

# Consultation

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

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**Response deadline:** 08/02/2019

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We are consulting on 14/12/2018. We would like views from people with an interest by 08/02/2019. We particularly welcome responses from generators and local stakeholders on Orkney. 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.

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## Contents

<b>Executive summary</b>	<b>4</b>
Needs case for the Orkney transmission project	4
Assessment of potential delivery models for the Orkney transmission project	6
Next steps	6
<b>1. Introduction</b>	<b>7</b>
What are we consulting on?	7
Scope of this document	7
Context	7
Final Needs Case	7
Competition in onshore transmission	9
Network charging	10
How to respond	11
Your response, data and confidentiality	11
General feedback	12
How to track the progress of the consultation	12
<b>2. Final Needs Case assessment</b>	<b>13</b>
Section summary	13
Introduction	14
Consultancy support	14
Existing network	14
Ofgem review of future Orkney generation scenarios used in SHE-T analysis	15
Tidal	16
Wind	16
SHE-T's Alternative Approach to managing the connections queue	17
Concluding observations – Future generation on Orkney	18
Technical design and costs	19
Technical design	19
Costs	19
Cost Benefit Analysis	20
Constraints-based CBAs	20
Additional CBA	21
Our view on the needs case and proposed conditionality	23
The proposed conditions	23
<b>3. Delivery model</b>	<b>25</b>
Section summary	25
Assessment of the Orkney project against the competition criteria	25
Overview of the criteria	25
Criteria assessment	26
Delivery models for the Orkney transmission project	27
<b>4. Next steps</b>	<b>32</b>
Section summary	32
<b>Appendices</b>	<b>33</b>

## Executive summary

In March 2018 Scottish Hydro Electric Transmission (SHE-T) submitted a Final Needs Case submission to Ofgem for its proposed Orkney project – a c.£260m electricity transmission project to connect the Orkney islands to mainland Scotland by 2022. The Final Needs Case submission is a mechanism for SHE-T to seek confirmation from Ofgem that the project is needed and that an appropriate connection option has been selected. The value of any revenue allowance for SHE-T to deliver the project would be determined by Ofgem at a later point.

This consultation sets out:

- that we are minded to approve conditionally the Final Needs Case for the Orkney transmission project; and
- that we are minded to fund delivery of the project using the Competition Proxy Model (CPM), if our conditions for approval of the needs case are satisfied.

## Needs case for the Orkney transmission project

SHE-T's Final Needs Case proposes that Ofgem approve the Orkney transmission project (a 220MW subsea cable between Orkney and the Scottish mainland) on condition that 70MW of generation on Orkney sign up, by the end of 2019, to a new alternative approach to connection-queue management, which Scottish Hydro Electric Power Distribution (SHEPD)<sup>1</sup> has proposed (SHEPD's 'Alternative Approach')<sup>2</sup>. In its submission, SHE-T outlines that there is significant renewable generation potential on Orkney, particularly wind and tidal, and stresses that this potential generation can only be realised if a new transmission link to Orkney is constructed (as without a link the generation would not be able to export power).

We consider that there is renewable generation potential on Orkney, a view which has been supported by our consultants, DNV GL.<sup>3</sup> We also agree that the current network on Orkney is unable to accommodate any new generation meaning that reinforcements to the network on and around Orkney would be required to connect any new generation there.

However, we have concerns that SHE-T's proposals do not do enough to protect GB consumers from the risks and costs associated with building a transmission link to Orkney, specifically:

1. it has not been demonstrated that a 220MW link is beneficial for GB consumers if only 70MW of generation uses that link. A broader consideration of the cost benefit case for the link, suggests that a higher threshold of generation would more appropriately balance the risk between GB consumers and Orkney generators;
2. there remains uncertainty that significant levels of generation would be built on Orkney even if a link was constructed. This is because no new wind generation has yet secured planning consent and although tidal generation has secured planning consent,

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<sup>1</sup> SHEPD is the distribution arm of Scottish and Southern Electricity Networks (SSEN), which is the parent company of both SHE-T and SHEPD.

<sup>2</sup> SHEPD is currently developing an 'Alternative Approach' to trial new ways of managing the generation connection queue on Orkney which differs from conventional arrangements because it would involve (i) each project in the connections queue being regularly reassessed to prioritise generators who are 'ready to connect' and (ii) temporarily adjusting existing financial security arrangements that generators are subjected to on Orkney. SHEPD's Alternative Approach is still subject to Ofgem approval. Ofgem is assessing this separately to the Final Needs Case, as discussed in paragraphs 2.18 – 2.22 of the main document.

<sup>3</sup> We engaged DNV GL on certain aspects of the assessment of the Orkney Final Needs Case and have published its report alongside this consultation.

both our and SHE-T's analysis indicates that the likelihood of tidal generation providing material financial commitment and beginning construction before end of 2019 is very low;

3. signing up to SHEPD's Alternative Approach does not provide enough confidence that prospective generation will progress to construction and full operation, which risks consumers paying for a significantly underutilised link.

We have set out in this consultation our proposed approach to addressing the concerns identified above. Our proposal is to set a number of conditions relating to the generation coming forward on Orkney, which would need to be met to our satisfaction by the end of 2019 in order for us to approve the Final Needs Case. We consider that setting such conditions provides an enabling regulatory framework that clearly signals what is required for regulatory approval of the transmission link whilst also ensuring a more appropriate balance of risk between generators on Orkney and wider GB consumers. Our proposed conditionality for approving the link is as follows:

For Ofgem to approve the Final Needs Case for the proposed 220MW Orkney transmission connection, SHE-T must demonstrate, by no later than December 2019, that a total of at least 135MW of new generation on Orkney has either:

- A. been awarded a Contract for Difference in the 2019 CfD Auction; or
- B. secured planning consent and secured finance to construct its generation project.

We consider that network users should face cost-reflective charges for network access. Under the current arrangements, distribution-connected generators on Orkney would not pay network charges that are reflective of the costs of the new link. In July 2018 we proposed to review the applicability of transmission network charging arrangements to distributed generation, as part of a Significant Code Review (SCR) of network access and forward-looking charge arrangements.<sup>4</sup> We intend to publish a decision on whether to launch an SCR before the end of 2018.

Alongside our decision on whether to launch an SCR, we intend to write an open letter to generation developers highlighting potential future changes to electricity network access and charging arrangements. The aim of this open letter is to ensure generators and potential generators are informed of any potential changes, given the impact that they may have on the business case of generation and the costs and benefits of new network investment. Changes to access and charging arrangements have potential impacts for all generators. However, in our letter we particularly draw out the potential impact for generators on Orkney and other Scottish islands where transmission links are planned. More information can be found in our letter, which will be published alongside our decision on whether to launch an SCR, before the end of 2018.

We welcome stakeholders' views on the need for a transmission link to Orkney and the proposed conditions for approval, including whether there are other ways to ensure an appropriate balance of risk between generators on Orkney and wider GB consumers.

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<sup>4</sup> 'Getting more out of our electricity networks by reforming access and forward-looking charging arrangements', 23 July 2018; <https://www.ofgem.gov.uk/publications-and-updates/getting-more-out-our-electricity-networks-through-reforming-access-and-forward-looking-charging-arrangements>

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

We confirmed in our January 2018 and September 2018 updates on competition in onshore transmission<sup>5</sup> that we intend to consider the CPM and Special Purpose Vehicle (SPV) delivery models for all future Strategic Wider Works (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 the SWW, the default delivery model under RIIO-T1, alongside the CPM and SPV models.

We consider that the Orkney project meets the criteria for competition and therefore may be suitable for delivery through either the Competition Proxy or SPV delivery models.

Consistent with the pause to our development of the CATO regime<sup>6</sup>, we are not proposing that the Orkney 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 Orkney transmission project to the contracted grid connection dates. If the delivery date for Orkney 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 Orkney project. As such, we do not propose to apply the SPV model to delivery of the Orkney transmission project, although if delivery dates on Orkney 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 Orkney project could deliver savings to consumers in the region of £12m - £25m, relative to delivery under the SWW RIIO delivery arrangements. We do not consider that the CPM would risk the delivery of the Orkney project to its currently stated delivery dates.

As such, we are consulting on a **minded-to position of funding delivery of the Orkney 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 Orkney transmission project in spring 2019. This will confirm our view on the Final Needs Case for the project including the associated conditionality. If we decide to approve the Final Needs Case, we will confirm our decision on the delivery model at the same time.

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<sup>5</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>6</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 Orkney project, a c.£260m electricity transmission connection that Scottish Hydro Electric Transmission (SHE-T) is proposing to construct between the Orkney islands and Scottish mainland by 2022.

#### Scope of this document

1.2. This document covers two broad areas:

- **Our assessment of the Final Needs Case for the Orkney transmission project:** This includes a consideration of the technical design and costs of the proposed link, the potential generation on Orkney driving the need for the project, and our proposal for potential 'conditions' that we may apply to our ultimate approval of the needs case. Chapter 2 of this consultation covers these points.
- **Our assessment of potential delivery models for the Orkney transmission project:** This covers our assessment of the project against the new, separable and high value criteria for competition and our minded-to view on applying the Competition Proxy delivery model, which we consider would deliver best value for GB consumers. Chapter 3 of this consultation covers this area.

1.3. The views set out in this document and the accompanying DNV GL report 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

1.4. 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.

1.5. 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 'Strategic Wider Works' (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.

1.6. We are currently assessing SHE-T's Final Needs Case. Our SWW assessment process is made up of 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.

1.7. The Orkney transmission project did not have an Initial Needs Case assessment 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

1.8. 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 and pylons nor take a view on what additional visual mitigation measures 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

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

1.10. 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 Orkney, Shetland and the Western Isles), to compete for a CfD in Pot 2 in the third CfD allocation round. BEIS' decision to allow RIW to bid in to Pot 2 was partially driven by the fact that RIW generators

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<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)

face significantly higher costs than other onshore wind of connecting to, and using, the transmission system, due to their distance from the mainland.

1.11. In November 2018 BEIS set out further information<sup>8</sup> on the third CfD allocation round, including the budget that would be allocated to the round.

1.12. The inclusion of RIW in the CfD allocation rounds has relevance for our Orkney assessment because we anticipate that prospective generators on Orkney 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 Orkney may not proceed without a CfD.

### **Competition in onshore transmission**

1.13. 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.

1.14. 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.

1.15. 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.

1.16. 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.

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

1.17. 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:

- 1.17.1. 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;
- 1.17.2. 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.

1.18. 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:

- 1.18.1. A consultation on the commercial and regulatory framework for the SPV model;
- 1.18.2. an update of how we expect the CPM, developed in the context of the Hinkley-Seabank project, will be applied to future electricity transmission projects that meet the criteria for competition; and
- 1.18.3. 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.

1.19. 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.

## **Network charging**

1.20. As part of our proposed review of access and forward-looking charges, we are considering whether to review how distribution connected generation is charged for the electricity transmission system.<sup>9</sup> This work is relevant to generators on Orkney because the review is proposing to consider aligning the transmission charges for distribution-connected generators that are below 100MW with that of larger generators. This would ensure that all generators receive the same transmission forward-looking charging signals (e.g. credits in zones where they are expected to reduce long-term transmission costs and charges where they are expected to increase long-term costs).

1.21. Potential changes associated with this work, and wider potential changes to the charging regime, may affect the charges faced by present and future generators on Orkney, as well as generators across the rest of GB. For example, as part of our Targeted Charging

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<sup>9</sup> We consulted on this in July 2018: <https://www.ofgem.gov.uk/publications-and-updates/getting-more-out-our-electricity-networks-through-reforming-access-and-forward-looking-charging-arrangements>

Review minded-to decision we proposed changes to the charging arrangements that apply to smaller (below 100MW) distribution-connected generators (e.g. proposing to apply balancing service charges to these generators).<sup>10</sup>

1.22. We will publish an open letter to all generation developers before the end of 2018 highlighting the potential future changes to electricity network access and charging arrangements. The aim of this open letter is to ensure generators and potential generators are informed of the potential changes, given the impact that they may have on the business case of generation and the costs and benefits of new network investment. This letter will be published alongside our decision on whether to launch a review of access and forward-looking charges.

### **How to respond**

1.23. 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 by no later than 8<sup>th</sup> February 2019.

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

1.25. 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**

1.26. 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.

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

1.28. 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 4.

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<sup>10</sup> 'Targeted charging review: minded to decision and draft impact assessment', 28 November 2018; <https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-minded-decision-and-draft-impact-assessment>

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

## General feedback

1.30. 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:

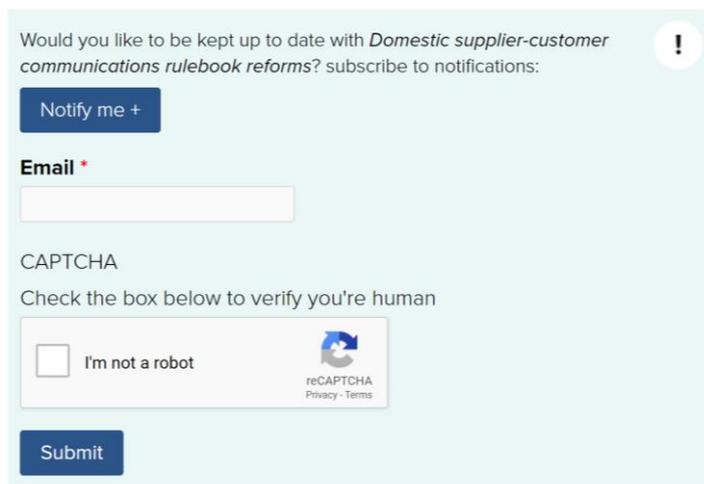
1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6.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

1.31. Please send any general feedback comments to [stakeholders@ofgem.gov.uk](mailto:stakeholders@ofgem.gov.uk)

## How to track the progress of the consultation

1.32. 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).

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## 2. Final Needs Case assessment

### Section summary

This chapter covers our assessment of SHE-T's Final Needs Case submission for the Orkney project, including:

- an overview of the current electricity network on Orkney;
- an evaluation of the generation scenarios presented by SHE-T;
- our high level views on the technical design of the project and its costs;
- a review of the CBA methodology used by SHE-T, including subsequent additional CBA carried out at our request; and
- our concerns with the needs case as presented and our initial proposal of conditions of approval that would address those concerns.

### Questions

**Question 1:** Do you agree that the current network on Orkney 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 progressing without subsidy support and the likelihood of tidal generation around Orkney developing to the levels predicted by SHE-T's scenarios.

**Question 3:** What are your views on the technical design and costs of the proposed Orkney link?

**Question 4:** Do you agree with our concerns that a constraints-based CBA may not robustly demonstrate the true consumer cost/benefit of a radial extension to the transmission network?

**Question 5:** What are your views on the 'additional CBA', outlined in this chapter, which has been used to sense check the results of the original constraints-based CBA?

**Question 6:** What are your views on our proposed conditions of approval? Specifically:

- i. Do you agree with our view that the information available does not demonstrate that building a 220MW connection to Orkney would be beneficial for GB consumers if only 70MW of generation came forward to use the link? Do you agree with our proposal to set a minimum-generation threshold of 135MW?
- ii. Do you agree that the fact of a generator signing up to SHE-T's 'Alternative Approach' does not provide an adequate level of certainty that the generator will progress to full commissioning?
- iii. Do you agree that the award of a CfD to a generator would provide an adequate level of certainty that the generator will progress to full commissioning?
- iv. Do you agree that, in the absence of a CfD, a generator securing planning consent and finance to construct a project is a good indicator of a project's likelihood of progressing to commissioning?
- v. If you answered no to questions (iii) and (iv) above, can you propose any alternative ways to assess, to an adequate level of certainty, whether a generation project will progress to commissioning?

## Introduction

2.1. SHE-T submitted its Final Needs Case for the Orkney transmission project in March 2018 under the RIIO SWW mechanism. The Final Needs Case proposes construction of a 220kV (c £260m) High Voltage Alternating Current (HVAC) subsea transmission link, electrically rated at 220MW, between mainland Scotland and Orkney to be delivered by 2022. SHE-T has made its proposal contingent on 70MW of generation signing up to SHE-T's 'Alternative Approach'<sup>11</sup>, by the end of 2019.

2.2. SHE-T considers that another 220MW link would also need to be constructed later in the 2020s were all of the generation that it has identified to ultimately progress to full commissioning. However, SHE-T is currently only seeking approval for one 220MW link.

2.3. 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 SHE-T's CBA for the project. We set out our concerns with SHE-T's Final Needs Case and the conditions we propose to apply to our approval of the needs case to address those concerns.

### Consultancy support

2.4. We appointed DNV GL to provide independent analysis and expertise to support our assessment of the Final Needs Case. The scope of DNV GL's assessment covered SHE-T's generation scenarios, the costs and technical design of the project and the delivery plan for constructing the project. The final report provided by DNV GL is published alongside this document. This public version is redacted to account for commercial considerations associated with SHE-T's ongoing delivery programme for Orkney.

## Existing network

2.5. Orkney is currently connected to mainland Scotland by two 33kV subsea distribution cables. These cables, and Orkney's on-island 33kV infrastructure, are owned and operated by Scottish Hydro Electric Power Distribution (SHEPD). The existing 33kV SHEPD cables provide a total import and export capacity in the region of 40MW.

2.6. There is around 75MW of renewable generation connected at distribution level already on Orkney which is managed by SHEPD's Active Network Management (ANM) scheme.<sup>12</sup> Due to the heavy constraints that now exist on SHEPD's Orkney network, SHEPD is currently not allowing any new generation connections on the island's distribution network.

2.7. In addition to the distribution level constraints, potential renewable generation projects on Orkney that would connect into the transmission system have historically not been able to develop into financially viable projects due to the unusually high Transmission Network Use of System charges (TNUoS) that would apply on the Orkney islands. These high charges would result from the distance of these projects from the main transmission system.

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<sup>11</sup> See paragraphs 2.18 – 2.22 for further information on the Alternative Approach.

<sup>12</sup> ANM takes account of the island demand and the export cable capacity to optimise the power output from local generation. If demand is low or a 33kV fault occurs, the ANM system takes an action to switch generation off as appropriate to remain within the remaining system capability.

The changes to the CfD regime referenced in paragraphs 1.9 – 1.12 have been introduced in part as a result of this.

## Ofgem review of future Orkney generation scenarios used in SHE-T analysis

2.8. SHE-T’s Orkney Final Needs Case submission assumes that a significant level of wind and tidal generation on Orkney would progress to full operation by 2032 if a transmission link to the mainland were to be built.

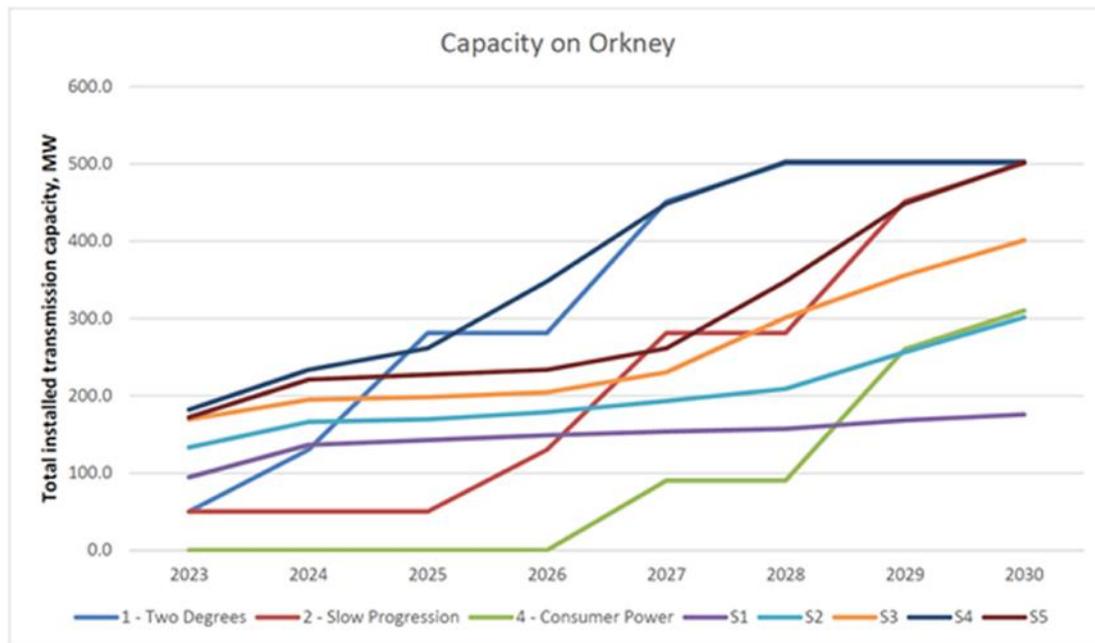
2.9. In support of this, SHE-T presents various generation scenarios that it has developed with the assistance of its consultants, Gutteridge, Haskins & Davey (GHD). SHE-T also presents the Future Energy Scenarios (FES – developed in 2017 by National Grid in its role as Electricity System Operator (ESO)), as they pertain to generation on Orkney.<sup>13</sup> Table 1 and Figure 1 below summarise the scenarios SHE-T developed with GHD and the FES.

**Table 1: GHD scenarios and FES 2017 generation scenarios up to 2032**

Generation scenario	FES - SS	GHD - S1	GHD - S2	FES - CP	GHD - S3	FES - SP & TD	GHD - S4 & S5
New wind generation connected on Orkney (MW)	0	125.9	149.9	0	177.2	190	195.5
New tidal generation connected on Orkney (MW)	0	46.4	146.9	310	224.4	310	302.9
Other renewable generation connected on Orkney (MW)	0	1.9	1.9	0	1.9	0	1.9
<b>Total generation connected on Orkney (MW)</b>	<b>0</b>	<b>174.2</b>	<b>298.7</b>	<b>310</b>	<b>403.5</b>	<b>500</b>	<b>500.4</b>

<sup>13</sup> The four FES presented by the ESO in 2017 were Steady State (SS), Consumer Power (CP), Slow Progression (SP) and Two Degrees (TD).

Figure 1: Deployment of generation on Orkney by 2032 according to three of the FES 2017 and scenarios developed by GHD (image provided by GHD).<sup>14</sup>



2.10. 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. The ESO’s CBA is discussed further in paragraphs 2.33 – 2.37.

2.11. Our views on the generation scenarios presented by SHE-T are set out in the following paragraphs.

**Tidal**

2.12. The six highest generation scenarios assume a significant amount of tidal generation will come forward by 2032. Both we and DNV GL consider that these tidal assumptions are highly ambitious given that tidal is still a young and developing technology which has never been operated at such a scale. We understand that the Alternative Approach, which prioritises generators which are ‘ready to connect’, is at least in part designed to address connection queue management issues caused by the presence of large tidal projects at the top of the queue that are not ready to proceed.

2.13. We consider that there is significant doubt that a material volume of tidal generation will develop on Orkney by the early/mid 2020s.

**Wind**

2.14. In SHE-T’s generation scenarios between 125MW and 195MW of wind generation is assumed to connect on Orkney by 2032. SHE-T considers that there is a strong likelihood of this level of generation progressing because there are high wind load factors on Orkney and

<sup>14</sup> Figure 1 only shows the CP, SP and TD FES as there is no generation to show on the graph under SS.

as a result of this, wind generation on Orkney may not need a subsidy such as a CfD in order to progress to be financially viable.

2.15. We agree that the high load factors on Orkney may make it an attractive location for wind farm developers. This is a view which has been supported by DNV GL and by various stakeholders that have contacted us during our assessment.

2.16. However, based on the information we have reviewed, we consider that there are various factors that raise doubts about the timing and scale of future wind generation on Orkney:

- 2.16.1. Only two potential wind projects on Orkney have connection agreements in place with the ESO.
- 2.16.2. None of the potential wind generation on Orkney identified by SHE-T have secured planning consent and the two projects that have submitted their planning applications have both had them rejected – although we note that those projects have a right of appeal.
- 2.16.3. Based on the fact that no Orkney wind generators have yet been awarded planning consent, it currently appears unlikely that many generators on Orkney will be in a position to bid into the 2019 CfD auction (as planning consent is an eligibility requirement). However, we note that another CfD auction is currently planned for 2021, so there may be an opportunity for more projects in Orkney to participate in that auction.
- 2.16.4. SHE-T has argued that some generators on Orkney will not need a CfD or any subsidy in order to progress their projects. However, there is very limited evidence of onshore wind generation in GB commissioning without the support of some form of subsidy – we are only aware of one project, which was itself an extension of an existing windfarm already supported by a subsidy.
- 2.16.5. Furthermore, as outlined in Ofgem’s July consultation on Access Reform, it is possible that distribution connected generators may pay some form of transmission charge in the future – given the high transmission charges on the island, this may impact the financeability of distribution connected wind projects on Orkney.

2.17. As such, whilst we accept that the weather conditions on Orkney are favourable for wind generation projects, we consider that even if a link is built there will be significant uncertainty as to how much wind generation on Orkney will progress to full commissioning by 2022 (the year by which SHE-T propose the link would be built) or 2032 (the date used in the generation scenarios).

### **SHE-T’s Alternative Approach to managing the connections queue**

2.18. To streamline the process for future generation connecting on Orkney, SHEPD has proposed an ‘Alternative Approach’ to managing the generation queue on the Orkney islands. The Alternative Approach comprises a trial of two parts:

- 2.18.1. **Queue management:** This would differ from conventional arrangements (first to contract, first in queue) and focus on a process whereby generators are regularly

assessed to ensure generators that are 'ready to connect' are prioritised in the queue.

- 2.18.2. **Adjusted securities:** SHEPD is also proposing to temporarily adjust the financial security arrangements to which Orkney generators are subject between July 2019 and March 2020.

2.19. SHE-T & SHEPD anticipate that these developments, if successfully implemented, will lead to a significant progression of renewable generation projects on Orkney over the next few years.

2.20. SHEPD formally submitted a derogation request to us in August 2018, with reference to the implementation of their proposed trial of the Alternative Approach. We have reviewed this derogation request separately to the Final Needs Case and have published a separate consultation on it today, so that it will be possible for stakeholders to review and respond to both simultaneously.<sup>15</sup>

2.21. There are links between the Alternative Approach and the Final Needs Case. We have provided below a summary of our views in relation to the Alternative Approach, as these pertain to the Final Needs Case submission, but our complete views on the Alternative Approach are set out in the specific consultation on it published today.

- 2.21.1. Generally, we consider that the queue management aspect of the Alternative Approach, referenced in paragraph 2.18.1 above, would facilitate the progression of wind generation on Orkney during the early 2020s, and that without this element of the Alternative Approach it may not be possible for significant levels of generation to progress on Orkney in the short-term.
- 2.21.2. We have concerns however that whilst adjusted financial securities may marginally improve the prospects of Orkney generators, it may do so by increasing the exposure to risk faced by GB consumers. It also provides a competitive advantage to one group of generation customers over generation customers elsewhere in the UK.

2.22. As referred to above, we have considered the implications of the Alternative Approach for our Final Needs Case assessment. We do not consider that the outcome of the derogation process for the Alternative Approach would affect our assessment of the Final Needs Case and our proposed conditional approval.

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

2.23. In summary, although we acknowledge that Orkney is an area of significant wind and tidal potential, we consider that the future of generation on Orkney is significantly more uncertain than outlined by SHE-T in its submission. Tidal generation is still a young and developing technology, and wind projects on Orkney are still at a very early stage of development and their financial viability is uncertain.

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<sup>15</sup> <https://www.ofgem.gov.uk/publications-and-updates/derogation-request-scottish-hydro-electric-power-distribution-plc-shepd-implement-proposed-trial-their-alternative-approach-orkney>

2.24. In considering the needs case submitted by SHE-T we therefore need to factor in this uncertainty when determining, by the end of 2019, the appropriate balance of risk between generators on Orkney and local and GB consumers. For example, approving a large link in 2019, based on little certainty of significant generation coming forward in Orkney by 2022 to use that link risks consumers paying for a significantly underutilised link. On the other hand, rejecting the need for a link or approving a much smaller link in 2019, based on waiting until there is further certainty (eg in 2021 or 2022), risks preventing potentially significant levels of wind generation on Orkney coming forward by 2022 or perhaps into the mid-2020s. We consider how to appropriately balance this risk at the end of this chapter.

## Technical design and costs

### Technical design

2.25. The technical design of SHE-T's proposed transmission link to Orkney has been reviewed by Ofgem's internal engineering experts and DNV GL.

2.26. Both we and DNV GL 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 Orkney 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.

2.27. Both we and DNV GL highlighted that SHE-T, in conjunction with SHEPD, should have done more at an earlier stage to consider the option of upgrading the two existing 33kV cables to 66kV, particularly as one of the cables is due to be replaced in the early 2020s. We have since discussed this option with SHE-T. SHE-T has outlined to our satisfaction that the cost saving of this option to its proposed option would be negligible relative to the additional capacity provided by a 220kV option.

2.28. Other than the consideration of 66kV upgrades, we are comfortable that SHE-T's analysis has considered an appropriate range of technical solutions for connecting the Orkney islands.

### Costs

2.29. The cost of SHE-T's proposed transmission link to Orkney and the cost of the alternative designs that were assessed through the CBA have been reviewed by Ofgem and DNV GL.

2.30. Our cost assessment of the Final Needs Case shows that the costs for the proposal and its alternative designs are broadly appropriate for the purposes of selecting a preferred connection option i.e. we don't consider that the costs used in the CBA have prejudiced its results.

2.31. However, across the different options submitted, costs are consistently higher than we would expect. Two particular areas to highlight in that regard are the procurement and installation of underground cables, and the high provision for risk and contingency.

2.32. We will undertake a further scrutiny of costs at the Project Assessment stage.

## Cost Benefit Analysis

### Constraints-based CBAs

2.33. 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 analysis of reinforcement options identified by a TO.

2.34. 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>16</sup> that each of these options relieve under a variety of generation scenarios (in this case, the scenarios presented in Table 1 and Figure 1). The ESO provided the following summary of the CBA methodology in the report that accompanied the Orkney CBA:

*2.34.1. "Fundamentally, the CBA compares the Present Value (PV) of reinforcement costs with the PV of forecasted constraint cost savings. Where constraint cost savings exceed the investment cost, then the reinforcement may be economic. In order to develop robust conclusions a range of generation backgrounds, design options and sensitivities have been considered. For each reinforcement option, the PV of both the annual constraint savings and the associated transmission reinforcement cost is calculated; their difference gives the option's Net Present Value (NPV). A positive NPV implies the investment could be cost effective... The options' NPVs are used to perform Regret analysis, and subsequently to determine the preferred reinforcement option based on a Least Worst Regret (LWR) approach."<sup>17</sup>*

2.35. The LWR option produced by the CBA is a 220MW transmission link to Orkney to be delivered by 2022, with a second cable then being delivered in 2024. This result is strongly influenced by the assumption of over 300MW of tidal generation connecting in the more ambitious generation scenarios. The ESO's analysis shows that if no tidal is assumed, the result of the CBA is that a 132MW cable is the only transmission link that is ever required. This demonstrates the sensitivity of the CBA results to the generation scenarios used. As outlined in paragraphs 2.8 - 2.24, we have concerns regarding the robustness of SHE-T's generation scenarios.

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<sup>16</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.

<sup>17</sup> Further wording on regret analysis taken from the ESO's CBA report: "Regret analysis is designed to identify solutions which are least likely to be wrong across the range of scenarios/uncertainties studied. Regret analysis does not pick options with the largest NPV, although this could occur coincidentally... the regret is defined as the difference in NPV between 'the option being considered' and 'the best possible option for that scenario', i.e. all options are considered against the option which provides the maximum NPV in that scenario (taking into account the investment and operational costs). It follows that the best alternative has zero regret against which all other options are compared. This analysis is repeated for all scenarios, across which it is possible that different options represent the zero regret alternative in each scenario."

2.36. The CBA indicates that 70MW of connected generation is the threshold for the 220MW link to 'break-even' (i.e. if 70MW of generation uses the link, the constraint costs that it relieves is equal to the cost of the link). On this basis, SHE-T has proposed that the initial 220MW link be approved by Ofgem on condition that 70MW of generation commits to connect by the end of 2019 (by signing up to SHEPD's Alternative Approach).

2.37. The CBA also indicates that the 220MW link is only the most efficient option for consumers if 199MW of generation comes forward on Orkney, i.e. below 199MW of generation, a 132MW link is the best option for consumers. We explore the relationship between the link 'breaking-even' and representing long-term value for money for existing and future consumers in paragraphs 2.45 – 2.52.

### **Additional CBA**

2.38. Constraints-based CBAs are effective at determining the best means of avoiding/reducing constraints in an area of the grid where we know that constraints do, or will, exist. In such cases, the initial constraint costs identify the need to consider a reinforcement, and the CBA identifies the most cost effective means of reducing/removing those constraints, if it is possible to do so.

2.39. However, we are concerned that a constraints based CBA on a link such as Orkney, which is a radial extension to the existing transmission network, is likely to overstate the consumer detriment of not building a link. The constraints being considered in the Orkney CBA do not exist currently, and will not exist unless the link is built – hence it cannot be argued that a need to relieve constraints is driving the need for the link. Indeed, the SO neatly summarises this issue in the report that accompanied the CBA it produced for the Orkney Final Needs Case: *"The implication [in the CBA] is that if SHE-T were to not construct a cable, and the Orkney generation were constructed anyway, the ESO would be obliged to constrain off all generation on the island for its lifetime at a considerable cost... this is unlikely to be the case in reality."*

2.40. Due to these limitations, through the course of our assessment we have worked with SHE-T and the ESO to consider whether an additional CBA could be developed to demonstrate whether building the Orkney transmission project benefits GB consumers.

2.41. The result of that work is a CBA methodology which compares a) the consumer benefits of a wholesale price reduction as a result of additional wind generation connecting to the system against the costs to consumers of b) that wind generation being awarded CfDs; and c) building and operating the transmission link.

2.42. The CBA indicates that, under any likely CfD strike price scenario, building the link would not result in enough of a wholesale price reduction to offset the CfD and link cost, if only 70MW of generation on Orkney uses the transmission link (see results shown in Table 2 below). The CBA also indicates that there is a benefit of connecting Orkney's generators as more and more connect, with different 'break even' values depending on the CfD assumption used.

Table 2: Results of the additional CBA<sup>18 19</sup>

Orkney wind generation	A) Resulting reduction in wholesale price (£m)	CfD strike price £/MWh	B) CfD cost (£m)	C) Link cost (capex + opex) (£m)	A - B - C = Net consumer impact (£m)
70MW	238	70.0	30	293	-85
129MW	386		55	293	37
154MW	431		66	293	71
199MW	534		86	293	155
70MW	238	93.0	64	293	-120
129MW	386		176	293	-83
154MW	431		210	293	-73
199MW	534		271	293	-31

2.43. We recognise that this additional CBA is highly sensitive to differing input assumptions and have not used it in isolation. We have used this analysis to sense check the results of the constraints based CBA. We discuss the outcome of this consideration of the two CBAs in the section below.

2.44. It is worth noting that SHE-T proposed that additional parameters could be included in this additional CBA. Our reasons for not including them in our analysis are outlined below:

- 2.44.1. SHE-T has argued that the connection of wind generation on Orkney could result in a corresponding reduction in non-renewable generation elsewhere in GB, and that the **carbon saving** of this is a benefit to GB consumers. We do not consider that there is sufficient evidence to draw a direct relationship between the connection of wind generation in one area of the network and a reduction in non-renewable generation elsewhere on the network.
- 2.44.2. SHE-T indicated that money paid by generators through **TNUoS charges** should be discounted from the link cost. We haven't discounted TNUoS charges from the cost of the link used in our analysis because of uncertainty regarding which generators (ie. transmission or distribution level) will progress projects on Orkney, and the fact that Ofgem's ongoing proposed Access Reform SCR is considering forward-looking network charges. Furthermore, in practice there is no basis to assume that consumers are completely exempted from costs associated with network charges paid directly by generators.
- 2.44.3. SHE-T also sought to include consumer savings associated with a transmission link **securing demand on Orkney** and removing the need to continue to operate Kirkwall Power Station.<sup>20</sup> We have not included this as a consumer cost

<sup>18</sup> The wholesale price reductions shown in the table have been calculated by the ESO, other than the 70MW value, which is a SHE-T extrapolation of the other results. All values in the table are presented in NPV terms.

<sup>19</sup> The CfD strike prices shown in the table have been selected to present a range of potential CfD bids from Orkney generators and are shown in 2018 prices to be consistent with the rest of the data in the table. It is worth noting that it appears unlikely that at bid of £93/MWh (2018 prices) will be competitive in the 2019 CfD round, but we have included this as it represents the administrative strike price for RIW identified by BEIS (which is £82/MWh in 2012 prices).

<sup>20</sup> Kirkwall Power Station is a 15.5MW plant which, in combination the two 33kV circuits to Thurso from the Scottish mainland, is currently used to secure security of supply on Orkney

saving because very little analysis has been presented in relation to this cost saving.

## Our view on the needs case and proposed conditionality

2.45. Consistent with the Final Needs Case submitted, we consider that there is potential for the development of additional renewable generation on Orkney, that such potential generation cannot be realised without a new transmission link to the islands, and that the connection of additional renewable generation on Orkney could be beneficial to GB consumers. Also consistent with the Final Needs Case, we consider that, given uncertainty surrounding the generation background and implementation of the Alternative Approach, it is appropriate at this stage to make any approval of the project conditional.

2.46. However, based on our analysis, which has been summarised in the preceding paragraphs, we consider that the Final Needs Case put forward by SHE-T risks consumers paying for a significantly underutilised link and thus may not represent long term value for money for existing and future consumers. This is because:

- 2.46.1. it has not been demonstrated that a 220MW link is beneficial for GB consumers if only 70MW of generation uses that link;
- 2.46.2. there is little certainty that significant levels of generation will be ready to commission projects on Orkney during the early 2020s; and
- 2.46.3. generators signing up to the Alternative Approach does not provide an appropriate level of certainty that that generation will progress to full commissioning.

2.47. In order to reasonably address the above concerns, while providing an enabling regulatory framework that allows for the possibility of sufficient generation coming forward on Orkney that would benefit consumers, we propose to **approve the Orkney transmission project subject to the following conditions:**

For Ofgem to approve the Final Needs Case for the proposed 220MW Orkney transmission connection, SHE-T should demonstrate, by no later than December 2019, that a total of at least 135MW of new generation on Orkney has either:

- A. been awarded a Contract for Difference in the 2019 CfD Auction; or
- B. secured planning consent and secured finance to construct its generation project.

### The proposed conditions

2.48. We propose the 135MW threshold based on our consideration of the following factors:

- 2.48.1. We do not consider that the 70MW threshold proposed by SHE-T is robust. 70MW represents the point at which consumers 'break-even' in terms of costs and benefits, which suggests that better value for consumers could be achieved. In addition, 70MW is derived using a CBA methodology which we do not consider is entirely robust when considering the need to construct radial extensions to the

transmission network. We also have concerns regarding the generation assumptions used in the CBA, as outlined earlier in this chapter.

- 2.48.2. 135 MW is the midpoint between the 70MW where SHE-T considers that the CBAs presented with its submission show that the 220MW link 'breaks-even' for GB consumers, and the 199MW where the CBA produced by the ESO shows that a 220MW option is the most efficient outcome for GB consumers. Our view is that a 135MW figure balances the need to enable renewable and low carbon generation whilst protecting GB consumers from unnecessary costs (ie. funding a sub-optimal connection option).
- 2.48.3. We have used the additional CBA produced by SHE-T to sense check the 135MW threshold. That CBA indicates that with 135MW of wind generation connected to a 220MW link, there is a reasonable case that the link will represent value for money for GB consumers.
- 2.48.4. We also consider that the oversizing of the link relative to the threshold of generation required by the end of 2019 provides sufficient headroom for future generation to come forward after that date e.g. generators intending to bid into the 2021 CfD round.

2.49. We propose limbs A and B in our conditional approval to help ensure an adequate level of certainty that potential generators will progress to full commissioning, thus mitigating the risk of consumers funding an underutilised link. We do not consider that generators signing up to the Alternative Approach provides Ofgem with sufficient certainty. We note that by the end of 2019 generators will only have been required to submit delivery plans and enter into new contractual arrangements under the Alternative Approach, which we consider provides insufficient certainty that the relevant generation will ultimately progress to full operation.

2.50. Limb A has been included as we consider that award of a CfD would represent a clear indication that the generation project would progress, and it would also act as strong financial incentive on that generation project to progress to full operation.

2.51. Limb B has been included to accommodate any generators on Orkney that do not intend to bid into the 2019 CfD round. We consider that a generation project being awarded planning consent and securing finance would provide us with sufficient certainty that the project will progress to full operation.

2.52. The December 2019 date has been selected as the backstop date for these conditions because we understand from SHE-T that this is the latest date by which SHE-T would need to begin construction in order to meet the currently planned October 2022 energisation date (though we understand that construction would ideally begin earlier). 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 December 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 December 2019 date.

## 3. Delivery model

### Section summary

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

### Questions

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

**Question 8:** Do you agree with our proposal not to competitively tender the Orkney 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 existing 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 Orkney project?

## Assessment of the Orkney 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:

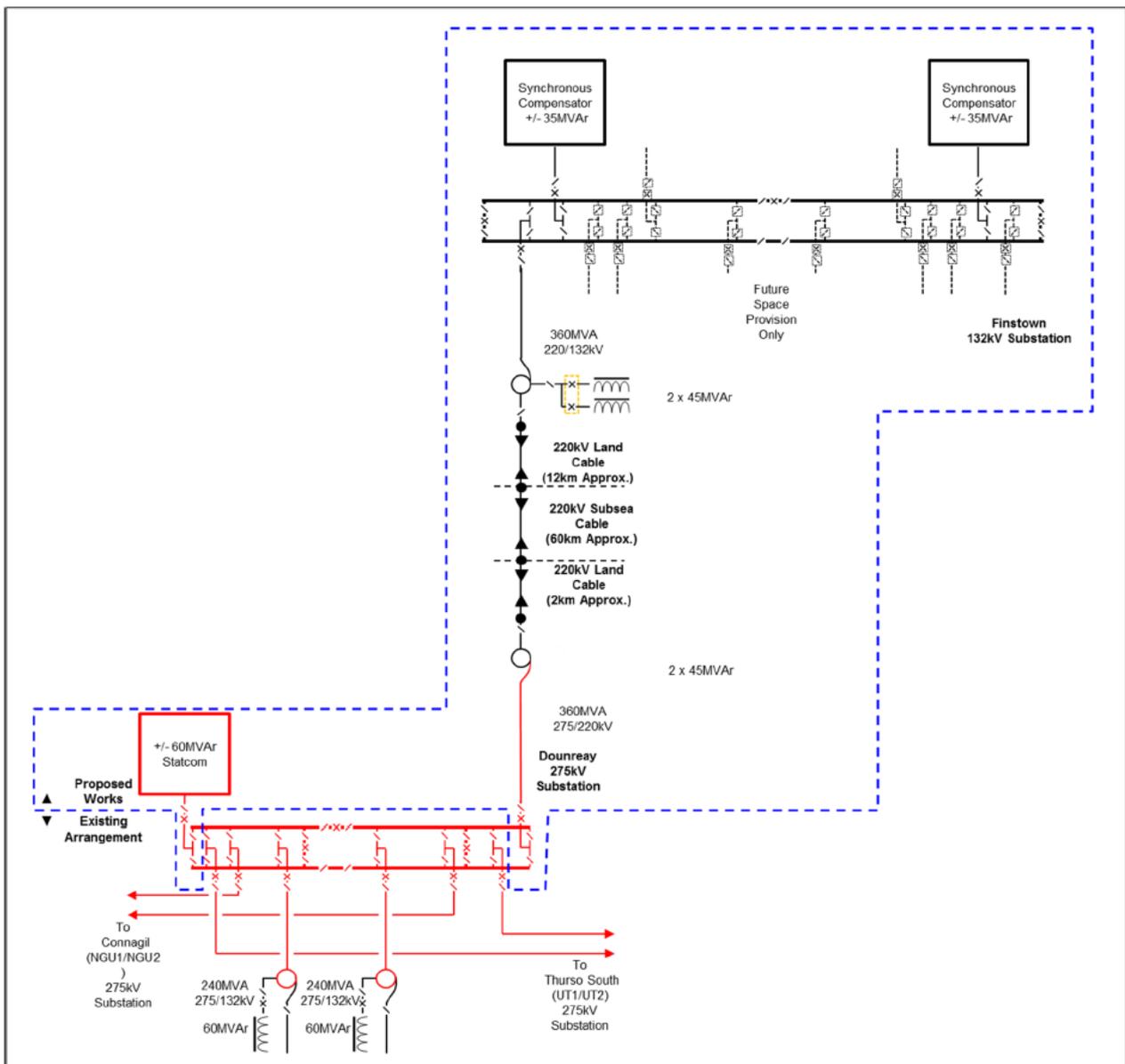
- 3.2.1. New – a completely new transmission asset or a complete replacement of an existing transmission asset.
- 3.2.2. Separable – the boundaries of ownership between the competed assets and other (existing) assets can be clearly delineated.
- 3.2.3. High value – a fixed threshold set at £100m of expected 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. All of the works proposed by SHE-T in relation to the Orkney transmission project are shown in the dashed blue box in the detailed schematic diagram below. This includes a new 132kV substation at Finstown, an extension to the existing 275kV substation at Dounreay, c.60km of subsea cabling and c.14km of onshore underground cabling. Our assessment of the Orkney transmission project against the new, separable and high value criteria is summarised in the paragraphs below. We consider deliverability, transferability and any other project-specific considerations later in the chapter when we consider the consumer impact of potential delivery models.

**Figure 2: Schematic diagram of the Orkney transmission project**



### New

3.5. Our view is that all of the Orkney project as currently proposed by SHE-T (shown within the dashed blue box in Figure 2), meets the new criterion. This includes the respective works on the substations at Finstown and at Dounreay.

### Separable

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

### High Value

3.7. Our view is that the Orkney project, as currently proposed by SHE-T, meets the high value criterion. As set out in paragraph 2.1, the expected cost of the project is around £260m, which is significantly above the £100m capex threshold.

## **Delivery models for the Orkney 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 Orkney 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>21</sup> This Chapter considers the models as they might apply to the Orkney transmission project.

3.9. We are not proposing that the Orkney 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 Orkney transmission project to the contracted grid connection dates. If the delivery date for Orkney 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 Orkney project through the SPV model could, in principle, represent the best overall value for GB consumers.<sup>22</sup> This is because we expect that the SPV model could achieve significant capital and operational cost savings in addition to the financing savings that could be achieved under the CPM.

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 Orkney project, we have concerns as to whether the SPV model would be able meet the required October 2022 energisation date of the Orkney link. This is because in order to align with the current delivery timescales, the SPV tender would need to have been completed by late 2019 or early 2020.

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<sup>21</sup> <https://www.ofgem.gov.uk/electricity/transmission-networks/competition-onshore-transmission>

<sup>22</sup> <https://www.ofgem.gov.uk/publications-and-updates/update-extending-competition-transmission-and-impact-assessment>

3.12. Because of these deliverability challenges, **we do not propose that the SPV model should be used for the Orkney transmission project.** If the delivery date for the Orkney transmission project were to change, we may review our position on the use of the SPV model.

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 Orkney transmission project**

3.14. In January 2018 we published the 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>23</sup> A revised CEPA report was subsequently published in July 2018, alongside our HSB decision to reflect responses received to our January consultation on HSB.<sup>24</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 July 2018. 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 Orkney. This minded-to consultation on the Orkney transmission project does not cover challenges raised previously on CPM where we consider that our views are appropriately represented in the July Decision.

3.16. The September 2018 Update on the Competition Proxy delivery model (“CPM Update”)<sup>25</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.

3.17. Below we set out how we have reached our proposed indicative cost of capital range for the Orkney project under CPM, set out in Table 3.

3.18. In line with the arrangements we set out in our CPM Update, we are proposing certain CPM parameters for the Orkney project which differ to those for HSB. This results in minor differences in the low and high end of the estimated construction period cost of capital (the estimated operational period cost of capital remains the same for Orkney as for HSB). These differing parameters are outlined in full in Appendix 2 and the key parameters are summarised below:

- 3.18.1. Due to the shorter construction period of the Orkney project relative to HSB (3 years, relative to the 5 of HSB) we consider that an iBoxx BBB-rated 3-5 year non-financial corporate debt index represents an appropriate top end of the range for Orkney’s cost of debt, with the iBoxx A-rated 1-3 year non-financial corporate debt index being used at the low end of the range.

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<sup>23</sup> <https://www.ofgem.gov.uk/publications-and-updates/hinkley-seabank-minded-consultation-delivery-model>

<sup>24</sup> <https://www.ofgem.gov.uk/publications-and-updates/hinkley-seabank-decision-delivery-model>

<sup>25</sup> <https://www.ofgem.gov.uk/publications-and-updates/update-competition-proxy-delivery-model>

3.18.2. The high end of the Equity Beta ( $E\beta$ ) range for the Orkney project includes a small uplift relative to HSB, to reflect the specific construction risks relating to subsea working.

3.18.3. We do not include any allowance for revenue during construction for the Orkney project due to the relatively short construction period.

3.19. The RIIO counterfactual used in our analysis is consistent with that which was used in our September 2018 IA. More detail on this counterfactual can be found in Appendix 1 to this consultation.

3.20. We haven't included as part of this consultation a formal IA in relation to the application of the CPM specifically to the Orkney transmission project. This is because we consider that:

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 3 below, details our assumptions regarding the financial parameters of the CPM model for the Orkney project. We have determined these financial parameters based on the project-specific updates to the CPM summarised in paragraph 3.18 (and set out more comprehensively in Appendix 2) and using the CEPA cost of capital methodology referred to above.

3.22. The CPM rates specified are based on September 2017 market rates. If, in early 2019, we conditionally approve the need for the Orkney project, we will re-run the analysis in the methodology for setting the cost of capital for Orkney to adjust for contemporary market rates. Ultimately, if we decide to apply the CPM, we would consult on the final point within the cost of capital range that we set for the Orkney project through the Project Assessment.

3.23. Our analysis assumes a capital (£263m) and operational (£0.9m per annum) expenditure profile consistent with that presented by SHE-T in its Final Needs Case submission, according to which construction would begin in 2020 and end in October 2022. In line with our published parameters for the CPM we assume full regulatory depreciation of the Orkney project over a 25-year operational period.

**Table 3: 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>
Cost of debt (nominal)	1.45%	2.35%	3.00%	3.25%
Gearing	37.50%	37.50%	85%	80%

Post-tax cost of equity (nominal)	5.79%	9.43%	7.00%	8.50%
Vanilla nominal WACC	4.16%	6.78%	3.60%	4.30%
<b>Vanilla RPI-real WACC<sup>26</sup></b>	1.13%	3.67%	0.19%	1.26%
Vanilla CPI-real WACC <sup>27</sup>	2.12%	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 Orkney project costs (ie the capital and operational costs referred to in paragraph 3.23 above) through a project finance model. We then compared these revenue estimates to those derived through applying the RIIO counterfactual referred to in paragraph 3.19 above. To robustly estimate benefits in this way required us to estimate the future levels of rates of return under the RIIO counterfactual.

3.25. Based on this approach, using the financial parameters outlined in Table 3, we expect that the CPM could deliver a saving in the region of **£12m - £25m** relative to delivery under the RIIO counterfactual. This range is derived based on considering the high and low ends of the RIIO counterfactual against the high and low end of our CPM range, shown above. Comparing the mid-point of the CPM range to the high and low RIIO counterfactuals broadens the benefits range to -£1m - £41m.

3.26. We note that the consumer benefit achieved when considering the lower end of the RIIO counterfactual is relatively low. Nonetheless, we consider that it is likely that the CPM will deliver savings greater than this on the Orkney transmission project because:

- 3.26.1. we have taken a relatively conservative (i.e. low value) view of cost of capital under future RIIO periods beyond RIIO-T2 and it is possible that the cost of capital in those future RIIO periods will be higher than identified in our counterfactual; and
- 3.26.2. 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 were towards the low end of our counterfactual. This would require us to set an operational cost of capital for the Orkney 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 Orkney project, and SHE-T’s

<sup>26</sup> RPI is assumed to be 3%, other than at the low end of the operations cost of capital range, where is assumed to be 3.4%

<sup>27</sup> CPI is assumed to be 2%

wider portfolio of assets under the price control arrangements, we do not consider it logical to assume that this is likely to happen.

3.27. As explained in Appendix 2, there is inherent uncertainty around future regulatory arrangements over the period where revenue will be recovered for the Orkney project. This is due to wider uncertainty around future market conditions. For this reason, the above savings range is provided as an illustration only. Nevertheless, we consider that this illustrative range represents, in both absolute and percentage terms, a clear indication that the CPM is likely to yield savings to consumers in the delivery of the Orkney project, even when future market movements are considered.

3.28. We recognise that there is a possibility that GB consumers may pay marginally more, on average c.£500k, on an annual basis during the construction and 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.£1.5m) 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.

3.29. 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 CPM. In the case of the Orkney project that amounts to an NPV of c.£1.7m. We do not consider that these costs would undermine our benefits case for using the CPM on the Orkney project for the reasons set out in paragraph 3.26.

3.30. Finally, we don't 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 work in addition to that which it would undertake if the project were delivered under SWW.

**3.31. For these reasons we are consulting on a minded-to position of applying the CPM to deliver the Orkney transmission project in the event that the conditions of our Final Needs Case approval are met.**

## 4. Next steps

### Section summary

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

4.1. Following the close of this consultation on 08 February 2019, we expect to publish a decision on the Needs Case and delivery model in Spring 2019. Subject to the responses to this consultation, we anticipate that decision will confirm:

- 4.1.1. whether we consider that the Orkney 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 Orkney 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 2 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	RIIO Counterfactual	34
2	Further detail on CPM	35
3	Privacy notice on consultations	46

## Appendix 1 – RIIO Counterfactual

1.1. The benefits case for using the CPM has been established considering the Net Present Value (NPV) impact of the Orkney project if delivered under the CPM against a counterfactual of the project being delivered under SWW and the prevailing cost of capital under RIIO.

1.2. 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.

1.3. 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 second-guess 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.

1.4. 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 safe to assume, for the purpose of this indicative estimate, that the two indexes will average out to comparable levels.

1.5. 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%. 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 March 2018 as part of the RIIO-2 framework consultation.<sup>28</sup> These figures are 5.08% and 3.07% respectively.

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

1.7. **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.

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<sup>28</sup> <https://www.ofgem.gov.uk/publications-and-updates/riio-2-framework-consultation>

## Appendix 2 – Further detail on CPM

### Project specific updates to CPM

2.1. 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).

2.2. 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.

2.3. 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 Orkney

2.4. 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.

2.5. 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

2.6. 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 3 years for the Orkney project. The available iBoxx indexes allow us to consider both a 1-3 year debt tenor and also a 3-5 year debt tenor.

2.7. 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 Orkney.

2.8. Our cost of capital framework for new assets includes an allowed cost of debt for the construction of new offshore wind connections. The lower end of this range for offshore transmission is benchmarked at the iBoxx A-rated 1-3 year non-financial corporate debt index. Given the similarity in level of risk, technology and construction challenges between Orkney and offshore transmission, we consider that this represents a suitable benchmark for the bottom end of the range for Orkney.

**Table A2.1: Cost of debt during construction**

	<b>Low</b>	<b>High</b>
Index used:	A-rated 1-3 year non-financial corporate	BBB-rated 3-5 year non-financial corporate
Indicative value (nominal):	1.20%	1.85%
Transaction costs:	0.25%	0.50%
Cost of debt (nominal):	1.45%	2.35%
Cost of debt (RPI-real):	-1.50%	-0.63%

**Cost of equity during construction**

2.9. We propose that the cost of equity during the construction period under the CPM for Orkney 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
- Total Market Returns
- Equity beta ( $E\beta$ )

Risk-free rate (RFR)

2.10. 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 Orkney 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.

2.11. The RFR used in our Orkney analysis is 0.50% at the low end, and 0.75% at the high end.

Total Market Returns (TMR)

2.12. TMR is a measure of the average expected equity return within the market. We propose that for Orkney, this will, in line with our CPM Update, 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.

2.13. This approach is used on Orkney 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.

2.14. The nominal TMR used in our analysis is 7.85% at the low end, and 8.50% at the high end.

Equity Beta (Eβ)

2.15. Eβ is a measure of how much the specific assets under consideration are expected to vary from the TMR. In the case of the Orkney project, the low end of the range is derived from the Eβ benchmark used in the setting of the cost of capital for SHE-T’s RIIO-T1 price control determination. The high end of the Eβ range is derived from analysis of how construction companies, as a comparator to the delivery of construction projects such as Orkney, compare to the expected return in the FTSE All-share index.

2.16. The high end of the Eβ range for Orkney 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).

2.17. The Eβ 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 A2.2: Overall cost of equity during construction**

	<b>Low</b>	<b>High</b>
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 (RPI – real)	2.71%	6.24%

### Gearing during construction

2.18. 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

2.19. The cost of debt range for the Orkney 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.

**Table A2.3: Cost of debt during the operational period**

	<b>Low</b>	<b>High</b>
Cost of Debt (Nominal)	3.00%	3.25%
Cost of Debt (RPI –real)	-0.39%	0.24%

**Cost of equity during the operational period**

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

**Table A2.4: 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 (RPI-real)	3.48%	5.34%

**Gearing during the operational period**

2.21. 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 Orkney 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**

2.22. 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.

2.23. 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**

2.24. 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 Orkney project is expected to last c.3 years, we currently consider that it is not appropriate to allow for revenue to be recovered during the construction period of the Orkney 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 Orkney merits revenue during construction.

### **Adjustments for inflation**

2.25. Consistent with the principles under RIIO-T1 and under the OFTO regime, the revenue allowance for Orkney 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. For the Orkney project, we propose to align the approach taken for the project 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 Orkney.

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

### **Assessment of efficient costs**

2.26. 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.

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

#### Project Assessment (PA)

2.28. 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 PA submission to Ofgem in Spring 2019. The submission should outline SHE-T's anticipated capital and operational costs.

2.29. 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.

2.30. 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 2.46 – 2.48 of this Appendix outline how we intend to apply the sharing factor.

2.31. 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.

2.32. 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.

2.33. We expect that the Orkney 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.

2.34. 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.

2.35. As part of annual reporting and the PCR, we will assess the actual spend in relation to these costs and update the allowances accordingly.

2.36. 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

2.37. 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.

2.38. 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.

2.39. Furthermore, the link between these cost variations and the risk profile changes should be noted within the annual report submission.

#### Post-Construction Review (PCR)

2.40. 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 2.46 – 2.48 will be applied to underspends and overspends on each individual cost item); and
- finalise the ongoing operational costs for the project.

2.41. 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.

2.42. 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 Orkney.

2.43. We would expect to start the PCR process at the earlier of:

- 90-95% spend committed;
- one year after the delivery date for Orkney set out in SHE-T's licence; or
- at any point during construction when it becomes apparent that Orkney will be materially delayed due to factors which are beyond SHE-T's control.

2.44. 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.

2.45. 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**

2.46. 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.

2.47. The sharing factor will not be applicable to expenditure associated with the qualifying risk costs set out in paragraph 2.34 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.

2.48. We propose that the exact value 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 rate 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**

2.49. SHE-T's licence will include a specified date by which the Orkney project must be delivered. If SHE-T does not deliver the Orkney 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>29</sup>

2.50. 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.

2.51. The latest point at which the PCR will be triggered is one year following the delivery date for the Orkney 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.

2.52. Our proposed treatment of late delivery is directly comparable to the approach undertaken in the Cap and Floor Interconnector regime.

### **Incentives – operational period**

2.53. Of the current incentives in place under RIIO, we expect that the following would be applicable to the operational period of Orkney, as follows:

- Reliability incentive (Energy Not Supplied)
- Stakeholder satisfaction output
- Incentive in respect of SF6
- Network Innovation Allowance
- Network Innovation Competition

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<sup>29</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)

2.54. Under SWW the Orkney 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 Orkney assets to contribute towards the first three incentives above.

2.55. Under those arrangements the annual revenue allowances for Orkney would be included in the calculation of maximum up and downside exposure to these incentives during the operational period of the Orkney 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 Orkney before we finalise the operational cost of capital and cost allowances for Orkney at the end of construction. If this happens, we will make adjustments at the PCR to how those incentives apply to Orkney to ensure they continue to reflect a comparable balance of risk/reward with the operational incentives that apply to OFTOs.

2.56. 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 3.29 of the main document, if SHE-T finances Orkney through project finance, it may request a licence modification for Orkney to allow the application of project-specific operational period performance incentives for Orkney. This might include for example a project-specific availability incentive for Orkney. In considering any such request we would want to ensure that any project-specific incentives for Orkney were directly measurable and reflected a comparable balance of risk/reward with the operational incentives that apply to OFTOs.

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

2.57. 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 (eg 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.

2.58. In addition, in line with the OFTO regime, the CPM for Orkney 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 Orkney.

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

2.59. During the revenue term it is possible that the Orkney 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 (ie 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.

2.60. 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 Orkney costs – operational period**

2.61. It will be important to ensure that costs associated with Orkney 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 Orkney, rather than the wider RIIO portfolio. Where it is efficient to fund Orkney-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 3 – 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 as 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](#)”.