

# Consultation

## Shetland transmission project: Consultation on Final Needs Case and Delivery Model

**Publication date:** 19/03/2019

**Contact:** James Norman, Head of New Transmission Investment

**Team:** New Transmission Investment, Systems and Networks

**Response deadline:** 31/05/2019

**Tel:** 020 7901 7420

**Email:** NTIMailbox@ofgem.gov.uk

We are consulting on 19/03/2019. We would like views from people with an interest by 31/05/2019. We particularly welcome responses from generators and local stakeholders on Shetland. We would also welcome responses from other stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at [Ofgem.gov.uk/consultations](http://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.

© Crown copyright 2019

The text of this document may be reproduced (excluding logos) under and in accordance with the terms of the [Open Government Licence](#).

Without prejudice to the generality of the terms of the Open Government Licence the material that is reproduced must be acknowledged as Crown copyright and the document title of this document must be specified in that acknowledgement.

Any enquiries related to the text of this publication should be sent to Ofgem at: 10 South Colonnade, Canary Wharf, London, E14 4PU. Alternatively, please call Ofgem on 0207 901 7000.

This publication is available at [www.ofgem.gov.uk](http://www.ofgem.gov.uk). Any enquiries regarding the use and re-use of this information resource should be sent to: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk)

## Contents

<b>Executive summary .....</b>	<b>4</b>
Needs case for the Shetland transmission project.....	4
Assessment of potential delivery models for the Shetland transmission project .....	5
Next steps .....	5
<b>1. Introduction.....</b>	<b>6</b>
What are we consulting on? .....	6
Scope of this document .....	6
Context .....	7
Final Needs Case.....	7
Competition in onshore transmission .....	9
How to respond.....	10
Your response, data and confidentiality .....	10
General feedback .....	11
How to track the progress of the consultation .....	11
<b>2. Final Needs Case assessment.....</b>	<b>13</b>
Section summary .....	13
Introduction.....	13
Existing network on Shetland.....	14
Future Shetland generation scenarios used in SHE-T analysis .....	14
Concluding observations – Future generation on Shetland.....	16
Options considered by SHE-T .....	17
Cost Benefit Analysis .....	17
Technical design and costs .....	20
Technical Design .....	20
Costs.....	20
Our view on the needs case, including proposed conditionality .....	21
<b>3. Delivery Model .....</b>	<b>22</b>
Section summary .....	22
Assessment of the Shetland project against the competition criteria .....	22
Overview of the criteria .....	22
Criteria assessment .....	23
Delivery models for the Shetland transmission project .....	24
Potential application of the CPM to delivery of the Shetland transmission project .....	24
<b>4. Next Steps.....</b>	<b>30</b>
Section summary .....	30
<b>Appendices.....</b>	<b>31</b>

## Executive summary

In September 2018 Scottish Hydro Electric Transmission<sup>1</sup> (SHE-T) submitted a Final Needs Case to Ofgem for its proposed Shetland project – a 600MW electricity transmission project to connect the Shetland Isles to mainland Scotland by March 2024<sup>2</sup>.

This consultation sets out that we are minded to approve the Final Needs Case for the 600MW Shetland transmission project on the condition that the Viking Energy Wind Farm<sup>3</sup> is awarded a Contract for Difference (CfD) in the 2019 allocation round.

### Needs Case for the Shetland transmission project

The Final Needs Case is a stage under the Strategic Wider Works (SWW) process implemented during the RIIO-T1 price control period for Transmission Owners to seek confirmation from Ofgem that large new transmission projects are needed and that an appropriate connection option has been selected. The value of any revenue allowance to deliver the project would be determined by Ofgem at a later point.

SHE-T's Final Needs Case proposes that Ofgem approves the Shetland transmission project (a 600MW HVDC subsea cable) on the condition that Viking Energy Wind Farm is awarded a CfD in the 2019 allocation round. In its submission, SHE-T outlines that there is significant renewable generation potential on the Shetland Isles, particularly onshore wind, and stresses that this potential generation can only be realised if a new transmission link to the Shetland Isles is constructed (as without a link no new generation on Shetland can connect to the transmission network).

We consider that there is renewable generation potential on the Shetland Isles. We also agree that the current network on the Shetland Isles is unable to accommodate any new generation.

We also consider that SHE-T's proposal for a 600MW link is the most beneficial option (in terms of long-term value for money) for Great Britain (GB) consumers. We consider that the proposed condition for our approval of the Needs Case (i.e. Viking Energy Wind Farm securing a CfD) appropriately protects consumers from the risks of paying for a link that is bigger than needed.

Our minded-to position is as follows:

For Ofgem to approve the Final Needs Case for the proposed 600MW Shetland transmission connection, SHE-T must demonstrate, by the end of 2019, that Viking Energy Wind Farm has been awarded a Contract for Difference in the 2019 CfD Auction.

We welcome stakeholders' views on the need for a transmission link to the Shetland Isles and the proposed conditions for approval.

---

<sup>1</sup> SHE-T is part of Scottish and Southern Energy Networks (SSEN) which is a subsidiary of Scottish and Southern Energy (SSE).

<sup>2</sup> SHE-T currently estimates the capital costs of the link as £709m

<sup>3</sup> Viking Energy Wind Farm has an expected capacity of 412-457MW, depending on planning consents secured

## Assessment of potential delivery models for the Shetland transmission project

We confirmed in our January 2018 and September 2018 updates on competition in onshore transmission<sup>4</sup> that we intend to consider the CPM and Special Purpose Vehicle (SPV) delivery models for all future SWW projects that are subject to a Needs Case assessment during RIIO-T1. We confirmed that we will do so only where a project meets the criteria for competition (new, separable and high value), and that we will also consider SWW, the default delivery model under RIIO-T1, alongside the CPM and SPV models.

We consider that the Shetland project meets the criteria for competition and therefore may be suitable for delivery through either the CPM or SPV delivery models. Consistent with the pause to our development of the CATO regime<sup>5</sup>, we are not proposing that the Shetland transmission project should be delivered under our CATO framework. Given delays to the introduction of enabling legislation, we expect it would be unlikely that we would be able to appoint a CATO in time to deliver the Shetland transmission project to the contracted grid connection dates. If the delivery date for the Shetland project were to change, we may review our position on the use of the CATO framework.

Our analysis suggests that the SPV model could deliver savings to consumers relative to the SWW RIIO delivery arrangements. We consider however that the implementation time associated with the SPV model could, in this case, risk delay to the current delivery dates for the Shetland project. As such, we do not propose to apply the SPV model to delivery of the Shetland transmission project, although if delivery dates on the Shetland project were to change, we may review our position on the use of the SPV model.

Our analysis suggests that the application of the CPM to the Shetland project could deliver savings to consumers in the region of £6m to £43m, relative to delivery under the SWW RIIO delivery arrangements. We do not consider that the CPM would risk the delivery of the Shetland project to its currently stated delivery dates.

As such, we are consulting on a **mind-to position of funding delivery of the Shetland transmission project under the CPM** - in the event that we approve the Final Needs Case for the project.

### Next steps

Subject to the outcome of this consultation, we expect to publish our decision on the Final Needs Case for the Shetland transmission project in mid-2019. This will confirm our view on the Final Needs Case for the project including any associated conditions for approval, and our view on the delivery model.

---

<sup>4</sup> January: <https://www.ofgem.gov.uk/publications-and-updates/update-competition-onshore-electricity-transmission>

September: <https://www.ofgem.gov.uk/publications-and-updates/update-extending-competition-transmission-and-impact-assessment>

<sup>5</sup> <https://www.ofgem.gov.uk/publications-and-updates/update-extending-competition-transmission>

---

## 1. Introduction

### What are we consulting on?

1.1. This consultation document sets out our views and proposals on the Final Needs Case for the Shetland transmission link project, a 600MW electricity connection that Scottish Hydro Electric Transmission (SHE-T) is proposing to construct between the Shetland islands and the Scottish mainland. SHE-T estimates the capital costs of the project as c.£709m.

1.2. We have also published today a separate consultation document setting out our views and proposals on the Final Needs Case for the Western Isles transmission project.

### Scope of this document

1.3. This document covers two broad areas:

- **Our assessment of and minded-to position on the Final Needs Case for the Shetland transmission project.** This includes a consideration of the technical design and costs of the proposed link, the potential generation on Shetland driving the need for the link, and our views on the cost benefit analysis for different link options.
- **Our assessment of and minded-to position on potential delivery models for the Shetland transmission project.** This covers our assessment of the project against the new, separable and high value criteria for competition and our assessment of which delivery model would deliver best value for GB consumers should we ultimately approve a Needs Case for the project.

1.4. The views set out in this document are for consultation and we invite stakeholders to respond using the contact details set out on the front of this document. We have provided questions for stakeholders on particular areas at the start of each chapter, but stakeholders should not feel constrained by those questions in their response.

## Context

### Final Needs Case

#### Strategic Wider Works

1.5. The GB onshore electricity transmission network is planned, constructed, owned and operated by three transmission owners (TOs): National Grid Electricity Transmission (NGET) in England and Wales, Scottish Power Transmission (SPT) in the south of Scotland, and SHE-T in the north of Scotland. We regulate these TOs through the RIIO (Revenue = Incentives + Innovation + Outputs) price control framework. For offshore transmission, we appoint TOs using competitive tenders.

1.6. The incumbent onshore TOs are currently regulated under the RIIO-T1 price control, which runs for eight years until 2021. Under this price control, we developed a mechanism for managing the assessment of large and uncertain projects called SWW. The incumbent TOs are funded to complete pre-construction works, and then subsequently follow up with applications for construction funding when the need and costs for the project become more certain. The value of any revenue allowance would be determined at a later point. Detail on the SWW arrangements can be found in our SWW Guidance document<sup>6</sup>.

1.7. We are currently assessing SHE-T's Final Needs Case for Shetland. Our SWW assessment process is in three main stages:

- **Initial Needs Case** – Our opportunity to identify, at an early stage, any concerns we have with how the TO has selected the option it intends to seek planning approval for.
- **Final Needs Case** – Our process for taking a final decision on whether there is a confirmed need for the transmission project. This process includes a robust review of the TO's cost-benefit analysis (CBA) for the project.
- **Project Assessment** – Our assessment of the detailed cost estimates and delivery plan in order to set allowed expenditure and required deliverables for the transmission project. This stage sets cost allowances for the relevant project which will ultimately be passed on to consumers.

1.8. The Shetland transmission project did not have an Initial Needs Case as the project had already been substantially developed by the time we introduced the Initial Needs Case stage into the SWW process.

#### Interactions with the planning regime

1.9. We do not design new transmission projects, plan how they should be built, or decide which routes they should take. This is the responsibility of the developing TO and the relevant planning authorities. For this reason, we do not look at the detailed location of individual lines, pylons or substations nor take a view on what additional visual mitigation measures

---

<sup>6</sup> [https://www.ofgem.gov.uk/system/files/docs/2017/11/sww\\_guidance\\_version\\_2.pdf](https://www.ofgem.gov.uk/system/files/docs/2017/11/sww_guidance_version_2.pdf)

might be required. Our role is to review the TO's justifications for such decisions where these affect the cost of the project to consumers.

### Contracts for Difference

1.10. In October 2017 the Department for Business, Energy and Industrial Strategy (BEIS) confirmed that it would be running a CfD allocation round in Spring 2019.

1.11. In December 2017 BEIS published a consultation<sup>7</sup> on, amongst other things, differentiating Remote Island Wind (RIW) from other onshore wind projects to enable RIW to compete for a CfD in Pot 2 alongside other 'less established' technologies. In July 2018 BEIS confirmed its decision to allow projects on remote islands (which includes Shetland, Orkney and the Western Isles), to compete for a CfD in Pot 2 in the third CfD allocation round. BEIS's decision to allow RIW to bid in to Pot 2 was partially driven by the fact that RIW generators face significantly higher costs than other onshore wind of connecting to, and using, the transmission system, due to their distance from the mainland.

1.12. In November 2018 BEIS set out further information<sup>8</sup> on the third CfD allocation round, including the draft budget that would be allocated to the round. In January 2019 BEIS published the draft allocation framework for the 2019 round.<sup>9</sup>

1.13. The inclusion of RIW in the CfD allocation rounds has relevance for our Shetland assessment because we anticipate that prospective generators on Shetland may view the rounds as an opportunity to secure a route to market for their projects, i.e. it is possible that considerable levels of generation on Shetland may not proceed without a CfD.

### **Shetland security of supply**

1.14. Shetland's current electricity supply is largely provided by Lerwick Power Station which will come into breach of the Industrial Emissions Directive from the 1<sup>st</sup> January 2030. In 2017, as part of our decision to reject the costs and outcome of the New Energy Solution competition,<sup>10</sup> SHEPD confirmed that with targeted investment security of supply can be provided until 2025. 2025 is therefore the current date by which a new solution must be in place to secure demand on Shetland, or the time by which additional investment may be needed to extend the life of LPS. SHEPD, the local distribution network owner, says that if the Shetland transmission project is constructed then it will be able to provide this security of supply, alongside additional investment in local backup generation.

1.15. Scottish Hydro Electric Power Distribution (SHEPD) has submitted a proposal to contribute, on behalf of demand consumers, towards the cost of transmission links. SHEPD says that in the case of Shetland this contribution would reflect the avoided cost of securing demand on Shetland in future once the Lerwick Power Station closes. This would have an

---

<sup>7</sup> [www.gov.uk/government/consultations/contracts-for-difference-cfd-proposed-amendments-to-the-scheme](http://www.gov.uk/government/consultations/contracts-for-difference-cfd-proposed-amendments-to-the-scheme)

<sup>8</sup> <https://www.gov.uk/government/publications/contracts-for-difference-cfd-draft-budget-notice-for-the-third-allocation-round>

<sup>9</sup> <https://www.gov.uk/government/publications/contracts-for-difference-allocation-framework-for-the-third-allocation-round-2019>

<sup>10</sup> [https://www.ofgem.gov.uk/system/files/docs/2017/11/shetland\\_new\\_energy\\_solution\\_decision\\_-\\_final\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2017/11/shetland_new_energy_solution_decision_-_final_0.pdf)



effect of reducing charges for transmission-connected generation on Shetland. We will shortly be publishing a separate document outlining our views on the SHEPD proposal.

1.16. If the transmission project does not go ahead then another competitive process to determine a whole new energy solution for Shetland will likely be needed.

### **Competition in onshore transmission**

1.17. As part of our decision on the RIIO-T1 price control, we set out that projects brought to us under the SWW regime could be subject to competition. Following our decision on the RIIO-T1 price control, we undertook the Integrated Transmission Planning and Regulation (ITPR) project, which reviewed the arrangements for planning and delivering the onshore, offshore and cross-border electricity transmission networks in GB. Through this project we decided, among other decisions, to increase the role of competition where it can bring value to consumers.

1.18. Following the ITPR project, we set up the Extending Competition in Transmission (ECIT) project in early 2015 to introduce additional competition in the delivery of new, separable and high value onshore electricity transmission investment. We published a series of ECIT policy consultation and decision documents, which are available on our website. In December 2016 we published our first combined SWW and competition consultation for the North West Coast Connections project, and published an update to that consultation in July 2017.

1.19. In June 2017 we published an update on our plans to introduce competition to onshore electricity transmission, stating that we are deferring further development of the Competitively Appointed Transmission Owner (CATO) regime until the timing of enabling legislation is more certain. We reiterated that we continue to consider that there are significant benefits to consumers in introducing competition into the delivery of new, separable and high value onshore electricity transmission projects.

1.20. Our August 2017 consultation on the Hinkley–Seabank (HSB) project outlined two potential delivery models (the Special Purpose Vehicle (SPV) model and the Competition Proxy Model (CPM)) which we considered could deliver a significant proportion of the benefits of a CATO tender. In January 2018 we published a consultation stating that we were minded-to apply the CPM for HSB. We explained why we thought this would deliver savings relative to the SWW approach and set out indicative cost of capital ranges that we would allow. Following that consultation, in July 2018 we published our decision to apply the CPM to the HSB project.

1.21. Alongside our January-2018 minded-to consultation on the delivery model for HSB, we published an “Update on competition in onshore electricity transmission” (January 2018 Update) which:

- provided an update on the SPV model and CPM, taking into account the stakeholder responses received in relation to our August 2017 consultation, and set out the indicative process for applying the criteria for competition to identify projects for delivery through these models; and
- explained our decision to consider the application of the SPV model and the CPM for all future SWW projects that meet the criteria for competition and are subject to a Needs Case assessment during RIIO-T1.

1.22. In September 2018 we published a set of documents providing our view of the development and application of the CPM and the SPV model exclusively for future projects beyond HSB. These included:

- A consultation on the commercial and regulatory framework for the SPV model;
- an update of how we expect the CPM, developed in the context of HSB, will be applied to future electricity transmission projects that meet the criteria for competition; and
- an Impact Assessment (IA) setting out our analysis of the general benefits and costs to consumers of applying the SPV model and the CPM to projects that meet the criteria for competition.

1.23. These September 2018 documents reaffirmed our previously stated position that we would consider the use of the SPV model and CPM on all new, high-value and separable electricity transmission projects brought forward by TOs during RIIO-T1. They also outlined the decision-making process we intend to use for future projects submitted to us through the SWW licence mechanism.

1.24. In December 2018 we published our minded-to decision to apply the CPM model to the Orkney Transmission project, should we ultimately approve the Needs Case for the project. We explained why we thought the CPM model is likely to deliver savings for consumers relative to the SWW approach.

## How to respond

1.25. 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.

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

1.27. We will publish non-confidential responses on our website at [www.ofgem.gov.uk/consultations](http://www.ofgem.gov.uk/consultations).

## Your response, data and confidentiality

1.28. 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.

1.29. 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 will 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.

1.30. If the information you give in your response contains personal data under the General Data Protection Regulation 2016/379 (GDPR) and domestic legislation on data protection, 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 5.

1.31. If you wish to respond confidentially, we will keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We will not 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

1.32. 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:

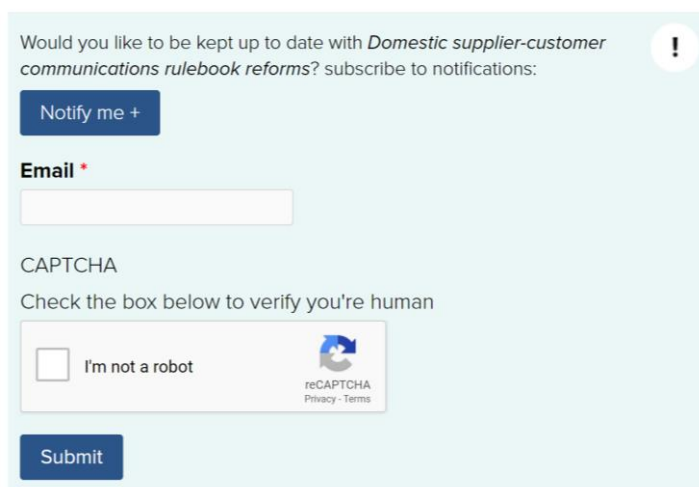
1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6.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


Please send any general feedback comments to [stakeholders@ofgem.gov.uk](mailto: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](https://www.ofgem.gov.uk/consultations).

### Notifications




Would you like to be kept up to date with *Domestic supplier-customer communications rulebook reforms*? subscribe to notifications: 

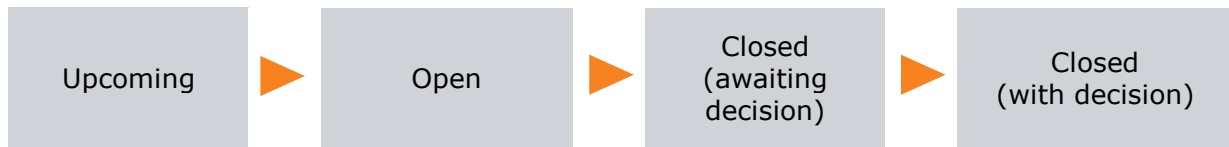
**Email \***

CAPTCHA

Check the box below to verify you're human

I'm not a robot 

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:



## 2. Final Needs Case assessment

### Section summary

This chapter covers our assessment of and minded-to position on SHE-T's Final Needs Case submission for the Shetland project, including:

- An overview of the existing electricity network on Shetland;
- An evaluation of the generation scenarios presented by SHE-T;
- A review of the CBA methodology and results submitted by SHE-T;
- Our high level views on the technical design of the project and its costs; and
- Our views on the needs case as presented and our proposed conditions of approval.

### Questions

**Question 1:** Do you agree that the current network on the Shetland Isles needs reinforcing in order to connect additional generation?

**Question 2:** What are your views on the generation scenarios developed by SHE-T? We are particularly interested in views on the likelihood of wind generation on the Shetland developing to the levels predicted by SHE-T's scenarios.

**Question 3:** What are your views on SHE-T's approach to optioneering, are there other options that SHE-T should have considered?

**Question 4:** What are your views on the CBA put forward by the ESO?

**Question 5:** What are your views on the technical design and costs of the proposed Shetland link?

**Question 6:** What are your views on our minded-to position to conditionally approve the Needs Case? Specifically do you agree with our proposal to approve a 600MW link if Viking Energy Wind Farm secures a CfD in 2019?

## Introduction

2.1. SHE-T submitted its Final Needs Case for the Shetland transmission project in October 2018 under the RIIO SWW mechanism. The Final Needs Case proposes construction of a High Voltage Direct Current (HVDC) subsea transmission link, electrically rated at 600MW, between mainland Scotland and Shetland to be delivered in Quarter 1 2024. The proposed project integrates with the existing Caithness-Moray project via a multi-terminal system. SHE-T has made its proposal contingent on the success of Viking Energy Wind Farm (VEWF) in the 2019 CfD auction, i.e. it proposes that the Shetland transmission project is only justified in the proposed 600MW form if VEWF is successful in the 2019 CfD auction.

2.2. We set out in this chapter our assessment of SHE-T's Final Needs Case submission, including our assessment of the proposed technical design and costs of the project and our assessment of the CBA for the project. We set out our views on SHE-T's Final Needs Case and the conditions we propose to apply to our approval of the needs case.

## Existing network on Shetland

2.3. The Shetland Isles are currently served by a 33kV distribution network independent of the main GB electricity system. The network is owned and operated by Scottish Hydro Electric Power Distribution (SHEPD), which also owns and operates 66.95MW of diesel and gas generation at Lerwick Power Station.

2.4. In addition to Lerwick Power Station, generation is produced by the independently owned 18MW Sullum-Voe terminal (SVT) and by 12.42MW of embedded generation comprised of wind and some small scale tidal. This embedded generation is managed by SHEPD's Active Network Management (ANM) scheme alongside using SVT to provide system support.

2.5. Due to the constraints on the existing network, SHEPD is currently not allowing any new generation connections on the island's distribution network.

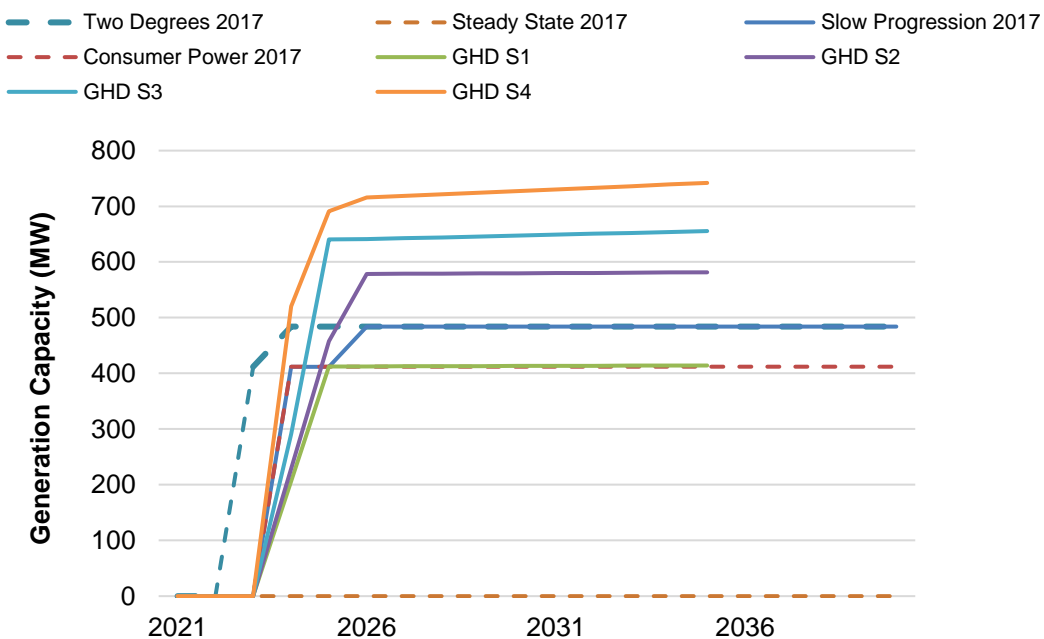
2.6. In addition to the network constraints, potential generation projects that would connect into the transmission system have historically not been able to develop into financially viable projects. This is due to the unusually high Transmission Network Use of System charges (TNUoS) that would apply on Shetland. These high charges result from the distance of these generation projects from the main transmission system, on mainland Scotland. The changes to the CfD regime referenced in paragraphs 1.10 – 1.13 have been introduced, in part, as a result of this.

## Future Shetland generation scenarios used in SHE-T analysis

2.7. SHE-T's Shetland Final Needs Case submission assumes that a significant level of wind generation on Shetland would progress to operation by 2035 (the date used in the generation scenarios) if a transmission link to the mainland were to be built.

2.8. In support of this, SHE-T presents various generation scenarios that it has developed with the assistance of its consultants, Gutteridge Haskins & Davey (GHD). SHE-T also presents the Future Energy Scenarios (FES – developed in 2017 by National Grid in its role as Electricity System Operator (ESO)), as they pertain to generation on Shetland. Figure 1 and Table 1 below summarise the scenarios SHE-T developed with GHD and the FES.

**Figure 1: Deployment of generation on Shetland by 2035 according to the GHD and FES generation scenarios (image provided by GHD)**



**Table 1: GHD and FES generation scenarios up to 2035**

Generation scenario	FES - SS	FES - CP	GHD - S1	FES - SP & TD	GHD - S2	GHD - S3	GHD - S4
Total new generation connected on Shetland (MW)	0	412	414.1	484	581.4	655.5	742

2.9. The generation scenarios shown in Figure 1 were used in the CBA undertaken by the ESO, which was submitted alongside SHE-T’s Final Needs Case.

2.10. It can be seen from Figure 1 that the generation scenarios assume limited future new generation past 2026. All of the scenarios are primarily comprised of combinations of the known generation projects presented in Table 2 below. With every scenario apart from Steady State assuming that VEFW proceeds at either its current 412MW connection agreement or at its 457MW connection offer.

**Table 2: Generation projects in the generation scenarios.**

Generation category	Detail
Transmission-connected contracted	<ul style="list-style-type: none"> <li>• VEFW (412/457MW)</li> <li>• Beaw Field (72MW)</li> <li>• Energy Isles (120 MW)</li> </ul>
Transmission-connected potential	<ul style="list-style-type: none"> <li>• Various (150MW)</li> </ul>
Distribution-connected	<ul style="list-style-type: none"> <li>• Various (27MW maximum)</li> </ul>

2.11. Based on the information we have reviewed, we consider that there are several factors that may raise doubts about the timing and scale of future wind generation on Shetland, as explained below:

- 2.11.1. While three potential transmission level wind projects (equating to 604MW of generation) on Shetland have connection agreements in place with the ESO, only 484MW of this currently has planning consent. This rises to 529MW if VEWf accepts its offer for an increased connection of 45MW. This may make it unlikely that more generators will bid into the 2019 CfD allocation round. However, we note that another CfD auction is currently planned for 2021<sup>11</sup>, so there may be an opportunity for more projects on Shetland to participate in that auction, if it takes place.
- 2.11.2. As outlined in Ofgem's December 2018 decision on the scope of the Electricity Network Access and Forward-looking Charges Significant Code Review (SCR), we are reviewing whether distribution-connected generation should face the same transmission forward-looking charging arrangements as transmission-connected generation, in order to promote a "level playing field" between different forms of generation. In particular, we are reviewing:
  - Applying the wider locational transmission charges to small distribution-connected generation (those with capacity less than 100MW) would mean that small distribution-connected generation would receive transmission credits in zones where they are expected to reduce long term transmission costs, and pay transmission charges in zones where they are expected to increase long term costs
  - Applying the local asset transmission charges to small and large distribution-connected generation, as currently only transmission-connected generation face these charges.

This would mean that it is possible that distribution-connected generators may pay some form of transmission charge in the future if they connect in high cost areas – given the high transmission charges on the islands, this may impact the financeability of distribution connected wind projects on Shetland.

### **Concluding observations – Future generation on Shetland**

2.12. We acknowledge that the Shetland Isles are an area of significant wind potential, however, we consider that the future of generation on the Shetland Isles beyond the VEWf and Beaw Field projects may be more uncertain than outlined by SHE-T in its submission<sup>12</sup>.

2.13. As such, we consider that even if a link is built **there is uncertainty at this stage around how much generation will progress to full commissioning by 2024** (the year by which SHE-T propose the link would be completed) or 2035.

---

<sup>11</sup> <https://www.gov.uk/government/publications/contract-for-difference-and-capacity-market-scheme-update-2018>

<sup>12</sup> These are the Shetland projects which currently have planning permission granted as well as being contracted (with SHE-T via National Grid).



## Options considered by SHE-T

2.14. SHE-T’s Final Needs Case submission considered 12 link options across three different geographical corridors. A map outlining these routes can be found in Appendix 1. The options considered are summarised in Table 3 below. The option proposed by SHE-T is option 2, the 600MW link between Shetland and Caithness.

**Table 3: Summary of options considered by SHE-T**

Option	Description	Capacity (MW)	EISD <sup>13</sup>	SHE-T Cost Estimate
1	Shetland – Caithness	450	Q1 2024	£674m
2	Shetland – Caithness	600	Q1 2024	£709m
3	Shetland – Caithness	800	Q4 2025	£753m
4	Shetland – Caithness	1000	Q4 2025	£797m
5	Shetland – Dounreay	450	Q4 2026	£829m
6	Shetland – Dounreay	600	Q4 2026	£865m
7	Shetland – Dounreay	800	Q4 2026	£928m
8	Shetland – Dounreay	1000	Q4 2026	£983m
9	Shetland – Moray	450	Q4 2025	£943m
10	Shetland – Moray	600	Q4 2025	£982m
11	Shetland – Moray	800	Q4 2025	£1,109m
12	Shetland – Moray	1000	Q4 2025	£1,153m

2.15. The various transmission project options have different completion dates due to the progress made to date on each option. The proposed 600MW option (option 2) has the earliest completion date (along with 450MW, option 1) due to SHE-T having started its procurement and secured planning consent for this option under a multi-terminal HVDC system, whereas the options with the later EISD would require SHE-T to revisit its procurement and planning consent.

2.16. Options 1, 2, 3, 11 and 12 were progressed to the CBA after the application of three optioneering filters of capacity, programme and cost.

2.17. We are comfortable that SHE-T has considered an appropriate range of technical options.

## Cost Benefit Analysis

2.18. Two CBAs were provided as part of SHE-T’s Final Needs Case submission, one produced by GHD, SHE-T’s consultants, and one produced by the ESO. Our assessment has considered both CBAs, which both follow a broadly consistent constraints-based methodology. Our analysis in this section focusses on the ESO’s CBA, which was produced in line with its licence obligation to support the assessment of SWW proposals by carrying out a cost benefit

<sup>13</sup> Earliest in service date, ie the earliest date SHE-T considers the link could be operational

analysis of reinforcement options identified by a TO. We have focused predominately on the ESO CBA as this analysis considers the Shetland project in a GB context taking account of boundary capabilities throughout the wider transmission network, whereas the GHD CBA focuses on the Shetland project as a regional assessment taking account of local constraints.

2.19. The methodology used in the ESO’s CBA is consistent with that which has been used on previous SWW projects and with that which is used each year when the ESO undertakes the Network Options Assessment (NOA). This methodology offsets the construction and operational costs of various different transmission project options against the constraint costs<sup>14</sup> that each of these options relieve to give a Net Present Value (NPV). This is then calculated across a variety of generation scenarios (in this case, the scenarios presented in Table 1 and Figure 1).

2.20. The ESO’s CBA determines the preferred option based on a Least Worst Regret (LWR) approach. The regret of each option is determined by the difference between it’s NPV value and the option with the highest NPV value. The option with the smallest regret across all generation scenarios is then determined as the option with the LWR.

Results

2.21. Table 4 shows the results of the LWR analysis produced by the ESO. The Steady State scenario has been excluded from the analysis by the ESO, as it is not deemed appropriate for this regret analysis since it is a scenario that would result in no connection to the Shetland isles. The inclusion of SS in the regret table does not however change the result. The LWR option produced by the ESO CBA is a 600MW transmission link to Shetland from Caithness to be delivered by 2024.

**Table 4: Least Worst Regrets (LWR) summary table**

Option	TD	SP	SS	CP	S1	S2	S3	S4	Worst Regret
1 Shetland - Caithness HVDC 450MW	0	0	-	0	0	84	180	262	<b>£262m</b>
2 Shetland - Caithness HVDC 600MW	14	20	-	50	37	0	0	0	<b>£50m</b>
3 Shetland - Caithness HVDC 800MW	104	118	-	122	104	66	73	39	<b>£122m</b>
11 Shetland - Moray HVDC 800MW	391	368	-	426	372	292	283	223	<b>£426m</b>
12 Shetland - Moray HVDC 1000MW	415	406	-	453	412	336	324	265	<b>£453m</b>
<b>Least Worst Regret:</b>	<b>Opt2 – 600MW</b>								<b>£50m</b>

2.22. Considering Table 4 in more detail, the ESO CBA indicating that the 600MW option is the preferred option is driven by generation scenarios S2 to S4, i.e. where more than 480-

<sup>14</sup> Constraint costs are payments made to generators by the ESO to stop generators producing electricity. It will make these payments when the electricity transmission network in a particular area does not have the capacity to safely transport all of the electricity that is being produced in that area.

490MW of new wind generation is built on Shetland<sup>15</sup>. If less than this amount of new generation were built, the 450MW option would become the preferred option.

2.23. Under the sensitivity where the earliest in service date (EISD) for all options are aligned to 2024 the CBA indicates that the 800MW option has the LWR when analysed across the same range of generation scenarios. However this result is driven by S4, the highest generation scenario. Removing S4 from the scenarios returns the LWR to 600MW, under this hypothetical scenario where all options have the same EISD.

#### SHET approach to optioneering and effect on the CBA results

2.24. We consider that during the initial optioneering assessment, SHE-T's application of evaluation ratings to some options lacked thorough consideration.

2.25. We consider that the results of the CBA indicate that SHE-T has prioritised development (e.g. securing planning consent) of its proposed 600MW option and not developed the other options to the same extent before submitting the Final Needs Case. By prioritising in this context SHE-T has progressed its optioneering so that the 600MW option from Shetland to Caithness is one of the few options capable of being delivered within the parameters of the current planning consent (the only other option is the 450MW option which doesn't perform well in the CBA).

2.26. This has resulted in a situation where other options cannot practically be delivered by Q1 2024 due to the delay that would be incurred by the need to revise the planning consent and the procurement process. However, in this case we consider that the overall CBA results support the option prioritised by SHE-T (the 600MW link). Nevertheless, SHE-T's approach to optioneering for Shetland could have led to a situation where it would not have been possible for the most efficient option to be taken forward in time, which could have led to consumer benefit being lost.

2.27. We appreciate that it may not be feasible or desirable from a cost/resourcing perspective to progress all link options to the same level prior to the Final Needs Case process. However, we consider that in this instance initial/interim findings of the CBA could have been determined earlier (before SHE-T's decision to prioritise the 600MW option) and more efficiently integrated into SHE-T's optioneering process. It would also have been possible for SHE-T to have presented information to us earlier and sought our views as appropriate. As set out in paragraph 1.6, the SWW process set out in the SWW Guidance includes a formal initial needs case stage as a mechanism to seek to mitigate the sort of risk described in paragraph 2.26 above. However, we would also expect Transmission Owners to efficiently mitigate these risks without the need for Ofgem intervention.

#### Testing the CBA results using alternate approaches

2.28. We have also considered other methods of assessing which of the transmission options is optimal for consumers. We considered an 'expected NPV' approach with an assumption of uniform probability across the scenarios, i.e. each generation scenario is given the same probability weighting. This approach does not change the preferred option of a 600MW link. We also considered how 'probable' the highest generation scenario would need to be to change the preferred option to a larger transmission link. Where the EISD in Table 3 are

---

<sup>15</sup> assuming a load factor of 53%

used, no weighting can change the preferred option, i.e. setting the probability of the highest generation scenario (S4) to both 0% and 100% does not change the result.

2.29. In December 2018, we published a consultation on the Final Needs Case and Delivery Model for the Orkney transmission project.<sup>16</sup> Our consultation included reference to further work carried out with SHE-T and the ESO to consider an additional CBA to demonstrate whether building the Orkney transmission project benefits GB consumers.

2.30. This analysis has not been included in this consultation on the Shetland Final Needs Case. This is because the Orkney additional CBA was primarily developed in the context of assessing the consumer benefit associated with building any link to Orkney, given the higher levels of uncertainty on what generation (if any) might come forward on Orkney and the lower levels of overall generation predicted on Orkney. In the case of Shetland, the original CBA is clear that, given the relatively large generation capacity of VEFW, building a link to connect this project to the mainland will be in the interests of consumers. The more relevant question for Shetland is what size of link would deliver the most benefits for consumers, for which purpose the original CBA as described earlier in this chapter, is more suited.

## Technical design and costs

### Technical design

2.31. The technical design of SHE-T's proposed transmission link to Shetland has been reviewed by Ofgem.

2.32. We are comfortable with the technical design of the proposed connection option. We are comfortable that the technical design would meet the export requirements that SHE-T has identified for Shetland in the early 2020s, and agree that a derogation from Section 2 of the Security and Quality of Supply Standard (SQSS) would be required to allow the project to proceed on a single cable basis.

2.33. We are comfortable that SHE-T has appropriately considered both the risks and opportunities of using a multi-terminal solution.

### Costs

2.34. The estimated capital cost for the Shetland project of c.£709m included as part of SHE-T's Final Needs Case submission appears to be significantly higher than the costs we might expect. Our internal analysis is based on costs we have observed and determined through our regulatory arrangements for comparable transmission assets in other areas – specifically offshore transmission and interconnector assets.

2.35. Applying our benchmarking analysis for offshore transmission and interconnector assets, we would expect the capital costs for the Shetland project to be significantly lower – in the range of £368m to £395m.

2.36. We are confident that cost uncertainty does not materially affect the Needs Case assessment of the options for the size of the link, as we have considered the costs of each

---

<sup>16</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/12/orkney\\_final\\_needs\\_case\\_consultation.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/12/orkney_final_needs_case_consultation.pdf)

option and our concerns about high estimated capital costs apply similarly to each option. We have also run sensitivities to the CBA where different costs are considered and these do not change the option for the size of link recommended by the CBA.

2.37. If we ultimately approve the Needs Case for the Shetland project, our decision will confirm that SHE-T will be funded for the efficient delivery of Shetland under the delivery model we ultimately select. This funding will not include any areas of cost that we do not consider efficient or appropriate to fund following our Project Assessment.

## **Our view on the needs case, including proposed conditionality**

2.38. Consistent with the Final Needs Case submitted we consider that there is potential for the development of additional renewable generation on the Shetland Isles. The CBA submitted by the ESO shows that a 600MW link would be the most beneficial option (in terms of long-term value for money) for GB consumers under a plausible range of upper and lower generation scenarios.

2.39. SHE-T has proposed that we should only approve the 600MW link if VEWf secures a CfD in the 2019 auction. We agree that, given uncertainty surrounding the generation background, it is appropriate at this stage to make any approval of the project conditional on an appropriate level of generation coming forward.

2.40. We also agree that if VEWf is built, given the capacity of that windfarm, it is highly likely that sufficient additional generation will be built on Shetland before 2035 for a 600MW link to provide the most beneficial outcome for consumers. A 600MW link provides reasonable headroom for future generation to come forward after the 2019 CfD auction. Furthermore, it is possible that in practice significantly more than 600MW of generation will be able to utilise the link due to the intermittency of wind and the potential to use ANM. As such, we consider that the proposed 600MW option offers an appropriate balance of risk between generators on Shetland and GB consumers by sizing the link for a plausible range of future generation.

We are therefore  **minded-to approve the needs case for the Shetland transmission project subject to the following conditions:**

For Ofgem to approve the Final Needs Case for the proposed 600MW Shetland transmission connection, SHE-T must demonstrate, by the end of 2019, that VEWf has been awarded a CfD in the 2019 CfD Auction.

2.41. We consider that VEWf securing a CfD in the 2019 auction will represent a clear indication that the project will progress as a CfD would act as strong financial incentive on that generation project to progress to full operation.

2.42. The end 2019 date has been included as the backstop date as this allows for sufficient time following the close of the 2019 CfD auction, and we consider it aligns with SHE-T's proposed timelines for approving and constructing the project. We currently expect that the CfD auction will open in late spring 2019 and conclude in Autumn 2019. These timelines have been factored into our proposed backstop date of end 2019. However, if there were to be delays to the CfD process, and these could be shown to adversely affect SHE-T's Final Needs Case proposal, then we would consider a request from SHE-T for extension to the end 2019 date.

## 3. Delivery Model

### Section summary

In this chapter, we set out our findings from an assessment of the Shetland transmission project against the criteria for competition and conclude that the project meets the criteria. We consider the potential delivery models for the Shetland project and set out a minded-to position of funding delivery of the Shetland transmission project under the Competition Proxy model.

### Questions

**Question 7:** Do you agree with our assessment of the Shetland project against the criteria for competition?

**Question 8:** Do you agree with our proposal not to competitively tender the Shetland project using the SPV model or under our CATO framework unless there are significant delays to the delivery timelines?

**Question 9:** Do you agree that the Competition Proxy Model would deliver a favourable outcome for consumers relative to the status quo RIIO SWW delivery arrangements?

**Question 10:** What are your views on the way in which we have applied project specific updates to the Competition Proxy Model methodology to account for the specific characteristics of the Shetland project?

## Assessment of the Shetland project against the competition criteria

### Overview of the criteria

3.1. We confirmed, in our January 2018 and September 2018 updates, on extending competition in transmission that, we intend to consider the Special Purpose Vehicle (SPV) delivery model and the Competition Proxy Model (CPM) (alongside the SWW delivery arrangements, the default delivery model under RIIO-T1) for all future SWW projects that meet the criteria for competition and are subject to a needs case assessment during RIIO-T1.

3.2. The criteria for competition are:

3.2.1. New – a completely new transmission asset or a complete replacement existing transmission asset.

3.2.2. Separable – the boundaries of ownership between the competed assets and other (existing) assets can be clearly delineated.

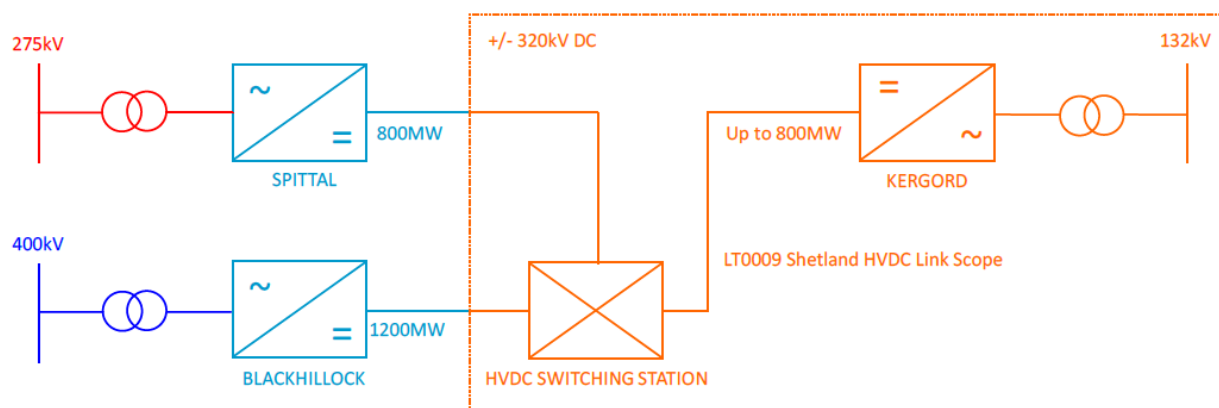
3.2.3. High value – a fixed threshold set at £100m of expected capital expenditure of a project at the point of our initial assessment of whether to tender the project.

3.3. We have also set out that we would consider other factors such as deliverability, transferability, and any project-specific considerations that impact the overall consumer benefits case.

### Criteria assessment

3.4. The works proposed by SHE-T in relation to the Shetland transmission project are shown in the orange box in the detailed schematic diagram below. These include the HVDC switching station at Noss Head, a new substation at Kergord and c.260km of subsea cabling between the two. Our assessment of the Shetland transmission project against the new, separable and high value criteria is summarised in the paragraphs below. We consider deliverability, transferability and other project-specific considerations later in the chapter when we consider the consumer impact of potential delivery models.

Figure 2: Schematic diagram of the Shetland transmission project



#### New

3.5. Our view is that all of the Shetland project as currently proposed by SHE-T meets the new criterion.

#### Separable

3.6. Our view is that all of the Shetland project as currently proposed by SHE-T, meets the separable criterion. We consider that project interfaces are clearly separable points (for example, substations and switching stations), and therefore clearly manageable under existing industry arrangements.

#### High Value

3.7. Our view is that the Shetland project, as currently proposed by SHE-T, meets the high value criterion. The expected cost of the project, as detailed in paragraphs 2.34 – 2.37, significantly exceeds the £100m capex threshold.

## Delivery models for the Shetland transmission project

3.8. As the project meets the criteria for competition, we consider below the SPV model and the CPM for the delivery of the Shetland transmission project, alongside the SWW delivery model, the default delivery model under RIIO-T1. Further detail on these models can be found on our website, including why we consider, in general, that they would deliver significant savings for consumers.<sup>17</sup> This Chapter considers the models as they might apply to the Shetland transmission project.

3.9. We are not proposing that the Shetland transmission project should be delivered under our CATO framework. Given delays to the introduction of enabling legislation, we expect it would be unlikely that we would be able to appoint a CATO in time to deliver the Shetland transmission project to the contracted grid connection dates. If the delivery date for Shetland were to change, we may review our position on the use of the CATO framework.

3.10. Our analysis, as outlined in our September 2018 Impact Assessment (IA), indicates that delivery of the Shetland project through the SPV model could, in principle, represent the best overall value for GB consumers.<sup>18</sup> We expect that both the SPV model and the CPM could achieve financing savings relative to the SWW default delivery model under RIIO-T1. Compared to the CPM (and default delivery model under RIIO-T1), our expectation is that the SPV model has the potential to unlock additional savings for consumers due to competitive pressures in the supply chain, holistic end-to-end procurement and usage in the price control.

3.11. However, having reviewed the project's delivery schedule against our expectations of the time it would take to design and run an efficient SPV tender process for the Shetland project, we have concerns as to whether the SPV model would be able to meet the required March 2024 energisation date of the Shetland link. This is because in order to align with the current delivery timescales, the SPV tender would need to have been completed by early 2020. If the delivery date for the Shetland transmission project were to change, we may review our position on the use of the SPV model.

3.12. Because of these deliverability challenges, **we do not propose that the SPV model should be used for the Shetland transmission project.**

3.13. Given our position regarding the SPV model our assessment below focuses on the CPM relative to the SWW arrangements.

### Potential application of the CPM to delivery of the Shetland transmission project

#### Background

3.14. In January 2018 we published a report from our consultants Cambridge Economic Policy Associates (CEPA) on the rate of return for projects delivering new transmission assets (the CEPA report was published alongside our minded-to consultation on the delivery model for the Hinkley–Seabank (HSB) project).<sup>19</sup> A revised CEPA report was subsequently published

---

<sup>17</sup> <https://www.ofgem.gov.uk/electricity/transmission-networks/competition-onshore-transmission>

<sup>18</sup> <https://www.ofgem.gov.uk/publications-and-updates/update-extending-competition-transmission-and-impact-assessment>

<sup>19</sup> <https://www.ofgem.gov.uk/publications-and-updates/hinkley-seabank-minded-consultation-delivery->



in July 2018, alongside our HSB decision to reflect responses received to our January consultation on HSB.<sup>20</sup> The CEPA reports detail our methodology for setting the allowed returns for new, large and separable onshore projects, as well as for the construction of new offshore wind connections and interconnectors.

3.15. We decided to apply the CPM to HSB in the July 2018 Decision. Chapter 2 of that Decision addressed key challenges raised in relation to the CPM for HSB. Some of those challenges are also relevant to application of the CPM in general to other projects, including Shetland. This minded-to consultation on the Shetland transmission project does not cover points raised previously on CPM where we consider that our views are appropriately represented in the July 2018 Decision.

3.16. In December 2018 we published our Consultation on the Final Needs Case and potential delivery models for the Orkney transmission project<sup>21</sup> where we set out our minded-to position to apply CPM to Orkney, should we approve the Needs Case. We also set out how the CPM would apply to the Orkney project. In Appendix 2 we set out our consideration of the additional points raised in response to the Orkney consultation, which would also relate to the decision on the delivery model for Shetland.

3.17. The September 2018 Update on the Competition Proxy delivery model ("CPM Update")<sup>22</sup> sets out how we expect to apply the CEPA cost of capital methodology to projects that are subject to the CPM, and the extent to which we expect to consider project-specific adjustments.

#### Application to Shetland

3.18. Below we set out how we have reached our indicative cost of capital range for the Shetland project under the CPM, set out in Table 5.

3.19. We are proposing to set the CPM parameters to be used in our assessment of the delivery model for the Shetland project in a way which is consistent with the approach that we used to set the indicative rates for Orkney and HSB. This is except that we are proposing a minor adjustment in the low end of the estimated construction period cost of capital (the estimated operational period cost of capital remains the same for Shetland as for Orkney). This adjustment is due to the longer construction period of the Shetland project relative to Orkney (4 years, relative to 3 years for Orkney). As a result we consider that an iBoxx BBB-rated 3-5 year non-financial corporate debt index represents an appropriate top end of the range for Shetland's cost of debt, with the iBoxx A-rated 3-5 year non-financial corporate debt index being used at the low end of the range. These parameters are outlined in full in Appendix 4.

3.20. We have not included as part of this consultation a separate Impact Assessment (IA) document in relation to the application of the CPM specifically to the Shetland transmission project. This is because we consider that:

---

[model](#)

<sup>20</sup> <https://www.ofgem.gov.uk/publications-and-updates/hinkley-seabank-decision-delivery-model>

<sup>21</sup> <https://www.ofgem.gov.uk/publications-and-updates/orkney-tranmission-project-consultation-final-needs-case-and-potential-delivery-models>

<sup>22</sup> <https://www.ofgem.gov.uk/publications-and-updates/update-competition-proxy-delivery-model>

- 3.20.1. our analysis of the consumer benefits of using CPM, as outlined in this chapter, acts as an assessment of the impacts of the model; and
- 3.20.2. the September 2018 IA assessed the impacts of the SPV model and CPM across a range of different scenarios for varying number and capital value of projects.

3.21. Table 5 provides additional detail on assumptions and methodologies used to consider the consumer impact of CPM against the RIIO counterfactual. Table 5 details our assumptions regarding the financial parameters used for the purposes of our assessment of the potential benefits of the CPM for the Shetland project. We have determined these financial parameters based on the project-specific updates to the CPM summarised in paragraph 3.19 (and set out more comprehensively in Appendix 4) and using the cost of capital methodology referred to above.

3.22. The RIIO counterfactual used in our analysis utilises rates from our December 2018 RIIO2 consultation. For the purposes of our modelling, we have used the cost of equity range presented in the December 2018 consultation, forecasts of the 10-year trailing debt index,<sup>23</sup> and the proposed RIIO-2 levels of gearing (60%). More detail on this counterfactual can be found in Appendix 3 to this consultation.

3.23. The CPM rates specified are based on September 2017 market rates. We expect to publish later in March an annual update to the "Decision on the calculation of Interest During Construction (IDC) and the IDC rate to apply during 2019/20 for offshore transmission and future cap and floor interconnectors". We expect that the update will also include revised rates for CPM, based on contemporary market rates. If we ultimately approve the need for the Shetland project, we will re-run the analysis in the methodology for setting the cost of capital for Shetland under the CPM to adjust for contemporary market rates. Ultimately, if we were to decide to apply the CPM, we would consult on the final point within the cost of capital range that we would set for the Shetland project through the Project Assessment process.

---

<sup>23</sup> Based on current ten-year trailing average adjusted for forecast movements in Government gilts

**Table 5: CPM Financial Parameters**

<b>Financial parameter</b>	<b>Construction cost of capital Low</b>	<b>Construction cost of capital High</b>	<b>Operations cost of capital Low</b>	<b>Operations cost of capital High</b>
<b>Cost of debt (nominal)</b>	1.85%	2.35%	3.00%	3.25%
<b>Gearing</b>	37.50%	37.50%	85%	80%
<b>Post-tax cost of equity (nominal)</b>	5.79%	9.43%	7.00%	8.50%
<b>Vanilla nominal WACC</b>	4.31%	6.78%	3.60%	4.30%
Vanilla RPI-real WACC <sup>24</sup>	1.27%	3.67%	0.19%	1.26%
<b>Vanilla CPI-real WACC<sup>25</sup></b>	2.27%	4.68%	1.57%	2.25%

3.24. In order to obtain a robust estimate of the likely consumer savings produced by the CPM, we first modelled the likely revenue estimates of applying various cost of capital rates within the above range to the forecast Shetland project costs through a project finance model. The project costs assumed are capital costs of £709m and an operational expenditure profile of £2.59m per annum. These figures are taken from SHE-T’s Final Needs Case submission, according to which construction would begin in 2020 and end in March 2024. In line with our published parameters for the CPM, we assume full regulatory depreciation of the Shetland project over a 25-year operational period.

3.25. We then compared these revenue estimates to those derived through applying the RIIO counterfactual referred to in paragraph 3.22 above. To robustly estimate benefits in this way required us to estimate the future levels of rates of return under the default delivery RIIO counterfactual.

<sup>24</sup> RPI is assumed to be 3%, other than at the low end of the operations cost of capital range, where it is assumed to be 3.4%

<sup>25</sup> CPI is assumed to be 2%

3.26. Table 6 compares the total costs on a Net Present Value (NPV) basis under CPM and the RIIO counterfactual – using the high and low ends of both ranges based on CPM rates and rates for RIIO as described in paragraphs 3.19-3.23.

**Table 6: Benefits of CPM**

<b>Connection Option</b>		<b>RIIO (SWW) Counterfactual</b>	<b>Competition Proxy</b>
<b>600MW</b>	NPV of total cost	£640m - £673m	£597m - £667m
	Benefit of CPM	£6m - £43m	

3.27. Based on this approach, using the financial parameters outlined in Table 5, we expect that the CPM could deliver a saving in the region of £6m to £43m (1% to 7%) relative to delivery under the default delivery model under RIIO. This range is derived based on considering the high and low ends of the default delivery model under RIIO against the high and low end of our CPM range, shown above.

3.28. Comparing the mid-point of the CPM range to the high and low default delivery model under RIIO results in a benefits range of £43m to £10m respectively. We consider that it is likely that the CPM will deliver savings greater than the lower end of this range (£10m) on the Shetland transmission project because:

- 3.28.1. The low end of the RIIO counterfactual assumes that the cost of equity remains at the very bottom of the RIIO-2 range indefinitely. We consider that this represents a relatively conservative (i.e. low value) view of cost of capital under future RIIO periods beyond RIIO-T2.
- 3.28.2. We do not consider that it is likely that a scenario would occur where we selected a point at the high or mid area of the CPM range whilst the rates under RIIO remain at the low end of our counterfactual. This situation would be likely to require us to set an operational cost of equity for the Shetland project that is, and remains higher than the rest of SHE-T’s price controls over the same period. Given the comparative risk profiles between the operational period of the Shetland project, and SHE-T’s wider portfolio of assets under the price control arrangements, we do not consider it logical to assume that this is likely to happen.

3.29. We recognise that there is a possibility that GB consumers may pay more – on average around £2.2m on an annual basis during the 25-year operational period of the CPM relative to the 45-year RIIO counterfactual. However, we consider that consumers will benefit overall by paying significantly less (on average c.£4.4m) annually beyond the 25-year operational period of CPM. We do not accept that the limited impact on intergenerational equity transfer that the CPM may have is sufficiently material to justify not pursuing the overall level of savings available.

3.30. Under the CPM, the TO developing a project may, or may not, choose to pursue a project finance approach for the project in question. As explained in our September 2018 CPM Update, where a project finance approach is taken forward, our Project Assessment process will consider the additional efficient costs associated with pursuing such an approach. For the purpose of considering a scenario for CPM where implementation costs are high, we have assumed that the “high” additional implementation costs under the CPM could reach up to £1.2m plus 0.5% of capex of the project being taken forward under the CPM. In the case of

the Shetland project, that amounts to an NPV of £4.7m. We do not consider that these costs would undermine our benefits case for using the CPM on the Shetland project for the reasons set out in paragraph 3.28.

3.31. Finally, we do not anticipate that the CPM would result in any delays to project delivery. There is no requirement under the CPM for SHE-T to carry out materially different project delivery work in addition to that which it would undertake if the project were delivered under SWW.

**3.32. For these reasons, we are consulting on a minded-to position of applying the CPM to deliver the Shetland transmission project in the event that the conditions of our proposed conditional Final Needs Case approval (on which we are consulting) are met.**

## 4. Next steps

### Section summary

This chapter briefly outlines our expected decision making timeline for the Shetland transmission project

4.1. Following the close of this consultation on 31<sup>st</sup> May 2019, and subject to consideration of the responses received, we expect to publish a decision on the Final Needs Case for the Shetland transmission project in Summer 2019. Subject to consideration of the responses to this consultation, we anticipate that this will include:

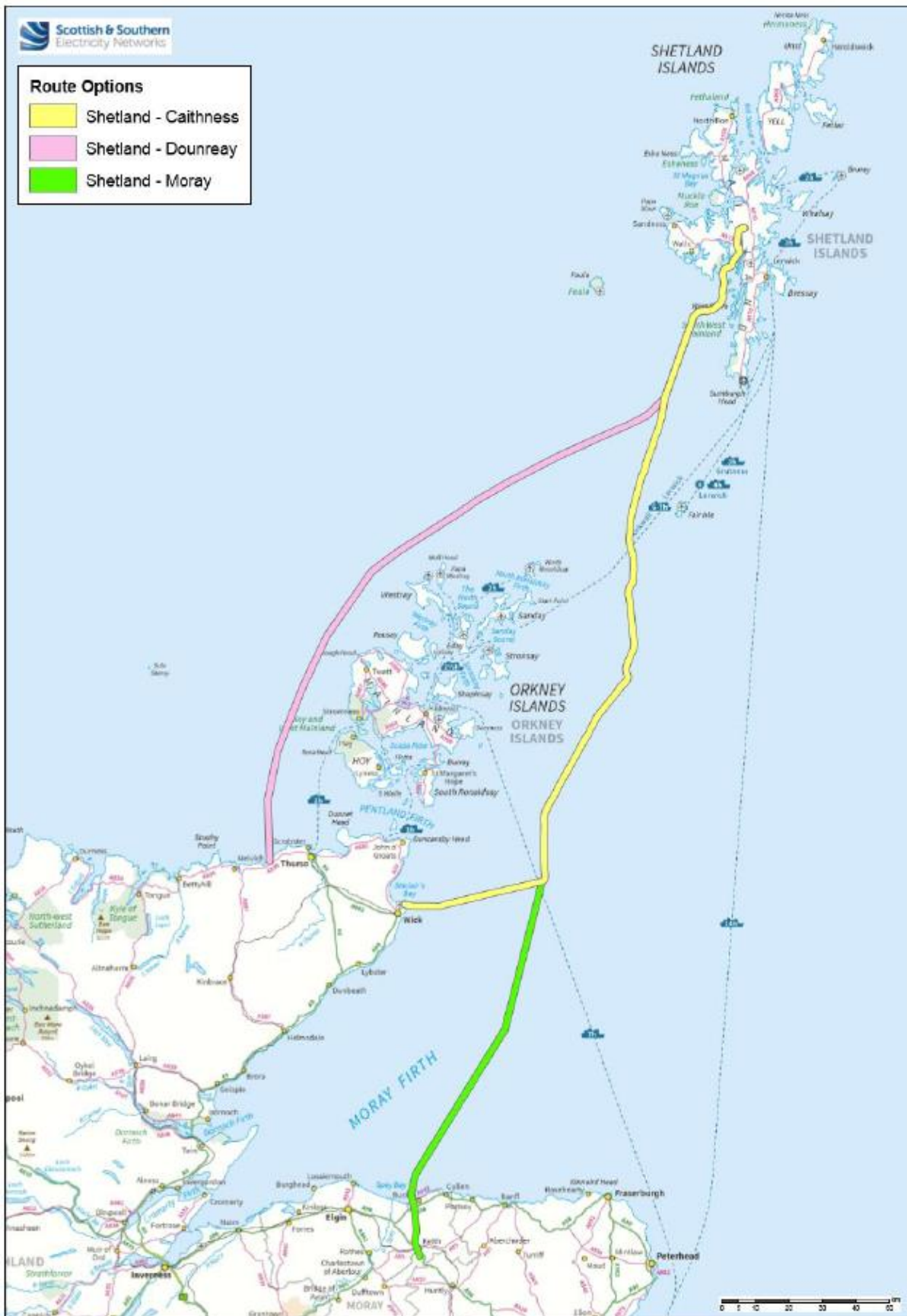
- 4.1.1. whether we consider that the Shetland transmission project is needed, and if relevant, what conditions we are attaching to final approval of the needs case; and
- 4.1.2. the delivery model that we intend to be used to fund delivery of the Shetland transmission project, in the event that final approval of project need is confirmed. We would also confirm the next steps for the project that would apply depending on the delivery model chosen. Appendix 4 sets out further detail on the arrangements that would apply if we confirm our minded-to decision to apply the CPM.

## Appendices

### Index

<b>Appendix</b>	<b>Name of appendix</b>	<b>Page no.</b>
1	Map of reinforcement corridors	32
2	Consideration of points raised in response to consultation on the Orkney transmission project	33
3	RIIO Counterfactual	34
4	Further detail on CPM	36
5	Privacy notice on consultations	47

## Appendix 1 – Map of reinforcement corridors





## Appendix 2 – Consideration of points raised in response to consultation on the Orkney transmission project

- 2.1 Within its response to the Orkney consultation, SHE Transmission emphasised the importance of ensuring that our analysis compares the indicative CPM cost of capital against the most up to date view of the RIIO counterfactual. We agree that this is the appropriate approach. For the analysis that supports this consultation, as referenced in paragraph 3.22 of Chapter 3, we have used the updated rates referenced in the RIIO-2 Sector Specific Methodology<sup>26</sup>. As this information was not available at the time the Orkney consultation was published, we were not able to include it in that publication.
- 2.2 SHE Transmission’s response also cautioned that forecast data suggests that over the likely period of construction for the three proposed Scottish island links, the cost of debt rate used under RIIO is likely to reduce further. In contrast, it states that the equivalent cost of debt spot rate that informs the operational period cost of debt is expected to increase by 39-30<sup>27</sup> basis points (bps). It argued that this, along with the other concerns it has previously raised, significantly reduces the materiality of the likely savings that are likely to be achieved through CPM in comparison to RIIO for these projects.
- 2.3 As specified in this document, and also in our previous publications on CPM, the benefits case modelling is used purely to determine an indicative level of potential benefit. This indicative benefit is derived from rates for both CPM and RIIO that are liable to change over time. We do not consider that the materiality of the potential change is as material as referenced by SHE Transmission. However, as referenced in paragraph 3.23 of Chapter 3 we will be updating the relevant analysis that feeds into the CPM rates to ensure alignment of timing with the prevailing RIIO rates. We propose, as part of this process, for our analysis to also consider how the rates specified for the operational period may change over the duration of the construction period.

---

<sup>26</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/12/riio-2\\_finance\\_annex.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/12/riio-2_finance_annex.pdf)

<sup>27</sup> 39bps at the low end of the Cost of Debt range, 30bps at the high end.

## Appendix 3 – RIIO Counterfactual

- 3.1 The benefits case for using the CPM has been established considering the Net Present Value (NPV) impact of the Shetland project if delivered under the CPM against a counterfactual of the project being delivered under SWW and the prevailing cost of capital under RIIO.
- 3.2 For the counterfactual cost of debt under RIIO, we have used the latest relevant input data from the latest Price Control Financial Model (PCFM) for the RIIO-T1 period. For the RIIO-T2 period and beyond we have applied a forward-looking forecast of the 10-year trailing average cost of debt index that currently feeds into NGET and SPT's RIIO-T1 price controls out across the full length of the 45-year RIIO depreciation period. We have used forecasts of the 10-year trailing average cost of debt up to and including 2039/40. We have assumed the rate in 2039/40 applies for all subsequent years. The rates are based on Ofgem's internal analysis of the forward yield curve in August 2018.
- 3.3 Our modelling of the RIIO counterfactual does not estimate the future rates using the current SHE-T cost of debt index. The current SHE-T index applies an average cost of debt over a 10-year trailing average period that is weighted based on additions to SHE-T's Regulatory Asset Value in each of the 10 years. This would require us to estimate SHE-T's investment programme over the next 45 years (assuming the current weighted average approach continued to be applied after RIIO-T1). We do not consider that this approach would provide more credible estimates of future rates for the purposes of this analysis.
- 3.4 Currently, SHE-T's Cost of Debt index tracks marginally below the one used for NGET and SPT. We have applied this reduction to the remaining years of RIIO-T1. In the longer term beyond RIIO-T1, we consider it appropriate to assume, for the purposes of this indicative estimate, that the two indexes will average out to comparable levels.
- 3.5 For the counterfactual cost of equity under RIIO, we have used the latest relevant input data from the latest Price Control Financial Model (PCFM) for the RIIO-T1 period, 7.00%<sup>28</sup>. As the cost of equity for the RIIO-2 period is yet to be determined, we have run our analysis with both the top and bottom of the indicative RIIO-2 equity range applied during the years of RIIO-T2 (2021/22 to 2025/26) which was consulted on in December 2018 as part of the RIIO-2 Sector Specific Methodology.<sup>29</sup> These figures are 5.00% and 4.00%<sup>30</sup> respectively.
- 3.6 Our updated analysis also includes a counterfactual cost of equity view of future RIIO price controls beyond RIIO-2. During this period, for cost of equity our analysis has been run assuming that the cost of equity could remain at the top or bottom of the indicative RIIO-2 range. In practice we might expect that the current low observed market costs of equity (and debt) may increase over time (or at least fluctuate significantly over time), leading to a potential upwards adjustment of the RIIO cost of capital at some point in the future. However, at this point in time, there is limited

---

<sup>28</sup> The cost of equity under the counterfactual RIIO-T1 period is presented as RPI real

<sup>29</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/12/riio-2\\_finance\\_annex.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/12/riio-2_finance_annex.pdf)

<sup>30</sup> CPI real

evidence to suggest that it will not remain in line with the RIIO-2 range in the long-term.

- 3.7 **These RIIO counterfactual figures should not be read as any confirmation of the rates applicable for RIIO-2** (or subsequent RIIO periods) – we have used them solely as a means of ensuring that our benefits case is sufficiently conservative to give comfort that the implementation of the CPM is likely to provide benefits for consumers once the final cost of capital is determined.

## Appendix 4 – Further detail on CPM

### Project specific updates to CPM

- 4.1 The CPM involves setting a largely project-specific set of regulatory arrangements to cover the construction period and a 25-year operational period (rather than for a portfolio of assets under a price control settlement).
- 4.2 The CPM assumes that the full construction debt is raised upfront and then drawn down upon as expenditure is incurred on the project. The allowed cost of capital is applied to the annual allowed expenditure during construction. This allowed expenditure is determined through our detailed assessment of the project costs, which is referred to as the Project Assessment process. By the end of the construction period, the full construction period capital costs allowance will be uplifted by the annual construction cost of capital to determine a total capital cost value at the end of construction. This capital cost value, minus any allowed revenue recovered during construction, will be recovered by the TO over the following 25-year operational period with the operational cost of capital applied.
- 4.3 An annual operating cost allowance will apply during the operational period. We intend to add this annual allowance to the annual recovery of the construction capital cost value across the full 25-year revenue term. The annual revenue allowance during the operational period will be based on this total amount including returns distributed evenly on an NPV neutral basis across the full revenue term.

### Setting the cost of capital under CPM for the Shetland project

- 4.4 We consider that it is most appropriate to fix the allowed construction cost of capital at Project Assessment (see 'Cost assessment and treatment') but only set an indicative cost of capital for the operational period at that time. We will then fix the cost of capital for the operational period at the completion of construction.
- 4.5 We determine the level of cost of capital that TOs are able to recover from consumers during the construction and operational phases of the project. However, we do not mandate that the assumed capital structure within that methodology is followed in the delivery of the project. For example, if a TO wishes to implement a higher project gearing during construction, and allow for a higher return on equity, this would be permitted, as long as it does not result in any consumer detriment relative to the structure assumed within our cost of capital methodology.

### Cost of debt during construction

- 4.6 Under the CPM, we will set the cost of debt during the construction period based on the iBoxx non-financial corporate debt indexes cross-checked against the GB infrastructure index. As explained in the CPM Update, we will use the index covering the debt tenor that best aligns with the construction period of the project. SHE-T has indicated that it anticipates a construction period of approximately 4 years for the Shetland project. The available iBoxx indexes allow us to consider a 3-5 year debt tenor.
- 4.7 The CPM Update explains that our central assumption is that the BBB-rated debt is the appropriate benchmark for projects that meet the criteria for competition. We

therefore consider that the iBoxx BBB-rated 3-5 year non-financial corporate debt index represents an appropriate top end of the range for Shetland.

4.8 Our cost of capital framework for new assets includes an allowed cost of debt for the construction of new interconnector links. The lower end of this range is benchmarked at the iBoxx A-rated 3-5 year non-financial corporate debt index. Given the similarity in technology and construction duration/challenges between the Shetland project and interconnector links, we consider that this represents a suitable benchmark for the bottom end of the range for the Shetland project.

**Table A4.1: Cost of debt during construction**

	<b>Low</b>	<b>High</b>
Index used:	A-rated 3-5 year non-financial corporate	BBB-rated 3-5 year non-financial corporate
Indicative value (nominal):	1.60%	1.85%
Transaction costs:	0.25%	0.50%
Cost of debt (nominal):	1.85%	2.35%
Cost of debt (CPI-real):	-0.15%	0.34%

**Cost of debt during construction**

4.9 We propose that the cost of equity during the construction period under the CPM for Shetland will follow the framework set out in the CPM Update. Under this approach, the cost of equity is derived from benchmarks of the following building blocks of the cost of equity during construction:

- Risk-Free Rate (RFR)
- Total Market Returns
- Equity beta ( $E\beta$ )

### Risk-Free rate

- 4.10 RFR is a measure of the market-derived level of expected return for an investment that faces no risk. In line with the CPM Update, we propose that the RFR for the Shetland construction period will be benchmarked at the 10-year trailing average of the 10-year UK gilt rate. We consider that using the 10-year gilt rate provides sufficient protection from potentially more volatile shorter terms rates.
- 4.11 The RFR used in our Shetland analysis is 0.50% at the low end, and 0.75% at the high end.

### Total Market Returns (TMR)

- 4.12 TMR is a measure of the average expected equity return within the market. We propose that for Shetland, this will, in line with our CPM update and Orkney consultation, be set using a Dividend Growth Model (DGM). This approach is based on prevailing returns on the London stock market (FTSE) all-share index at the point the final allowances are set for the project. Estimated growth rates are then used to derive the extent to which these returns may change over the duration of the construction period.
- 4.13 This approach is used on Shetland to reflect that current market expectations at the point the cost of capital is determined will be more relevant for a one-off transaction to cover the construction period than a longer-term average that has been traditionally used in the past for price control cost of capital that applies to a wider portfolio of assets.
- 4.14 The nominal TMR used in our analysis is 7.85% at the low end, and 8.50% at the high end.

### Equity Beta (E $\beta$ )

- 4.15 E $\beta$  is a measure of how much the specific assets under consideration are expected to vary from the TMR. In the case of the Shetland project, the low end of the range is derived from the E $\beta$  benchmark used in the setting of the cost of capital for SHE-T's RIIO-T1 price control determination. The high end of the E $\beta$  range is derived from analysis of how construction companies, as a comparator to the delivery of construction projects such as Shetland, compare to the expected return in the FTSE All-share index.
- 4.16 The high end of the E $\beta$  range for Shetland we apply is consistent with that applied to offshore transmission to reflect the specific construction risks relating to subsea working (this represents a small uplift relative to the Hinkley - Seabank project).
- 4.17 The E $\beta$  used in our analysis is 0.72 at the low end, and 1.12 at the high end.

## Overall cost of equity during construction

Table A4.2: Overall cost of equity during construction

	Low	High
Total Market Returns (TMR)	7.85%	8.50%
Risk-free rate (RFR)	0.50%	0.75%
Equity risk premium (TMR – RFR)	7.35%	7.75%
Equity $\beta$ :	0.72	1.12
Nominal post-tax Cost of Equity ((Equity risk premium x Equity $\beta$ ) + RFR)	5.79%	9.43%
Cost of Equity (CPI – real)	3.72%	7.28%

## Gearing during construction

4.18 Evidence from specific regulated infrastructure construction projects suggests that, whilst the gearing during construction is likely to be lower than during operation, a level far beyond 65% has been achieved in other regulated infrastructure projects. This is a significantly higher level of gearing than seen in the construction and engineering companies used in the cost of equity analysis. Regulatory protections allow for a higher level of gearing to be achieved than is observed in the comparator set. Therefore, a point between the higher gearing levels seen in regulated projects and the observed level from the equity comparator set has been selected to set a level of gearing during construction of 37.5%.

## Cost of debt during the operational period

4.19 The cost of debt range for the Shetland operational period is derived from the average across the iBoxx 10-year plus index at A-rating and the same index at BBB-rating. This is the same methodology that we will apply to HSB and as outlined in the Orkney consultation.

**Table A4.3: Cost of debt during the operational period**

	<b>Low</b>	<b>High</b>
Cost of Debt (Nominal)	3.00%	3.25%
Cost of Debt (CPI –real)	0.98%	1.23%

**Cost of equity during the operational period**

4.20 The initial cost of equity range for the operational period of Shetland is based on the rates observed in the winning bids under the OFTO regime in Tender Rounds 2 and 3.

**Table A4.4: Cost of equity during the operational period**

	<b>Low</b>	<b>High</b>
Post-tax Cost of Equity (Nominal)	7.00%	8.50%
Post-tax Cost of Equity (CPI-real)	4.90%	6.37%

**Gearing during the operational period**

4.21 Evidence from the OFTO regime supports the view that a higher level of gearing than the 55% assumed in RIIO-T1 for SHE-T is achievable in the operating period of the Shetland project. The operations period gearing used in our analysis is 85% at the low end of the WACC range, and 80% at the high end.

**Adjustments to the arrangements to facilitate a Project Finance approach**

4.22 The cost of equity benchmarks from the OFTO regime reflect the project finance approach that is generally followed under that regime. Whilst we do not consider that the cost of capital ranges for either the construction or operational periods under the CPM specifically require a project finance approach being taken, we are open to funding the efficient costs of securing a project finance approach.

4.23 Specifically, our Project Assessment will consider any costs associated with setting up an SPV for the project, and any necessary reserve accounts or other guarantees required to implement such an approach. Efficient, evidenced costs will be allowed for in the project revenue allowance rather than through the project’s cost of capital. Any



such decision will be on a project-by-project basis and will only be considered where the developing TO specifically confirms its intention to pursue a project finance approach.

### **Allowed revenue during the construction period**

4.24 Evidence from our previous work developing the SPV model and the CATO regime suggested that there can be consumer benefits in allowing revenue during construction for larger projects with extended construction periods. These benefits come from reducing the cost of capital by reducing the cash-flow limitations on the developer. For this reason, for projects under the CPM that we consider require a construction period of over 4 years (excluding pre-construction activities), the CPM will allow for revenue during construction. As the construction period of the Shetland project is expected to last less than 4 years (March 2020 to September 2023), we currently consider that it is not appropriate to allow for revenue to be recovered during the construction period of the Shetland project. However, we set out in our recent SPV model consultation that we would consider the case for revenue during construction where 'the risk profile is such that investors may require a return during the construction period in order to bid efficient financing costs', so would welcome views as to whether the risk profile for the construction period of Shetland merits revenue during construction.

### **Adjustments for inflation**

4.25 Consistent with the principles under RIIO-T1 and under the OFTO regime, the revenue allowance for Shetland under the CPM would be adjusted for inflation. In RIIO-T1 and in OFTOs to date the inflationary adjustment is tied to the Retail Price Index (RPI). Since the Government now uses the Consumer Price Index (CPI or CPI-H) to measure inflation, other regulators, such as Ofwat, have proposed future shifts (or partial shifts) towards the use of a version of CPI to track future adjustments for inflation. As set out in the Orkney consultation, we propose to align the approach taken for both the Orkney and Shetland projects with the wider approach that is ultimately taken forward for RIIO-T2 and OFTOs. We propose to confirm the use of CPI, CPI-H or RPI as part of our Project Assessment process for Shetland.

## **Wider regulatory arrangements under the CPM**

### **Assessment of efficient costs**

4.26 The cost assessment process under the CPM will have three stages. It will consist of:

- a Project Assessment before construction begins,
- annual reporting during the construction period, and
- a Post-Construction Review when construction is completed.

4.27 This section outlines the detail of each of those stages and provides information on how the sharing factor will be applied.

### Project Assessment (PA)

- 4.28 Under the CPM, we intend to formally review and set cost allowances at PA. Capital cost allowances will be finalised at the PA, subject to the outcome of the annual reporting process and Post-Construction Review (PCR), which are explained later in this chapter. Provisional allowances for operating costs will also be set at the PA, before being finalised at the PCR. We currently expect SHE-T to present their formal PA submission to Ofgem only when the conditions of approval have been met. The submission should outline SHE-T's anticipated capital and operational costs.
- 4.29 Capital costs will be formed of controllable firm costs that have been agreed (either incurred or forecasted), and risk and contingency costs that are estimates.
- 4.30 We will also determine the exact value of the sharing factor at the PA. This will be contingent on the risk costs that SHE-T submits as part of the PA. Paragraphs 4.46 – 4.48 of this Appendix outline how we intend to apply the sharing factor.
- 4.31 Our assessment of the firm capital costs will include the following elements:
- consideration of the suitability of the tender processes and subsequent award of contracts;
  - use of benchmarking, where applicable, as a signpost exercise to establish the efficiency of the costs; and
  - detailed review of the submitted firm capital costs on an overall and component basis.
- 4.32 As part of annual reporting and the PCR, we will assess the actual spend in relation to firm costs to ensure that actual spend is in line with the cost allowances set at PA.
- 4.33 We expect that the Shetland project will have areas of cost uncertainty relating to both risk-related expenditure or contingency costs. The uncertain nature of these cost areas is one of the reasons why the capital allowance set at the PA will be reviewed annually and at the PCR.
- 4.34 At PA we will also identify risk costs which we do not consider should be funded up front. This could include risks that are unlikely to occur, but that would be likely to have a large impact, if they did occur. It could also include other risks that are difficult or inefficient to quantify up front. These "qualifying risks" will be treated as part of the PCR.
- 4.35 As part of annual reporting and the PCR, we will assess the actual spend in relation to these costs and update the allowances accordingly.
- 4.36 We propose to set an indicative operational cost allowance at PA based on an efficiency assessment of SHE-T's proposals. This will provide SHE-T with a degree of confidence as to what cost allowance to expect during the operational period. This will include an assessment of SHE-T's proposed inspection and maintenance strategy for the assets once built. We propose to finalise the operational cost allowance at the PCR unless we determine from evidence provided by SHE-T that those costs can be clearly and accurately determined at the PA.

### Annual Reporting

- 4.37 We propose that SHE-T will submit annual reports during the construction phase. The annual submission will include evidence of the expenditure during construction and detail about any costs that have varied from the allowances set at the PA. These costs will need to be well-evidenced and well-documented in the same reporting year in which they occur.
- 4.38 We expect SHE-T's annual report submission to be evidence-based. SHE-T will be responsible for demonstrating that decisions taken in response to such cost variations were efficient.
- 4.39 Furthermore, the link between these cost variations and the risk profile changes should be noted within the annual report submission.

### Post-Construction Review (PCR)

- 4.40 The PCR will serve three main functions:
- assess whether any qualifying risks from the PA have eventuated, and, if so, establish the efficient level of funding under the terms of the CPM (the costs associated with these risks will not be subject to the sharing factor);
  - reconcile all of the remaining actual costs incurred during construction, which will have been reviewed by Ofgem during the annual reporting, against the allowances set at PA (the sharing factor referred to in paragraphs 4.46 – 4.48 will be applied to underspends and overspends on each individual cost item); and
  - finalise the ongoing operational costs for the project.
- 4.41 We consider that this approach to setting cost allowances for the project will ensure that SHE-T is appropriately incentivised to minimise costs of the kind it can control, whilst avoiding SHE-T receiving windfall gains or suffering losses from risks it cannot control.
- 4.42 The result of the PCR would be an update to cost allowances in SHE-T's licence, which will represent the values for the 25-year operational period of Shetland.
- 4.43 We would expect to start the PCR process at the earlier of:
- 90-95% spend committed;
  - one year after the delivery date for Shetland set out in SHE-T's licence; or
  - at any point during construction when it becomes apparent that Shetland will be materially delayed due to factors which are beyond SHE-T's control.
- 4.44 If qualifying risks eventuate after PCR submission by SHE-T but before we reach a decision, we might allow inclusion of the associated cost impacts into the PCR up to a

certain cut off point. This cut off point will be specified as part of the PA, to ensure that there is no unreasonable delay to the PCR process.

- 4.45 It is possible that some of the remaining construction works might be exposed to certain risks beyond the conclusion of the PCR. We would consider providing an ex-ante allowance for managing these risks as part of the PCR, but only where SHE-T is able to provide sufficient evidence that a material level of risk remains, and that it remains outside of its control.

### **Sharing Factor**

- 4.46 We propose that SHE-T will share underspend or efficient overspend of the cost allowances that we set at PA with consumers. The sharing factor on these costs will be applicable to each specific cost item as opposed to the total risk pot, and will be assessed on a case-by-case basis. This will retain the incentive on SHE-T to drive down the construction costs. Under CPM, SHE-T would not face the same natural commercial pressure to limit its cost exposure as offshore windfarm or interconnector developers.
- 4.47 No sharing factor will be applicable to expenditure associated with the qualifying risk costs set out in paragraph 4.34 of this Appendix. For those events, SHE-T will receive full funding for the costs providing that those events are eligible for funding under the PCR and the costs are efficiently incurred.
- 4.48 We propose that the exact calibration of the sharing factor will be determined at the PA. Whilst our starting expectation is that it will be set at a similar level to currently in place under RIIO-T1, broadly 50%, the final calibration will be contingent on the proportion of the total costs that SHE-T submits as part of the PA that we determine should only be funded through the PCR rather than via an ex-ante allowance.

### **Treatment of late delivery**

- 4.49 SHE-T's licence will include a specified date by which the Shetland project must be delivered. If SHE-T does not deliver the Shetland project by this date, in line with our usual processes, we would consider whether any late delivery against this date constituted a breach of the licence condition and whether to consider enforcement action. In considering whether this is the case or not, we would follow our usual processes and policies for enforcement.<sup>31</sup>
- 4.50 Irrespective of whether any delay is treated as a breach of licence requirements, we propose that additional costs incurred during a delay will not be reflected in the revenue allowance during construction. Subject to the arrangements set out in the preceding section, only unavoidable costs incurred during delays will be reflected in the revenue stream and recovered over the 25-year operational period. Where it can be evidenced by SHE-T that a construction delay was unavoidable and outside of its control, SHE-T would be able to earn the allowed construction cost of capital during the length of the delay.

---

<sup>31</sup> A copy of the guidelines can be found here:  
[https://www.ofgem.gov.uk/system/files/docs/2016/12/enforcement\\_guidelines.pdf](https://www.ofgem.gov.uk/system/files/docs/2016/12/enforcement_guidelines.pdf)

- 4.51 The latest point at which the PCR will be triggered is one year following the delivery date for the Shetland project set out in SHE-T's licence. This will provide an opportunity to assess the impact of any delays and ensure that where delays have not been caused by SHE-T, that it remains no better or worse off as a result of the delay.
- 4.52 Our proposed treatment of late delivery is directly comparable to the approach undertaken in the Cap and Floor Interconnector regime.

### **Incentives – operational period**

- 4.53 Of the current incentives in place under RIIO, we expect that the following would be applicable to the operational period of Shetland, as follows:
- Reliability incentive (Energy Not Supplied)
  - Stakeholder satisfaction output
  - Incentive in respect of SF6
  - Network Innovation Allowance
  - Network Innovation Competition
- 4.54 Under SWW, the Shetland assets are likely to contribute towards SHE-T's overall performance across their portfolio of assets, against the first three incentives above. These three incentives in combination reflect a comparable balance of risk/reward with the operational incentives that apply to OFTOs. We therefore consider that under the CPM it would be appropriate for the Shetland assets to contribute towards the first three incentives above.
- 4.55 Under those arrangements, the annual revenue allowances for Shetland would be included in the calculation of maximum up and downside exposure to these incentives during the operational period of the Shetland project. Performance against these incentives would be reported and rewarded or penalised as part of SHE-T's overall price control arrangements. It is possible that there may be material changes to the RIIO incentives that apply to Shetland before we finalise the operational cost of capital and cost allowances for Shetland at the end of construction. If this happens, we will make adjustments at the PCR to how those incentives apply to Shetland to ensure they continue to reflect a comparable balance of risk/reward with the operational incentives that apply to OFTOs.
- 4.56 Under standard project finance arrangements projects are typically subject to specific operational period performance incentives that can be directly measured for that project. As set out in paragraph 4.42, if SHE-T finances Shetland through project finance, it may request a licence modification for Shetland to allow the application of project-specific operational period performance incentives for Shetland. This might include for example a project-specific availability incentive for Shetland. In considering any such request we would want to ensure that any project-specific incentives for Shetland were directly measurable and reflected a comparable balance of risk/reward with the operational incentives that apply to OFTOs.

### **Cost reopeners – operational period**

- 4.57 Similar to OFTOs and Interconnectors, the CPM will include a cost reopener mechanism to compensate SHE-T for low probability, high impact events that SHE-T cannot control (e.g. force majeure events) that trigger a sufficient increase in opex costs. The exact threshold we set for reopening the opex costs will depend upon the quantum and nature of the opex costs identified at PA, and will likely be proportionate to the threshold set under the OFTO regime. SHE-T would be able to make a claim for any efficiently incurred additional costs beyond the relevant threshold where a qualifying event occurs during the operational period.
- 4.58 In addition, in line with the OFTO regime, the CPM for Shetland will provide protection against certain unanticipated changes in law. Under these arrangements, SHE-T would be able to claim for material increases in costs associated with specific changes in law that impact directly on the cost it incurs on Shetland.

### **Additional capex requirements – operational period**

- 4.59 During the revenue term, it is possible that the Shetland assets in place will need to be upgraded to accommodate additional capacity or connections. Where any upgrade is demonstrated to be needed, and the upgrade is forecast to meet the competition criteria (i.e. the upgrade is new, separable and high value), we expect the regulatory treatment will mirror the prevailing arrangements in place at the time. This could mean the CATO, SPV model or the CPM are implemented to deliver the upgrade.
- 4.60 Where such a network upgrade is demonstrated to be needed but does not meet the criteria for competition, we propose setting a cost allowance for the work based on prevailing RIIO arrangements and market conditions at the time the cost allowance is set.

### **Identifying Shetland costs – operational period**

- 4.61 It will be important to ensure that costs associated with Shetland assets incurred during the construction and operational periods are identifiable as separate from the remainder of RIIO-T1 and any future price controls. This will ensure that costs are appropriately captured as relating to Shetland, rather than the wider RIIO portfolio. Where it is efficient to fund Shetland-specific operational costs through an allocation of cost from a wider recorded cost covering work within RIIO, we will expect SHE-T to propose and adhere to a clear and consistent allocation approach.

## Appendix 5 – Privacy notice on consultations

**Delete this box when producing your document.**

**Instructions:** Please edit the content of the generic privacy notice provided below to take account of the specifics of your consultation.

Contact the Data Protection Officer [dpo@ofgem.gov.uk](mailto:dpo@ofgem.gov.uk) if you are unsure about any of the information to be provided to those responding to your consultation.

### 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](mailto: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.

#### 3. With whom we will be sharing your personal data

***(Include here all organisations outside Ofgem who will be given all or some of the data. There is no need to include organisations that will only receive anonymised data. If different organisations see different set of data then make this clear. Be a specific as possible.)***

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

Your personal data will be held for ***(be as clear as possible but allow room for changes to programmes or policy. It is acceptable to give a relative time e.g. 'six months after the project is closed')***

#### 5. Your rights

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

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically

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

**6. Your personal data will not be sent overseas** (Note that this cannot be claimed if using Survey Monkey for the consultation as their servers are in the US. In that case, use “the Data you provide directly will be stored by Survey Monkey on their servers in the United States. We have taken all necessary precautions to ensure that your rights in term of data protection will not be compromised by this”.

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

**8. Your personal data will be stored in a secure government IT system.** (If using a third party system such as Survey Monkey to gather the data, you will need to state clearly at which point the data will be moved from there to our internal systems.)

**9. More information.** For more information on how Ofgem processes your data, click on the link to our [“Ofgem privacy promise”](#).