their assets during the construction period while also ensuring there is an appropriate risk profile (taken together with the narrow cap and floor regime parameters) for these projects. We consider that delivering NSIs could be complicated given the novel technical requirements, as well as the number of parties involved in delivering the assets. Therefore, we would like to ensure that there are suitable measures in place which incentivise parties to undertake the timely delivery of the assets, and in turn, mitigate the risk of delay during the construction period.

1.25. In November 2023, we published a decision on the timelines and incentives framework to be applied to the licensees regulated under the cap and floor regime for the Window 3 electricity interconnectors.[18] In that decision we

[16] Consultation on further detailed regime parameters for the Offshore Hybrid Asset pilot scheme | Ofgem
[17] Initial Project Assessment of the Offshore Hybrid Asset Pilot Projects | Ofgem
[18] Decision on Timelines and Incentives changes for the Third Cap and Floor Window for Interconnectors | Ofgem

outlined new incentives and concepts to revise our treatment of project delays, such as the Reasonable Delay Event Mechanism and the Payback Mechanism for Delays. In that decision we also decided to adopt a modified approach to an interconnector project's Regime Start Date and Backstop Date. That decision applied solely to Window 3 projects.

1.26. Whilst we are still developing our proposals on the appropriate incentives to apply to the Pilot NSIs, we consider that a modified Reasonable Delay Event Mechanism could be an appropriate option, but this is yet to be developed and will be part of the licence development and consultation process for the Pilot NSIs.

1.27. We consider that incentives and risk mitigation are strongly linked to our future review and modifications of licence conditions. Therefore, we expect to publish further detailed proposals in this area as we progress our work on the relevant licence conditions. .

1.28. The regime parameters for each Pilot NSI project approved at IPA stage, will be reflected in the relevant project's interconnector licence, in the special licence conditions to be consulted upon and added at the FPA stage.

### Related publications

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 | Ofgem

Decision on the Regulatory Framework for the Non-Standard Interconnectors of the Offshore Hybrid Asset pilot scheme | Ofgem

Initial Project Assessment for the Offshore Hybrid Asset Pilot Projects - decision | Ofgem

Consultation on further detailed regime parameters for the Offshore Hybrid Asset pilot scheme

## Our decision-making process

1.29. The key stages of the decision-making process, including consultation, are summarised below.

### Decision-making stages

| Date | Stage description |
|---|---|
| 20/09/2024 | Stage 1: Consultation open |
| 18/10/2024 | Stage 2: Consultation closed (awaiting decision), Deadline for responses |

| | |
|---|---|
| 04/04/2025 | Stage 3: Responses to consultation reviewed and published with decision |

## General feedback

1.30. We believe that consultation is at the heart of good policy development. We are keen to receive your comments about this report. We'd also like to get your answers to these questions:

1. Do you have any comments about the overall quality of this document?
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. Are its conclusions balanced?
5. Did it make reasoned recommendations?
6. Any further comments

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

# 2. Risk considerations for the Pilot NSIs

Section summary

This section reproduces most of Section 2 of the September 2024 Consultation, which is an essential part of the context for the setting of the further detailed regime parameters of the OHA pilot scheme. We have added cross references to where our thinking has developed based on the responses to that consultation. In this section we bring together the input that we have received on risks of the Pilot NSIs relative to P2P interconnectors in response to both our June and September 2023 Consultations, and our analysis.

## Introduction

2.1. Our consultations and analysis have indicated that the Pilot NSIs are likely to be subject to certain risks that are higher and additional to those of P2P interconnectors.

2.2. We have considered the risk profile of the Pilot NSIs in comparison to P2P interconnectors in the Third Window and analysed which risks:

1. manifest themselves in the development, construction and/or operation phase(es) and hence where, in the IDC or operational period regime, they might be reflected;
2. could justify a change in the floor rate relative to that applicable to P2P interconnectors; and/or
3. could justify a change in the cap rate relative to that applicable to P2P interconnectors.

2.3. Below, we also set out our rationale for accepting or rejecting the case for adjustments to the floor, cap and/or IDC rate for the risks described in responses to the June and September 2023 Consultations. The feedback to the September 2024 Consultation and our response to it is described in Section 3.

## Feedback from the June 2023 Consultation

2.4. In our June 2023 Consultation we requested respondents' feedback on the additional risks faced by OHAs:

*Q8 Are there any additional risks faced by MPIs and NSIs relative to P2P interconnectors?*

2.5. Of the respondents to that consultation, 13 addressed this question. Five of the responses contained comments focused on MPI rather than NSI matters, such as market arrangements and technology and construction matters relating to the

offshore converter station, although one of these included comments relevant to the Pilot NSIs. A summary of the key points raised in the nine relevant responses is set out below.

2.6. National Grid Ventures (**NGV**), the Pilot NSIs' developer, listed risks in the following areas in its response:

- Revenue risk
- Capital expenditure risk
- Operating costs risk
- Operational performance risk
- First of a kind risk
- Completeness of regulatory regime risk
- End of contract risk
- Financing risk
- Change in law or policy risk.

2.7. In the area of technological risk, NGV highlighted that MPIs and NSIs will have key additional components in the form of one or more offshore platforms (in the connecting jurisdiction only in the case of NSIs) hosting the technology required to convert the electricity generated by the connecting OWFs from alternating current to direct current and to switch voltage when required.

2.8. NGV has also raised additional or higher risk issues for the Pilot NSIs relative to P2P interconnectors of: greater uncertainty of regulatory arrangements in GB and connecting countries in the development period; higher development costs; supply chain issues; and timeline requirements of corporate development partners in the connecting countries.

2.9. An offshore transmission developer stated that the risks faced by NSIs (and MPIs) compared to P2P interconnectors will vary depending on the configuration and the market arrangements that apply.

2.10. The same offshore developer cautioned that it should not automatically be assumed that generically there are additional risks. They noted that Ofgem must separate out the risks that apply to all offshore projects, such as those of supply chain constraints and cost uncertainties, from those that are specific to an OHA project.

2.11. They also suggested that the regulatory regime should provide a framework to allow the OHA projects to be held whole where events occur outside the control of the project e.g. connection of a new third party or changes in the market leading to changes in the costs, revenues, or incentives over performance. They added

that offshore grids may also be impacted by connections and background changes that may lead to projects needing to invest for the benefit of the wider system.

2.12. Certain of the responses, although using the term MPI, raised issues that could have an impact on the Pilot NSIs – although the origin of the issues may be with the OWF or offshore converter platform/station in the connecting jurisdiction. For example, an offshore transmission developer noted increased coordination risks, including the reliance on the connecting OWF project for the timely exchange of time-critical engineering deliverables and the consequence of the OWF project being delayed.

2.13. An OWF developer commented that the offshore platforms with HVDC technology required for NSIs and MPIs will need to be significantly larger and more complex, than the single purpose type that can be used for a radially connected OWF, to accommodate the dual purpose of cross-border trade and OWF export and potentially the connection of more than one OWF.

2.14. A Transmission System Operator (**TSO**) and OHA developer in a connecting country commented that the Ofgem decision to persist with a merchant mechanism (meaning the cap and floor regime in this context) introduces an additional risk factor that hinders the realization of these projects, and they also noted that risks of the assets (in particular, the direct current nodes and compatibility) have to be considered in the revenue model.

2.15. An offshore transmission developer said that the risks of coordination, stranded assets and revenue uncertainty are likely to increase for an OHA project compared to a P2P interconnector project.

## Feedback from the September 2023 Consultation

2.16. In the September 2023 Consultation we sought to explore and gather evidence on what risks we should consider for the Pilot NSIs and how these risks could be reflected in the financial parameters applicable to the regime packages we proposed for NSIs.

2.17. In the September 2023 Consultation we included four questions on the risks of NSIs:

*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?*

2.18. Five responses were received to Section 2 of the September 2023 Consultation which dealt with the risks of NSIs and are relevant to the Pilot NSIs. We summarise these responses in Appendix 1 of the September 2024 Consultation.

## Ofgem response to the feedback from the June and September 2023 Consultations

2.19. We acknowledge that there are certain additional risks of Pilot NSIs relative to P2P interconnectors.

2.20. We have categorised the risks relevant to the Pilot NSIs which have been identified in the responses to Section 2 of the September 2023 Consultation, taken together with those to Question 8 of the June 2023 Consultation as shown in Table 1 below.

2.21. Table 1 also includes our view of the risk level of the Pilot NSIs relative to P2P interconnectors in each risk area and how it should be reflected in the regime parameters.

**Table 1. Summary of risks relevant to the Pilot NSIs identified by respondents and Ofgem commentary**

| No. | Risk area | Risk level of Pilot NSIs relative to P2P interconnectors |
|---|---|---|
| 1 | Revenue | Cross-border cost and revenue sharing arrangements with non-GB parties are more complex for the Pilot NSIs than for P2P interconnectors and there is little established practice that is directly comparable. However, significant progress has been made through 2024 in discussions with the relevant NRAs and developers of the portions of the wider OHAs in the Netherlands and Belgium. |

| No. | Risk area | Risk level of Pilot NSIs relative to P2P interconnectors |
|---|---|---|
| | | These discussions should enable the Pilot NSIs to have more predictable revenue streams in differing import/export volume scenarios (driven by the relative electricity prices in the two connected markets).<br><br>Consistent with our current understanding, we expect OBZ market arrangements to apply to the connected offshore wind generation in the foreign jurisdictions.<br><br>However, we understand that the details of how these OBZs will function to determine the revenues of the Pilot NSIs have yet to be developed in full detail. The choice of OBZ market arrangements for the two OHAs in the connecting countries does not appear, as yet, to be irrevocable. The proposed key terms of the resulting cross-border cost and revenue sharing proposals for the two Pilot NSIs are known to the parties involved but still subject to approvals in the connecting countries. |
| 2 | Capital expenditure | The offshore power sector is reported to be experiencing high levels of demand causing increases in pricing, longer delivery periods and requests by suppliers for earlier payments and/or upfront deposits. Most of this is similar for the Pilot NSIs and P2P interconnectors, but in the Pilot NSIs there are earlier timing requirements for cable ordering and construction contracting due to the coordinated wider OHA and OWF developments. This will contribute to additional risk in the development and construction periods.<br><br>Unlike P2P interconnectors, Pilot NSIs are more dependent on other parties to reach construction completion and commissioning. These other parties are the developers of the wider OHA and of the connecting OWF. This could cause greater risk of delay and hence longer financing exposure before revenues commence in addition to the later timing of first revenues. Development costs will likely be higher due to the need to coordinate works with other parties |

| No. | Risk area | Risk level of Pilot NSIs relative to P2P interconnectors |
|---|---|---|
| | | developing the other assets comprising the overall OHA, and the connected OWF. However, such potential higher costs can be considered in the cost assessment for the Pilot NSIs rather than necessarily being a case for higher returns.<br><br>In an extreme case there could be an asset stranding risk for a Pilot NSI developer if the wider OHA development were to be abandoned. However, we understand that NGV will enter into joint development agreements with the developers of the wider OHAs and these OHAs have already made significant progress in their approval processes in the Netherlands and Belgium. Those developers are incumbent transmission system operators in the relevant countries. We consider such abandonment risk to be relatively low, although still a unique factor for NSIs.[19]<br><br>Certain of these risks arise because the Pilot NSIs comprise only Line 1 (GB part to the offshore converter station in the connecting state) and not the entire OHA from GB to the connecting country's onshore electricity system. There is potential for the contractual arrangements between the developer of each Pilot NSI and the developer of the wider OHA to include coordination and risk mitigation features that will reduce certain construction period risks for the Pilot NSIs.<br><br>We do not consider that consumer support through a higher floor would be appropriate to address risks to the extent that they could be mitigated sufficiently in such commercial arrangements. |
| 3 | Operating costs | The Pilot NSIs will connect to the offshore converter station of the wider OHA. This offshore converter station will involve a novel interface between an OWF in the connecting |

[19] However, we note that policy reviews in connecting countries can cause additional uncertainties due, among other things, to the scope of equipment required for OHAs.

| No. | Risk area | Risk level of Pilot NSIs relative to P2P interconnectors |
|---|---|---|
| | | jurisdiction and an interconnector, using HVDC switching technology in an offshore environment. This will likely involve more difficulty in predicting costs, and possibly more variable cost levels, than for a P2P interconnector.<br><br>This item contributes to higher risk in the operational period of the Pilot NSIs and is an element of FOAK risk (see entry below). |
| 4 | Operational performance | Any relevant differences in operational performance of a Pilot NSI relative to a P2P interconnector would be expected to show up in the level of congestion revenues, the availability incentive, and other markets (e.g. capacity market and/or ancillary services, if applicable). A higher level of operational performance risk for the Pilot NSIs could be due to factors arising in the offshore converter station (including the use of HVDC switching gear in an offshore environment) and/or the connected OWF in the other jurisdiction.<br><br>Our intended approach to measuring the availability of each Pilot NSI and setting eligibility for floor payments (and the cap) will focus on the operational status of the Pilot NSI (i.e. Line 1) – see also paragraph 1.23-1.27. |
| 5 | First of a Kind (**FOAK**) | The FOAK risk, outside the construction period, of the Pilot NSIs includes elements from the following risk categories (described above):<br>• Revenue risk<br>• Operating costs<br>• Operational performance.<br><br>The regulatory regime for the Pilot NSIs is new, although it is modelled on the proven P2P interconnector cap and floor regime. It needs significant modification to be suitable for the Pilot NSIs.<br><br>As a result, there is also FOAK risk in the development period as investment is committed while aspects of the |

| No. | Risk area | Risk level of Pilot NSIs relative to P2P interconnectors |
|---|---|---|
| | | regulatory, market and commercial arrangements are still being completed. This higher risk than P2P interconnectors, is to be taken into account in setting any risk premium for the IDC allowance. |
| 6 | Financing | The Pilot NSIs have higher or additional risks in the categories described earlier in this Table 1 which we expect would result in a slightly lower credit rating, affecting cost of debt, than would be expected for a P2P interconnector. This can be taken account of in the floor of the regime.<br><br>We consider that the FOAK risk above will affect both the cost of debt and equity finance for the Pilot NSIs.<br><br>The Pilot NSIs benefit from being able to use the established cap and floor regime, as adjusted for these projects, which has been used in both balance sheet and project financed (limited recourse) projects.<br><br>When the floor is raised as part of any narrowing of the floor to cap range, this reduces risk for both debt and equity financiers and we take this into account in lowering the cap as we raise the floor in the narrowing process. |
| 7 | Development period risk - Change in law or policy | The comment has been made that a Pilot NSI has exposure to change in law risk for the connected OWF in the connecting jurisdiction, unlike a P2P interconnector. However, all businesses face the risk of change in law and this includes P2P interconnectors. At this stage it is not clear what kind of change in law related to OWF is contemplated.<br><br>The OWF is being developed and operated in the same jurisdiction as Line 2 of the wider OHA.<br><br>This risk, to the extent it exists, appears to contribute primarily to the development period risk of the Pilot NSIs because such matters relating to the OWF in the connecting country are likely to have been settled by the start of the construction period. |

| No. | Risk area | Risk level of Pilot NSIs relative to P2P interconnectors |
|---|---|---|
| | | The Pilot NSIs are first projects in a new sector for GB and the connecting countries, with very few close comparators anywhere. As a result, relevant policies are being developed. Inevitably there are some new and untested elements in new policies and regulatory arrangements.<br><br>The Pilot NSIs will help to inform us of how we may wish to manage NSIs, and indeed MPIs, in the future and will be a useful exercise in informing future policy and regulatory arrangements.<br><br>During the development period of transmission projects, including P2P interconnectors as well as the Pilot NSIs, there are likely to be developments in policy and this is part of the business environment in the electricity transmission industry. |

2.22. We used the analysis above in developing the further detailed regime parameters for the Pilot NSIs which were published in the September 2024 Consultation. The feedback to that consultation and our response to it are contained in Section 3.

# 3. Feedback from the September 2024 Consultation and our response

Section summary

This section provides an overview of the feedback provided by the respondents to the September 2024 Consultation and our responses to the feedback, as taken into account in our decisions in Section 4. It also includes some relevant examples of this feedback from all respondents.

## Consultation questions

3.1 We asked two questions in the September 2024 Consultation, as follows:

*Question 1 - Do you agree with our assessment of the risk considerations for the Pilot NSIs set out in this Section 2 and in Appendix 1? If not, please describe your rationale, to what risks it applies, and what its effects would be on the approach to the regime parameters for the Pilot NSIs.*

*Question 2 - Do you agree with how we have set the further detailed regime parameters for the Pilot NSIs, as described in this Section 3? If not, please describe your rationale, to what parameters it applies, and what its effects would be on the selection and values of regime parameters for the Pilot NSIs.*

## Feedback received

3.2 We received feedback from NGV, Elia, and WindGrid. NGV, the developer of the Pilot NSIs provided the most detailed feedback. We provide below examples of the feedback received from all of the respondents. The non-confidential parts of the responses are being published on the Ofgem website on the webpage for the September 2024 Consultation. Elia, of Belgium, is a partner in and an expected counterparty for the Nautilus Pilot NSI. WindGrid is an Elia group company with interests in future OHA development of multi-purpose interconnectors.

From NGV

3.3 NGV wrote that they "broadly welcome Ofgem's proposals for the detailed design of the narrow cap and floor regime …. However, considering the risks currently involved at this pilot project stage, the parameters are not currently set at the right level to incentivise investment in the Pilot NSIs."

3.4 The key point of NGV's feedback was that the proposals in the September 2024 Consultation did not sufficiently reflect the risks of the Pilot NSIs in the following respects (described in Table 2 below). Regarding how we had recognised

incremental risks of the Pilot NSIs as described in earlier NGV submissions and used them to inform our proposals, NGV wrote that "… in some cases, it appears that the magnitudes of these risks has been underestimated, or assumed to be more within the developer's ability to influence than is the case."

**Table 2 – Risks and NGV rationale that further allowance is required**

| Risk | NGV rationale that further allowance is required |
|---|---|
| Engineering challenges associated with the new interfaces at the offshore HVDC platform and converter station | NGV considered that the construction period FOAK risks of connecting to an offshore HVDC platform and converter station had not been taken sufficiently into account in our assessment of risk and allowance in the regime parameters. |
| Revenue uncertainty, with details of the commercial model still being developed | NGV considered that there is greater dependency on further policy decisions, external factors that determine market and trading arrangements, and future market fundamentals that will affect risk in the operational period than we had taken into account.<br>They also commented that the level of efficiency (and revenue capture) that can be achieved under an OBZ with explicit trading arrangements is unclear. Progress on returning to a form of implicit coupling remains subject to UK-EU trading arrangements. |

3.5 NGV went on to comment that "as the Pilot NSIs represent more risky investments, raising the level of floor returns to an appropriate level is critical to achieving the positive investment decisions that can deliver these projects into operations. We firmly believe that increases to the floor should be met with suitable reductions to the cap, such that the investor's allowed returns are conceded to enable higher rewards to consumers in the more favourable commercial years."

3.6 NGV commissioned an adviser, FTI Consulting, to assess the proposals in the September 2024 Consultation. NGV cited FTI Consulting's work and conclusion as "FTI assessed the risk-reward differential between point-to-point interconnectors and the Pilot NSI proposals against relevant precedents. This considered impacts on rates of returns in instances where successive generations of energy assets were regulated under a similar regulatory regime: floating versus fixed offshore wind assets; and early offshore versus onshore wind assets. FTI found that the expected return of second-generation assets is observed to be c. 150 – 200 basis points (bps) higher [sic] than that of the previous generation. This represents an indicator of the premium for new and emerging technologies but, unlike Pilot

NSIs, these precedents exclude new commercial and regulatory risk and, therefore, are likely to be conservative proxies for the premium required for Pilot NSI investment. The floor rate is only 90 bps higher for the Pilot NSIs compared to P2P (the cap rate and IDC rates are 100 bps and 200 bps higher, respectively)."

3.7 The 150 bps premium cited above by NGV for first or earlier generation assets came from the difference in estimated cost of capital for floating versus fixed offshore wind assets in the DESNZ methodology,[20] for CfD Allocation Round 6 in 2023. The 200 bps premium came from the difference in cost of capital between onshore wind and offshore wind generation came from an Ernst & Young report[21] for the Department of Trade & Industry. That report was produced in connection with the impact of banding the Renewables Obligation in 2007. See also paragraph 3.26 for our comments on this new evidence.

3.8 NGV sought changes to the regime parameters proposed in the September 2024 Consultation, as described in the following paragraphs.

3.9 Regarding the IDC rate, NGV wrote that "The Pilot NSIs face unique development and construction risks through new interfacing and coordination requirements, which Ofgem has acknowledged in its risk assessment. The parameter proposals reflect the risk in the first-of-a-kind (FOAK) premium of 26 bps[22] and development risk premium of 54 bps to the IDC, alongside aiming at the upper range of Ofgem's annual decision on interconnector IDC rates. We note that the accompanying FTI report to this submission finds that the proposed FOAK is 'insufficient remuneration for the FOAK risk that investors are exposed to during construction … [and would be expected to be] at least as high as high as that applied to operational equity investors i.e. 50 bps.'"

3.10 However, in the September 2024 Consultation we had proposed to use the upper bound of the range of the annual Ofgem IDC decision as the starting point (before applying the proposed 80 bps development and FOAK risk premium) and this

[20] Report by Ernst & Young for the Department of Trade & Industry Impact of banding the Renewables Obligation - Costs of electricity production April 2007 at https://webarchive.nationalarchives.gov.uk/ukgwa/20090902165301/http://www.berr.gov.uk/energy/whitepaper/consultations/renewables-obligation/page39555.html | National Archives pp9, 15

[21] Methodology used to set Administrative Strike Prices for CfD Allocation Round 6 November 2023 | DESNZ pg 16

[22] This is NGV's description of the 80 bps development risk premium for IDC that we proposed in the September 2024 Consultation

would have provided a further uplift of 115 bps in the IDC rate[23] relative to P2P interconnectors.

3.11 For the September 2024 Consultation proposals, we had made use of a NERA[24] report for the UK Government regarding potential ranges of novelty or FOAK risk in hurdle rates. This had informed our thinking on FOAK premia for the Floor and the cap. Regarding the Floor, NGV wrote that "The FOAK uplift to the ('adjusted P2P') lower bound floor rate is insufficient .... Therefore, the offshore wind FOAK range of 0-100 bps [in the NERA report of 2013] is more appropriate for the Pilot NSIs." NGV also commented that "The FOAK uplift should be applied to the equity in the ('WACC-based') upper bound floor rate as well as the debt."

3.12 Regarding the Cap, NGV wrote that "Ofgem's proposed choice of comparator companies to derive the equity beta is not representative of the systematic risk associated with point-to-point interconnector investments, National Grid and Iberdrola are not appropriate comparators and a higher TMR value is required."

3.13 NGV also stated that, in principle and before applying a narrowing methodology, the FOAK premium should be higher in the cap. Our proposals in the September 2024 Consultation included a 50 bps FOAK allowance in in the Adjusted P2P Basis Element of the cap. NGV wrote that "The FOAK risk premium in principle (and before any 'narrowing of cap and floor rates') applied to the upper bound cap rate should be 75-100 bps."

3.14 NGV sought higher finance transaction costs, writing that "In our view the proposed equity and transaction costs are in the low range of costs for raising equity and debt to finance project investment for this high value and new class of assets."

From Elia

3.15 Elia wrote that it "welcomes positively the new risks assessment of pilot NSIs proposed by Ofgem, mindful that the applied regime should reflect these new identified risks" and that it "reiterates its support to a different risk assessment between OHA and P2P interconnectors. Nautilus is an early mover project, thus it requires an adjustment in the balance between developer risks and reward."

[23] This illustrative figure is the difference between the 6.53% upper bound and 5.38% mid-point of the IDC range (real CPI vanilla basis) for interconnectors in our annual decision on IDC rates for 2024/25 – see pg 7 of Decision on 2024-25 Interest During Construction rates for offshore transmission projects and cap and floor interconnectors and modification to inflation metrics | Ofgem

[24] Assessment of Change in Hurdle Rates - Final 9 December 2013| NERA Economic Consulting for Department of Energy and Climate Change, pg viii

3.16 Elia highlighted "… the importance of a narrow cap and floor regime that is consistent with any CBCA [cross-border cost allocation] decision taken by the respective governments/regulators on both UK and EU side."

From WindGrid

3.17 WindGrid wrote that they "are supportive of the updated risk assessment on pilot NSIs" and that "the approach broadly reflects the risks presented by these new type projects."

3.18 WindGrid advocated "a proportional approach to setting the Cap and Floor" and that "we do not believe that the adjustment to the cap and the floor should necessarily be equal and opposite, as the corresponding financial impacts to the project are not symmetrical by nature. While we are supportive of an increase in the floor to provide a safety net for investors, we caution against an equal narrowing of the cap. Such an equal narrowing would be disproportionate and could potentially deter investment. A more balanced approach, taking into account the specific financial dynamics and risk profiles of these projects, would be more effective."

## Ofgem response to feedback

3.19 We have considered the responses received to the September 2024 Consultation and undertaken further analysis and set out below our response to the feedback to the two questions.

3.20 We note the positive feedback to the risk considerations analysis for the Pilot NSIs in the September 2024 Consultation but also the comments that in some areas the risks were underestimated and/or too much weight was put on developers' or licensees' ability to manage certain risks.

3.21 However, we also note that the only feedback received is from the developer (NGV) of the Pilot NSIs, from the developer of the overall OHA of which Nautilus forms part (Elia) and an affiliate (WindGrid) of that developer. The further evidence put forward has come from a consultancy commissioned by the developer of the Pilot NSIs (albeit the evidence that they put forward is from public domain sources published by or commissioned by the UK Government). OHAs are a specialised and new area of transmission and ideal comparators are not available.

3.22 Consequently, we have undertaken an internal review of the September 2024 Consultation and the feedback and evidence received in response. Further to this review, we have decided to make changes to the structure of the cap, floor and cap regime parameters. The purpose of these changes is to:

- avoid inappropriate comparisons to RIIO network regulation parameters because there are significant differences in risk/reward characteristics between the cap and floor regime and the RIIO network regulation;
- avoid potential double-counting of risk premia in the IDC rate; and
- take account of the risk reduction effect, on appropriate returns at the cap, of raising significantly the floor rate (and the IDC rate) as will be caused by this regime parameters decision.

3.23 In making our decisions we have had to balance considerations of the narrowness of the sources of responses to the September 2024 Consultation, and the lack of direct precedents for the cost of capital for an OHA (and in particular of a Pilot NSI as only part of an OHA), with the benefits to consumers of enabling the first OHA projects connecting to GB to proceed to the next stage of their assessment and approval by making this decision with appropriate conditions.

3.24 We outline our responses to the feedback received to the two questions in the September 2024 Consultation below.

### Q1 Risk considerations

3.25 We consider that feedback responses and supporting evidence made a credible case that aspects of FOAK risk of the Pilot NSIs was not fully recognised in the proposals for IDC and the floor in the September 2024 Consultation. As a result, our decision includes measures to (i) increase the aggregate revenues that will be provided by the regime parameters at the Floor (including the effect via the IDC rate), and (ii) in return decrease revenues permitted at the Cap.

3.26 In particular the new evidence from publications (see paragraphs 3.6 and 3.7) by or commissioned by the UK Government indicates scope to increase the level of aggregate FOAK risk premium provided in the Floor above the level proposed in the September 2024 Consultation.

### Q2 Further detailed regime parameters proposed in the September 2024 Consultation

3.27 For the IDC rate, we consider that the most important aspect is to provide transparency in the calculation of the total IDC rate comprising the starting point and the risk premia.

3.28 For the Floor rate, an increased FOAK allowance in the operational period would reflect higher risks (than we took into account in the September 2024 Consultation) affecting the revenues of the Pilot NSIs as first projects connecting

to GB that are expected to utilise OBZ market arrangements which are still in development.

3.29 For the cap rate, regarding WindGrid's feedback we consider it important that the risk reduction effect on a Pilot NSI project of increases in the Floor are taken into account. This is to avoid a double compensation by both: (i) reducing risk by adding further amounts of risk premia to the Floor and so increasing revenue at the Floor, and (ii) compensating for risk by having or adding premia to the Cap. We also seek to avoid conflicting with the approach in the regime of having a narrow cap and floor.

3.30 We do not consider a case has been evidenced, in the consultation responses, for increasing the financial transaction costs, debt and equity, for the Pilot NSIs. This view takes account of the Pilot NSIs' 25-year licence period with only a limited operational cost reopener in contrast to licensed network businesses under five-yearly price control reviews. We would expect fewer finance raising events for the Pilot NSIs than for network businesses.

3.31 Regarding Elia's feedback, we consider the regime parameters and regime for the Pilot NSIs to be compatible with the cross-border cost allocation proposals for the Pilot NSIs and they have been designed with this objective in mind.

# 4. Decisions on further detailed regime parameters for the Pilot NSIs

Section summary

In this Section we set out our decisions and explain their context, based on our response to the consultation feedback and our internal review described in Section 2.

## Introduction to the further detailed parameters of the cap and floor regime

4.1 The Pilot NSIs will be regulated under an adjusted form of our cap and floor regime. The cap and floor regime sets a yearly maximum (the **Cap**) and minimum (the **Floor**) level for the revenues that an interconnector can earn on an annual basis during a 25-year duration of the regime. The Cap and Floor levels are set based on project costs using a form of Regulated Asset Base model. We then apply different notional financial parameters to set the Cap and the Floor levels separately using the cap and floor financial models.

4.2 As the regime applies to P2P interconnectors, the maximum allowed return on equity drives the "Cap return", while the "Floor return" is based on an allowed return for debt and operational costs which is underwritten by consumers.

4.3 For the pre-operational period, which is characterised by the lack of a revenue stream, the cap and floor regime also provides the IDC allowance. This allowance enables relevant licensees to recover a notional cost of capital based on an assumed cost of finance and the build-up of the regulated asset value (**RAV**) balance through the pre-operational period. An IDC allowance will also apply to the Pilot NSIs.

4.4 The approaches we use to set the regime parameters and to calculate rates of return in the regime are designed to adhere to the following principles stated in the ICPR[25]:

- 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

[25] Interconnector Policy Review - Decision | Ofgem – see paragraph 3.51

- Reflect the prevailing market conditions.

## Our approach to the narrow cap and floor regime for the Pilot NSIs

4.5 In our work leading to the September 2024 Consultation, we identified the risks specific to the Pilot NSIs that are greater than or additional to the risks of P2P interconnectors in the Third Window. We have used the responses to the June 2023 Consultation and the September 2023 Consultation, and our own analysis (see Section 2).

4.6 We also compared our current approach for the Pilot NSIs to the parameters decided for Third Window interconnectors, those of other regulatory regimes applied by Ofgem, and have followed recommendations[26] from the UK Regulators Network (**UKRN**), where relevant.

4.7 We have now also taken account of the feedback to the September 2024 Consultation and our internal review (see paragraph 3.22) of that consultation and its responses as described in Section 3 (see paragraphs 3.2 to 3.18).

4.8 In considering and deciding upon the further detailed regime parameters we have taken the approach that increases in the floor level should be justified primarily by evidence of higher risk in the Pilot NSIs than for P2P interconnectors.

4.9 In general, we proceeded from considering adjustments to the Floor first because this may involve additional consumer support exposure (and potential additional revenues for the licensee) when the Floor is raised. We then considered what is the appropriate corresponding adjustment, if any, to the Cap taking account of any risk reduction provided by the raising of the Floor. The Cap is significant for consumer benefits in capturing revenues above the Cap.

### Structure of the regime parameters

4.10 In the September 2024 Consultation, we had looked to elements of our Revenue=Incentives+Innovation+Outputs[27] (**RIIO**) network regulation to provide a component of higher Floor revenue, with a corresponding limitation of Cap revenue, in order to provide an appropriate degree of additional risk mitigation for the Pilot NSIs in exchange for a reduction in returns at the Cap.

[26] UKRN guidance for regulators on the methodology for setting the cost of capital: CoC-guidance_22.03.23.pdf | UK Regulators Network
[27] RIIO-3 Sector Specific Methodology Decision – Overview Document | Ofgem and Factsheet 93 - RIIO - a new way to regulate | Ofgem

4.11 In the light of the feedback received seeking a higher level of aggregate returns from the IDC and Floor, we have also reconsidered whether it is appropriate to have a combination of a cost of debt element and a WACC-based element referring to RIIO-ET regime parameters in the Floor, as was proposed in the September 2024 Consultation. We have decided that this combination is unsatisfactory because the RIIO-ET regime and the businesses it is applied to is too different from a Pilot NSI for elements of it to be used in the narrow cap and floor regime for a single asset. Consequently, we have decided to remove the proposed WACC Basis Element from the Floor. This change also has effects on the Cap.

Level of the regime parameters

4.12 The additional uncertainty, relative to a P2P interconnector, about how revenues will accrue as between Lines 1 and 2 in the Pilot NSIs, how the novel proposed OBZs will operate in practice, and the potential risk of future changes of configuration affecting revenues together form the principal basis for a further raising of the Floor beyond the level we proposed in the September 2024 Consultation.

4.13 In the following sections we provide our decisions about how the further detailed regime parameters of the narrow cap and floor regime are to be set for the Pilot NSIs. First, we describe the decisions on the timing of setting of the regime parameters and on setting IDC for the Pilot NSIs.

## Timing of setting of the regime parameters

4.14 We have decided to set the market-driven regime parameters at Final Investment Decision (**FID**)/Financial Close (**FC**) of the relevant project. The market-driven regime parameters are the starting point for the IDC rate from our annual IDC decision and the iBoxx bond index used in the Floor.

## Interest during construction rate

4.15 We have decided to change our proposed calculation of the IDC rate for the Pilot NSIs from our proposal in the September 2024 Consultation.

4.16 We had proposed in the September 2024 Consultation to use, as the starting point for the IDC rate, the upper bound IDC rate in the Ofgem annual IDC rate decision (for interconnectors as published for the applicable year of FID or FC) rather than the middle of the range as used for P2P interconnectors. This

different starting point would have provided an uplift of approximately 115 bps[28] for the Pilot NSIs relative to P2P interconnectors. The intention of this approach was to reflect higher construction risk in the Pilot NSIs. We had proposed to add a development risk premium to that starting point to produce the total IDC rate.

4.17 We have decided, on the basis of feedback to the September 2024 Consultation and our internal review (see paragraph 3.22), instead, to use as the starting point for the IDC rate, the middle point of the IDC rates in the Ofgem annual IDC rate decision (for interconnectors as published for the applicable year of FID or FC) as is used for P2P interconnectors. We consider that this provides greater transparency in the composition of the IDC rate for the Pilot NSIs. This change reduces the IDC by approximately 115 bps from the level of the September 2024 Consultation. See also paragraph 4.20 below regarding a replacement construction and FOAK risk premium.

4.18 The development risk premium to be included in the IDC rate is to reflect the higher development period risk of the Pilot NSIs due to the lack of precedent OHA projects, and the additional uncertainties that are specific to commercial models that are still being developed. This included complex multiparty interfaces and sequencing of activities between connecting country authorities and TSOs that need to be undertaken in the development phase in order to proceed with investment of the Pilot NSIs. This also involves more complex and risky coordination of construction arrangements in the development period prior to construction and the novel risks of connecting to an OHA offshore HVDC converter station which is a new form of such platform (energy island in the case of Nautilus) and converter station.

4.19 We proposed in the September 2024 Consultation that the development risk premium to be added in the IDC calculation should be 80 bps. This level was an uplift of 26 bps on the 54 bps level used in earlier interconnectors, including Nemo Link[29], GreenLink[30] and NeuConnect[31]. We have decided to add to the starting point (see paragraph 4.17 above) a development premium of 80 bps.

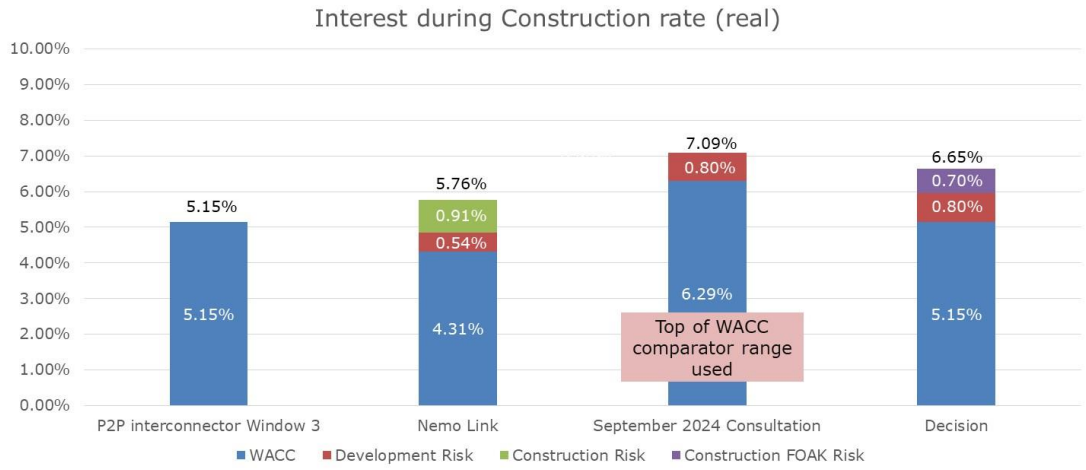
[28] This illustrative value is calculated using our March 2024 decision on IDC rates for interconnectors
[29] Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo | Ofgem pg 13
[30] Decision on the Final Project Assessment of the Greenlink interconnector to Ireland | Ofgem pg 28
[31] Decision on the Final Project Assessment of the NeuConnect interconnector to Germany | Ofgem pg 30

4.20 We have also decided to add, in the IDC rate, a construction and FOAK risk premium of 70 bps, which together with the development risk premium above provides a total uplift of 150 bps above the equivalent level for a P2P interconnector. This total uplift of 150 bps which is in the upper part of the range of up to 200 bps premium for cost of capital for novel technologies that has been identified in our analysis and the feedback submitted to us in response to the September 2024 Consultation (see paragraphs 3.6**Error! Reference source not found.** and 3.7).

4.21 This decision reduces the IDC rate by approximately 45 bps in comparison to the proposals in the September 2024 Consultation but see also below regarding an increase in the Floor. This is because the 70 bps construction and FOAK risk premium is lower than the 115 bps uplift that was provided in the September 2024 Consultation by taking the upper bound of our annual IDC decision. The comparators used for the upper bound are construction companies with greater exposure to construction risk and the economic cycle than the Pilot NSIs, hence this lower construction and FOAK risk premium.

4.22 The figure below shows an illustrative comparison of IDC rates. The timing of setting of actual rates for a project is as described in paragraph 4.14.

**Figure 3: Comparison of IDC rates[32]**




[32] Sources: The IDC rate for P2P interconnector Window 3, and the starting point for the IDC rate of this Decision, are from our Decision on 2025-26 Interest During Construction rates for offshore transmission projects and cap and floor interconnectors, of 27 March 2025. The IDC rate for Nemo Link is from our Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo, of 2 December 2014. The starting point for the IDC rate of the September 2024 Consultation is the upper bound of the range of rates for interconnectors in our Decision on 2025-26 Interest During Construction rates for offshore transmission projects and cap and floor interconnectors, of 27 March 2025

4.23 The IDC rate feeds into the RAV used for the Floor and the Cap through the amounts added to the RAV based on amounts of IDC calculated in the cap and floor regime for a project.

## Floor rate

4.24 The Floor is the minimum amount of revenue that a project regulated under the cap and floor regime can earn on an annual basis over the duration of the regime, subject to certain conditions.[33] For P2P interconnectors the Floor is set to allow a project to recover only its costs and a rate of return equal to a cost of debt index. The assumed cost of debt rate, resulting from the calculation of this index, is then applied to the whole RAV to set the yearly return allowance.

4.25 We have taken account of the higher risks and uncertainties of the Pilot NSIs relative to a P2P interconnector based on the feedback to consultations, discussion with NGV and our analysis.

4.26 For the Pilot NSIs we have decided that the calculation of the Floor rate will be as follows.

### Debt index credit rating

4.27 We have decided to use the iBoxx index of BBB rated GBP non-financial corporate bond yields of 15+ years maturity taken over 20 trading days. This is a lower average credit rating than used for P2P interconnectors, where an average of iBoxx A rated and BBB rated bond indices is used. We have decided upon this credit rating level to reflect higher credit risk, resulting from the additional and higher risks for the Pilot NSIs compared with a typical P2P interconnector. This maturity length of the bond index aligns with an amortising debt profile that suits the length of the Pilot NSI cap and floor regime, which is 25 years. The value of this index will be converted to real terms using the Bank of England CPI inflation target as the deflator. In line with regulatory convention, we will use the Fisher equation[34] to convert the values from nominal to CPIH-real.

[33] Floor payments are contingent on a Pilot NSI's availability meeting the requirements of our minimum availability threshold. See page 46 of the NSI regulatory framework decision for more information: Decision on the Regulatory Framework for the Non-Standard Interconnectors of the Offshore Hybrid Asset pilot scheme | Ofgem

[34] The Fisher equation can be expressed as $(1+i)=(1+r)(1+\pi)$, where i equals the nominal interest rate, r equals the real interest rate and π equals the inflation rate

Pilot NSI risk uplift

4.28 We have decided to add an uplift of 150 bps above the assumed cost of debt for the Floor. This level is above the 0-100 bps range in NERA analysis[35] of novelty premium in finance hurdle rates for the offshore power sector, undertaken for the UK Government in connection with the Electricity Market Reform programme, that we had identified in our work for the September 2024 Consultation. However, even when taken together with the additional impact on the Floor of the higher IDC rate, the total uplift on the P2P interconnector level is within the 150-200 bps level identified by NGV (from an FTI Consulting report for them) based on evidence from two documents published and commissioned by the UK Government (see paragraph 3.7).

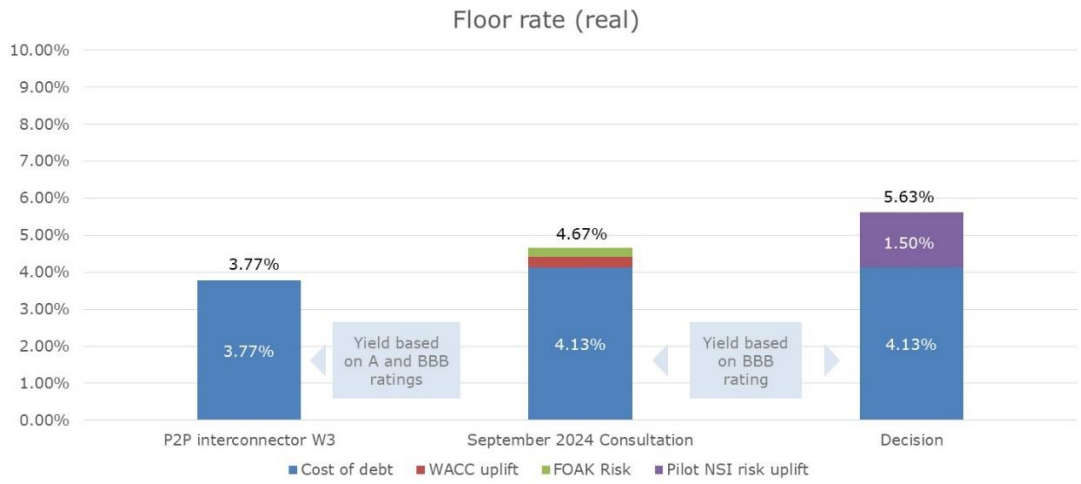
4.29 This uplift replaces both the FOAK allowance of 25 bps and the approximately 29 bps effect of the WACC-Basis Element proposed in the September 2024 Consultation. It is a larger total uplift in the Floor by approximately 96 bps, reflecting the feedback on the risks and related level of return required at the Floor for the Pilot NSIs. However, it should be noted that in this decision we reduce the IDC rate by approximately 44 bps in comparison to the proposals in the September 2024 Consultation. We have also removed the proposed FOAK uplift from the Cap (see below).

4.30 The level of return for the Pilot NSIs at the Floor reflects the significantly greater uncertainty of the level of revenues relative to capital cost for the Pilot NSIs in comparison to P2P interconnectors. This uncertainty is due to the application of OBZ market arrangements yet to be fully developed which will determine the largest part of the commercial revenues of the projects. This effect is magnified by the related effect of cross-border cost and revenue sharing arrangements which are still to be approved.

[35] Assessment of Change in Hurdle Rates - Final 9 December 2013| NERA Economic Consulting for Department of Energy and Climate Change, pg viii

4.31 The figure below shows a comparison of Floor rate. The timing of setting of actual rates for a project is as described in paragraph 4.14.

**Figure 4: Comparison of Floor rates[36]**




## Cap rate

4.32 The Cap is the maximum amount of revenue that a project regulated under the cap and floor regime can earn on an annual basis over the duration of the regime. The amount of congestion revenue that an interconnector or Pilot NSI can earn varies and is constrained by the price differentials between the connected markets which is subject to a wide range of factors mostly outside the influence of the project operator or its owners. The Cap sets an upper limit for a fluctuating revenue stream rather than being an expected level of revenue.

4.33 The principle of the Cap as used for P2P interconnectors is that it is set to allow a project with a 100% equity notional financing structure to recover only its costs and rate of return equal to the cost of equity observed in assets with a comparable risk profile. The equity rate of return for P2P interconnectors is estimated using a Capital Asset Pricing Model (CAPM) approach. To determine the maximum allowed revenue for P2P interconnectors at the Cap, we apply the equity rate of return to 100% of the RAV.

4.34 Considering the extent of increase in the Floor rate required, as described above, we consider that there has been a significant degree of revenue risk reduction for the Pilot NSIs in comparison to a P2P interconnector. Consequently, we have decided that there is likely to be over-compensation if

[36] The yields on debt used in the Floor rate are from the iBoxx Non-Financials 15+ year bond indices of A and BBB rating for the 20 days to 28 February 2025, from S&P Global database (IHS Markit), converted to real terms using the Bank of England target CPI rate of 2% and the Fisher formula

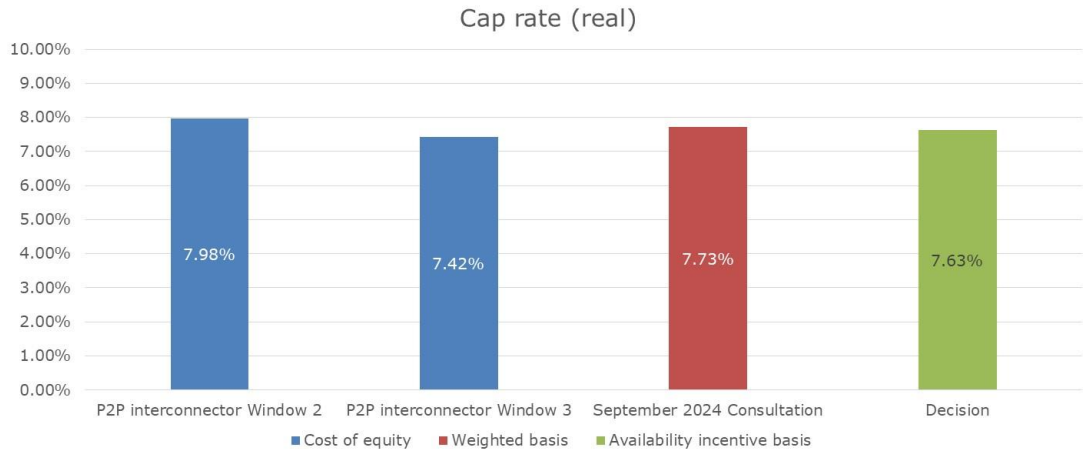
we apply a version of the typical cap and floor regime Cap methodology using CAPM.

4.35 Given the decision to remove the references to RIIO-ET parameters in the Floor that were in the proposals in the September 2024 Consultation, we have also decided not to include references to RIIO-ET parameters in the Cap. We have decided not to include in the Adjusted P2P Basis Element the additional FOAK adjustment of 0.5% proposed in the September 2024 Consultation, due to the increase in the risk allowance in the Floor.

4.36 We have decided to reduce the Cap rate to being a maximum of 2% above the Floor rate and that will be conditional on meeting availability incentive targets rather than simply being allowed to keep revenues above the Floor unconditionally up to the Cap. The existing 2% availability incentive is to be adapted for this purpose and suitable thresholds will be set.

4.37 The figure below shows a comparison of Cap rates. The timing of setting of actual rates for a project is as described in paragraph 4.14.

**Figure 5: Comparison of Cap rates[37]**




## Equity and debt transaction costs

4.38 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.

[37] The cap rates for P2P interconnector Windows 2 and 3 are from our Changes to the financial parameters of the cap and floor regime for window 3 electricity interconnectors – decision, of 3 December 2024 (pg 52). The cap rate for the September 2024 Consultation is calculated using the relevant cost of equity illustrative values in that consultation (pp 30, 32). The cap rate for this decision is calculated as described in paragraph 4.36 above using the information for the Floor in Figure 4

4.39 We have decided that this assumed equity transaction cost allowance should be 5% for the Pilot NSIs. This is the same level applied to Window One, Window Two and Window Three interconnectors in the cap and floor regime.

4.40 The cap and floor regime has a transaction cost allowance for raising debt finance. This allowance is calculated by applying 2.5% to the opening RAV at the start of the operational period.

4.41 We have decided that the assumed debt transaction cost allowance should be 2.5% for the Pilot NSIs. This is the same level applied to Window One, Window Two and Window Three interconnectors in the cap and floor regime.

## Other matters

### Indexation

4.42 Given the historically close relationship between CPI and CPIH inflation, we have decided 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.

# 5. Next steps

Following this decision the Pilot NSIs are expected to proceed with development towards the FPA stage, subject also to progressing in line with their IPA conditions.

We intend to conduct further work to adjust the mechanism of the Reasonable Delay Event for the Pilot NSIs, which may result in licence changes. This is to reflect the exposure of the developer to additional coordination risks with other parties in the construction of these projects beyond what would be expected for a P2P interconnector.

We will develop relevant licence conditions for the Pilot NSIs, in particular the special conditions of the electricity interconnector licence which will reflect the NSI regime parameters.