Decision on the Final Project Assessment of the Viking Link interconnector to Denmark

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This document provides our final position on the Final Project Assessment (FPA) of the Viking Link interconnector to Denmark. This includes our provisional determination of the cap and floor levels for the project, which will apply to National Grid Viking Link Limited's 50% share of the interconnector.

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Executive summary

Electricity interconnectors can provide significant benefits to GB energy consumers. We[1] confirmed our cap and floor regulatory regime in 2014, to provide a clear and transparent regulatory approach for the development of new electricity interconnector projects between GB and other countries. This aims to incentivise commercial investment in interconnectors where it stands to benefit consumers.

This decision provides our position on the Final Project Assessment (FPA) of the Viking Link interconnector to Denmark. The Viking Link project is being jointly developed by National Grid Viking Link Ltd (NGVL)[2] and by Energinet, the Danish transmission system operator (TSO).

Background and scope

The Viking Link project is a 1.4GW electricity interconnector between Bicker Fen in Lincolnshire, Great Britain (GB) and Revsing in South Jutland, Denmark. Our cap and floor regime applies to National Grid's 50% share of the Viking Link project.

The cap and floor regime is the regulated route for interconnector development in GB. There are three main stages to our cap and floor regime – the Initial Project Assessment (IPA), the FPA and the Post Construction Review (PCR). We assessed the needs case for the Viking Link project at the IPA stage and decided in July 2015[3] to grant the project a cap and floor regime in principle. This was based on the expected net benefits of a 1GW interconnector over a 25-year period, which were projected to be circa £2.5bn to GB consumers (in 2019/20 prices). In 2016, NGVL notified us that they planned to increase the capacity of the interconnector from 1GW to 1.4GW. We published updated analysis[4] in July 2017, which projected circa £5.2bn in consumer welfare (in the base case) as a result of the increased capacity (in 2019/20 prices).[5]

This document sets out our final position on the FPA of the Viking Link interconnector. We present our view on Viking Link's proposed costs and the resulting update to the project's cap and floor levels.

What our assessment shows

The cap and the floor levels are set based on building blocks of development costs, capital costs, operating costs, replacement costs, decommissioning costs, tax and allowed return.

[1] The terms "Ofgem" and "the Authority," "we" and "us" are used interchangeably in this document.
[2] "NGVL" and "Viking Link" are used interchangeably in this document.
[3] Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors.
[4] Cap and floor regime: An update on 'Window 1' interconnector projects.
[5] The updated analysis took into account updated market conditions and Window 1 projects only.

NGVL submitted the incurred and forecasted project costs to Ofgem in December 2019. We have assessed whether or not these costs are economic and efficient and have concluded that the majority of the project's firm costs are reasonable. We have considered the procurement process that was followed for the major contracts (primarily the cable and converters), and decided that this was competitive and generally efficient.

The provisional cap and floor levels set out within this decision include a provisional value to cover project risks and uncertainties. This reflects an economic and efficient estimate for the additional costs likely to be incurred by Viking Link between the FPA and the PCR. We will undertake a detailed assessment of any cost changes since the FPA as part of our PCR, and we will update our final cap and floor levels to reflect our economic and efficient allowance for such cost changes.

Based on our assessment, we have set Viking Link's development and capital costs at £786.7m, a reduction of approximately 4% from the submitted £817.8m.[6]

As part of this decision we have confirmed the financial parameters that will apply to the Viking Link project. These are based on methodologies set out in our cap and floor regime policy. The financial parameters have predominantly been set based on the date of Viking Link's final investment decision (26 September 2018). We have also decided to set a target of 93.4% for Viking Link's availability incentive, based on our review of the project's technical design. The cap level can increase or decrease by up to 2% based on performance against this target.

Our provisional cap and floor levels are £111.5m and £61.7m respectively, based on our allowed costs and relevant financial parameters (in 2019/20 prices).

These are lower than the indicative levels used at our IPA stage, which were £115.2m and £66.5m (in 2019/20 prices). We note that the IPA cap and floor levels were based on a 1GW interconnector and the FPA cap and floor levels are based on a 1.4GW interconnector.

This decrease reflects a combination of our decisions on allowed costs and cost savings against the project's IPA forecasts made by the developer. We anticipate that the project can therefore provide greater benefits to consumers than expected, as (all else being equal) the current cap and floor levels would reduce the likelihood of floor payments and increase the likelihood of cap payments.

[6] Unless otherwise stated, all costs reported within this document are in nominal prices.

In our cap and floor roll-out decision[7] and 'Window 1' update letter[8] we specified that the regime start date for all window 1 projects is 1 January 2021. Furthermore, we included a provision that states where projects are commissioned later than 1 January 2021, the 25-year duration of the cap and floor regime will still commence on 1 January 2021.

Our 'Window 1' update letter also included proposed relief for delays to the regime start date caused by force majeure events. Our force majeure mechanism excludes the duration of any delay caused by force majeure events from the aforementioned provision.

Alongside the FPA submission, we received a force majeure request from NGVL. The request detailed three force majeure claims, that NGVL state have delayed the project three years past the commissioning date submitted at the IPA stage (2020)[9]. NGVL have requested that the regime start date aligns with the earlier of the revised commission date in 2023 or 1st Jan 2024.[10]

For the purposes of this decision, we have based the cap and floor levels on a 25-year regime starting on 1 January 2021 and with a commissioning date of late 2023. We will confirm the regime start date once we have decided on NGVL's force majeure request. We intend on making this decision in the first quarter of 2021.

Next steps

Following this decision, we will consult on proposed changes to NGVL's interconnector licence in order to give effect to our decision. This will follow our statutory licence modification process.

We will also make a decision on NGVL's force majeure request and confirm the regime start date in the first quarter of 2021.

NGVL will need to report to us throughout the construction period. As part of this annual reporting, NGVL should provide notice of any significant variations from the project delivery schedule, as well as details of any cost changes from NGVL's December 2019 FPA submission. We will review any expenditure relating to such changes at the PCR stage.

[7] Decision to roll out a cap and floor regime to near-term electricity interconnectors.
[8] Cap and floor regime: An update on 'Window 1' interconnector projects.
[9] Viking Link is expected to be operational at the end of 2023.
[10] Window 1 projects must meet the connection date of 1 January 2024. Any delay after this is material and may result in revisiting our IPA analysis.

1. Introduction

Section summary

This section provides an overview of the scope and structure of this document and links to related publications.

What are we making a decision on?

1.1. This document sets out our FPA decision for the Viking Link interconnector, including our view on NGVL's proposed project costs. We have updated the cap and floor levels to reflect our assessment of these costs and the relevant financial parameters.

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

- Assessment of firm devex and capex costs;
- An initial assessment of uncertain capital costs;
- An initial assessment of the project's post-construction costs;[11]
- Technical aspects, including review of the technical design and setting the project-specific target for the availability incentive; and
- Confirmation of the appropriate financial parameters for Viking Link and an update of the cap and floor financial model.

1.3. The following areas will be assessed and decided at the PCR stage and are therefore not within the scope of this document:

- Adjustments to EPC contract values and non-contract costs; and
- A detailed assessment of the project's post-construction costs.

[11] By post-construction costs we mean costs associated with operational expenditure (opex), replacement expenditure (repex) and decommissioning expenditure (decommex).

1.4. The provisional cap and floor levels presented in this document include placeholder values for the project's uncertain capex costs and post-construction costs.

Structure of this document

1.5. This decision includes four main sections:

Chapter 2 gives an overview of the Viking Link project and our cap and floor regime.

Chapter 3 provides an overview of our cost assessment, which includes an assessment of firm costs and our initial views on uncertain costs.

Chapter 4 provides information on the annual reporting requirements, the scope and timing of our PCR stage and high-level principles on eligibility. More information on eligibility for assessment at the PCR stage is included in Appendix 2.

Chapter 5 sets out our views on the financial and technical aspects of the FPA. This includes the cap and floor financial model and the associated financial parameters, our review of the technical design and our setting of the project-specific target for the availability incentive. This also includes the provisional cap and floor levels for Viking Link.

Appendix 1 provides a regime summary for Viking Link and **Appendix 2** sets out an overview of the principles we will apply when considering risk-related eligibility at the PCR.

Related publications

The regulation of future electricity interconnection: Proposal to roll out a cap and floor regime to near-term projects Published: May 2014

Decision to roll out a cap and floor regime to near-term electricity interconnectors Published: August 2014

Cap and floor regime: Initial Project Assessment of the FAB Link, IFA2, Viking Link and Greenlink interconnectors Published: March 2015

Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors Published: July 2015

Cap and floor regime: An update on 'Window 1' interconnector projects Published: June 2017

Decision on the Final Project Assessment of the NSL interconnector to Norway Published: July 2017

Cap and floor regime: Open letter on procedural changes to our Final Project Assessment stage Published: November 2017

Final Project Assessment of the IFA2 interconnector to France Published: July 2018

General feedback

1.6. We welcome any comments about this decision. We'd also like to get your answers to these questions:

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

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

2. Background

Section summary

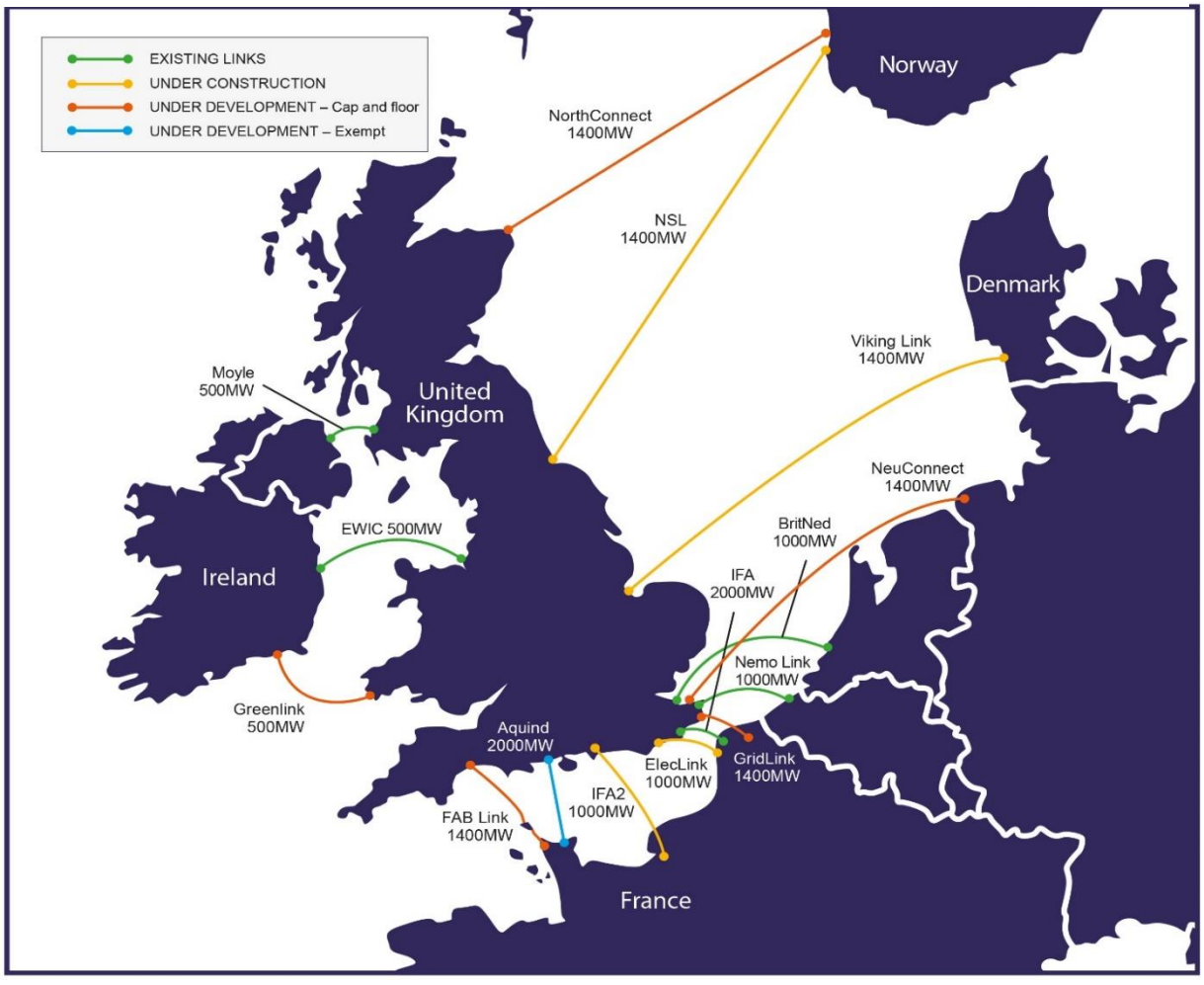
This section gives an overview of the Viking Link project and our cap and floor regime.

Project overview

2.1. The Viking Link project is a 1.4GW electricity interconnector between GB and Denmark with a length of 767km. On the GB side, the cable landfall is at Boygrift, followed by 68 km of onshore cable to an AC/DC converter station located at North Ing Drove. This is followed by approximately 2 km of AC cable, which connects to the grid at Bicker Fen substation. The Danish end of the HVDC cable lands at Blaaberg, followed by 76 km of onshore DC cable to a converter station in Revsing.

2.2. Viking Link is shown alongside other operational and proposed projects in Figure 1 below.

Figure 1 – Map of existing and proposed GB electricity interconnectors



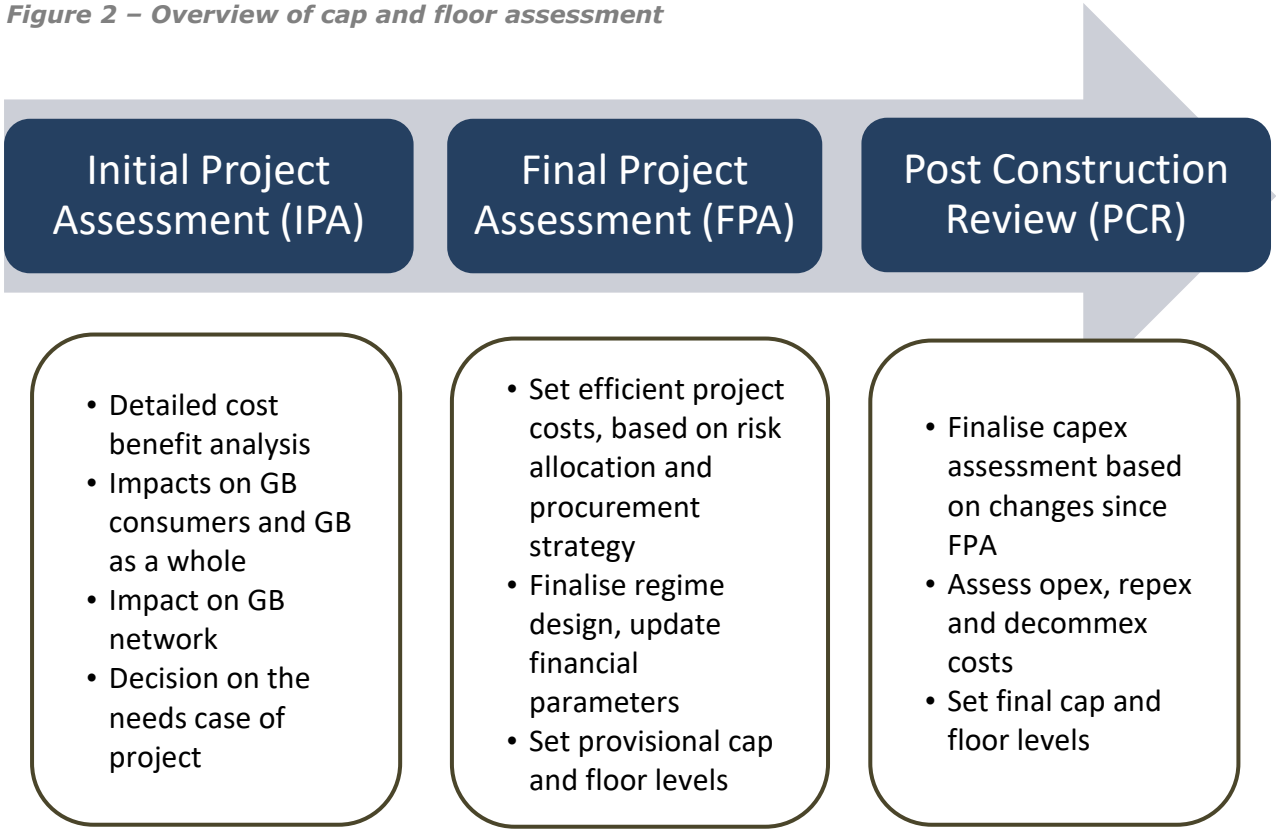
2.3. The Viking Link project is being jointly developed by NGVL and Energinet, the Danish TSO. Our cap and floor regime applies to National Grid's 50% share in the Viking Link project. Energinet's share in the project is regulated by the Danish Utility Regulator (DUR). This is the same approach that has been adopted for the IFA2 interconnector to France and the NSL interconnector to Norway. More information on the cap and floor regime design for Viking Link is included in Appendix 1.

Our cap and floor regime

2.4. The cap and floor regime is the regulated route for interconnector development in GB. We developed the cap and floor regulatory model jointly with the Belgian regulator, CREG, for application to the Nemo Link interconnector. We then extended the cap and floor regime to other interconnectors in August 2014.[12]

2.5. There are three main stages to our cap and floor assessment framework, shown in Figure 2 below.

Figure 2 – Overview of cap and floor assessment



[12] We extended the cap and floor regime to near-term projects in August 2014, and then confirmed this as our enduring approach to interconnector regulation in March 2015 as part of our Integrated Transmission Planning and Regulation project conclusions.

- The IPA stage is when we assess the needs case for new interconnector projects. This is predominantly an economic assessment, taking into account the total costs and benefits of new interconnectors and assessing the likely impacts on consumers.

- At the FPA stage we confirm the grant of a cap and floor regime and set the provisional cap and floor levels. We assess the economic and efficient costs associated with developing, constructing, operating, maintaining and decommissioning of the licensee's interconnector. We also set the project's financial parameters, develop a project-specific financial model, and set the values for incentives.

- We confirm the cap and floor levels at the PCR stage, when we revisit aspects of our cost assessment that were not fixed at the FPA stage, and assess the efficiency of certain costs incurred during construction.

2.6. We assessed the needs case for the Viking Link project as part of our first cap and floor application window and decided in July 2015 to grant the project a cap and floor regime in principle.[13] This was based on our assessment that the project is likely to significantly benefit GB consumers and GB as a whole. This decision was subject a number of conditions, including the costs of the project not materially increasing from the IPA stage and the project meeting the backstop connection deadline of 1 Jan 2024.[14]

2.7. Viking Link's capacity was submitted at 1GW at the IPA stage, and the capacity has since increased to 1.4GW. This was enabled by the Danish TSO increasing the reserve capacity available in the Danish network by carrying out network improvements. Ofgem updated Viking Link's economic analysis and we concluded that the proposed increase would bring positive benefits to GB and GB consumers. Specifically, our updated analysis showed an increase of £1473.5m to GB consumer welfare and £285.9m to GB welfare, in 2019/20 prices.[15]

2.8. We published a procedural update to our assessment framework in November 2017.[16] This noted that we no longer intend to consult on the FPA stage of our assessment, except in

[13] Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors
[14] The regime start date of all Window 1 projects is 1 January 2021 with a connection deadline of 1 January 2024. Any delay beyond 1 January 2021 will reduce the effective regime length by the length of the delay. Any delay beyond the connection deadline may mean revisiting our IPA analysis.
[15] The full economic welfare analysis for Viking Link can be found on page 4 of our 2017 'Window 1' update letter (presented in 2013 prices).
[16] Cap and floor regime: Open letter on procedural changes to our Final Project Assessment stage.

cases where information has significantly changed since our IPA stage. This would include situations where:

- project costs have materially increased;
- we think the expected impacts of the project have changed significantly since our IPA decision;
- the project has requested variations to the default regime design that we are minded to approve;
- the project does not meet the conditions that were attached to our IPA decisions; or
- the project has otherwise changed significantly.

2.9. We made this procedural update because our decisions at the FPA stage typically follow principles established in our cap and floor regime policy. In addition, due to commercial confidentiality of some cost information, it is difficult for third parties to provide meaningful comments on our conclusions.

2.10. Based on the information provided by NGVL, and our analysis set out in this document, we do not think that the FPA for Viking Link qualifies for any of the criteria for consultation set out above.

2.11. We have concluded that Viking Link's project costs have not materially increased since the IPA. This document is therefore our final decision on the FPA of Viking Link.

3. Cost assessment

Section summary

This section provides an overview of our cost assessment, which includes an assessment of firm costs and our initial views on uncertain costs.

Scope of our cost assessment

3.1. During the IPA we took a provisional view on the project costs, based on the high level estimate that was provided by NGVL at the time. At the FPA stage, the cost estimate provided by NGVL is much more mature, as the majority of costs are now more firm.

3.2. Since the cap and floor levels are largely based on Viking Link's costs, at the FPA stage we assess the project costs to ensure these are economic and that consumers do not underwrite inefficient costs. We then use the NGVL share of this spend to inform the cap and floor levels for the GB share of the project; this is referred to as the NGVL share in this document.[17]

3.3. NGVL submitted its incurred and forecast costs to us at the end of December 2019. We have assessed these costs and engaged with NGVL through various meetings and workshops to ensure that we understand the rationale behind these costs, as well as the project's scheduled activities.

3.4. The key cost components that we have assessed during the Viking Link FPA are the GB development expenditure (devex) and the capital expenditure (capex). The capex consists of two cost components – main project costs (either firm or estimates), and project risks. Our position on devex costs and firm capex costs is decided at this FPA stage and, unless otherwise stated within this document, will not be revisited at the PCR stage.

3.5. We have not undertaken a detailed assessment of the project's post-construction costs during this FPA. By post-construction costs we mean costs associated with operational expenditure (opex), replacement expenditure (repex) and decommissioning expenditure (decommex). In general, we have used NGVL's high-level estimates for these costs to calculate

[17] The costs that inform our cap and floor levels are: 100% of NGVL's development costs; 0% of Energinet's development costs; 50% of the total costs of cable, converters, site preparation (at both GB and Denmark); 100% of GB-specific separate costs; and 0% of Energinet-specific separate costs.

the provisional cap and floor levels. However, we have made an adjustment to NGVL's estimated repex costs to reflect a more representative view of this cost item.

3.6. A final review of the project's costs will be conducted at the PCR stage. At the PCR stage we would expect that NGVL's post-construction costs would be much more firm. Therefore, alongside a review of the final capex costs, we will undertake a detailed assessment of NGVL's post-construction costs at the PCR. We will then determine the final cap and floor levels for Viking Link.

Our view on Viking Link's submitted costs

3.7. Table 1 and Table 2 provide an overview of our current view on the efficient costs for the Viking Link project.

Table 1: Summary of devex and capex (costs are in nominal prices, NGVL share)[18]

Cost type		NGVL IPA Submission	NGVL FPA Submission	Ofgem FPA Allowance
Interconnector capacity		1.0 GW	1.4 GW	
Devex (£m)		13.2	20.7	20.7
Capex (£m)	*Main project costs*	789.7	705.0	698.3
	Risk		92.1	67.6
Total (£m)		**803.0**	**817.8**	**786.7**

Table 2: Summary of post-construction costs (costs are in real 2018 prices, NGVL share)[19]

Cost type	NGVL IPA Submission	NGVL FPA Submission	Ofgem FPA Allowance
Interconnector capacity	1.0 GW	1.4 GW	
Operating costs (£m)	265.8	441.3	441.3
Replacement costs (£m)	8.0	30.2	27.9
Decommissioning costs (£m)	65.8	83.4	83.4
Total	**339.6**	**554.9**	**552.6**

[18] For all tables in this document, due to rounding, the figures in the tables may not add up precisely to the totals indicated.
[19] NGVL's view on these costs are high-level estimates at this stage. We have made an adjustment to NGVL's submitted repex costs to reflect a more accurate view of this cost item. However, we have not undertaken a detailed review of these costs at this stage.

3.8. The above costs form the basis of the provisional cap and floor levels. **Based on these costs, the cap on revenues that NGVL can earn will be £111.5m a year. The floor will be £61.7m a year (2019/20 prices)**.[20] Further information on how the cap and floor levels have been calculated is provided in Chapter 4 and Appendix 1.

3.9. NGVL's FPA submission sets out its rationale for the devex and capex costs incurred to date, and the projected capex spend over the construction period. The majority of these costs relate to the engineering, procurement and construction (EPC) contracts that NGVL awarded for the project. We present our review of these costs in the sections below, which cover the assessments of:

3.9.1. firm devex costs;

3.9.2. firm and estimated capex costs; and

3.9.3. capex risk costs.

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

Table 3 – Devex and capex costs and Ofgem adjustments (nominal, NGVL share)

Cost type	Submitted cost (£m)	Adjustment (£m)	Adjusted FPA value (£m)
Subsea cables	[redacted]	-0.3	[redacted]
Land cables	[redacted]	-0.3	[redacted]
Converter stations	[redacted]	-0.8	[redacted]
Substations	[redacted]	0.0	[redacted]
Other	[redacted]	-5.3	[redacted]
Risk	[redacted]	-24.4	[redacted]
Total	[redacted]	**-31.1**	[redacted]

[20] These cap and floor levels are only applicable to the National Grid share in the Viking Link project.

Assessment of firm devex costs

3.11. As presented in Table 1, NGVL submitted a total of £20.7m of costs associated with development expenditure as part of its FPA submission. This is an increase of £7.6m compared to the devex estimate that NGVL presented to us as part of its IPA submission.

3.12. We consider devex to cover costs associated with items such as studies, assessments and resourcing costs that have been incurred prior to the project's final investment decision (FID). The devex costs also include any eligible grants that have been awarded to the developer, such as the European Union's Connecting Europe Facility (CEF) grant.[21]

3.13. One of the main reasons behind the increase in devex costs between the IPA and FPA submissions was that NGVL had initially expected to take FID in early 2017, and hence the IPA devex cost estimate was based on costs up until this date. Issues associated with cable market congestion and onshore planning consents in GB resulted in a delay to the project's FID. Viking Link's FID was taken in September 2018. Therefore, the project's FPA submission includes development costs that were incurred up until this point.

3.14. The £20.7m of costs associated with devex have all been incurred, and hence this value is fixed. Having reviewed these costs, as detailed above, we are satisfied that this value is economic and efficient, and as these costs are fixed, we will not be revisiting this as part of any future assessments.

Assessment of firm and estimated capex costs

3.15. For this assessment, we have categorised costs as either firm or estimated. Any contract which has been awarded, and where the full costs are known, has been classed as firm, while assumption-based project costs have been classed as estimated costs. We have undertaken an initial assessment of these estimated costs at this stage, to ensure that the provisional cap and floor levels are as accurate as possible. However, we will undertake a further review of these costs as part of our PCR, when the costs have been confirmed.

3.16. Firm capex costs constitute the majority of the overall value of the project. At this stage, the firm capex costs mainly relate to costs associated with the contract for the converter stations and the contracts for the supply, installation and civil works for the cables.

[21] Grants such as the CEF grant are presented as negative values within NGVL's submission.

3.17. However, there remains a significant portion of estimated costs at this stage; these include:

- Danish land cable civils contract: the procurement process for the Danish land cable civil works was still being undertaken at the time of NGVL's FPA submission.
- Project insurance: as with the above, NGVL were yet to finalise the procurement of the main insurance for the project's construction stage at the time of the submission.
- Developer resourcing costs: NGVL have estimated their resourcing costs for the duration of the project's construction.
- Risk-related costs: NGVL have assessed potential risks to all aspects of the project and the resulting costs and delays. The risks cover the duration of the construction and costs will be assessed if any of the events on the risk register occur.
- Other: further areas where costs are yet to be confirmed include compensation payments (both for land and fisheries), activities associated with potential unexploded ordnances (UXOs) and the GB and Danish grid connections.

3.18. For these estimated cost areas, unless otherwise stated within this chapter, we believe that NGVL have used appropriate and robust assumptions to estimate the costs, using information that is available to it at this stage of the project. However, for all areas where costs are currently estimated, we will undertake a further detailed assessment as part of the project's PCR.

3.19. Our assessment of the firm and estimated capex costs considered the following elements:

- the suitability of the tender processes and subsequent award of the project's contracts; and
- the efficiency of firm and estimated capex costs on an overall basis and by component.

3.20. The following sections look at each of these in turn.

Tender processes and main EPC contracts award

3.21. In order to secure the most efficient EPC contracts, the developers engaged with the market by running a tender process with three different lot options for the project's cables and converter stations:

- Lot 1 to 5: Mass-Impregnated Non-Draining (MIND) Cables
- Lot 6: Cross-Linked Polyethylene (XLPE) Cable (no cable tenderer was able to provide this option to meet the Viking programme at the conclusion of the procurement)
- Lot 7: HVDC converter stations

3.22. After evaluating all of the proposed solutions, the developer decided to offer three separate contracts; one for the converter stations (lot 7) and two for cable supply and installation (lots 1 to 5).[22]

3.23. Siemens won the tender for the converter stations and was awarded the lump-sum contract to supply and construct them. Prysmian won 4 lots of the contract, covering the supply and jointing of the GB onshore cable, as well as the supply and installation of the entire submarine cable. NKT won the 5th lot, covering the supply and jointing of the Danish onshore cable. All three contractors won the tenders on a combination of commercial and technical grounds.

3.24. Our review of the tender process and the associated documents indicated that the tender process was run competitively.

Firm and estimated capex components

3.25. The firm and estimated capex costs consist of costs associated with the EPC contracts, NGVL's costs for managing those contracts as well as non-EPC costs such as surveys, UXO removal and insurance.

3.26. Viking Link's EPC contracts include options for further work, limited in scope and at a specified price, which may be exercised during the construction process. Where NGVL have

[22] The cable civil works are procured separately to the main cable contracts. Balfour Beatty were awarded the contract for the GB cable civils, whilst at the time of submission in December 2019 the contract for the Danish civil works was yet to be awarded.

exercised options, prior to its FPA submission, the economic and efficient costs associated with these have been included as part of NGVL's firm costs.

3.27. The price schedules within Viking Link's EPC contracts include the staff and vessel rates the contractor proposes to use, if Variation Orders (VOs) are required to enable the completion of the works.[23] Based on our provisional analysis of these rates, we believe that some of the rates agreed between Viking Link and its contractors appear high.

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

3.29. We carried out benchmarking analysis of the firm capex costs. The results indicated that on an overall project basis these costs benchmark reasonably, when compared to similar projects. However, our assessment of specific cost items showed that some costs should be adjusted. These are discussed below.

***Converter capex**:*

3.30. NGVL submitted a capex cost of [redacted] for the supply and construction of the converter stations. The majority of this cost is related to the EPC contract for the converter stations. It also covers the developer costs associated with managing this contract.

3.31. Following our assessment of these costs, we have made the following adjustments:

- **Commissioning Power:**[24] NGVL submitted a cost of £0.8m for this item. We believe this cost to be a commercial cost that Viking Link can trade, as part of the commissioning process. The costs of commissioning power will be reviewed at the PCR stage, where we will consider them in the context of the completed commissioning tests and the market conditions during that time.

3.32. Considering the above, we believe that the adjusted capex cost for the converter stations of [redacted] is economic and efficient at this stage.

[23] A VO is issued when there is an alteration to the scope of works within a construction contract. This may be in the form of an addition, substitution or omission from the original scope of works, and could bring either an increase or a decrease in costs.
[24] Commissioning Power is the power required for testing the interconnector during the commissioning period.

Subsea and land cables capex:

3.33. NGVL submitted a capex cost of [redacted] for the supply and installation of the cables. The majority of this cost is related to the EPC contract for the cables. It also covers NGVL's costs associated with managing this contract and costs related to options exercised by Viking Link, prior to the FPA submission.

3.34. Following our assessment of these costs, we made the following adjustments:

- **Additional UXO survey:** Viking Link submitted a cost of [redacted] for a contract option for an additional UXO survey to be undertaken. This option is yet to be exercised, and Viking Link is not certain that this additional UXO survey will be required. There are numerous factors that will influence this decision. Based on this, we are disallowing the costs associated with this option as part of the FPA. However, if the decision is made to exercise this option, we will review the requirement for the survey, and its associated costs as part of our PCR.

- **Cable civils VOs – Denmark:** NGVL submitted an estimate of [redacted] for potential VOs for civil works in Denmark. We have received insufficient justification and substantiation for this cost at this stage, and believe it would be more appropriate to review costs associated with such potential VOs at the PCR.

3.35. Considering the above, we believe that the adjusted capex cost for the subsea and underground cable of [redacted] is economic and efficient at this stage.

Common costs capex:

3.36. NGVL submitted a capex cost of £43.2m for Viking Link's share of the project's common costs. This cost category includes items such as insurance, legal support and operational readiness costs. Following our assessment of this cost, we have made the following adjustments:

- **DSU insurance:** Viking Link submitted a cost of £4.6m for Delay in Start Up (DSU) insurance for the project; there was also an additional £0.6m for DSU Insurance Tax (IPT). After assessing these costs and discussing them with the developer, we do not believe that this insurance provides a tangible benefit to consumers. We acknowledge that this insurance could prove to be beneficial for Viking Link, in the event of a loss of projected revenue, but we do not believe it is a necessary cover for the project. In the event that Viking Link do claim their DSU insurance, any

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

- **Opening event:** Viking Link submitted a cost of £0.1m for an opening event. We acknowledge that this marks an important milestone for the project but this event does not provide any tangible benefits to consumers and is not essential for the delivery of the project. Therefore, we consider this cost to be ineligible and it should not sit within the cap and floor.

3.37. Considering the above, we believe that the adjusted level of £38.4m for common capex costs is economic and efficient at this stage.

Assessment of capex risk costs

3.38. Viking Link is forecasting to incur £92.1m of costs (NGVL share) as a result of a wide range of risks materialising during the construction phase. This includes, for example, costs to manage logistical delays or those due to extreme weather conditions.

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

3.40. We have assessed the risks included in NGVL's FPA submission, based on the criteria mentioned above. We have determined that some of these risks should not be included in the FPA cap and floor calculation. For example, we rejected risk costs relating to jointing errors by the contractor, as we believe such errors are avoidable, and should not be borne by consumers. As well as removing ineligible risks, we have also reduced various costs for other risks, by adjusting the assumptions that sit behind these risks so that they are economic and efficient.

3.41. We consider £67.6m as an appropriate placeholder to cover NGVL's share of the eligible risks for the project. This is a reduction of £24.5m from NGVL's £92.1m submission.

3.42. We will monitor the project's risk profile and materialised risk expenditure throughout the annual submissions. We will take a view on the materialised risks at the PCR stage, applying the principles for risk eligibility that are set out in Appendix 2. For instance, the eligible risks must be related to force majeure events or caused by an external party or event, and that

could not have been better mitigated by Viking Link using appropriate foresight. In addition, the costs of the risk could not otherwise be recovered from a third party by Viking Link.

Assessment of post-construction costs

3.43. Viking Link submitted a total estimate of £554.9m (NGVL share) for the project's post-construction costs, which consisted of:[25]

- £441.3m for opex;
- £30.2m for repex; and
- £83.4m for decommex.

3.44. Due to the uncertainty associated with these costs at this stage, we have only undertaken a high-level assessment to ensure that NGVL's placeholder values are appropriate.

3.45. Following this assessment, we have reduced NGVL's repex cost by £2.3m to a value of £27.9m.

3.46. NGVL had based their repex cost submission on the repex costs that Nemo Link had submitted to us in its PCR submission. However, as set out in our Nemo Link PCR decision,[26] we did not believe that Nemo Link's submitted value was economic and efficient. We subsequently adjusted Nemo Link's repex costs to an appropriate value. We believe that our FPA allowance for NGVL's repex costs should take into account the adjustment that we applied at the Nemo Link PCR. We have therefore reduced NGVL's repex costs by £2.3m.

3.47. We did not identify any areas for cost adjustments following our initial assessment of NGVL's opex and decommex costs. We will undertake a full assessment of NGVL's opex, repex and decommex costs at the PCR.

[25] All post-construction costs reported within this section, and within this document, are in real 2018 prices.
[26] Decision on the Post Construction Review of the Nemo Link interconnector to Belgium

4. Annual reporting and our Post Construction Review

Section summary

This section provides information on the annual reporting requirements, the scope and timing of our PCR stage and high-level principles on eligibility.

Annual reporting

4.1. Following the FPA, NGVL will be required to submit annual reports during the construction phase, including cost variations from those set at the FPA. NGVL will be required to submit detailed financial information and explanations of any changes annually.

4.2. NGVL will need to maintain high quality financial records, according to the requirements set out by Ofgem,[27] and to provide evidence of expenditure during construction. As a minimum NGVL will need to:

4.2.1. Ensure a clear paper trail of expenditure for all items submitted as part of the annual reporting. For example, NGVL need to differentiate clearly between expenditure on the original contract and any variations to it. If we are unable to distinguish the expenditure, we may assume it is expenditure for items already assessed at the FPA and therefore not eligible for further review.

4.2.2. Evidence will need to be provided for all expenditure, such that a forensic audit can be carried out by Ofgem if required. Items which cannot be evidenced (e.g. no invoice and proof of payment) may be disallowed by Ofgem entirely.

4.3. All changes in cost (including risk-related costs and VOs) will need to be transparently documented, against the scope of works and expectations at the FPA, so that they can be assessed separately from FPA items. In addition, the link between these cost changes and NGVL's FPA risk allowance should be noted within the annual submissions. These costs will need to be evidenced and documented in the same reporting year in which they occurred.

4.4. If any risk-related cost variance is deemed eligible, only efficient costs will then be allowed. We expect NGVL's decisions taken in response to such risk-related factors to be

[27] Our Cap and Floor Regulatory Instructions and Guidance (RIGs), published as Schedule 5A to our Nemo Link PCR decision, sets out these requirements.

evidence-based and the developer to be responsible for proving that decisions taken in response to these factors were efficient. Appendix 2 provides further information on risk-related eligibility at the PCR.

Scope of the Post Construction Review

4.5. The FPA determines our current view of the economic and efficient costs to feed into the cap and floor levels. For many reasons the outturn costs may be different. The PCR will adjust the FPA's provisional cap and floor levels for costs we deem to be eligible and efficient.

4.6. The result of the PCR will be an update to the cap and floor levels in NGVL's interconnector licence, which will represent the final cap and floor values for the duration of Viking Link's cap and floor regime (subject to a discretionary opex reopener).

4.7. At the FPA stage we have approved a nominal interest during construction (IDC) component based on the submitted profile of capex spend over the period of construction. The actual IDC entitlement will be updated at the PCR stage based on actual allowed expenditure.

4.8. We may choose to conduct a forensic analysis of NGVL's costs, or any eligible cost variations, to ensure the traceability and substantiation of the cost submission. This analysis can be used to help establish the final PCR values for the project, including any adjustments to values stated within this document.

4.9. More information on our consideration of risk-related expenditure at the PCR stage is included in Appendix 2.

Timing of the Post Construction Review

4.10. We intend to start the PCR process:

a) At the earlier of the following milestones:

i. a date on which between 85% and 95% of development and capital expenditure, excluding IDC (and any snagging retention) has been committed to the development and construction of the interconnector; and

ii. The Full Commissioning Date; or

b) Such date as may be agreed in writing by us.

4.11. If some risks materialise shortly after PCR submission by NGVL, we may allow inclusion of these costs into the PCR up to a certain cut-off point. This cut-off point will be specified as part of the PCR guidance that we will issue to NGVL to ensure that there is no unreasonable delay to the PCR process.

4.12. If NGVL have reasonable grounds to believe that some of the remaining construction works might be exposed to certain risks after this point, we intend to provide them with an ex-ante allowance for managing these risks, which would be granted as part of the PCR and would not be reopened.

4.13. If the PCR process doesn't conclude within the first year of operation, we may choose to disallow NGVL any within-period revenue assessments until the PCR is completed and final cap and floor values are established.

5. Other aspects of our Final Project Assessment

Section summary

This section sets out our views on the financial and technical aspects of the FPA. Mainly, the cap and floor financial model, our review of the technical design and our setting of the project-specific target for the availability incentive. This section includes the provisional cap and floor levels for Viking Link.

Cap and floor financial model

5.1. The cap and floor framework introduces a strong commercial pressure on developers to efficiently manage and minimise costs.

5.2. The cap and floor values are calculated using our cap and floor financial model. Broadly, the cost allowances are fed into the model as building blocks which include tax, allowed return, decommissioning costs, capital costs, operations and maintenance costs. Benchmark financial measures are applied to give the values of the cap and the floor.

5.3. Amongst other things, this reflects the financial indices used to set the cap and floor – the cost of equity (cap) and debt (floor) benchmarks. These have been set based on the date of Viking Link's final investment decision (FID), which was taken in September 2018. We have provided the full list of these financial parameters in Appendix 1.

5.4. As noted in Chapter 3, we have used a placeholder value for the potential cost of eligible risks for the project. We have also included values for other aspects that we will assess at the PCR stage, such as operational costs. At this stage we have used the developer's cost estimates for these items to inform the cap and floor levels.

5.5. **The provisional cap and floor levels, based on our allowed costs and relevant financial parameters, are £111.5m and £61.7m (in 2019/20 prices[28]).**

5.6. These cap and floor levels are not final. They will only be finalised following our PCR assessment.

[28] All costs submitted by NGVL were in nominal terms, as requested. These costs were converted to 2019/2020 prices within the cap and floor financial model.

Technical assessment

5.7. At the FPA stage we undertake a high-level assessment of the project's technical design. The aim of this assessment is to ensure that the developers have adopted a sensible procurement strategy, which has informed an efficient technical design.

5.8. Viking Link uses a bipole configuration with two HVDC cables linking the Danish and British ends. For the size of this link – 1.4GW – this design choice is in line with current industry practice.

5.9. A voltage level of 525 kV has been selected for this project for use with Mass Impregnated Non-Draining (MIND) technology. We note that the voltage level has increased from 500 kV to 525 kV since the IPA; however, we recognise this was a result of confirming the converter technology and configuration as well as the final capacity of the interconnector, which increased from 1GW to 1.4GW.

5.10. The AC connection points to the respective transmission points also seem well optimised.

5.11. The overall project design appears capable of delivering the planned transfer capacity in an economic and resilient manner. The technical design is also in line with our expectations based on publication of our supply chain plans for cap and floor projects.[29]

5.12. We have reviewed the technical choices made by the developer. We are satisfied that these are in line with the initial expectations following the IPA stage, and that the interconnector has been efficiently designed and procured.

Availability incentive

5.13. The availability incentive is a mechanistic incentive, which applies to all cap and floor interconnector projects. The incentive aims to ensure that the developers maintain technical availability of the cable, even in periods when they could reasonably expect revenues to exceed the cap or fall below the floor. Incentivising good technical availability will help to ensure that consumers realise the full benefits of interconnection between GB and Denmark.

5.14. The availability incentive gives a potential 2% upside and downside to maximum interconnector revenues at the cap. This is based on performance against a target level of

[29] National Grid's August 2017 interconnector supply chain update is available at: https://www.ofgem.gov.uk/system/files/docs/2017/10/ngv_supplychain_aug17.pdf

availability. If developers outperform against the target by up to two percentage points, then the cap level increases by the same amount. If developers underperform against the target by up to two percentage points, then the cap level reduces by the equivalent. The specific availability target varies from project to project, depending on a number of technical factors such as project design and cable length.

5.15. The availability target is determined by a Microsoft Excel-based model designed by Sinclair Knight Merz (SKM) engineering consultants, for our work on Nemo Link's cap and floor regime in 2013. SKM made a recommendation that the model should be updated where possible to reflect new information that becomes available to ensure that developments in VSC converter and HVDC cable technologies are captured.

5.16. This was materially updated by GHD (Gutteridge Haskins & Davey) consultants for the NSL FPA in 2016 and the IFA2 FPA in 2018. GHD's updates ensured that the model structure and source data continued to be fit for purpose. They also updated the model so that it could capture project-specific information thus increasing the usability.

5.17. For this FPA, we asked GHD to update the technical input assumptions to reflect the final design of the Viking Link interconnector. The model has been updated to reflect the latest HVDC reliability and availability data that has been recorded since the last time the model was updated, in 2018. As no new data has been published[30] in relation to cable reliability, the submarine cable data in the model has not been updated.

5.18. The failure rate selection factor for Viking Link's offshore HVDC cable was set to 'low' as opposed to the 'average' setting, which was used in the modelling for the IFA2 and NSL FPAs. This decision was primarily driven by the Cable Burial Risk Assessment (CBRA), which was completed for Viking Link. The CBRA outlines a target depth of lowering in order to mitigate damage by third parties. We note that the uptake of CBRAs on projects allows for the submarine cable to be more appropriately protected for the full cable length. We expect future projects that follow similar industry best practice will also have a 'low' failure rate selection factor.

5.19. **Based on GHD's analysis and recommendation, we are applying an availability incentive target of 93.4% for Viking Link's cap and floor regime.**

[30] The CIGRE underground and cable survey update was anticipated in 2018/19 has not been published hence there has been no update to the subsea cable failure rates in the model.

5.20. GHD's summary report and the updated availability model are published alongside this decision. GHD's summary report contains details on the updates performed to the availability model.

Force majeure request

5.21. The regime start date for all Window 1 projects is 1 January 2021 or earlier; any delay to the connection date beyond this date would mean the 25-year duration of the cap and floor regime will still commence on 1 January 2021. NGVL, alongside their FPA submission, requested 36 months of regime start date relief under our force majeure mechanism included in our 'Window 1' update letter.[31]

5.22. We intend to make our decision on NGVL's force majeure request in the first quarter of 2021.

[31] Cap and floor regime: An update on 'Window 1' interconnector projects.

Appendices

Index

Appendix 1 – Regime summary for Viking Link

Regime summary

In this appendix we provide a summary of the key cap and floor regime features as well as financial parameters that will apply to the Viking Link project.

We have not received any formal request for regime variations and so our default regime, as set out in our May and August 2014 cap and floor policy documents, applies to the Viking Link project.

The final regime design will be confirmed via changes to the Viking Link interconnector licence, following a statutory modification process.

Table 1: Key regime features

Regime duration and start date	• The regime duration will be confirmed after we have considered Viking Link's force majeure request. • The cap level will come into effect automatically on the regime start date. • The floor level will come into effect following a successful completion of a proving period and will be retrospectively applied from the date when the successful proving period started. • Even where delays are outside the control of the developer (except delays caused by force majeure events) we will start the 25-year cap and floor period from the earlier of the actual commissioning date or 1 January 2021. This means that if delays cause the connection date to be delayed beyond 1 January 2021, the regime start date will still be 1 January 2021. • We will grant interest during construction (IDC) and additional incurred costs associated with delays if developers can demonstrate they were outside of their control and were efficiently incurred. Our final view on the application of IDC to the project's spend will be confirmed at the PCR stage.
Amount of project covered by the regime	• The GB cap and floor regime broadly covers 50% of the project's costs – with minor deviations set out below – and will cover 50% of the total revenues earned by the interconnector. • The detailed costs that inform our cap and floor levels are: 100% of NGVL's development costs; 0% of Energinet's development costs; 50% of the total costs of cable, converters, site preparation (at both GB and Denmark); 100% of GB-specific

	separate costs; and 0% of Danish-specific separate costs.

Interconnector revenues	• All sources of interconnector revenue, including from selling capacity, capacity market payments and provision of ancillary services will be taken into account for assessment against the cap and floor levels.
	• Receipts that substitute revenue will also be included, for example:
	  ○ business interruption insurance
	  ○ constraint payments.
	• Certain 'market related costs', defined as firmness, error accounting costs and trip contract costs, will be netted off revenues before comparison against the cap and floor levels (which gives the 'assessed revenue').

Assessment period (assessing whether interconnector revenues are above the cap or below the floor)	• Each assessment period is five years. This means that the interconnector's 'assessed revenue' will be compared to the cap and floor levels on a net present value (NPV) neutral basis, every five years.
	• Each five-year assessment period shall be considered in isolation, with no carry-overs between assessment periods.
	• Where the interconnector's revenue is below the floor or above the cap (on a cumulative basis) during an assessment period, the developer may request a 'within-period adjustment' on the grounds of:
	  ○ financeability; or
	  ○ pre-empting a material end of period adjustment.
	• Such a request can cover from year 1 up to year 4 of any five-year assessment period, but must reflect whole years only (not partial years).
	Ofgem cannot request a within-period adjustment (i.e. only the developer can trigger a within-period adjustment).
	• Any within period adjustment will be subject to a true-up on a NPV neutral basis at the end of the relevant assessment period.
	• The discount rate applied for the NPV-neutrality calculations (the operational discount rate) will be the simple arithmetic average of the floor return rate and the cap return rate. For Viking Link this rate is set at 4.2%.

Regulatory reporting	• Developers will be required to report annually during the operational phase on revenues, availability and costs. • Developers will also be required to report during construction on construction progress and costs. • This reporting must be in line with the 'regulatory instructions and guidance' (RIGs) issued by Ofgem.
Cap and floor Payments	• Cap and floor payments will be made between the developer and NGESO as the system operator and

	will be recovered/distributed via the prevailing transmission charging arrangements.

Table 2: Cap and floor levels

Principles for setting the cap and floor levels	
Building blocks Approach	• The cap and the floor levels are built from building blocks of development costs, capital costs, operations and maintenance costs, decommissioning costs, tax and allowed return. • The cost related building blocks (capital costs, operations, maintenance and decommissioning) and return building blocks are confirmed at FPA and/or PCR stages, whereas the tax building block is locked in at FID. • The cap and floor levels will be profiled so that they are flat over time in real terms.
Cap and floor levels are indexed by RPI	• Cap and floor levels are indexed by RPI using the CHAW index.
Currency	• Cap and floor levels are expressed in Pound Sterling.
Availability incentive	• The target availability level for Viking Link is 93.4% • The cap level will be adjusted annually by up to +/- 2% if interconnector availability exceeds or falls short of a target availability level. This means that availability above (or below) the target level will result in a one-for-one percentage increase (or decrease) in the cap level, up to +/- 2%. • Developers will lose automatic eligibility for floor payments for each individual year if availability is below 80% in that year. • Ofgem will retain the discretion to reinstate eligibility for floor payments if the outage that caused availability to fall below 80% was caused by an 'exceptional event' (i.e. Force Majeure).
Financial parameters for Viking Link	
Returns at the floor	• The allowed return at the floor, applied to 100% of RAV, is 0.17% (real-RPI). • This is calculated using the 20-day trailing average to the FID date of the average yield on two iBoxx GBP Non-Financial indices of bonds with 10+ years to maturity, with credit rating of A and BBB. Inflation used to deflate nominal iBoxx yields from nominal to real-RPI is 10-year breakeven inflation equal to the difference between nominal and real gilt yields, as published by the Bank of England.
Returns at the cap	• The allowed return at the cap is 8.23% (real-RPI)

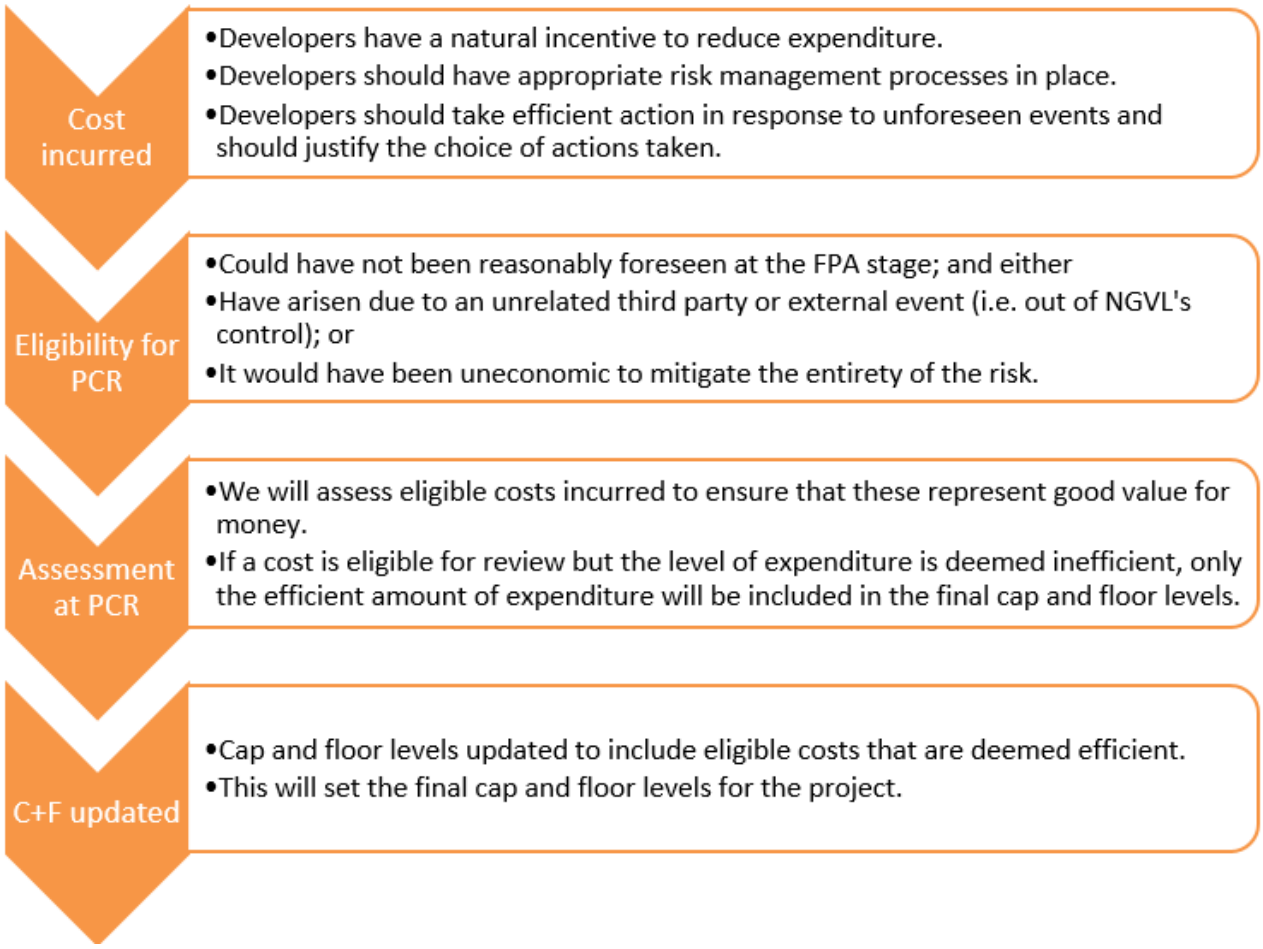
	• This is calculated using capital asset pricing model (CAPM) and comprises the following elements:
	  ○ Equity beta: 1.25
	  ○ Risk free rate: 1.6%
	  ○ Total market return: 7.3%
	  ○ UK RPI formula-effect adjustment: 0.4%

Interest during construction (IDC)	• The IDC rate for Viking Link is 4.39% (real-RPI).
	• This is a weighted-average cost of capital calculated using CAPM for the cost of equity and the floor return rate as the cost of debt. The value comprises the following elements:
	  ○ Cost of debt: 0.17%
	  ○ Risk-free rate: -0.51%
	  ○ Total market return: 7.30%
	  ○ Equity beta (weighted-average of a comparator group): 0.58
	  ○ UK RPI formula-effect adjustment: 0.4%
	  ○ Cost of equity: 3.79%
	  ○ Pre-operational gearing (weighted-average of a comparator group): 23.32%
	  ○ Development risk premium: 0.54%
	  ○ Construction risk premium: 0.91%

Tax	• Corporation tax rate and write-down allowance used for the purposes of calculating cap and floor values are 19% and 8% respectively.
Transaction costs	• The financial transaction costs are calculated as a percentage of the opening RAV. The allowances are 2.5% for debt transaction costs and 5% for equity transaction costs. • The final allowance (in £) will reflect the final RAV at the PCR stage.

Appendix 2 – Risk-related eligibility at the PCR

This appendix provides an overview of the principles we'll apply when considering risk-related expenditure at our PCR stage. Risk-related expenditure is allowable within the PCR where the risk is foreseeable but it would have been uneconomic to mitigate the entirety of it. We present the risk eligibility review process in the diagram below.



Examples of risks

We recognise that interconnector projects are large, complex assets and that they often face unique construction risks on a case-by-case basis. This is why we have not sought to include a definitive list of risks that will or will not be eligible for assessment at the PCR stage. Not all projects will face the same risks, and some projects may encounter risk-related expenditure that neither the project developers nor we could have foreseen.

The section below lists some specific risks where we would expect related expenditure to be eligible, considered on case-by-case basis for eligibility or ineligible for assessment at the PCR

stage. These lists are non-exhaustive and it will be the responsibility of project developers to demonstrate that risk-related expenditure meets our eligibility principles in the PCR submission.

Examples of risks that we would expect to be eligible for our PCR assessment:

- Soil conditions are significantly different to those indicated by the developer's relevant survey(s) or studies,[32] and therefore additional rock placement or ploughing/burial equipment is required.

- TSOs at either end change the connection arrangements or requirements, which leads to new design requirements and/or delays.

- Grid reinforcement works by TSOs are delayed.

- A significant number of unexploded ordnances are discovered that were not detected by the developer's initial studies or surveys. [32]

Examples of risks that we would consider on a case-by-case basis for eligibility under the PCR assessment:

- Weather conditions (cable) – harsh weather conditions offshore beyond statistical expectations for that time of year.

- Weather conditions (converter) – site conditions mean that construction is delayed beyond what could have reasonably been expected. This can cover excessive wind, flooding, snow, avalanche etc.

- Contractors or other related parties fail to deliver on their contracted expectations or obligations.

- Knock-on effects from contractor delivery of other major projects cause delays/additional costs.

[32] Assuming that the initial surveys or studies were conducted in line with industry good practice and therefore should have been deemed reliable. The onus is on project developers to ensure that their strategy in relation to studies and surveys is appropriate. We would expect the developer to have negotiated suitable rates in advance such that they are not a distressed buyer of services.

For both of the above examples, to be considered for inclusion in the PCR, we would expect the following circumstances to apply:

- The additional incurred costs are in excess of contractual damages received.
- The developer had adequate risk monitoring processes in place and took timely action to mitigate incurred cost.
- It would have been uneconomic to insure against the scale of the contractor failure.

Examples of risks that we would expect to be ineligible for our PCR assessment:

- Performance of the project organisation leads to delays or additional costs.
- The cable or converter design is unsatisfactory, leading to additional costs or delays.
- Cable or converters are damaged during transport (unless this is due to third party actions or weather events beyond usual expectations).
- Cable laying vessels break down or are not available as scheduled.
- Cable is damaged during manufacturing.
- Cable damage during installation due to inappropriate practices/use of inappropriate equipment.

Our PCR assessment of eligible risk expenditure

We recognise that there is a strong incentive on developers to efficiently manage and minimise costs within the construction phase, and that this incentive extends to unexpected costs. However, we still think it is necessary to assess the costs incurred in dealing with unexpected events. This is to ensure that the costs have been efficiently incurred, and represent good value for consumers.

We will look to ensure that proper process was undertaken, that risk-related expenditure is well-documented, and that costs incurred were not excessive for that type of action.

In addition, our dialogue with project developers throughout the construction stage as part of our annual reporting process should provide developers with an opportunity to ensure that costs (including in relation to risk events) are updated regularly and that sufficient supporting evidence is provided to us. Whilst we will not make any final decisions on cost variations (including risk-related expenditure) prior to the PCR stage, we expect developers to provide us with justification as the project progresses. If we notice large variances from the planned expenditure, we may ask for further evidence during this annual process. We would also ask for further evidence and justification if the PCR submission differs from the iterative updates received as part of the annual reporting process.