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Decision

Shetland transmission project: Decision on Final Needs Case and Delivery Model

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Further to notification on 16 July 2020 of our conditional decision on the Final Needs case, this document confirms our decision on the Final Needs Case for Scottish Hydro Electric Transmission's (SHE-T) proposed Shetland electricity transmission project. This document also confirms our decision on the regulatory delivery model for the Shetland electricity transmission project.

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Executive summary

In our 16 July 2020 notification of our conditional decision[1] we set out that[2] we considered it is in the interests of existing and future Great Britain (GB) consumers to approve Scottish Hydro Electric Transmission's (SHE-T's) revised Final Needs Case for the proposed Shetland transmission project.

We confirmed that we had decided to approve the 600MW High Voltage Direct Current (HVDC) subsea transmission link between mainland Scotland and the Shetland Isles, proposed by SHE-T, to be delivered in quarter 1 2024, on the condition that Ofgem is satisfied, by the end of 2020, that Viking Energy Wind Farm (VEWF) is likely to go ahead.

We also said that if we are satisfied that VEWF is likely to go ahead, we will confirm and publish that, putting into effect our final approval of the Final Needs Case for the Shetland transmission project.

This document confirms our final approval of the revised Final Needs Case for the Shetland transmission project. It also confirms our decision on the regulatory delivery model for the Shetland transmission project. The full and detailed reasons for our decisions are set out in this document.

Context

SHE-T submitted its revised Final Needs Case for the Shetland transmission project to us in January 2020. Following a thorough assessment of SHE-T's proposals, underlying cost-benefit analysis and further quantitative and qualitative analysis, we consulted on our minded-to position in April 2020.

In that consultation we outlined that we considered there to be a clear technical and economic need for the Shetland transmission project, and that it is in consumers' interests

[1] https://www.ofgem.gov.uk/publications-and-updates/decision-final-needs-case-shetland-electricity-transmission-project

[2] We set out that this was on the basis of our assessment of SHE-T's revised Final Needs Case for the Shetland transmission project, having considered consultation responses and all other relevant considerations. These considerations included requests under the Environmental Information Regulations (2004) ("EIR"), which remain ongoing at this time.

for the project to progress providing we can be satisfied, by the end of 2020, that VEWF is likely to go ahead.

Our consultation also set out our minded-to position on the regulatory delivery model for the Shetland transmission project. In light of significant changes to the inputs into our analysis, our consultation outlined that we were no longer minded to apply the Competition Proxy Model (CPM) to the Shetland transmission project.

Responses on the revised Final Needs Case and our views

We received over 180 responses to the consultation. Since the consultation closed, we have been engaged in carefully considering the representations made, together with other relevant considerations. Most of the responses to the consultation did not agree with our minded-to position. Key issues noted by those respondents included the perceived negative environmental impact of VEWF and the transmission link on the local area; and a view that long-term security of supply could be ensured on Shetland at a significantly lower cost via new on-island gas-fired generation. We acknowledge the concerns expressed by respondents, however, Ofgem does 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 Transmission Owner (TO) and the relevant planning authorities. We also do not design or plan where generation should be sited. The design and location of generation projects must be taken forward in accordance with planning requirements, which is the responsibility of the project developer based on the requirements of the planning authorities. We also note that on-island gas-fired generation, while helping ensure long-term security of supply, would not allow significant levels of new renewable generation to connect on the Shetland Isles.

We have not identified any material changes (through either consultation responses or our own further analysis and considerations) to the evidence underpinning the revised Final Needs Case for the Shetland transmission project. As such, we see no reason to move away from our minded-to position, as set out in our April 2020 consultation. We have therefore decided that building a 600MW HVDC subsea transmission link between mainland Scotland and the Shetland Isles, to be delivered in quarter 1 2024, would be in GB consumers' interests, providing we could be satisfied, by the end of 2020, that VEWF is likely to go ahead.

Final approval of the Final Needs Case

We set out in this document how we have reviewed and considered evidence submitted by VEWF in relation to the conditions for final approval, ie evidence that VEWF is likely to go ahead. We consider that the evidence submitted confirms that FID has been reached for VEWF and that this has been taken at appropriate levels of governance. We are comfortable that the evidence submitted confirms that a major supply contract has been entered into by VEWF, which represents a significant amount of the overall project development spend. We consider that this indicates project commencement.

This document therefore confirms that we are satisfied, based on the evidence submitted, that VEWF is likely to go ahead, which puts into effect our final approval of the Final Needs Case for the Shetland transmission project.

Regulatory delivery model

In response to our proposed regulatory delivery model for the project, no respondents disagreed with our proposed approach. All of the TOs reiterated their opposition to the use of the CPM, whilst other respondents were supportive of us selecting the delivery model that delivers the best outcome for consumers, and so agreed with our consultation position on the basis of the analysis presented in our April 2020 consultation.

We confirm that, following consideration of consultation responses, and further analysis,[3] we have concluded that there is clear evidence that applying the CPM to the Shetland transmission project (and therefore departing from the existing Strategic Wider Works (SWW) arrangements under RIIO[4]) would not be in the interests of consumers. We therefore confirm that the Shetland transmission project will be funded under the SWW mechanism within RIIO-1.

[3] This includes the impact the recent RIIO-2 Draft Determinations proposals would be likely to have on the RIIO counterfactual within the analysis that supported our minded-to consultation position
[4] RIIO (Revenue = Incentives + Innovation + Outputs).

Next Steps

We will undertake a Project Assessment of the Shetland transmission project from summer 2020 to determine SHE-T's permitted costs for delivery of the Shetland transmission project.

Following our Project Assessment consultation and any subsequent decision, we will consult upon the relevant output and final allowances associated with the Shetland transmission project ahead of implementing these into SHE-T's electricity transmission licence through a licence modification.

1. Introduction

Context

1.1. Scottish Hydro Electric Transmission (SHE-T) submitted its revised Final Needs Case to Ofgem for the Shetland transmission project, under the RIIO SWW (Strategic Wider Works) mechanism, in January 2020. This followed publication of our March 2019 consultation[5] and October 2019 Update Letter[6] on the Shetland transmission project. In its revised Final Needs Case SHE-T continued to propose the construction of a High Voltage Direct Current (HVDC) subsea transmission link, electrically rated at 600MW, between mainland Scotland and the Shetland Isles, to be delivered in quarter 1 2024.

1.2. Following a thorough assessment of SHE-T's proposals, underlying cost-benefit analysis (CBA) and further quantitative and qualitative analysis, we consulted on our findings in April 2020.[7] In that consultation we outlined that we considered there continued to be a clear technical and economic need for the Shetland transmission project, and that it would be in consumers' interests for the project to progress, providing we could be satisfied, by the end of 2020, that Viking Energy Wind Farm (VEWF) is likely to go ahead.

1.3. Our consultation also set out our minded-to position on the regulatory delivery model for the Shetland transmission project. In light of significant changes to the inputs into our analysis, we outlined that we were no longer minded to apply the Competition Proxy Model (CPM) to the Shetland transmission project. As a result, we proposed that the project would be delivered by SHE-T under RIIO.[8]

[5] https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-final-needs-case-and-delivery-model

[6] https://www.ofgem.gov.uk/publications-and-updates/update-shetland-isles-transmission-project-and-potential-next-steps

[7] https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

[8] Under RIIO, a TO's costs of delivering a project are added to its Regulatory Asset Base as total expenditure (totex). These costs are subject to the same sharing factor, tax and inflation treatment, incentives, and cost of capital (ie, financing costs) as the rest of the RIIO price control. The prevailing regulatory arrangements (e.g. incentives, cost of capital etc) under each price control (e.g. RIIO-1, RIIO-2, RIIO-3 etc) will apply to each SWW project.

1.4. On 16 July 2020 we published notification of our conditional decision on the Final Needs Case for the Shetland transmission project.[9] This confirmed our decision to approve the 600MW HVDC subsea transmission link between mainland Scotland and the Shetland Isles, proposed by SHE-T, on the condition that we are satisfied, by the end of 2020, that VEWF is likely to go ahead. We provided notification of our conditional decision on 16 July as we considered it was in the interests of existing and future consumers, due to the specific circumstances of this case, to ensure the timely and efficient progress of works that are required in order to deliver the link and VEWF. Delays to the works may have led to additional costs for GB consumers to ensure long-term security of supply on the Shetland Isles and risk non-delivery of significant levels of low carbon generation, which would contribute towards meeting the Net Zero target[10] at the lowest cost to GB consumers.

1.5. In our 16 July 2020 notification of our conditional decision, we confirmed that we would publish our full and detailed reasons for our decision by the end of July. We also said that if we are satisfied that VEWF is likely to go ahead, we will confirm and publish that, putting into effect our final approval of the Final Needs Case for the Shetland transmission project.

This document

1.6. This document includes a summary of the responses to our April 2020 consultation[11] and sets out our full and detailed reasons for our conditional decision on the Final Needs Case. It also confirms our view that the condition has now been met, putting our Final Needs Case decision into full effect. It also sets out our decision on the regulatory delivery model for the Shetland transmission project

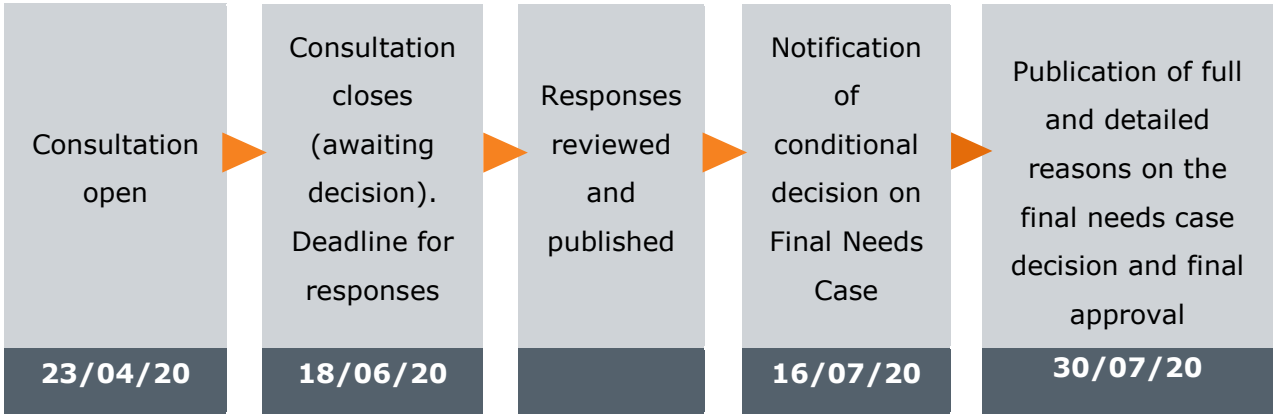
1.7. Figure 1 provides an overview of the decision-making stages that we have followed.

[9] https://www.ofgem.gov.uk/publications-and-updates/decision-final-needs-case-shetland-electricity-transmission-project

[10] This target requires the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels. More information can be found here: https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law

[11] Non confidential responses to our April 2020 consultation are published here: https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-proposed-final-needs-case-and-delivery-model

Figure 1: Decision-making stages for the revised Final Needs Case



1.8. This document consists of five chapters and is set out as follows:

- Chapter 1: Introduction – this chapter;
- Chapter 2: Responses on the revised Final Needs Case and our views – this provides a summary of key responses to our April 2020 consultation that address the revised Final Needs Case, discusses the main points that were raised and how we considered these in reaching our decision;
- Chapter 3: Our conditional decision on the SWW Final Needs Case – this summarises our decision to conditionally approve the revised SWW Final Needs Case;
- Chapter 4: Assessment of the condition for final approval of the SWW Final Needs Case and next steps – this sets out our assessment of the condition for final approval of the SWW Final Needs Case, confirms that the condition has been met and confirms the next steps; and
- Chapter 5: Delivery Model – this provides a summary of responses to our April 2020 consultation, discusses the main points that were raised and how we considered these before coming to our decision.

Related publications

Decision on the Final Needs Case for the Shetland electricity transmission project (July 2020)

Shetland transmission project: Consultation on proposed Final Needs Case and Delivery Model (April 2020)

Decision on Scottish Hydro Electric Power Distribution's proposals to contribute towards proposed electricity transmission links to Shetland, Western Isles and Orkney (December 2019)

Update on the Shetland Isles transmission project and potential next steps (October 2019)

Update letter on the proposed Shetland and Western Isles electricity transmission projects (September 2019)

Shetland transmission project: Consultation on Final Needs Case and Delivery Model (March 2019)

2. Responses on the revised Final Needs Case and our views

Section summary

This section provides a summary of key responses to our April 2020 consultation that address the revised Final Needs Case, discusses the main points that were raised and how we considered these before coming to our decision.

Our consultation position

Revised Strategic Wider Works (SWW) Final Needs Case

2.1. In our April 2020 consultation, we presented our minded-to position to approve the 600MW HVDC subsea transmission link between mainland Scotland and the Shetland Isles, proposed by SHE-T, to be delivered in quarter 1 of 2024.

2.2. In our April 2020 consultation, we set out that we considered a number of factors in order to assess the costs and benefits to existing and future consumers in GB of SHE-T's proposal. These included security of supply requirements on the Shetland Isles, the merits of different link sizes, the level of certainty we would need that the link will be sufficiently used, the impact of potential delay and wider decarbonisation considerations. In addition, we set out that we have considered various cost benefit assessments and further qualitative and quantitative analysis.

2.3. We proposed to approve the link on the condition that Ofgem is satisfied, by the end of 2020 that VEWF is likely to go ahead. We set out the type of evidence that would confirm that VEWF is likely to go ahead as:

- Evidence of the Final Investment Decision being reached (this may be in the form of board minutes);
- Evidence of project information on the basis of which that Final Investment Decision has been taken (this may be in the form of the board submission pack and supporting information); and

- Evidence of the Final Investment Decision triggering a major development milestone, which indicates project commencement (this may be in the form of entry into a major supply contract or commitment of significant development spend).

Consultation responses

2.4. We provide below a brief overview of key responses received to our consultation. A more detailed summary of the responses concerning the revised Final Needs Case (and regulatory delivery model) can be found in Appendix 1. We have carefully considered the consultation responses and summarise below our views on each of the key areas of the revised Final Needs Case.

2.5. We received 184 responses to the consultation. These came from a mixture of project developers, Shetland residents, local stakeholder groups, renewable energy associations and industry.

- 175 of which addressed the revised Final Needs Case, these are discussed in this chapter.

- 9 of which addressed the delivery model, these are discussed in Chapter 5.

2.6. While some respondents answered all of the questions set out in our consultation individually, others only answered some of them. Some respondents did not answer any of the questions individually, instead combining answers into an overall response or providing more general views on VEWF and/or wind farms on the Shetland Isles. Where respondents have done so, we have identified common themes under the appropriate questions set out in our April 2020 consultation.

Responses indicating local opposition to VEWF

2.7. We received 127 responses, predominantly from Shetland residents, that raised concerns specifically in relation to VEWF. In general, these respondents provided overarching comments rather than responding to the specific questions set out in our consultation. These respondents set out their opposition to the development of VEWF, and either objected to VEWF (predominantly the scale of the development) or objected to any form of link that would enable VEWF or other wind farm projects to progress. These respondents raised concerns with VEWF similar to those we received to our March 2019

consultation,[12] such as: visual impact; environmental concerns such as the impact on wildlife and habitats – in particular peatland; the impact on both the tourism and marine industries on and around Shetland; and wider concerns around the impact of wind turbines on the health and wellbeing of Shetland residents.

Our Views

2.8. These responses highlight that some Shetland Isles residents strongly object to the development of onshore wind generation projects in general and VEWF in particular. We acknowledge the concerns expressed by the residents who responded to the consultation; however, as set out in our April 2020 consultation,[13] we do not design or plan where generation should be sited. The development and decisions on the design and location of generation is undertaken by the generation project developers in accordance with planning requirements. Planning considerations for generation projects are matters for the relevant planning authorities, including in this case the Shetland Islands Council. We also 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 Transmission Owner (TO) (SHE-T in this instance) and the relevant planning authorities. We set out further detail in paragraph 2.14 on our views in relation to how we have considered the Shetland transmission project and VEWF in line with our principal objective and wider statutory duties.

Final Needs Case - Inputs and Assumptions

Generation Scenarios

2.9. We received 33 responses that in general either agreed that the generation scenarios presented by SHE-T in its revised Final Needs Case submission[14] represented a reasonable range of scenarios based on the known and uncertain future projects, or that

[12] These responses to our March 2019 consultation are summarised on page 67 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

[13] This is set out in more detail in paragraphs 1.13 and 1.14 of our April 2020 consultation https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

[14] These can be found on page 25-26 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

the generation scenarios were an improvement from those included in the previous March 2019 consultation. Most of those responses (25 responses) stated that they considered that there is still further potential generation beyond 2025 that was not captured in the generation scenarios, that may be enabled by ongoing changes to Transmission Network Use of System charges (TNUoS charges).[15] The respondents did not however quantify the potential generation beyond 2025 or identify additional projects that should be included. The majority of respondents that flagged the generation scenarios as an improvement were associated/affiliated with the Energy Isles project.[16]

2.10. The remaining respondents that addressed this area of the consultation (41 responses), raised concerns with the generation scenarios. Approximately half of these respondents flagged other renewable technology types they would prefer to see considered (such as offshore wind or tidal, instead of onshore wind) and other respondents expressed their concerns with further development of onshore wind in Scotland more generally and the level of constraint payments being made to wind farm projects. A small number of respondents also flagged that they consider the generation scenarios to be over ambitious and that development beyond VEWF remains very uncertain.

2.11. A small number of respondents also suggested that Ofgem had not satisfactorily addressed its principal objective in its decision-making.

Our Views

2.12. With regards the generation scenarios presented in the revised Final Needs Case, the above responses highlight some of the potential planning challenges that new wind farm projects on the Shetland Isles may need to overcome if they are to progress. We consider that whilst it is clear that there is a community of developers aiming to develop wind farms on the Shetland Isles, this significant level of local opposition may reduce the likelihood of future wind farms receiving planning consent. This raises some doubt as to whether the higher generation scenarios (such as S4) used in the revised Final Needs Case submission will be reached.

[15] These were set out in paragraphs 1.38-1.42 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

[16] The Energy Isles wind farm project is a proposed wind farm in development on the Shetland Isles.

2.13. However, on the other hand, it is also possible that other developments may make achievement of the S4 scenario more realistic such as:

- recent changes to network charging arrangements on Shetland (noting there is some uncertainty with ongoing proposed code modifications); and/or
- the need for significant further renewable generation to meet the Net Zero target.

Our role and principal objective

2.14. Our principal objective is to protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems. The interests of such consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases, in the security of the supply of gas and electricity to them, and in the fulfilment by the Authority, when carrying out its functions as the designated regulatory authority for Great Britain, of the objectives set out in Article 40 (a) to (h) of the Gas Directive [3] and Article 36 (a) to (h) of the Electricity Directive [4].

2.15. As set out on our website,[17] in performing our principal objective we must have regard to the need to contribute to the achievement of sustainable development and carry out the functions in the manner we consider is best calculated to secure a diverse and viable long-term energy supply, and shall, in carrying out those functions, have regard to effect on the environment. As set out in our April 2020 consultation, we have considered a number of factors in order to assess the costs and benefits to existing and future consumers in GB of the Shetland transmission project. This includes impacts on consumer bills and on vulnerable consumers, security of supply requirements on the Shetland Isles, impact on the environment and wider decarbonisation considerations.

2.16. We consider that many of the points raised in responses to this question relate to local planning considerations. Specific planning considerations such as the impact on the local environment of generation projects are matters for the relevant planning authorities rather than Ofgem. With regards our role, we do not consider that there are any material

[17] Our powers and duties are set out in summary form on our website: https://www.ofgem.gov.uk/publications-and-updates/our-powers-and-duties

negative environmental impacts in relation to the Shetland transmission project that would change our views on the generation scenarios or be in conflict with our principal duties as set out above. We have considered and balanced the needs of GB consumers with the needs of local and vulnerable consumers on the Shetland Isles and consider that the project will bring benefits in terms of long-term security of supply to Shetland, while the network charging arrangements (ie. how consumers will pay for the Shetland link) will mitigate against any material impact on Shetland consumers.[18] We also consider, as set out in our April 2020 consultation, that the transmission project can deliver wider environmental benefits to GB consumers through decarbonisation.

2.17. Overall, having considered the consultation responses and any other relevant information, we remain of the view that the range of generation scenarios presented by SHE-T in its revised Final Needs Case (and set out in Table 2 of our April 2020 consultation), are representative of a reasonable range of possible outcomes.

2.18. Our view has not changed that there is potential for the development of additional renewable generation on the Shetland Isles and that the network on the Shetland Isles would need reinforcing to accommodate new generation.

Demand Sensitivities

2.19. We received 13 responses that flagged concerns with the appropriateness of the oil and gas industry demand sensitivities included within the CBA.[19] Those respondents questioned the practicalities of using (intermittent) renewable energy to meet this demand and one respondent flagged that if this would mean the oil and gas industry is using subsidised renewable energy power for fossil fuel extraction then this would be undesirable, and in direct conflict with the Net Zero target. Most of these 13 respondents also flagged that they considered the sensitivities to be overstated given wider economic considerations such as the lifespan of the oil and gas platforms, the impact of the Covid-19 pandemic and/or changes to the oil price.

[18] The impact on local consumers will be limited under all scenarios as costs will not be targeted to local consumers.
[19] This sensitivity explores the potential for up to 200MW of industry demand to connect to the Shetland Isles form the west of Shetland oil and gas fields, ie, an additional source of demand form the Shetland Isles, beyond Shetland's security of supply requirements.

2.20. Some respondents (nine responses) however expressed their support for the demand sensitivities and agreed with their appropriateness based on existing and forecasted use of energy fields close to the Shetland Isles. Those respondents flagged that demand/uptake could be higher than set out in the sensitivities. However, some of these respondents flagged that wider economic changes could have an impact and that the demand sensitivities should be reconfirmed with industry. One respondent questioned whether wider demand sources such as electrification of heat and transport should also be considered.

Our Views

2.21. As set out in our April 2020 consultation, we understand that the oil and gas platforms would require baseload demand (ie constant access to power). For this reason, we understand that there is a need for energy from shore, rather than directly from a renewable generation source, which could be intermittent. In the event that renewable electricity production on the Shetland Isles does not meet the oil and gas platforms baseload demand requirements, we understand that power would come from other sources – which may include imported power from mainland GB via the proposed transmission link. This would also be the case for addressing any shortfall in meeting Shetland's local demand by generation on the Shetland Isles. More generally, it is important to note that once electricity is generated and exported onto the networks across GB it can be used to satisfy demand anywhere. These networks can carry electricity to industrial, commercial and/or domestic users.

2.22. Following the consultation, SHE-T has confirmed to us that, based on continued engagement with representatives from the oil and gas industry, it remains confident that the demand sensitivities presented remain appropriate.[20] SHE-T has confirmed that these have not changed as a result of wider economic factors such as the Covid-19 pandemic or changes to the oil price. Separately, we have also re-engaged with the Oil and Gas Authority (OGA). The OGA stated that the low oil price and impact of the Covid-19 pandemic may delay some development progressing, however the projects underpinning the demand sensitivity considered have not been cancelled nor have licenses been

[20] As detailed in Table 3 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

relinquished. The OGA remains comfortable that the demand profiles considered already accommodate any delay and as such remain valid.

2.23. Whilst we recognise the impact on demand from wider sources beyond the oil and gas industry such as from new generating equipment (e.g. from potential wind turbines when not generating) or from potential electrification of heat and transport is possible, we have not received any strong evidence that they are likely or certain. We therefore do not intend to run additional demand sensitivities that are significantly higher or that include further uncertain demand associated with the electrification of heat and transport.

2.24. Overall, having considered the responses and other information provided following the consultation from SHE-T and the OGA, our view is that our approach set out in our April 2020 consultation with regards to the demand sensitivities remains appropriate. This is because we consider that the range of demand estimates remains reasonable based on the significant uncertainty which is still associated with both the timing and potential volume of demand from industry.

Link options considered by SHE-T and need for a second link

2.25. Of the 52 respondents who responded to our question on the link options considered by SHE-T, 31 respondents supported those link options. Several respondents commented that progressing the 450MW link option would not allow sufficient headroom for the project pipeline to proceed and commented that the 800MW option would not be required due to the additional oil and gas industry demand (referenced in paragraph 2.19). Four respondents flagged that based on the Earliest in Service Dates (EISDs), alternative link options may cause delays and hence supported the 600MW option as the option capable of delivering generation projects on time. Finally, a significant number of the supportive responses (from stakeholders associated/affiliated with the Energy Isles project), set out that although they supported a 600MW link, they would have preferred to see the larger 800MW link option proceed.

2.26. Of the 52 respondents, 21 respondents expressed their concerns with the link options being considered, citing concerns with: subsea cables in general and the interaction with fishing and marine industries; the lack of consideration given to non-link options such as the LNG proposal; and concerns such as the wider visual impact of equipment/works proposed at Weisdale Voe and Upper Kergord required for the link.

2.27. The LNG proposal is a gas fired power station in Lerwick which utilises LNG (liquefied natural gas), proposed by Denmark-based power station specialist BWSC and Scandinavian LNG company, Gasnor, a Shell subsidiary. BWSC and Gasnor believe they can deliver an LNG terminal and power plant by 2024. BSWC has stated that the LNG fuel would be converted into natural gas in the LNG terminal and the natural gas would be piped from the LNG terminal to the power plant. The generated electricity would connect to the existing 33kV substation adjacent to Lerwick Power Station.

2.28. In general, respondents considered the measures explored to mitigate against the risks of a second link being needed, to be reasonable. However, 22 respondents expressed concerns with the Active Network Management (ANM) solution proposed by SHE-T and requested that more detail, particularly on constraint payments, would be needed to consider this fully. This point was also made in response to energy storage and queue management as mitigation measures proposed by SHE-T. One respondent also flagged that additional flexibility could be provided by battery and hydrogen technologies.

Our Views

2.29. Further detail on our views on the technical design and cost of the subsea cable is provided in paragraphs 2.45 - 2.46.

2.30. Further detail on our views on the LNG proposal is provided in paragraphs 2.34 - 2.40.

2.31. We have no concerns about whether SHE-T has undertaken its design or planning approval process for the link economically and efficiently. SHE-T has confirmed to us that it has received approval for a Shetland Isles Council Marine Works Licence, which required consideration of the subsea route into Weisdale Voe. The consultation for this licence considered matters raised by local aquaculture companies and the licence was granted by the Shetland Islands Council. SHE-T has also confirmed that the cable works on land and subsea will be limited to specialist vessels and onshore construction plant during installation, after which SHE-T has said it will fully reinstate the cable works area to minimise visual impact.

2.32. SHE-T, as the local TO, is responsible for maintaining an economic and efficient electricity transmission network in its area. National Grid, as Electricity System Operator (ESO) is responsible for identifying the most efficient approach to meet long-term network needs across GB. Through the ESO's Balancing Services markets, it may identify more

efficient options than constraining generators, which could include the mitigation measures identified by SHE-T, or it may identify technical solutions to provide more capacity on the network. We consider that the ESO and SHE-T should work together to explore mitigation options further, both in terms of maximising efficient use of any link in general, and in terms of helping to mitigate against the need for a second link in the future.

2.33. Overall, we remain comfortable that SHE-T has considered an appropriate range of potential technical options in its revised Final Needs Case submission. We note however, as set out in our April 2020 consultation, that in general we expect TOs to robustly consider a number of possible link size options and ensure they are deliverable before prioritising an option. The EISDs are discussed further in paragraph 2.55.

Our views on the LNG proposal

2.34. We consider there are two key considerations in relation to the LNG proposal:

1) Firstly, we need to consider whether it would offer a cost effective solution to long-term security of supply on the Shetland Isles.

2) Secondly, we also need to consider whether it would allow the export of new renewable generation on the Shetland Isles that currently has/will in future have a connection agreement and seeks to export its electricity to mainland GB and contribute towards meeting the Net Zero target at the lowest cost to GB consumers.

2.35. In relation to point 1) above, as set out in our April 2020 consultation, Scottish Hydro Electric Power Distribution (SHEPD) is the local distribution network owner responsible for security of supply on the Shetland Isles. SHEPD owns and operates 66.95MW of diesel and gas generation at Lerwick Power Station (LPS), which in its current operational regime secures demand on Shetland. LPS is due to come into breach of the Industrial Emissions Directive (IED) from 1st January 2030.[21]

2.36. There are a range of potential solutions that appear to be viable solutions for securing long-term security of supply on the Shetland Isles. These may include further investment in the existing generating stations to comply with the IED, the use of a link

[21] The emissions targets proposed by the IED were originally expected to come into force from 2020.

(distribution or transmission) to mainland GB in combination with some supporting local back-up generation, and the LNG proposal referenced by a number of respondents to our consultation.

2.37. As these solution options are at different stages of development, it is difficult to compare the cost to GB consumers across the options. However, in 2017, a competition was held to consider the best solution to provide long-term security of supply for the Shetland Isles.[22] Through this process a link to the mainland, combined with on island back-up generation was identified as the most cost effective means of providing long-term security of supply on the Shetland Isles.

2.38. Most importantly, in relation to point 2), of the options considered, a sufficiently large transmission link is the only option for securing long-term security of supply on the Shetland Isles that would allow for SHE-T to provide timely connections for its customers in the most economic and efficient manner, such as VEWF. As such a transmission link will facilitate the delivery of significant levels of low carbon generation which would contribute towards meeting the Net Zero target[23] at the lowest cost to GB consumers.

2.39. Overall, we do not consider the LNG proposal to be the most economic and efficient outcome (in terms of long-term value for money) for GB consumers. The LNG proposal would not facilitate the timely connections of customers identified by SHE-T in the most economic and efficient manner.

2.40. We continue to consider that whilst a transmission link would cost more than a distribution link, and potentially more than the LNG proposal, it also delivers greater consumer benefit. In addition to ensuring long-term security of supply, a transmission link would also allow significant levels of low carbon generation to connect to the electricity network to contribute towards meeting the Net Zero target at the lowest cost to consumers.

[22] Further detail on this competition (the Shetland New Energy Solution, SNES) can be found in paragraphs 1.27 – 1.37 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

[23] This target requires the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels. More information can be found here: https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law

Technical design and cost

2.41. We received 77 responses that provided views on the technical design and costs of the proposed Shetland transmission link, with only three specifically stating that they agreed with the technical design proposed. The majority of responses highlighted a range of concerns in relation to the subsea cable design, flagging areas such as: risk of cable failure, risk of damage, repair timescales and more generally the security of this option. A small number of respondents also queried aspects such as: the cable lifetime, who would be responsible for repair and maintenance and more generally drew comparisons to the Western Link and queried the reliability of subsea cable design and robustness of the project.[24]

2.42. A number of respondents (21 responses) commented on the converter station design, flagging that they considered an 800MW converter station at Kergord would be the same size as the existing 800MW converter at Spittal and should be a lower cost design that can be delivered more quickly than the design proposed by SHE-T for the Shetland transmission link. Those respondents flagged that an 800MW converter station would be more cost effective than the currently proposed 600MW converter station.

2.43. In relation to back-up generation, 11 respondents raised concerns such as whether the need for this is cost effective, what this would be (which technology) and who would pay for it.

2.44. We received 29 responses that raised concerns in relation to the total cost of the project (including the link, VEWF, any additional infrastructure for connecting wind farms and back-up generation). Respondents queried the impact of this on GB consumers' bills, questioning its value for money and citing that there could be cheaper non-link alternatives which could be considered, such as the LNG proposal. One respondent commented that the costs appeared reasonable and that they welcomed the cost reductions since March 2019.[25]

[24] The Western Link is an HVDC subsea cable from Hunterson in Western Scotland to Flintshire Bridge in North Wales.
[25] SHE-T's previous cost estimates were set out in our March 2019 consultation. A comparison of these figures, against the updated cost estimates from SHE-T is set out on page 32 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

Our Views

2.45. SHE-T has clarified that the subsea cable will be protected to ensure it fulfils its 40-year design life through burial below the seabed where possible and protection with rock armour where it is not. SHE-T has confirmed to us that only in limited sensitive marine environment areas will the cable only be protected by its manufactured protective sheath, noting that this tends to be in areas where shipping/trawlers are not permitted to drop anchor. SHE-T has also clarified that any repair and maintenance will be undertaken by the installer through a Long Term Service Agreement, and that this includes surveys to check the protection of the cable in addition to being on stand-by in the event of a fault. We will consider these matters at the Project Assessment stage for the Shetland transmission project.

2.46. As highlighted above, a small number of responses also drew comparisons to the Western Link HVDC subsea cable and questioned the reliability of subsea cables more generally. In January 2020, we opened an investigation into National Grid Electricity Transmission and Scottish Power Transmission over delivery and ongoing operation of the Western Link HVDC subsea cable. This investigation remains ongoing, and we emphasise that the opening of this investigation does not imply that we have made any findings about non-compliance by National Grid Electricity Transmission or Scottish Power Transmission.

2.47. Following the consultation, SHE-T has confirmed to us that it is not possible to replicate the Spittal HVDC converter station at Kergord due to the marine environment present on the Shetland Isles.[26] SHE-T also stated to us that it has invested significantly in advancing the design of the Kergord converter station (as well as other project elements) ahead of regulatory approval to ensure the required timescales can be met and the most cost effective solution be provided.[27]

2.48. SHEPD has confirmed that it will secure a back-up solution to maintain security of supply during link outages for the long term. SHEPD has confirmed that it is continuing to

[26] SHE-T has flagged that there are design differences. The Spittal converter station was designed and constructed to be inland, whereas the Kergord converter station requires buildings with associated mechanical and electrical services to protect the HVDC equipment.
[27] SHE-T has confirmed to us that it has full planning permission at Upper Kergord through the successful discharge of consent conditions by SHE-T and the Shetland Isles Council. All consents have been approved, less an archaeology condition. If any material change was to take place at the project sites the planning process would need to re-commence to gain permission for the new proposals.

evaluate the options for back-up/stand-by generation and intends to provide its recommendation in summer 2020.

2.49. Overall, we remain comfortable with the technical design of SHE-T's preferred connection option, the 600MW link. We consider that it helps address both long-term security of supply and that it would meet the export requirements that SHE-T has identified for the Shetland transmission project. We also remain comfortable with SHEPD's proposals that some limited back-up generation is likely to be needed to ensure security of supply on the Shetland Isles.

2.50. In relation to costs, and the responses summarised in paragraph 2.44, the costs of VEWF are outside the scope of our consideration in relation to this decision, as those costs are borne by the wind farm developer and not set by Ofgem or recovered from consumers through network charges. With regards the costs of the Shetland transmission project, we are still comfortable that the cost assumptions used in the CBA were reasonable for the purposes of allowing us to make our decision on the revised Final Needs Case. At the Project Assessment stage, we will review in detail all of the proposed costs for the Shetland transmission project before making our decision on revenue allowances for SHE-T to deliver the project. This will ensure consumers only pay the economic and efficient costs associated with delivery of the link. We will also separately consider SHEPD's costs and revenue allowances for back-up generation. As set out earlier, although a transmission link would cost more than a distribution link, in addition to ensuring long-term security of supply, a transmission link would have the benefit of enabling VEWF and additional potential renewable generation to be built.

Final Needs Case – CBA and Methodology

Cost Benefit Analysis

2.51. We received 26 responses that agreed with the CBA as put forward by National Grid as ESO. A significant proportion of these were respondents (18 responses) associated/ affiliated with the Energy Isles project, who flagged that they consider the CBA shows it is cheaper for GB consumers to connect at least 818MW of generation to a 600MW link, rather than build an 800MW link. Those respondents also commented that SHE-T's statement in paragraph 2.40 of our April 2020 consultation that, '*existing industry arrangements mean that any further generation connection applications beyond those already contracted will be offered a connection on the basis of a second HVDC link from the Shetland Isles to the mainland*' should be rejected, in favour of connecting up to 818MW of generation to a

single 600MW link. The remaining eight respondents commented that they agreed that the benefits of a 450MW link compared to a 600MW or 800MW link are finely balanced, but were in overall agreement with the proposed 600MW link option. Three respondents noted that the risk of delaying the project (associated with the later EISDs for other link options) could have an adverse impact on cost.

2.52. We also received 15 responses that disagreed with the CBA. A number of other respondents stated that they did not respond to this question due to the extent of redactions made to some of the data in the published reports.[28] Those that did respond raised a number of concerns such as: whether the EISDs need to be reviewed in light of the Covid-19 pandemic; why non-link options were not included within the CBA; that the CBA has been weighted in favour of SHE-T; and that the negative NPV results in the CBA indicate that a non-link option is better value. A small number of respondents also commented on the counterfactual assumption that all generation would be constrained off and one respondent commented that only the CfD strike price should be used as the constraint cost.

Our Views

2.53. We agree that the CBA does not show the larger, 800MW link option, to be the least worst regret (LWR) option in any of the CBA cases considered. As such, the CBA indicates that it may be more cost effective for GB consumers to connect more than 600MW of generation to the 600MW link and pay constraint payments to additional generation when required. As set out in paragraph 2.32, National Grid, in its role as ESO, is responsible for identifying and taking the most efficient actions to meet long-term network needs across GB and manage the real-time operation and balancing of the GB transmission network. This could involve constraining generation, rather than proceeding with a second link, if this is the most efficient thing to do. Alternatively, through its Balancing Services markets, the ESO may identify more efficient options than constraining generators, or it may identify technical solutions to provide more capacity on the network. We note that the pace of technological change is fairly rapid in this area and the ESO is considering an increasing

[28] Please note Our Views on this point are covered in the section below, in paragraphs 2.60 - 2.62.

range of efficient network and non-network solutions for addressing constraints on the network.

2.54. We continue to consider that where the NPVs are negative under every generation scenario in the CBA,[29] it suggests (as highlighted in the results of the CBA) that a link smaller than those considered by SHE-T (e.g. 237MW), or potentially no link at all, might be more efficient. To determine the most appropriate reinforcement the CBA would need to include smaller reinforcement options than those considered by SHE-T, which may include a 237MW or 132MW link. We do not consider however that this would change our view on the overall findings of the CBA as set out in our April 2020 consultation or later in this document, as the cases where NPVs are negative in the CBA do not materially affect the overall CBA findings, or the overall considerations we have made with regards to the costs and benefits of the Shetland transmission project to GB consumers.

2.55. With regards to the EISDs used in the CBA, SHE-T has confirmed to us that it has continued to engage extensively with the supply chain on the impact of the Covid-19 pandemic and that programmes, costs and risk profiles have been adjusted accordingly across the project to account for safe ways of working and living whilst works are ongoing. SHE-T remains confident of meeting the required connection dates in 2024 subject to UK Government requirements in the event of further restrictive measures. With regards to wind farm projects, we have seen no evidence that there have been material delays to these projects so as to lead to any material changes to the generation scenarios used in the CBA.

2.56. As set out in our April 2020 consultation, the results of the CBA are highly sensitive to assumptions on constraint costs. Following the consultation, the ESO has confirmed that work remains ongoing in relation to changing the bid pricing strategy within its modelling. The ESO is continuing this work in preparation for inclusion in the sixth NOA methodology later in 2020. We remain comfortable with the approach taken within the CBA to consider

[29] Cases 4, 4a and 4b of the CBA, as detailed on page 41 and 42 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

constraint costs based on both CfD and ROC as the assumptions for the 'bid' price of wind farms.[30]

Other approaches assessing costs and benefits to consumers

2.57. We received 11 responses that disagreed with the other approaches taken to assess the costs and benefits to GB consumers of the Shetland transmission project as set out in our April 2020 consultation. Several respondents' flagged specific concerns with the Levelised Cost of Energy (LCOE) analysis such as the lack of consideration of non-link options. More generally, these respondents raised concerns about whether the appropriateness of transmitting power to mainland GB and paying further constraint costs to wind generators had been fully assessed and represents value for money.

2.58. We received a number of responses that flagged they did not engage with either the LCOE or the CBA analysis due to the extent of redactions within the relevant documents.[31] During the consultation period we received three requests for information, which we are addressing under the Environmental Information Regulations (2004) ("EIR"), which cover information including the redacted information in the Levelised Cost of Energy Report and the Tipping Point Analysis[32] published on our website on 11th June 2020.

2.59. A small number of respondents (six responses) agreed with our approach, and expressed their support for the LCOE analysis, consideration of industry demand and wider decarbonisation considerations.

[30] Further detail on the approach taken it set out on page 40 of our April 2020 consultation: https://www.ofgem.gov.uk/system/files/docs/2020/04/shetland_isles_fnc_consultation_accessibility_version_final_1.pdf

[31] These documents are the Levelised Cost of Energy Report and, in relation to the CBA: Tipping Point Analysis; and ESO CBA Report. The Levelised Cost of Energy Report and CBA – Tipping Point Analysis note were published on 11th June 2020 following a stakeholder request: https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-proposed-final-needs-case-and-delivery-model

[32] One of these requests also included the documents: CBA Report, the Mott MacDonald Technical Note and ABB Report – Impact of changing from 600MW to 800MW also published on our website: https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-proposed-final-needs-case-and-delivery-model

Our Views

2.60. On 11th June 2020, following an information request we published the 'Levelised Cost of Energy Report' and 'CBA – Tipping Point Analysis' note. We note that the results of the analysis within these reports was set out in summary form in our consultation document.

2.61. In relation to the redactions contained within both the 'Levelised Cost of Energy Report' and 'CBA – Tipping Point Analysis' note and the 'ESO CBA Report', we do not consider that the redacted information contained within the reports is required for stakeholders to consider the issue we are deciding and respond to our consultation. We consider the level of information set out in the consultation to be sufficient to enable stakeholders to have formed a view enabling them to respond to the consultation. Furthermore, this analysis forms one of the many factors (both quantitative and qualitative) that we have considered as part of coming to our minded-to position set out for consultation in April 2020 and now our decision.

2.62. We consider that the information that remains redacted is not material to our decision. We do not consider that stakeholder views on any information that has been or may potentially be released in relation to those EIR requests would change our views and decision on the Final Needs Case. The EIR process for all three EIRs remains ongoing.

2.63. In relation to constraint payments, the 'Connect and Manage' regime was introduced by government in 2011 to improve access to the transmission network. This regime allows generators, including renewable generators, to connect to the network ahead of any wider network reinforcements needed. The generators' connection agreement will outline the circumstances in which they will/will not receive payments if they are constrained.[33] This regime has allowed a significant amount of generation, including renewable generation that delivers carbon savings, to connect much earlier than they would otherwise be able to do. National Grid, as ESO is obligated to develop an economic and efficient energy system. To help ensure that this happens, there are incentives on the ESO to keep constraint costs as low as possible. There are also licence obligations to prevent generators from benefitting, at consumers expense, during periods of electricity transmission constraints (e.g. by

[33] Eligibility for constraint payments is dependent on meeting network security standards set out in the System Quality and Security Standard (SQSS) and other conditions of their connection.

making dispatch decisions that create or exacerbate constraints, or by benefitting excessively from bids they make to reduce their output).

2.64. Overall, we continue to consider that while neither the CBA nor the LCOE analysis undertaken by the ESO provide a definitive basis for deciding on the most appropriately sized link, they suggest that: a) a transmission link will provide good value for GB consumers if it is fully utilised, and b) that a fully utilised 600MW or 800MW link would likely offer better value for GB consumers, from an overall cost of generation perspective, than a fully utilised 450MW link.

Views on our April 2020 minded-to position

Proposal to approve the Final Needs Case

2.65. Most respondents disagreed with our proposed minded-to position. These respondents flagged a range of concerns such as the negative environmental impact of VEWF and the transmission link on the local area.

2.66. Several respondents queried the appropriateness of both carrying out the April 2020 consultation and considering the proposals during the Covid-19 pandemic. A small number of respondents raised concerns in relation to SSE's involvement in both the VEWF project and the transmission link and noted that construction had already started, implying that a decision to approve the link had already been made.[34] A small number of respondents also questioned the Final Needs Case assessment processes more generally, raising concerns with the CBA and whether financial factors have been properly assessed as they have been based on SHE-T's cost estimates as set out in Table 4 of our April 2020 consultation.

2.67. We received two responses calling for a larger link (800MW or 1000MW) to be considered. We also received a significant number of responses that echoed the points raised in paragraph 2.51, that whilst they support a 600MW link, they consider that the

[34] SHE-T is part of Scottish and Southern Electricity Networks (SSEN), which is a subsidiary of Scottish and Southern Energy (SSE). The Viking Energy Wind Farm is wholly owned by SSE Renewables having been developed in partnership with Viking Energy Shetland. SSE Renewables is also a subsidiary of SSE.

CBA shows that a 600MW link can connect at least 818MW of generation as the lowest cost solution.

Proposed condition for approval

2.68. In general, most respondents who were supportive of the need for a transmission link agreed with both our proposed minded-to position and the proposed condition and evidence we set out relating to the progress of VEWF. Whilst most respondents did not flag the need for any additional evidence, some highlighted that they considered providing the evidence may be more challenging in the current economic environment.

Factors considered in assessing the proposal

2.69. A small number of respondents flagged the additional benefits they considered would be associated with both the VEWF and this transmission link proposal, such as: contribution to decarbonisation goals, community benefits more generally, and wider economic and social benefits as part of the recovery from the Covid-19 pandemic. Those respondents raised concerns about the potential impact of any delay to a link on costs and energy provision more generally. Several respondents flagged that the impact of this proposal on fuel poverty and consumer bills should be assessed, as well as the impact of the Covid-19 pandemic and market changes on this proposal.

2.70. A large number of respondents reiterated their preference for the LNG proposal (as highlighted in paragraph 2.44), which they considered that Ofgem has a duty to consider. Those respondents stated that such a solution would be more appropriate as it would be more cost effective; would remove the need for a transmission link and would have less environmental impact.

Our Views

2.71. In relation to stakeholder responses on the impact of the transmission link proposal and VEWF on fuel poverty on Shetland and GB consumer bills, we have considered and addressed these points in paragraph 2.16. In relation to responses on the non-link alternatives such as the LNG proposal, we have considered and addressed these points in paragraphs 2.34 - 2.40.

2.72. As set out in our April 2020 consultation, we adjusted the consultation duration to take reasonable account of the impact of Covid-19 pandemic, and consider that the high volume and nature of responses indicates that stakeholders had sufficient time to consider

and respond to the consultation. We have not received any evidence to date from SHE-T or generation projects on the Shetland Isles, such as VEWF, that additional time is needed to allow for the impact of Covid-19 pandemic on wider economics/market interactions. In addition, we continue to consider that any delay to delivery of a transmission link would likely lead to additional costs to consumers to address security of supply on the Shetland Isles and as such, it is in the interests of GB consumers to mitigate the risk of delay.

2.73. In relation to responses questioning the appropriateness of SSE's involvement in both VEWF and the Final Needs Case, we have not seen anything to confirm that SSE's actions in relation to the Final Needs Case have been unreasonable. Due to the long lead times on pre-construction and construction activities on major infrastructure, it is not uncommon for relatively low value works to be carried out, at risk, in advance of FID or final regulatory approval in order to ensure delivery dates can be met.

2.74. We do not consider it appropriate to assess any Shetland-specific socio-economic benefits/dis-benefits because in coming to decisions we seek to protect the interest of existing and future consumers across GB, in accordance with our Principal Objective and wider duties.

2.75. We continue to consider that VEWF securing FID, in addition to submitting evidence to us of meeting a key development milestone, would provide an appropriate level of comfort that VEWF is likely to go ahead. We continue to consider that FID, in this instance, does not provide sufficient evidence by itself and therefore should be supplemented by additional evidence of progress.

2.76. A summary of our reasons to conditionally approve the SWW Final Needs Case for the Shetland transmission project is set out in Chapter 3.

3. Our conditional decision on the SWW Final Needs Case

Section summary

This section sets out a summary of our decision to conditionally approve the SWW Final Needs Case for the Shetland transmission project, as notified on 16th July 2020.

Our decision notified on 16th July 2020

3.1. In our 16 July 2020 notification of our conditional decision,[35] we confirmed that we had decided to approve the 600MW HVDC subsea transmission link between mainland Scotland and the Shetland Isles, proposed by SHE-T, to be delivered in quarter 1 2024, on the condition that Ofgem is satisfied, by the end of 2020, that VEWF is likely to go ahead. We set out below a summary of the reasons for our decision. Chapter 2 provides our more detailed views across a range of areas raised in consultation responses or as part of our analysis.

Key considerations

3.2. Our decision on the revised Final Needs Case is based on a number of key considerations, both pre- and post-consultation. Our pre-consultation considerations were set out in full in our April 2020 minded-to consultation. Our post-consultation considerations include our review of consultation responses and our separate considerations of whether there have been any changes in the analysis or basis for our pre-consultation positions.

3.3. The post-consultation considerations included:

- Whether there is evidence of changes to generation projects or changes to generation capacity that justify the need to reconsider the generation scenarios

35 https://www.ofgem.gov.uk/system/files/docs/2020/07/decision_on_the_final_needs_case_for_the_shetland_electricity_transmission_project.pdf

presented (and used within the CBA) or justify the need for a larger or small link to be considered.

- Whether we have received evidence of material changes being requested to the demand sensitivities, exploring the potential for industry demand (from oil and gas platforms) considered within the CBA.

- Whether we have received evidence of additional considerations being required to the technical design and/or indicative costs as this stage (noting that costs will be considered further at the Project Assessment stage).

- Whether we are satisfied that the CBA underpinning the revised Final Needs Case is sufficient and that the project is in the interest of consumers. Related to this, whether we have received evidence that any changes to the quantitative analysis are required - this includes further CBA, LCOE analysis or any other suggestions of new/revised material analysis being required from respondents that we consider would change our recommendation.

- Whether we are satisfied that the conditions for approval remain appropriate or whether further amendments or additional information should be considered.

3.4. We have not identified any material changes (through either consultation responses or through our own further analysis and considerations) to the evidence relating to the areas set out above. As such, we see no reason to move away from our minded-to position, as set out in our April 2020 consultation, that building a 600MW link would be in consumers' interests, providing we could be satisfied, by the end of 2020, that VEWF is likely to go ahead.

3.5. In addition to the key considerations highlighted above, we have considered a number of wider factors in order to assess the costs and benefits to existing and future consumers in GB of the Shetland transmission project. This includes impacts on GB consumer bills and on vulnerable consumers, security of supply requirements on the Shetland Isles, impact on the environment and wider decarbonisation considerations.

3.6. With regards to decarbonisation specifically, we have considered, in line with our Decarbonisation Action Plan,[36] the case for investment ahead of need being confirmed in order to help achieve decarbonisation at the lowest cost to consumers. In this context that has meant consideration of the most appropriate size of transmission link to accommodate future renewable generation beyond VEWF.

3.7. Our position set out in our April 2020 consultation, to remain open to anticipatory investment as long as clear and robust evidence of potential costs and benefits is provided, remains unchanged. We continue to consider based on the evidence we have seen, that approving only a 450MW link would significantly increase the chances that another link may be required if further generation projects progress. This would not be economic and efficient for GB consumers as the costs associated with building a second link are significantly higher than the costs of oversizing the first link. However, we continue to consider that approving an 800MW link would place too much cost risk on GB consumers given the generation scenarios considered and that reasonable economic and efficient measures could be taken by SHE-T and the ESO to mitigate the risk of needing to build another link in addition to the 600MW link.

Conclusion

3.8. On the basis of our assessment of SHE-T's revised Final Needs Case for the Shetland transmission project and having considered consultation responses, and all other relevant considerations, including the ongoing EIR processes, we consider that:

- there is clear technical need for the reinforcement. Without the Shetland transmission project, VEWF (and other generation projects) would not be able to safely connect to the National Electricity Transmission System due to the lack of transmission capacity in the local area; and

- the link is likely to represent an economic and efficient outcome (in terms of long-term value for money) for existing and future GB consumers. This is because the link, once operational, will ensure long term security of supply on the Shetland Isles at a reasonable cost, whilst also allowing significant levels of

[36] Published in February 2020: https://www.ofgem.gov.uk/publications-and-updates/ofgem-s-decarbonisation-action-plan

low carbon generation to connect to the electricity network that can contribute towards meeting the Net Zero target at the lowest cost to GB consumers;

3.9. Based on the above, we have therefore decided to approve the 600MW HVDC subsea transmission link between mainland Scotland and the Shetland Isles, proposed by SHE-T, to be delivered in quarter 1 2024, on the condition that Ofgem is satisfied, by the end of 2020, that VEWF is likely to go ahead.

4. Assessment of the condition for final approval of the SWW Final Needs Case and next steps

Section summary

This section sets out our assessment of the condition for final approval of the SWW Final Needs Case and confirms whether the condition has been met. This section also confirms the next steps.

Condition for final approval of the SWW Final Needs Case

4.1. In our 16 July 2020 notification of our conditional decision,[37] we confirmed that we had decided to approve the 600MW HVDC subsea transmission link between mainland Scotland and the Shetland Isles, proposed by SHE-T, to be delivered in quarter 1 2024, on the condition that Ofgem is satisfied, by the end of 2020, that VEWF is likely to go ahead. We set out that we considered that the type of evidence that would confirm that VEWF is likely to go ahead included:

- Evidence of the Final Investment Decision (FID) being reached (this may be in the form of board minutes);
- Evidence of project information on the basis of which that FID has been taken (this may be in the form of the board submission pack and supporting information); and
- Evidence of the FID triggering a major development milestone, which indicates project commencement (this may be in the form of entry into a major supply contract or commitment of significant development spend).

4.2. We also confirmed in our notification that if we are satisfied that VEWF is likely to go ahead, indicated by satisfaction of the limbs of conditionality set out above, we will confirm

37 https://www.ofgem.gov.uk/system/files/docs/2020/07/decision_on_the_final_needs_case_for_the_shetland_electricity_transmission_project.pdf

and publish that, putting into effect our final approval of the Final Needs Case for the Shetland transmission project.

Assessment of condition

4.3. Following the April 2020 consultation, VEWF submitted evidence in relation to the condition and evidence we were consulting on in our April 2020 consultation and that we confirmed in our July 2020 notification of decision on the Final Needs Case. This evidence included:

- Evidence of the FID being taken by SSE plc board in the form of board minutes;
- Evidence of the basis upon which that FID was taken in the form of supporting documentation and additional board minutes providing further context; and
- Evidence of entry into a major supply contract committing VEWF to significant development spend.

4.4. We have now reviewed and considered the evidence submitted in relation to the condition. We consider that the evidence submitted confirms that FID has been reached for VEWF and that this has been taken at appropriate levels of governance. We are comfortable that the evidence submitted confirms that a major supply contract has been entered into by VEWF, which represents a significant amount of the overall project development spend. We consider that this indicates project commencement.

4.5. We therefore confirm that we are satisfied, based on the evidence submitted, that VEWF is likely to go ahead.

Final approval

4.6. Further to our decision in Chapter 3 we confirm that we are satisfied that the condition for approval of the Final Needs Case for the Shetland transmission project has been met.

4.7. **We therefore now put into effect our final approval of the Final Needs Case for the Shetland transmission project**.

Next steps

4.8. We will undertake a Project Assessment of the Shetland transmission project from summer 2020 to determine SHE-T's permitted costs for delivery of the Shetland transmission project.

4.9. Following our Project Assessment consultation and any subsequent decision, we will consult upon the relevant output and final allowances associated with the Shetland transmission project ahead of implementing these into SHE-T's electricity transmission licence through a licence modification.

5. Decision on the Delivery Model

Section summary

This section sets out our decision on the delivery model and provides a summary of responses to our April 2020 Consultation that address the delivery model, discusses the main points that were raised and how we considered these before reaching our decision.

Our consultation position

5.1. In our April 2020 consultation we set out that, we were minded not to apply the Competition Proxy Model (CPM) to the Shetland transmission project.

5.2. We reached this position based on our consideration of our updated analysis on the potential consumer savings from applying the CPM to the Shetland transmission project. We did not consider that there was clear evidence that applying the CPM to the Shetland transmission project (and therefore departing from the RIIO counterfactual) would be in the interest of GB consumers.

Consultation responses

5.3. We provide below a brief overview of the relevant responses received to our consultation. As set out in paragraph 2.5 only nine responses addressed the delivery model. A more detailed summary of those responses can be found in Appendix 1.

5.4. Of the nine responses that addressed the consultation questions about the delivery model, all respondents agreed with our minded-to position. The three TOs emphasised their opposition to the use of the CPM to any project. They noted that in their view the CPM was not fully developed, and considered that using OFTO financial benchmarks was not appropriate to set the allowed return. They also suggested that the benefit case analysis had not factored in the implications for the financing for the wider RIIO arrangements.

5.5. Other respondents emphasised the importance of selecting the delivery model option that delivers the best possible saving for consumers. They were therefore supportive of our reliance on the consumer savings analysis as the basis for our decision not to apply CPM.

Our view

5.6. We disagree with aspects of the responses in relation to the CPM from the TOs. We consider that the CPM has been developed to a sufficient level to allow us to decide to apply it, though we accept that licence changes would be required in order to fully implement it into SHE-T's licence for the Shetland transmission project. With regards to the use of OFTO benchmarks, our July 2018 decision to apply CPM to the Hinkley-Seabank project clearly set out the justification for the use of OFTO benchmarks within the CPM and explained the cross-checks we carried out to ensure that the resulting project rate of return remained commercially viable[38]. We do not consider that TOs have presented robust evidence to indicate how the specific application of CPM to the Shetland electricity transmission project would impact on the wider financing of the RIIO-1 or RIIO-2 price controls.

Updates to the RIIO counterfactual

5.7. The analysis supporting our consultation position in April included a RIIO counterfactual that was based on the RIIO-2 Sector-Specific Methodology Decision from May 2019. Since our April consultation, we have published our Draft Determinations for the RIIO-2 price controls for the electricity transmission, gas transmission, and gas distribution sectors[39]. This publication included our proposals for applying the methodology for setting the proposed cost of capital for SHE-T during RIIO-2[40].

5.8. Our Draft Determinations proposals included the following updates relative to the Sector-Specific Methodology Decision that did not feed into the RIIO counterfactual within the analysis supporting our April consultation:

- Our proposal to use the iBoxx Utilities 10+ year index to set the cost of debt allowance, rather than the assumed non-financial corporate indices

38 https://www.ofgem.gov.uk/system/files/docs/2018/07/hinkley_seabank_project_decision_on_delivery_model.pdf Paragraphs 2.19 - 2.27 explain our justification of the benchmarks used and cross-checks carried out to ensure that the rates are appropriate

39 https://www.ofgem.gov.uk/publications-and-updates/riio-2-draft-determinations-transmission-gas-distribution-and-electricity-system-operator

40 RIIO-2 Draft Determinations – Finance Annex: https://www.ofgem.gov.uk/system/files/docs/2020/07/draft_determinations_-_finance.pdf

- Our proposal to adopt a RAV-weighted cost of debt allowance for SHE-T
- A lower cost of debt allowance forecast than assumed in April, due to updated market data feeding into the proposed methodology
- Our proposal to retain SHE-T's gearing at 55% rather than the previously assumed 60%[41]
- A lower risk-free rate and beta within the RIIO-2 cost of equity assessment, and therefore lower resulting allowed return on equity, than assumed in April, due to updated market data feeding into the proposed methodology.
- A proposed reduction, from 0.5% to 0.25% for expected outperformance to the downward adjustment to the allowed return on equity to account for the difference between the expected return on equity and the allowed return on equity from 0.5% to 0.25%.

5.9. Taken in combination, these proposals, which if finalised, would change the RIIO counterfactual; but would not materially impact on the results of the analysis that supported our April consultation position. As the changes marginally reduce the cost of the RIIO counterfactual that is compared to delivery of the project via the CPM, we consider that the findings of our analysis in the April consultation can still be relied upon for the purpose of making this decision.

Our decision on the delivery model

5.10. Following consideration of the responses to our April 2020 consultation, and considering the non-material impact of the recent RIIO-2 Draft Determinations proposals on our analysis, **we confirm our decision to fund the Shetland transmission project through SWW under RIIO, rather than through the CPM**. Without additional evidence being identified through consultation responses, we have no reason to move away from the position identified in our consultation.

[41] The cost of equity has correspondingly been adjusted down in response to this change in gearing.

5.11. As set out in our April 2020 consultation, we consider that there may be benefits to using the CPM for other projects in the future. We will continue to consider the application of the CPM to projects that are new, separable and high value.

5.12. We continue to consider that the CPM can replicate the following key benefits of a fully competitive approach:

- The locking in of debt and equity rates that reflect current market rates for financing a project;
- Making use of market revealed project-specific benchmarks, where appropriate (such as using observed OFTO rates for the operational period), to set efficient financing costs for a project;
- Enabling efficient financing costs for a project through a project-specific risk allocation.

5.13. Looking ahead to RIIO-2, our recent RIIO-2 Draft Determinations consulted on our intention to continue to consider the application of CPM and other late competition models for projects that meet the criteria for late model competition and are eligible for funding through uncertainty mechanisms during the RIIO-2 period. We also set out our proposals for how we expect CPM would be applied to projects within the RIIO-2 period. We intend to reach final positions on the RIIO-2 approach in Final Determinations, further to consideration of responses to consultation.

Appendix 1 – Summary of consultation responses

In April 2020, we published 'Shetland transmission project: Consultation on the Final Needs Case and Delivery Model'.[42]

We received 184 responses in total, 175 of which responded to our questions regarding the Final Needs Case, nine of these responded to our questions regarding the Delivery Model. These came from a mixture of stakeholders, including local generators, Shetland residents, local bodies and industry groups and renewable energy associations. We received 24 responses from stakeholders who were affiliated to and/or investors in a local renewable developer group on the Shetland Isles called 'Energy Isles'.

All of the non-confidential responses to our consultation have been published on our website.[43]

Below is a summary of responses to our April 2020 consultation.

We received 127 responses, predominately from Shetland residents who raised concerns specifically in relation to the Viking Energy Wind Farm (VEWF). These respondents either objected to VEWF specifically, the development of wind farms on Shetland in general, or objected to any form of link that would enable VEWF to progress. Half of these respondents (66 responses) raised concerns in relation to the visual impact and the scale of the development. Just under half of respondents (51 responses) also stated their concerns in relation to the impact of turbines on wildlife, ecology and habitats. A third of respondents (45 responses) also raised concerns with the impact of the development on peatland. More generally, these responses also flagged concerns such as: the impact the development on the tourism industry, concerns with the increased risk of landslides, the impact on the marine industries around Shetland and concerns in relation to the impact of wind turbines on health and wellbeing. These respondents also flagged that they do not consider there to be any benefit to the Shetland Isles from the development.

[42] https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-proposed-final-needs-case-and-delivery-model
[43] Non confidential responses to our April 2020 consultation are published here: https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-proposed-final-needs-case-and-delivery-model

Question 1: *What are your views on the generation scenarios developed and updated by SHE-T? We are particularly interested in views on the likelihood of wind generation on the Shetland Isles developing to the levels predicted by SHE-T's scenarios and any further changes or updates since SHE-T's October 2018 Final Needs Case submission that you think should also be considered?*

We received 74 responses specifically to this question. 41 responses to this question stated a range of concerns and 33 responses expressed support of the proposed generation scenarios.

In addition to the concerns raised in relation to VEWF detailed above, just under half of the responses (15 responses) that raised concerns in relation to this question commented specifically on the technology included within the generation scenarios. These respondents expressed their preference for a generation pipeline that focuses on other technologies such as offshore wind, tidal or small-scale wind developments on or around Shetland. These respondents stated that these types of generation projects would also be more appropriate in terms of scale for the Shetland Isles.

We received 14 responses raising concerns with the development of onshore wind more generally. These respondents asserted that Scotland already has sufficient levels of wind generation and that further development of this intermittent technology is not appropriate, particularly on Shetland where several respondents flagged they consider the landscape cannot sustain more wind turbines. A small number of respondents (seven responses) also flagged a combination of concerns with both the efficiency of onshore wind on the Shetland Isles, (citing the high wind speeds as problematic) and/or concerns in relation to the level of constraint payments being paid to wind farms to not generate and queried if more intermittent wind power is needed.

Just under a quarter of respondents (nine responses) who raised concerns with the generation scenarios stated that they consider the scenarios to be over ambitious and remain very uncertain beyond VEWF, with several flagging that only the VEWF project has undertaken ground investigations on the Shetland Isles to date. One respondent also flagged that it is difficult to see how the new CfD price makes these projects viable and concluded that the future generation scenarios are unlikely to transpire.

Of the 33 responses in support of the proposed generation scenarios, 24 were from respondents associated/affiliated with the Energy Isles project. These respondents flagged that whilst they consider the generation scenarios are an improvement from those shown in

the March 2019 consultation,[44] they still consider them to be an underestimate. These respondents also asserted that they consider it unrealistic not to forecast beyond 2026 given Scotland's Net Zero commitment to 2045. This point was echoed more generally by three further respondents not associated with the Energy Isles project, who considered there is scope for further potential on Shetland.

We received nine responses that agreed that the generation scenarios considered were reasonable based on the known and uncertain projects. One of these respondents highlighted that they consider the S1 scenario to be under representative and support the higher generation scenarios, flagging that they consider further generation will come forward once certainty on TNUoS charges is achieved and the risk associated with the high level of securities and liabilities is removed following a decision to progress the link.

Question 2: *What are your views on the demand sensitivity explored by SHE-T?*

We received 22 responses specifically to this question.

13 responses to this question raised concerns that the demand sensitivities are not appropriate or overstated. These respondents cited a range of reasons such as: the alignment of these scenarios with the lifespan of the platforms and the impact of the oil price and Covid-19 on the economy, impacting the options being considered by the oil and gas industry. These respondents queried how viable this option is, given the lack of reliability from renewable energy. More generally, several respondents flagged that there are other options that might also be considered by the oil and gas industry. One respondent also questioned whether the oil and gas industry using subsidised renewable energy to power its platforms would have the undesirable side effect of GB consumers subsidising fossil fuel extraction.

We received nine responses that agreed with the proposed demand sensitives stating that the demand sensitives looked to be appropriate based on existing and forecasted use of energy fields close to Shetland. Two respondents flagged that they consider the power demand from industry set out in the consultation, to be conservative and stated that it could increase at a faster rate. However, one respondent highlighted that they did not

[44] https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-final-needs-case-and-delivery-model

consider this would change the outcome. One respondent flagged that whilst they are supportive, given the current economic situation, it would be prudent to re-engage with the Oil and Gas Authority (OGA) to ensure the forecast remains accurate. Similarly, one respondent commented that the connection of these platforms will only be possible if the economic conditions remain right in terms of network charges and electricity prices and reliability. One respondent flagged that whilst they are supportive of the demand sensitivities considered, they thought that further sensitives should also be considered such as demand from new renewable generation when not generating and potential uptake of electrification of heat and transport.

Question 3: *What are your views on the link options considered by SHE-T? We are also interested in views on the options proposed by SHE-T to mitigate against the risks of a second link being needed.*

We received 52 responses to this question.

Of the 52 responses we received, 31 supported the link options considered. We received 21 responses from respondents associated/affiliated with the Energy Isles project, who whilst stating they agreed with the options considered, expressed that they would have preferred to have seen the 800MW link option proceed, but given the choice of a 600MW link or no link, support the proposal for a 600MW link. Three respondents specifically commented that they consider the 450MW option does not provide sufficient capacity for the project pipeline and one respondent commented that the 800MW option is not required due to the additional offshore demand (demand from industry). More generally, four respondents noted they were concerned with timings and that the other link options may cause delays, hence support the 600MW link as this is the option capable of delivering projects on time.

Of the 52 responses we received, 21 raised concerns with the link options considered. In particular, 14 respondents raised concerns in relation to the use of subsea cables, the interaction with the marine and fishing industries in the area and the risk of damage to the cable occurring. These are also covered in response to question 4 below. A small number of respondents raised concerns specifically in relation to the cable landing point at Weisdale Voe and their concerns with the impact on fishing/seafood industries and wider visual impact on this area. Visual impact concerns were also raised in relation to the converter station location in Upper Kergord by one respondent. One respondent also commented that any approval for the cable should be conditional on having appropriate controls in place to protect historically important sites such as the Spanish Armada Galleon wreck site.

We also received six responses to this question stating that non-link options should be considered and included, with one respondent stating that without VEWF there is no need for a link.

Mitigation options

We received six responses that commented that, in general, the mitigation measures proposed by SHE-T to avoid the need for a second transmission link appeared reasonable but that they should be explored further. We received 21 responses from those associated/affiliated with the Energy Isles project, who commented on the mitigation measures considered. These respondents stated that they consider Active Network Management (ANM) is only an economically viable option if generation is compensated with constraint payments. A further respondent commented they were pleased to see ANM proposed but more work would be required to understand how this will benefit projects in practice.

In relation to the new demand sensitivities considered, the Energy Isles respondents flagged that if the demand does not materialise in a timely manner they would expect constraint payments to be made to impacted generators.

On energy storage, the Energy Isles respondents questioned how SHE-T could propose this as an option when it is not within SHE-T's power, and that they consider this an irrelevant mitigation. One respondent commented that they supported this mitigation option and that this would support a second link not being needed. One respondent also commented that additional technologies such as battery and hydrogen could emerge which would give additional flexibility.

Finally, in relation to queue management, the Energy Isles respondents stated they consider this option should be rejected as the process has not been developed or achieved industry/regulatory approval. One respondent commented that the implementation of queue management is essential to avoid the risk of underutilised assets.

Three respondents commented that any reference to the need for a second link is not appropriate and that chances of this being approved are remote since the need for the first link is questionable.

Question 4: *What are your views on the technical design and costs of the proposed Shetland link?*

We received 77 responses for this question.

Technical Design

Of the 77 responses we received, 24 were positive and a small number of these specifically stated they agreed that the technical design appeared reasonable. 21 of these responses were from respondents associated/affiliated with the Energy Isles project. These respondents flagged that they considered an 800MW converter station at Kergord would be the same size as the existing 800MW converter at Spittal, which should be a lower cost design and be able to be delivered more quickly – flagging this as more cost effective. Two respondents also noted that while they welcomed the approach, they agreed that back-up solutions would be needed to ensure long-term security of supply.

We received 53 responses that highlighted a range of concerns. Of the 53 responses who noted their concerns, 32 flagged security of the subsea cable and potential risk of cable failure/damage as key concerns. The majority of the 32 responses flagged their concerns with the likelihood of cable damage and failures – seven of which noted that as a result, security of supply could not be guaranteed and thus, they did not have confidence in the proposals. Two respondents commented that a second cable would be needed to cover cable breakdown and one respondent queried the lifetime of the subsea cable and responsibilities for repair and maintenance. We received 10 responses that drew comparisons to the Western Link and questioned reliability of subsea cables in general.

We received comments from 11 respondents noting their concerns with the requirement for back-up generation to provide security of supply, commenting in general, that the need for this in addition to the link is not cost effective. These respondents also queried what this back-up generation would be and who would pay for it. Two respondents commented that should this be a diesel generator, this would not be very green or forward thinking, with one further respondent suggested battery or hydro solutions should be considered.

Cost

We received 29 responses flagging concerns over the total project cost (ie the cost of the transmission link, VEWF and ensuring security of supply on Shetland) and specifically the high cost of the link. The majority of the 29 respondents who noted this concern highlighted concerns over the total project cost going beyond £1bn and as a result, the potential high costs on consumer bills. Those respondents therefore questioned whether this is value for

money. Additionally, 15 of these responses flagged concerns over the wind farm costs, with one respondent stating that the cost infrastructure to connect wind farms should be taken into account. Several respondents also noted that they consider there could be cheaper alternatives to meet Shetland's energy needs, with several respondents citing the proposed LNG solution.[45] One respondent commented that due to complete redaction of financial information they were unable to determine whether Ofgem has given appropriate consideration to the consumer cost of securing supply. One respondent also flagged that Ofgem's benchmarking does not consider the specific challenges associated with construction, nor does it contain the necessary sensitivity or accuracy to develop cost conclusions.

One respondent commented that they welcomed the cost reductions based on the new estimates from the supply chain. A further respondent commented that although the costs appear reasonable they remain higher than other similar projects.

Question 5: *What are your views on the CBA put forward by the ESO?*

We received 41 responses to this question. 26 responses to this question agreed with the CBA put forward by the ESO and 15 respondents' flagged concerns.

Of the 26 positive responses, 18 were from respondents associated/affiliated with the Energy Isles project who stated the CBA shows it is cheaper for GB consumers to connect at least 818MW of generation to the 600MW link than to build an 800MW link. These respondents flagged that the CBA selects a 450MW link as the best option for connecting 818MW of wind in several cases/scenarios and as such they would expect a 600MW link to be the best option (in terms of best value for consumers) for connecting 1091MW of generation, with constraint payments paid to impacted generators.

With regards to the remaining positive responses, four respondents commented that they agreed the benefits of a 450MW link compared to a 600/800MW link are finely balanced but overall agreed with the 600MW link as the best option. More generally, three respondents commented that the risk of delaying the project may have an adverse impact on costs and that the 600MW link is the strongest of the options being considered. Additionally, these

[45] The proposed LNG solution is a gas fired power station in Lerwick which utilises LNG (liquefied natural gas), proposed by BSC and Gasnor.

respondents commented that more evidence would be needed to validate an 800MW link. Two respondents also commented that whilst they support the results of the CBA, the low CfD strike price may not be representative of the longer term wind price. One respondent also commented that the CBA should take into consideration the impact of having to build a second link in the event that further projects should come forward.

Of the 15 respondents that disagreed with the CBA as put forward by the ESO, eight respondents explicitly stated that they did not engage with this question, noting that it was difficult to make an informed comment due to the extent of redactions to the report and data. Several respondents noted concerns that the CBA was inconclusive and mixed, with two respondents citing concerns over false assumptions e.g. the counterfactual being that all generation would be constrained, one further respondent commenting that only the CfD price should be used as the constraint cost, and several respondents raising concerns with constraint costs more generally (similar to concerns flagged in response to Question 1, above). Three respondents also flagged that they consider the CBA should have included non-link options. One respondent commented that the negative NPV results in the CBA indicate that a non-link option is better value than the options considered. Two respondents noted they felt the CBA had been 'heavily weighted' in favour of SHE-T. One respondent commented that they would expect the EISDs would need to be reviewed in light of Covid-19.

Question 6: *What are your views on other approaches we have taken to assess the costs and benefits to GB consumers?*

The majority of stakeholders did not respond specifically to this question.

We received 17 responses to this question. Six respondents agreed with our approach to assessing costs and benefits. Two of which outlined their support of the Levelised Cost of Energy (LCOE) analysis. One respondent also commented more generally on the benefits associated with a transmission link, citing CO_2 reductions of 8m tonne/yr by 2050 from the oil and gas industry as one area. One further respondent also commented that the consideration of demand from the oil and gas industry further strengthens the project need and improves the costs and benefits for GB consumers, through this more joined up approach.

Of the 11 respondents who disagreed with the approach, six responses flagged specific concerns in relation to the LCOE analysis – the first response noted that the LCOE had not been useful as the September 2019 CfD auction had already been proven the LCOE to be too

high for Shetland. The second response noted that the extent of the redactions made to the LCOE made it impossible to assess. Further to this, four respondents flagged that they had expected to see other options considered as part of the analysis; with three noting, they had anticipated the LNG option being presented as part of Ofgem's proposals.

Three respondents questioned whether the appropriateness of the transmission of power to mainland GB from the Shetland Isles has been fully assessed and four respondents questioned whether this represents good value for energy consumers nationally. One of these respondents also voiced doubts over whether the grid infrastructure on mainland GB is adequate to accommodate additional power from further north via HVDC interconnectors. Two respondents raised concerns in relation to the level of constraint payments paid to wind farms specifically, flagging the burden falls on GB consumers, with one additional respondent requesting further analysis on future constraint payments.

Question 7: *What are your views on our minded-to position to conditionality approve the revised Final Needs Case?*

We received a total of 96 responses to question 7 overall. While some respondents answered all of the elements individually, others answered a select number. Some respondents did not answer any of the elements individually and chose to combine answers into an overall response. Where respondents have done so, we have identified common themes under the appropriate elements of this question.

i) Do you agree with our proposal to approve a 600MW link subject to Ofgem being satisfied, by the end of 2020, that Viking Energy Wind Farm is likely to go ahead?

We received 37 responses, which agreed with our proposal, and 59 responses flagging concerns and disagreement with our proposal.

Of the 37 respondents who agreed with our proposal, 22 respondents (associated/affiliated to the Energy Isles project) commented that whilst they are in support of the proposal for a 600MW link, they consider it important to note that the CBA shows that a 600MW link can connect at least 818MW of generation with constraint payments being made as the lowest cost solution (even with no additional demand). These respondents also commented that the statement from SHE-T that '*existing industry arrangements mean that any further generation connection applications beyond those already contracted will be offered a connection on the basis of a second HVDC link from the Shetland Isles to the mainland'* is unacceptable and contradicts the CBA presented.

Further to the above several respondents commented that this proposal will benefit Shetland. One respondent commented that Shetland is in need of a grid connection due to its isolated power system which means electricity generation is currently very expensive, and flagged that this proposal will mean Shetland can contribute towards decarbonisations goals due to the abundant renewable energy resources available. Another respondent flagged the benefits they considered to the community of wind turbine development. More generally, seven respondents, who agreed with the proposal, highlighted wider economic or social benefits for Shetland and in particular supported this as part of the recovery from Covid-19. Two respondents also commented that given the level of development achieved by VEWF they agreed this was the best solution and that a prompt decision should be made.

Of the 59 respondents who disagreed with our proposal, we received two responses calling for a larger 800MW/1000MW link – flagging that they consider this option is more economic and efficient given the small cost difference with the 60MW option allowing more capacity.

We received 13 responses that flagged concerns in relation to fuel poverty, the impact on the cost of living and the impact of this proposal on consumer bills. This point was largely linked with the impacts of Covid-19, with 11 respondents questioning the timing and appropriateness of both the consultation and proposal, given the current pandemic. Further to this, seven of these respondents flagged concerns that construction had already begun and that the project appeared to be going ahead regardless.

We received 48 responses that expressed a preference for the LNG proposal as a more suitable, low-cost solution. In general, respondents stated that they considered this to be a more environmentally friendly option at a more appropriate scale potentially with the benefit of local district heating. Respondents flagged this would remove the need for a link altogether. One respondent commented that although the LNG option is not carbon zero, that it is less polluting than the existing power station.

In addition, nine of the respondents who disagreed with our proposal raised concerns over the potential SSE conflict between the SHE-T link and VEWF; with five specifically citing concerns over the timing of SSE FID announcement on VEWF and flagging, they consider this as an attempt by SSE to manipulate Ofgem into approving the Final Needs Case. Several of these respondents also flagged concerns that it appears SSE are driving forward as if all consents and regulatory decisions have already been made.

One respondent commented Ofgem has an environmental duty, which does not appear to have been satisfactorily addressed in decision-making, flagging that they consider both the

wind farm and link have significant environmental impacts, which Ofgem has a duty to consider.

Several respondents commented on the assessment carried out more generally, with one respondent flagging that they consider the CBA is flawed, and one questioning whether financial factors have been properly assessed considering the consultation includes cost estimates only.

ii) Do you have any views on the type of evidence we should expect to see that would confirm that Viking Energy Wind Farm is likely to go ahead?

We received 10 responses that stated they agreed with the proposed evidence requested. Several respondents commented that they would expect evidence of FID as a minimum, with one further respondent commenting that a signed contractual agreement with the principal contractor/main supplier should be required alongside the discharge of all planning conditions and any other outstanding consents. Two other respondents commented that they consider the conditions difficult to achieve due to the impact of Covid-19.

We received one response that suggested that in their view any arrangements outside CfD should require large project bond e.g. 25% of project cost to be forfeited if the project does not proceed. We also received 21 responses (associated/affiliated with the Energy Isles project) which advised that they would expect Ofgem to have confirmation from SSE Board of Directors.

We received two responses flagging that they did not consider investors would have confidence to underwrite this project at the moment (on a merchant basis) given wider economic uncertainty and associated higher risks. One respondent also commented that Ofgem should have more clearly communicated its reasons for departures from the CfD conditions considered previously.

iii) Do you agree with the factors we have considered to reach our minded-to position?

We received four responses that explicitly agreed with the factors we considered to reach our minded-to position.

The remaining responses to this question considered there were further factors that could be considered to reach our minded-to position such as: wider consideration of benefits/dis-benefits, the alternative solutions to security of supply being proposed, more certainty on costs – these are set out in more detail below.

iv) Are there any other factors that you consider we should take into account when assessing this proposal?

Two respondents commented that Ofgem could consider the additional economic and strategic benefit to the UK should new offshore oil and gas field developments be facilitated by electrification from Shetland. Another respondent flagged that social/economic benefits more generally could be considered.

One respondent commented that the generation scenarios could be explored further to go beyond known projects and consider wider decarbonisation aims and/or anticipatory investment.

We received 47 responses that reiterated earlier points flagged in question 6) and 7i) that they would have liked Ofgem to take into consideration the LNG proposal as an alternative. One respondent commented that whilst they agree with moving to greener energy solutions, the cost implication must be taken into account and in particular, its impact on fuel poverty. Another respondent flagged that onshore wind is only one option, and that funds could be diverted to offshore wind/emerging technologies.

Concerns in relation to fuel poverty and the impact of the proposal on consumer bills were raised by 13 of these respondents; with two specifically flagging that, fuel poverty on Shetland currently affects 53% of homes. One respondent also commented that Ofgem's principal duty is not being fulfilled on Shetland.

We received 19 responses, from individuals associated/affiliated with the Energy Isles project, which requested Ofgem make it clear to SHE-T that the CBA shows there is no case for a second link unless 818MW is connected.

One respondent commented that they consider the impact of Covid-19 on market rates should be considered.

Two respondents commented that any further delay in progressing the link will impact energy provision at local, regional and national levels and delay would risk increased costs.

Question 8: *Do you agree with the findings of our analysis [on the delivery model]?*

Of the nine responses that addressed the consultation questions about the delivery model, all respondents agreed with our minded-to position. The three TOs emphasised their

opposition to the use of the CPM to any project. They criticised the CPM as not being fully developed, and of using OFTO financial benchmarks inappropriately to set the allowed return. They also claimed that the benefit case analysis hadn't factored in the implications for the financing for the wider RIIO arrangements.

Question 9: *Are there any additional factors that we should consider as part of our analysis and/or decision on whether to apply the CPM for the Shetland transmission project?*

One respondent referenced that for CPM to accurately replicate a competitive process, it would be important that the cost allowances that are set at Project Assessment accurately reflect the bespoke nature and challenge of working in the environment around Shetland.