Consultation

Making a positive difference for energy consumers

Post Construction Review of the NSL Interconnector to Norway

Publication date:	07 July 2023
Response deadline:	07 August 2023
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We are consulting on our minded-to position on the Post Construction Review of the NSL interconnector project. We are also conducting a statutory consultation on consequential changes to the special conditions in National Grid North Sea Link Limited's (NGNSL) licence. We would welcome responses from stakeholders and the public.

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

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Contents

Executive Summary

North Sea Link (NSL) is a 1.4 GW electricity interconnector between Blyth, Northumberland in Great Britain (GB) and Kvilldal in Norway. The project was jointly developed by National Grid North Sea Link Limited (NGNSL) and by Statnett, the Norwegian transmission system operator (TSO). NSL entered commercial operations on 1 October 2021. Our cap and floor regime applies to National Grid's 50% share in the project.[1]

We assessed the needs case for the NSL project at our Initial Project Assessment (IPA) stage and decided in March 2015 to grant the project a cap and floor regime in principle. This was based on our assessment that the project is likely to benefit GB consumers and GB as a whole.

In July 2017, we published our decision on NGNSL's Final Project Assessment (FPA) and set the preliminary cap and floor levels. The final cap and floor levels are set following our determination, at the Post Construction Review (PCR) stage, of the values of the Post Construction Adjustment (PCA) terms. These terms adjust the provisional cap and floor levels to take account of our final assessment of the project's costs.

Scope of this consultation

This document sets out our minded-to position on NGNSL's PCR, in particular our views on the proposed values for the PCA terms submitted by NGNSL and proposed final cap and floor levels for the project.

Alongside our consultation on NGNSL's PCR, we are also conducting a statutory consultation on consequential changes to the special conditions in NGNSL's licence. Furthermore, we are seeking views on the NSL Cap and Floor Financial Model 1 and 2 (NSLCFFM1 and NSLCFFM2) and Handbooks 1 and 2 (NSLCFFM1H and NSLCFFM2H).

Overview of our assessment

The cap and the floor levels are set based on a building blocks approach of development costs, capital costs, operating and maintenance costs, replacement costs, decommissioning costs, tax and allowed return. **The preliminary cap and floor levels for NGNSL, as specified in its licence, are £89.85m and £50.90m each year (in 2015/16 prices).**

[1] National Grid NSL Limited (NGNSL) is the licenced entity on the GB side of the interconnector. NGNSL is a part of National Grid's interconnector business, National Grid Interconnector Holdings (NGIH).

In December 2021, NGNSL submitted its proposed values for the PCA terms together with supporting project cost information (the PCR Submission). We received updated information in June 2022 under the annual reporting requirements in the Cap and Floor Regulatory Instructions and Guidance (Cap and Floor RIGs). Following this, we received a second cost update in December 2022 and a final update in March 2023. **NGNSL proposed upward adjustments to the preliminary cap and floor levels of £6.4m and £9.5m (in 2015/16 prices) respectively.** These upwards adjustments are based on the project's updated costs primarily for operating expenditure (opex) due to rises in insurance costs but also due to finalisation of replacement expenditure (repex) costs and an increase in the decommissioning scope.

Based on our assessment, we are minded to set the:

- combined capital expenditure (capex) and development expenditure (devex) value at £510.5m, a decrease of £3.3m from NGNSL's PCR submission; and
- the opex value at £741.5m, a reduction of £3.7m from NGNSL's PCR submission.

We are minded to determine that the proposed PCA values submitted by NGNSL **should be adjusted downward by £3.1m and £1.2m and determined as £3.3m and £8.3m.**

Our minded-to PCA values, after the downward adjustment, generate a **final cap level of £93.1m and a final floor level of £59.2m in 2015/16 prices.**

Next Steps

Following the close of the respective consultations and subject to our consideration of responses, we expect to make our final decisions on each of the elements outlined above by:

- issuing a direction under Special Condition 8 on NGNSL's licence, specifying the determined PCA values and confirming the final cap and floor levels for the project; and
- issuing licence modification notices under section 11A of the Electricity Act 1989 to modify the special conditions in NGNSL's licence.

Subject to consideration of responses**, we anticipate making these decisions in September 2023.**

1. Introduction

NSL project overview

1.1. The NSL project is a 720 km, 1.4 GW electricity interconnector between GB and Norway. At the GB side the cable landfall is at Cambois, followed by 1.9 km of onshore cable to Blyth converter station. This is followed by approximately 0.4 km of double circuit AC cable to the adjacent Blyth substation. The Norwegian end of the HVDC cable lands at Kvilldalsvika, followed by 1.7 km of onshore HVDC cable which crosses the Suldal Lake to a converter and substation in Kvilldal.

1.2. NSL is shown alongside other operational and proposed interconnector projects in **Figure 1** below.

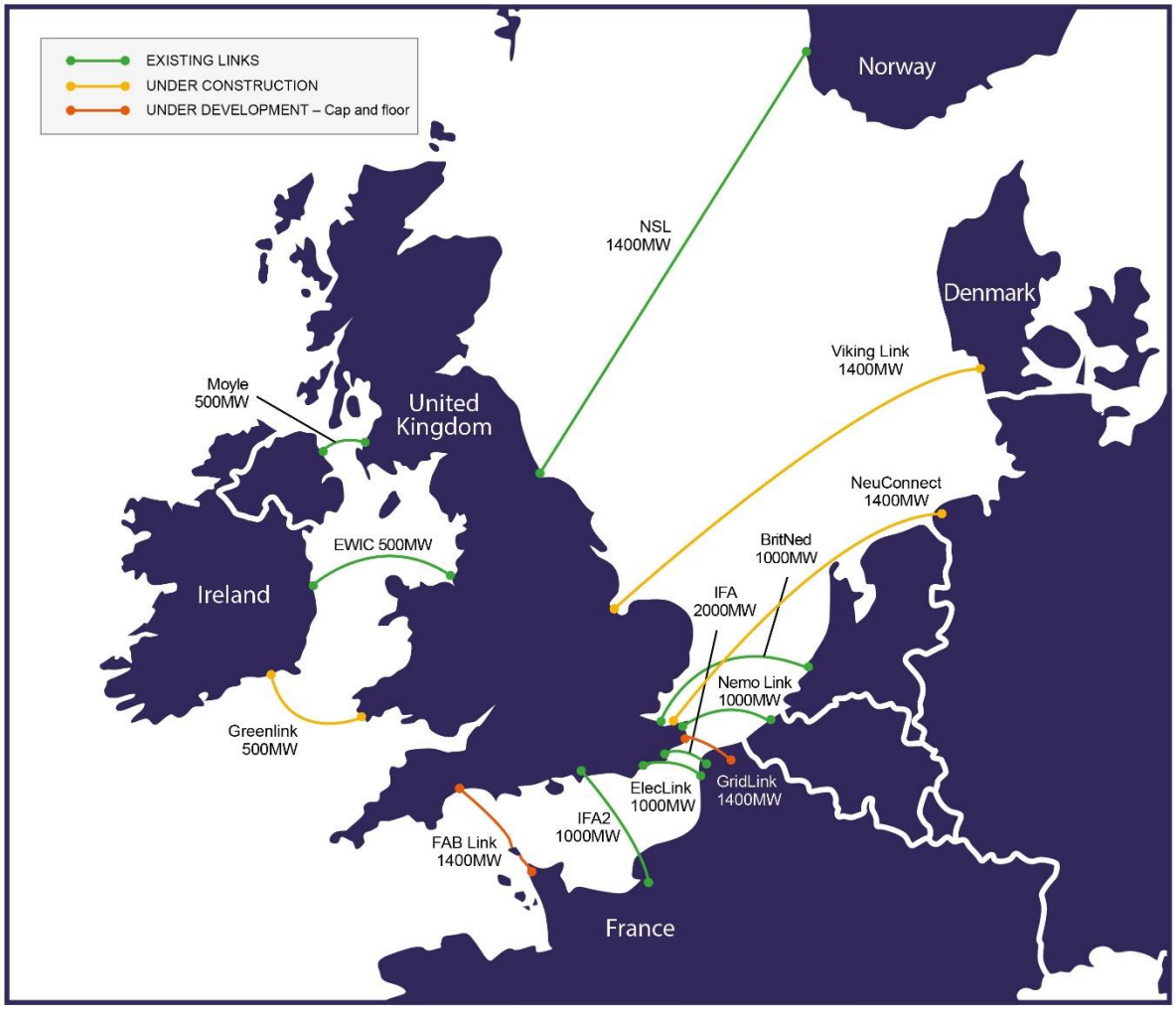

Figure 1: Map of existing and proposed GB electricity interconnectors

1.3. The NSL interconnector started operating commercially on 1 October 2021 and is the third operational project to be regulated under our cap and floor regime, after Nemo Link and IFA2.

1.4. The NSL project is being jointly developed by National Grid Interconnector Holdings (NGIH) and Statnett, the Norwegian TSO. Our cap and floor regime applies to National Grid's 50% share in the NSL project. Statnett's share in the project is regulated by the Norwegian regulator, NVE.

Our cap and floor regime

1.5. The cap and floor regime is the regulated route for interconnector development in GB. It sets a minimum and maximum return that interconnector developers can earn. We developed the cap and floor regulatory model for Nemo Link jointly with the Belgian regulator, CREG. We then extended the cap and floor regime to other interconnectors in August 2014.[2]

1.6. There are three main stages to our cap and floor regime – the Initial and Final Project Assessments (IPA and FPA), followed by the Post Construction Review (PCR). These main stages are supported by annual reporting, which takes place between the FPA and PCR stages. At the FPA stage we confirm the grant of a cap and floor regime and set the provisional cap and floor levels. These levels are then confirmed at the PCR stage. This is shown in **Figure 2** below.

[2] 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.

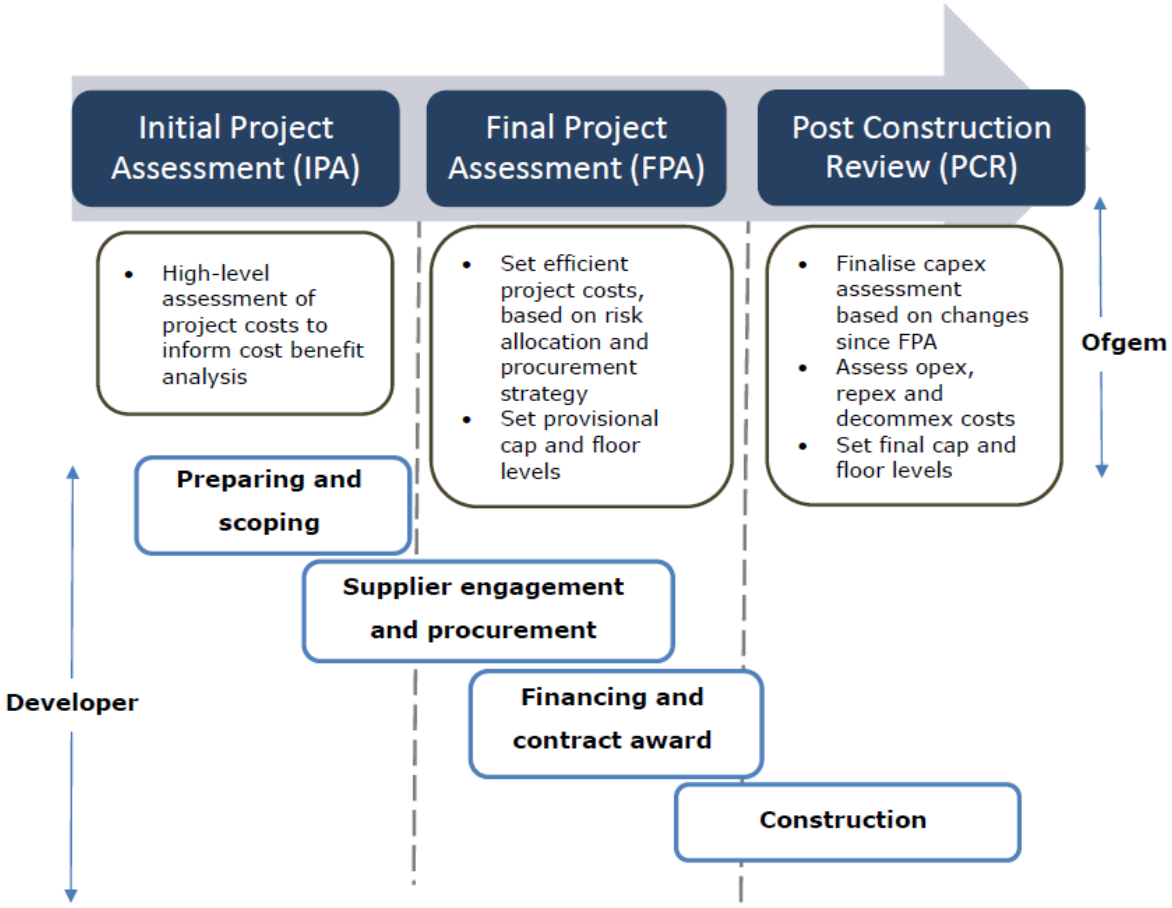

Figure 2: Cap and floor assessment framework

- The **Initial Project Assessment (IPA)** stage is when we assess the needs case for new interconnector projects. This is predominately an economic assessment, taking into account the total costs and benefits of new interconnectors and assessing the likely impacts on consumers.
- At the **Final Project Assessment (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 and risk allowances. We also set the project's financial parameters, assess the technical design of the project, develop a project-specific cap and floor financial model (CFFM), and set the values for incentives.
- The cap and floor levels are then confirmed at the **Post Construction Review (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. We conduct a review of the final capital costs

(capex) and consider the efficiency of the interconnector's operational costs (opex). We also re-examine any information or aspects of the initial submission that have changed significantly.

1.7. We assessed the needs case for the NSL project at the IPA stage and decided in March 2015 to grant the project a cap and floor regime in principle.[3] This was based on our assessment that the project is likely to significantly benefit GB consumers and GB as a whole.

1.8. In July 2018, we made licence changes to give practical effect to NGNSL's Final Project Assessment Decision.[4] The licence specified preliminary cap and floor levels of £89.85m and £50.90m (in 2015/16 prices). The licence provides for the final cap and floor levels for NGNSL to be set following our determination of the Post Construction Adjustment (PCA) terms at the PCR stage.[5]

1.9. The determined PCA terms adjust the preliminary cap and floor levels (whether upwards or downwards) to account for the difference between:

(a) our estimate, assumed in the preliminary cap and floor levels for NGNSL, of the costs associated with developing, constructing, operating, maintaining, and decommissioning NGNSL; and

(b) our assessment of these costs at the PCR stage (when the majority of the development and construction costs have been incurred).

1.10. The determined PCA values are used to calculate the final cap and floor levels for NGNSL. The final cap and floor levels then remain fixed for the duration of NGNSL's cap and floor regime.[6]

1.11. In December 2021, we received NGNSL's initial PCR submission (the PCR submission) which included NGNSL initial proposed values for the PCA terms with an update being provided in March 2023 with the proposed final values. Section 2 below sets out details of our assessment of the PCR submission together with our minded-to position on the proposed values for the PCA terms.

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[3] Decision on the initial project Assessment of the NSN interconnector to Norway
[4] Decision on changes to the electricity interconnector licence held by National Grid North Sea Link Limited
[5] Relevant provisions are included in Special Condition 8: Process for determining the value of the Post Construction Adjustment terms and Special Condition 2: Cap Level and Floor Level. The PCA terms consist of two terms – the Post Construction Adjustment At Cap term (PCAC) and the Post Construction Adjustment At Floor term (PCAF).
[6] The regime allows for a discretionary revision of the final cap and floor levels after no less than 10 years from the start of the regime to re-assess and benchmark the opex forecast submitted at the PCR stage and, if required, for multiple revisions to re-assess the decommissioning costs forecast submitted at the PCR stage.

What are we consulting on?

1.12. We are consulting on our minded-to position on the PCR of the NSL interconnector project. In particular, we are seeking views on our minded-to position on the proposed values for the PCA terms.

1.13. Alongside our consultation on the NSL PCR, we are also:

(a) conducting a statutory consultation on:

- consequential changes to the special conditions of NGNSL's licence to reflect changes to governance arrangements for the CFFM, and
- consequential changes to update outdated definitions in the special conditions of NGNSL's licence.

The proposed licence changes are described in Appendix 4 and shown in tracked text in Schedule 4A. The reasons and effects of the proposed licence changes are set out in Schedule 4B.

(b) seeking views on the NSL Cap and Floor Financial Models (NSLCFFM1 and NSLCFFM2) and associated handbooks, published alongside this consultation document in Appendices 5 and 6.

Context and related publications

1.14. The remainder of this document is structured as follows:

Section 2: Our Post Construction Review (PCR) cost assessment

1.15. This section provides:

- a summary of NSL's previous cost submissions;
- a summary of NSL's annual reporting under the Cap and Floor RIGs;
- a description of the PCR cost assessment and process and its scope; and
- a summary of our PCR cost assessment of NGNSL and our proposed cap and floor levels.

Section 3: Proposed licence modifications and view on NGNSL's financial parameters

1.16. This section sets out our:

- proposed modifications to the special conditions in NSL's electricity interconnector licence to reflect a change in governance arrangements relating to the CFFMs and

update outdated defined terms, as described in Appendix 4 published alongside this document;

- proposed modifications to the special conditions in NGNSL's electricity interconnector licence to update definitions, and
- view on the applicable Corporation Tax rate.

Related publications

Decision on the Initial Project Assessment of the NSN interconnector to Norway | Ofgem
Published: March 2015

Decision on the Final Project Assessment of the NSL interconnector to Norway

Published: July 2017

Cap and Floor Regime Handbook

Published: September 2021

Decision on the Post Construction Review of the IFA2 Interconnector to France

Published: August 2022

Statutory consultation: Decision on changes to the electricity interconnector licence held by National Grid IFA2 Limited (NGIFA2)

Published: June 2020

Post Construction Review of the Nemo Link interconnector to Belgium

Published: September 2019

Consultation stages

1.17. Our consultation on NGNSL's PCR and the other elements outlined above will close on 07 August 2023. Following the close of this consultation and subject to consideration of responses, we expect to make our final decisions on each of the elements as follows:

- Determination of the PCA values for NGNSL – by issuing a direction pursuant to paragraph 15 of special condition 8 on NGNSL's licence, specifying the determined PCA values;
- Modification to the NGNSL special conditions – by issuing licence modification notices under section 11A of the Electricity Act 1989.

1.18. We anticipate making these decisions in September 2023.

Figure 3: Consultation stages

Stage 1	**Stage 2**	**Stage 3**	**Stage 4**
Consultation open	Consultation closes (awaiting decision). Deadline for responses	Responses reviewed and published	Consultation decision/policy statement
07/07/2023	07/08/2023	September 2023	

How to respond

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

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

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

Your response, data and confidentiality

1.22. You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give

us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

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

1.24. If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 2.

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

General feedback

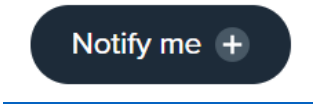
1.26. We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

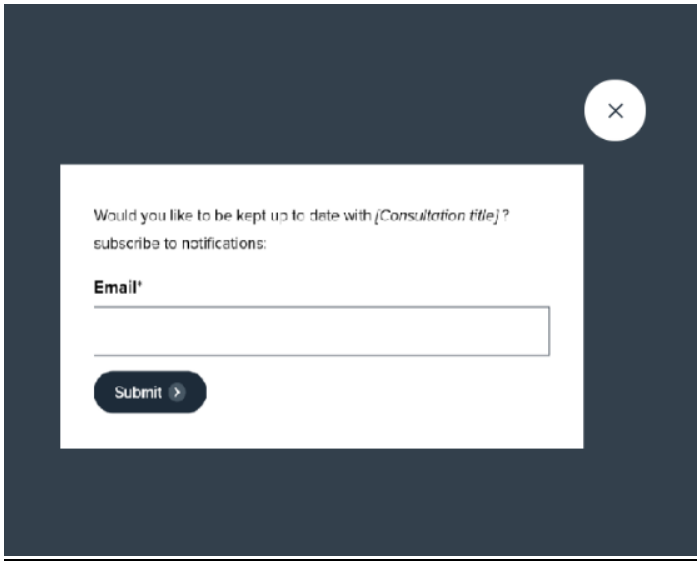
1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6.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

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

How to track the progress of the consultation

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





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

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

2. Our Post Construction Review (PCR) cost assessment

Section summary

This section provides an overview of the PCR cost assessment that we have undertaken, detailing our minded-to position on the project's costs.

Question 1: Do you agree with our proposed cost allowances?

Previous cost assessments In 2016, NGNSL submitted provisional costs in order for us to set the preliminary cap and floor levels at the start of the project's construction. We conducted a cost assessment and set the preliminary values in our FPA decision, published in July 2017.[7] **All costs discussed in this section are reported in real 2015/16 prices.** Costs submitted and the cap and floor levels are set in pound sterling (GBP).

2.2 Our 2016 assessment involved a detailed review of all aspects of the submitted costs, with a particular focus on the capital costs related to the construction of the project. We set out our view of the efficient costs for NSL, resulting in total provisional project costs (construction and operating costs) being set at **£976.2m** compared to the submitted cost of **£1113.2m**. This was used to define the preliminary cap and floor levels, which were set, respectively, at £89.85m and £50.90m per year.

Annual reporting

2.3 Following changes to NSL's licence in July 2018[8] and prior to the PCR, NGNSL was required to submit annual reports during the construction phase, via their Cap and Floor Regulatory Instructions and Guidance (RIGs) submissions. These submissions included updates on construction progress, cost variations from those set in the FPA decision, and any other relevant information.

2.4 The Cap and Floor RIGs is the primary means by which we ensure that interconnector licensees collect and provide the information we require to monitor their performance during construction. There is no obligation for us to adjust the

[7] Decision on the Final Project Assessment of the NSL interconnector to Norway | Ofgem
[8] Decision on changes to the electricity interconnector licence held by National Grid North Sea Link Limited | Ofgem

cost allowances or cap and floor levels as a result of the RIGs, but the process is valuable for us when it comes to our assessment at the PCR.

2.5 NSL made six RIGs submissions. The RIGs submissions consist of a narrative update of the main elements of the project, the status of construction and of the latest capex costs, and detailed explanations of specific line items where there has been a change in cost.

2.6 In addition to the narrative, each submission includes an updated version of the project's cost assessment template, breaking down the project costs into all major components and highlighting where costs have deviated from previous submissions. Our review takes into account the submission materials along with any additional evidence we might require.

Description of the PCR process

2.7 The PCR is the process for determining the values of the Post Construction Adjustment at the Cap (PCAC) and at Floor (PCAF) terms as set out in special condition 8 of NGNSL's licence.

2.8 The PCR process is initiated by the licensee, who submits a request for the proposed value for the PCA terms with supporting cost information when between 85% and 95% of the development and capital expenditure, excluding interest during construction,[9] has been committed to the development and the construction of the interconnector. The PCR process may also be initiated earlier or later than this, after agreement in writing by the Authority.[10]

2.9 The values of the PCA terms for NGNSL are determined by the Authority (Ofgem). Once determined, they remain fixed from the date on which they take effect for the remainder of the Regime Duration.[11]

2.10 Special Condition 8 of the licence defines the PCA terms as the adjustment (whether upwards or downwards) of the cap level and the floor level proposed by the licensee as a consequence of the difference between:

(a) the Authority's estimate, assumed in the preliminary cap and floor level, of the costs associated with developing, constructing, operating, maintaining and decommissioning of the NSL interconnector; and

[9] Interest during construction (IDC) is a return that developers will earn on economically and efficiently incurred spend during the development and construction phases of the project.
[10] Special Condition 8, paragraph 5 of NGNSL's licence.
[11] Special Condition 2, paragraph 13(d) of NGNSL's licence.

(b) the Authority's assessment, at the PCR stage, of the economic and efficient costs associated with developing, constructing, operating, maintaining and decommissioning of the NSL interconnector.[12]

2.11 After confirmation of the receipt of all the necessary information to define the PCA terms, we have to determine whether we consider the proposed values to be acceptable, or to specify alternative values for these terms within 12 months.[13]

2.12 Once determined, we specify the values of the PCAC and PCAF terms in a direction. The determined PCAC and PCAF values take effect from the Regime Start Date of 1 January 2021.[14]

2.13 The PCAC and PCAF terms feed into the formula used to calculate the final cap and floor levels for NSL as described in special condition 2, paragraph 4 of NGNSL's licence.

Scope of the PCR for NSL

2.14 We assess construction costs which were submitted in nominal terms and forecasted costs during operations which were submitted in real terms (2020/2021 prices); both were denominated in pound sterling. All costs are converted to the same base year in order to set cap and floor levels in pound sterling and real terms (2015/16 prices). More detail on the approach used to carry out these conversions is provided in Appendix 1.

2.15 Since the cap and floor levels are largely based on NGNSL's costs, we assess these costs to ensure that consumers do not underwrite inefficient costs for the project. The key component that we assessed during this PCR was the final project costs.

2.16 At the FPA we reviewed the tender process, we assessed the level of competitiveness by considering the following aspects:

- The pricing differentials between the bidders;
- The effect of the proposed, and final, allocation of risks on the pricing; and
- The process and criteria in place to exclude tenderers.

2.17 The PCR capex review consisted of:

[12] Special Condition 8, paragraph 2 of NGNSL's licence.
[13] Special Condition 8, paragraph 12 of NGNSL's licence.
[14] Special Condition 8, paragraph 15 of NGNSL's licence.

- reviewing our minded to positions on the cost variations that we considered during the previous RIGs;
- reviewing the cost variations that occurred during the final year of construction; and
- reviewing any remaining risk costs included within the PCR submission.

2.18 The PCR operational costs review covered the following key elements:

- Opex costs (costs associated with managing, operating and maintaining the interconnector, including resources and expenses, business services, trading systems and agreements, planned and unplanned maintenance, business rates and insurance);
- Repex costs (costs associated with the replacement of assets to ensure continued functionality of the interconnector over the 25-year period); and
- Decommissioning allowance (funds set aside for decommissioning the interconnector's assets at the end of its operational life).

2.19 In accordance with our FPA decision and NGNSL's licence, we have not assessed market related costs[15] at this stage. Market related costs are treated as partial pass-through costs and, as such, these costs will be netted off NGNSL's gross congestion revenues on an annual basis. Net congestion revenues will then be assessed against the cap and floor levels every five years. Where net congestion revenue is between the cap and floor levels, market related costs are borne by NGNSL. If, however, net congestion revenues are below the floor, then NGNSL would be eligible for a floor payment.

2.20 We set an allowance of £6.5m for decommissioning costs[16] as part of our FPA decision. NGNSL's licence provides for adjustments to the cap and floor levels (whether upwards or downwards) in the event that a change in legislative requirements results in additional or reduced decommissioning costs agreed by the Authority. This is to reflect the fact that legislative requirements relating to decommissioning could change before the end of NGNSL's cap and floor regime and could lead to additional or reduced decommissioning costs which NGNSL would not have foreseen.

[15] Market related costs include firmness costs (the cost of compensating parties who have purchased interconnector capacity that cannot be provided), error accounting costs and trip contract costs.
[16] Decommissioning costs are those relating to sufficiently removing (or taking other relevant actions in relation to) assets at the end of the operational life.

Summary of our PCR cost assessment

2.21 NGNSL have proposed upward adjustments to the preliminary cap and floor levels of £6.4m and £9.5m (2015/16), respectively. This upward adjustment is based on updated costs, in particular for opex, repex and decommex.

2.22 After our cost assessment, we are minded to set the combined capex and devex value at £510.5m, a decrease of £3.3m from NGNSL's PCR submission.

2.23 We have also considered NGNSL's operational costs over its 25-year regulatory lifetime. We are minded to set the operational cost value at £741.5m, a reduction of £3.7m from NGNSL's PCR submission.

2.24 Our initial view at this stage suggests that the PCA values submitted by NGNSL should be adjusted downward by £3.1m and £1.2m respectively.

2.25 **Table 1** below shows a summary of these costs:

Table 1 - Summary of GB share of project costs[17](£m, 2015/16 prices)

Item		NSL FPA submission	Ofgem FPA position	NSL PCR submission	Our provisional PCR position
Devex		12.6	12.6	11.6	11.6
Capex	Firm & Provisional costs	581.0	501.0	502.1[18]	498.9
	Risks	116.0	59.0	0	0
Opex[19]		382.1	382.1	663.0	661.4
Repex		15	15.0	57.8	55.8
Decommex		6.5	6.5	24.3	24.3
Total		**1113.2**	**976.2**	**1258.8**	**1252.0**

2.26 **Table 2** below sets out the preliminary cap and floor levels, the adjustments to these levels proposed by NGNSL, our provisional determination of these

[17] For all tables in this document, due to rounding the figures in the table may not add up precisely to the totals indicated.
[18] The submitted value includes all incurred capex costs, inclusive of disallowances at FPA.
[19] Includes market related costs.

adjustments and the corresponding impacts on the final cap and floor levels. Our cost analysis is presented in more detail in the following sections.

Table 2 - Summary of proposed cap and floor levels (£m, 2015/16 prices)

	Cap	Floor
NGNSL's preliminary cap and floor levels	89.8	50.9
NGNSL's proposed PCA values	+6.4	+9.5
Final cap and floor levels using NGNSL's proposed PCA values	96.2	60.4
Our provisional determination of the PCA values	+3.3	+8.3
Final cap and floor levels using our provisionally determined PCA value	**93.1**	**59.2**

Tender process

2.27 At the FPA stage, we reviewed the tender process, the findings below were confirmed during this review and a summary is provided below:

2.28 In order to secure the most efficient EPC contracts, the developer engaged with the market by running a tender process with three different lot options:

- Lot 1: Fjord section - Submarine cable and tunnel / Lake underground cabling
- Lot 2: Mid-Section – Submarine Cable
- Lot 3: UK Section- Underground and Submarine cabling resulting in overall cable length of 212.5km

2.29 In addition to the three cable lots, it was decided to directly award the contract for the converter station.

2.30 These tender processes were run in line with relevant EU legislation and were published on the OJEU.[20]

[20] OJEU stands for the Official Journal of the European Union. This is the publication in which all public sector tenders above a certain financial threshold (as specified in EU legislation) must be advertised.

2.31 ABB won the tender for the converter stations and were awarded the lump-sum contract to supply and construct them. Prysmian won the EPC lump sum contract to supply and install the land and submarine cables for the Mid-section (Lot 2) and the UK section (Lot 3) whilst Nexans won the cabling contract for the Fjord Section (Lot 1). All contractors won the tenders on a combination of commercial and technical grounds.

2.32 We determined at the FPA stage that the tender process was run competitively. In addition, since the developer adopted a procurement process in line with EU legislation, we were satisfied that NGNSL managed and delivered the tender processes in a transparent and efficient manner.

Proposed final capex costs

2.33 The value of the capital expenditure (capex) submitted by NGNSL at the FPA stage was £560.0m (including risks) whereas the submitted PCR value was £502.1m, a decrease of £57.9m. We are minded to make reductions totalling £3.25m to this PCR value, detailed in **Table 3** below.

Table 3 - Proposed capex cost adjustments (£m, 2015/16 prices)

Cost	Reasons for adjustment	PCR submitted cost	Proposed adjustment	Minded-to adjusted cost
Converter Station – Snow Guard	Changes in design post construction to the Kvilldal converter station arose due to an existing design flaw which had allowed water ingress at a building of the same design	£0.19	-£0.19	£0
Delay in Start Up (DSU) insurance	Does not provide benefit for the consumer	£3.06	-£3.06	£0

2.34 The details of our intended adjustments are as follows:

Converter Station – Snow Guard

2.35 The Kvilldal converter station is located in an area susceptible to large volumes of snow and ice and as such the converter station was designed to withstand these conditions by adhering to the minimum specifications that were set out within the contract. During a period of particularly bad weather, a converter station for

Nordlink (also owned by Statnet) which was of a similar design suffered damage as a result of accumulated ice and snow, this damage allowed water/snow ingress into the building. As a result of this, a review of buildings of this design was carried out and it was determined that the Kvilldal converter station would require modifications to prevent this issue from occurring.

2.36 As the converter station had been built to required specifications as set out in the contract and the changes to the building were required as the result of a design flaw, we are minded to disallow this cost.

Delay in Start Up (DSU) Insurance

2.37 NGNSL procured DSU insurance for the project with a value of £3.06m. As previously stated in our PCR decisions[21] for both Nemo Link and IFA2, whilst this type of insurance may be beneficial to the developer, we do not consider it to provide any tangible benefit to the consumer. We therefore are minded to disallow this cost, which is consistent with our treatment of such costs in the FPAs and PCRs of previous interconnector projects.

2.38 In addition to the above adjustments, a number of notable events occurred during the project's construction period, the cost of which we have determined to be economic and efficient. We therefore propose to allow these costs for inclusion in the final cap and floor levels. An overview of these is provided below:

Subsea Cable Trenching

2.39 NSL conducted two different surveys of their cable route prior to the start of the cable installation campaign, these surveys consisted of both bathymetric and visual surveys and allowed NGNSL to have a detailed plan on the trenching approach to each section of cable burial.

2.40 The surveys highlighted areas of hard ground conditions which necessitated the use of a mechanical trencher as well as softer areas of seabed which would be trenched using a water jet trencher. While undertaking trenching using the water jet method, sections of seabed were found to be harder than had previously been assumed. This meant that the jet trencher had to undertake a second pass at a slower speed in an attempt to create a trench to allow cable burial at the desired

[21] Decision on the Post Construction Review of the Nemo Link interconnector to Belgium and Decision on the Post Construction Review of the IFA2 interconnector to France

depth. Where achieving the required burial depth was not possible, the cables received rock protection to guard against any potential hazards to the cable.

2.41 We are satisfied that the appropriate surveys were carried out to industry standard and that the unforeseen ground conditions were unavoidable. Where these were encountered, NSL implemented appropriate mitigation measures. Additionally, lessons learned from this burial campaign resulted in a change of trenching equipment for future campaigns which further mitigated unforeseen ground condition issues for the project. As a result of this, we consider these costs to have been acceptable and are therefore minded to allow the associated costs.

Civil works contractor settlement

2.42 A civil works contractor was appointed by NSL to carry out civil works within the Kvildal converter site as well as tunnelling on the cable route. We note that there was some disagreement between NGNSL and the contractor concerning responsibility for certain costs.

2.43 We also note that while NGNSL found that some of the costs in question were unavoidable and economically and efficiently incurred, NGNSL did not agree with the civil works contractor on other cost items.

2.44 We further note that NGNSL and the civil works contractor entered into arbitration proceedings with respect to the above costs. This arbitration ended in a settlement.

2.45 We consider NGNSL to have demonstrated that it adequately challenged the costs where necessary. We are therefore minded to accept the value of the contractor settlement.

Proposed final operational costs

2.46 Excluding Market Related Costs (which do not directly affect the cap and floor levels) NGNSL submitted projected operational costs of £616.8m in total for the 25-year cap and floor regulatory term as part of the PCR submission.[22] We have reviewed the submission and are minded to make cost reductions equating to £3.7m.

[22] In its PCR submission, NGNSL submitted a projected total opex of £663.0m of which 46.2m were indicative market related costs.

2.47 The main components of the operational costs are provided in **Table 4** below.

Table 4 - Overview of proposed operational cost adjustments, 2015/16 prices

Category	Description	PCR submitted cost (£m)	Proposed adjustment (£m)	Indicative adjusted cost (£m)
Controllable opex [23]	All the main operating costs	590.4	-1.6	588.7
Non-controllable opex	Costs relating to leases and statutory fees	26.4	0	26.4
Repex	Costs for periodic asset replacement	57.8	-2.0	55.8
Decommissioning	Funds provisioned for decommissioning costs	24.3	0	24.3
Total		**698.8**	**-3.7**	**695.1**

2.48 The details of our intended adjustments are as follows:

Marketing and Website Costs

2.49 NGNSL submitted marketing related costs as part of their operational costs, these cover marketing specifically for NSL as well as shared marketing costs which cover the NGV portfolio of interconnectors. The total value for these costs equate to £1.3m over the 25-year regime period.

2.50 While assessing the costs for the marketing activities, we have provisionally determined that the shared NGV portfolio marketing approach would be the most economic method of marketing the NSL interconnector and that costs relating to this shared portion of the marketing costs should suffice. We are therefore minded to disallow the costs related to NSL-specific marketing costs. This resulted in a reduction of approximately £0.4m.

[23] Market related costs are not included within these values

Other Costs

2.51 In addition to the deductions listed above, we have proposed a further disallowance of £1.2m from the controllable opex cost category. Due to the sensitive and confidential nature of these costs, we have not published further details concerning these costs in this consultation. However, we have shared further details of our proposed disallowances with NGNSL directly on a bilateral basis in the form of a confidential Appendix 3.

Repex

2.52 At the PCR stage, the submitted project cost for repex was £57.8m over the 25-year regime period. This is a significant increase from our 2018 FPA decision, which set the allowance at £15.0m based on NGNSL's 2018 submission.

2.53 As part of the submission NGNSL provided supplier estimates that covered each of the assets requiring repex over the duration of the project's operational life. The estimates set out the projected lifespan of each asset, the number of replacements required during the 25-year regime and an associated cost for these replacements.

2.54 The costs for each category were either supported by a detailed cost breakdown outlining how the total was arrived at or took the form of a potential price range of the costs, in which the mid-point of this range was used as part of the PCR. We have assessed these estimates and sought further clarification from NGNSL's on its approach to replacements and specific repex costs. This was to assess NGNSL's efficiency of approach and to determine whether the costs are appropriate for the work involved.

2.55 As part of this process, it was highlighted that aspects of the Control & Protection costs were above what we considered to be economic values, and in addition to this, there were areas where potential efficiency savings could be made with co-ordination of work between converter stations.

2.56 As a result of this, we are minded to allow the bottom of the range of the Control and Protection costs, which is a decrease of £2.0m from the submitted cost for this category. The remaining constituent components of the repex costs were assessed and found to be economic and efficient.

2.57 As stated in our FPA decision, repex is treated as a standalone operational RAV addition (rather than being part of opex), meaning there is no provision for adjustments to our repex allowance following our PCR decision.

Updates from our 2017 FPA decision

2.58 The FPA value for Opex was unchanged from the NSL IPA submission. We note that since then, there was a notable increase in the opex (from the high-level provisional value of £382.1m at the IPA stage to £507.9m between FPA and PCR). The increase was largely due to the costs becoming firmer since the IPA period.

2.59 In NSLs PCR submission, we note that there was a sharp increase in the insurance costs which further increased the Opex costs. NSL justification for this increase was that it was reflective of a considerable hardening of the insurance market for Interconnectors, partly as a result of multiple cable incidents involving interconnectors but also due to multiple insurers leaving the market entirely.

2.60 These factors increased the insurance costs across the offshore insurance sector, with interconnectors particularly impacted. NSL also engaged consultants to provide a report supporting this view We accept the justification provided for the increase in insurance costs. In addition to the rise in insurance costs, there were also additional costs included within the PCR of a confidential nature which had not been included in past RIGs submissions.

2.61 At FPA the DEVEX profile was treated as being in 2013/14 prices. NSL have confirmed that at PCR the DEVEX profile was in nominal terms and should be treated as such. We have used the updated profile to inform our PCR decision.

2.62 Our FPA decision commented on a number of issues which were to be reviewed at the PCR stage. These costs have been included in our previous totals within this document. At this stage of our review, the outcome for each is as follows:

- **Exercised Options** – since the FPA, there have been four contractual options that have been exercised which relate to subsea cable installation, protection and commissioning and underground preparation works. For the Subsea Cables Option 10.15 was for "Provision of protection sleeves for crossings" costs, Option 10.5 for the "Offshore erection of transition joints on third party vessel" and Option 10.20 for the "After installation test of the complete cable system". Option 10.2 was exercised which related to "Underground site preparation works for the thermal weak mix for tunnel". We reviewed these costs and the circumstances around how the costs were incurred and have determined that the approach taken by the NGNSL to procure the options was economic and efficient.

- **Risk related expenditure** – In subsequent updates to the initial PCR submission, the value of the risk budget has been reduced to zero. The risk budget submitted at FPA totalled £117.0m of which an allowance of £59.0m was provided. The risk allocation decreased steadily from the value submitted by NGNSL at the FPA stage and saw a 65% reduction between the 2020 and 2021 RIGs due to a number of risks being retired or moved into capex. The risk budget continued to decline rapidly with only £1.9m being included in the initial PCR submission for 6 remaining risks, covering issues such as contract closure and delays to trial operations. The risk budget reduced to zero by the submission of the December 2022 PCR update.
- **Decommissioning** - as part of the FPA assessment, the allowance for decommissioning had a provisional placeholder value of £6.5m, which has remained unchanged since the IPA. The value used at this stage was an early estimate and a more accurately costed value was to be submitted at the PCR for assessment.
    - Since the IPA was submitted, the treatment of subsea cables has been clarified by the Crown Estate who clarified that cable removal is required to be carried out unless the benefits of leaving the cable in situ can be demonstrated as having a smaller environmental impact to the seabed and its ecosystem.
    - Therefore, at submission of the PCR, a more detailed cost for the decommissioning of both onshore and offshore assets was provided, with a value of £24.3m, a rise of £17.8m, to capture the detailed costs associated with subsea cable removal.
    - Following our review of the submitted costs and the associated work involved, we have found the total value associated with the project's decommissioning costs to be acceptable.

3 Proposed licence modifications and view on NGNSL's financial parameters

Section summary

This section presents our proposed changes to the special licence conditions in NGNSL's licence to reflect governance changes made to the Cap and Floor Financial Model (CFFM) and to update existing defined terms.

We also set out our view on the applicable Corporation Tax rate.

Question 1: Do you agree with our proposed modifications to the special conditions in NGNSL's interconnector licence?

Consequential changes to NGNSL's special licence conditions

3.1 We propose to make the following changes to the special condition in NGNSL's electricity interconnector licence to:

Reflect changes in governance CFFM arrangements

3.2 In 2019, we split the Cap and Floor Financial Model (CFFM) into two separate models: Cap and Floor Financial Model 1 (CFFM1) and Cap and Floor Financial Model 2 (CFFM2). In the context of the NSL project:

- NSLCFFM1 – to be used to determine the final cap and floor levels at PCR stage, following the final assessment of costs for developing, building, maintaining, operating and decommissioning the interconnector project; and
- NSLCFFM2 – to be used during the operational period to adjust cap and floor levels (where required following revision of the baseline allowance for controllable operating costs or decommissioning costs) and inflate cap and floor levels annually; reflect performance relative to NGNSL's availability targets; assess, at the end of each default 5-year assessment period, actual revenue earned by NGNSL's against the adjusted cap and floor levels, and actual non-controllable operating costs against the baseline level, to determine whether NGNSL's revenues should be 'topped up' to the floor level or whether excess revenue (above the cap level) should be returned to consumers.
- The NSLCFFM1 and associated handbook can be found in Appendix 5. The NSLCFFM1 is fully populated with the actual inputs used to determine NGNSL's cap and floor levels, as presented in this consultation.

- The NSLCFFM2 and associated handbook can be found in Appendix 6. The NSLCFFM2 is partially populated with actual inputs from raw data and that derived within NSLCFFM1.

Update outdated definitions

3.3 We propose to update the definition for "Floor Start Date" to reflect the date specified in a direction issued by the Authority to the licensee in accordance with paragraph 11(b) of Special Condition 2: Cap Level and Floor Level.

3.4 We also proposed to delete redundant text from the definition of 'Regime Start Date'.

3.5 As a result of the changes described above, we propose to modify the special licence conditions of NGNSL's licence in the manner described to reflect these changes in governance arrangements and to update outdated defined terms. Further details on the proposed modifications, including the reasons and effect of the proposed changes, can be found in Appendix 4.

Corporation tax

3.6 Our default regime allows for Corporation Tax (CT) rate to be set at FID taking into account any public statements, at that time, about any future movements of CT rate. This is in line with the CT rate specified in the NGNSL FPA decision and the information provided in our Interconnector Cap and Regime Handbook.[24]

3.7 For NGNSL we have applied a CT rate of 20% within the CFFM models. This rate is consistent with the above approach of setting the CT rate at the time of FID.

[24] Interconnector Cap and Floor Regime Handbook (ofgem.gov.uk)

Appendices

Index

Documents published alongside this consultation

Document	Description
Appendix 4	Notice of statutory consultation on proposed modifications to the special conditions of the electricity interconnector licence held by NGNSL **Schedule 4A** - Proposed modifications to the special conditions of the electricity interconnector licence held by NGNSL **Schedule 4B** - Reasons and effects of proposed modifications to the special conditions of the electricity interconnector licence held by NGNSL
Appendix 5	NSLCFFM1 **Schedule 5A** - Cap and Floor Financial Model 1 Handbook (NSLCFFM1H)
Appendix 6	NSLCFFM2 **Schedule 6A** – Cap and Floor Financial Model 2 Handbook (NSLCFFM2H)

Appendix 1 – Technical Summary

1. This appendix outlines our approach to determining the value of the inflation indices and used within our assessment of project costs submitted by NGNSL at the PCR stage.

2. At this stage, we have reviewed all submitted costs during construction and forecasted costs during operation to assess whether these have been (or would be, in the case of future costs) economically and efficiently incurred. Under our cap and floor regime, these costs play a key role in the building blocks approach that we use to determine the cap and floor levels for an interconnector project.

3. Depending on the nature of the costs, i.e., construction costs already incurred or forecasted operational costs, the costs submitted at this stage are denominated in pound sterling (GBP) and expressed in either real or nominal terms for the year in which those costs have been incurred (or are expected to be incurred).

4. The cap and floor levels for the NGNSL project have to be denominated in pound sterling (GBP) and in real 2015/16 prices;[25] therefore, we had to convert both construction and operational costs into 2015/16 prices.

Costs during development and construction

5. NGNSL's cost submission for PCR includes costs incurred during the development phase i.e., between 2010 and 2015 and during the construction period of the project, i.e. between 2015 and 2022.[26] These costs are expressed in GBP and in nominal terms. Hence, they had to be converted as described above.

6. For those costs incurred during the above periods, historical 12-month averages of inflation indices (UK RPI) were used to achieve the conversion described above, as monthly figures were available for each month during the 2010-2022 period and historical 12-month averages could be calculated for each parameter in each year based on those figures.

[25] As per our 2018 decision on changes to NGNSL's licence to implement its cap and floor regime. https://www.ofgem.gov.uk/publications/decision-final-project-assessment-nsl-interconnector-norway

[26] These include development expenditure (devex), capital expenditure (capex) and cost of spares.

Costs during operations

7. In NGNSL's PCR submission, costs during operations are expressed in GBP in real terms (2020/21) will be incurred during the 25-years of the regime, between 2022-2045.

8. An indexation factor has been applied to the costs during operations to convert them from real 2020/21 prices to real 2015/16 prices. The indexation factor is calculated as UK RPI value for the 2020/21 financial year divided by the UK RPI value for the 2015/16 financial year.

Appendix 2 - Privacy notice on consultations

Personal data

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

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

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

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

2. Why we are collecting your personal data

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

3. Our legal basis for processing your personal data

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

4. With whom we will be sharing your personal data

Personal date will not be shared with organisations outside of Ofgem

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

Your personal data will be held for between 3-5 years.

6. Your rights

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

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data

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

7. Your personal data will not be sent overseas

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

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

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

Appendix 3 – Confidential

NOTE: The contents of this appendix have not been published due to it containing information that is of a confidential and sensitive nature. The contents have however been shared with NGNSL for consultation directly on a confidential bilateral basis.