

James Norman
Head of New Transmission Investment
Ofgem
10 South Colonnade
London
E14 4PU

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Dear James

Shetland Transmission project: Consultation on Final Needs Case and Delivery Model

Scottish Hydro Electric Transmission plc (SHE-Transmission) welcomes the opportunity to respond to Ofgem's consultation on the Final Needs Case and Delivery Model for the Shetland Transmission project, published on 23rd April 2020.

Our response is attached and if you would like to discuss any part of our response in more detail, please do not hesitate to contact me.

Yours sincerely

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.*

The Shetland Isles has a significant potential for renewable generation. Given its location, the Shetland Isles is known to have some of the best wind resource in all of Europe. In our revised Final Needs Case we included several generation scenarios developed in conjunction with our consultants GHD. The Needs Case and supporting documentation explained how these scenarios were derived and the evidence relied upon. We believe these represented credible and realistic high, medium and low generation possibilities. These were compared and analysed alongside the Future Energy Scenarios (FES) developed annually by the GB Electricity System Operator (ESO). The generation scenarios assumed a modest amount of background growth in small scale wind generation, as well as some growth in small scale solar PV and tidal energy.

We welcome and support Ofgem's view that "the range of generation scenarios appears representative of a reasonable range of possible scenarios"

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

The connection of additional demand on Shetland is an important enabler underpinning network access for further generation projects in the longer term. We are closely engaging with the Oil and Gas industry as they explore options for shore supply to support their platforms in the fields off the Shetland coastline. We welcome that Ofgem have agreed with our inclusion of a range of potential future demand levels within our analysis and believe that the range is commensurate with the early stage of these projects in their development lifecycle. As these projects mature, we will continue to support the Oil and Gas industry and seek to best integrate their connections into the Shetland system to maximise generation access opportunities.

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 maintain that our approach to optioneering is robust, seeking best value with the most efficient solution. Shetland is the most remote inhabited community from mainland GB and the existing transmission system. Therefore, the distance from Shetland to the mainland only allowed for HVDC technology to be considered for the subsea cable. The principle evaluation criteria were applied (i.e. covering capacity, programme and cost) and resulted in five

engineering options ranging from 450MW to 1GW being considered for the CBA in our original 2018 FNC submission.

The three best performing options from the 2018 FNC were considered in the revised submission. All three options are based on the incremental development of a point to point HVDC link, only requiring a convertor at one end of the link.

The remaining two discounted options were point to point HVDC links both of which would have required two convertors on either end of the link, the additional cost of which resulted in both having significantly lower NPV's and higher regrets than the best performing option. We welcome ESO's confirmation of the suitability of this approach as noted in the consultation.

We are therefore satisfied that there are no further feasible options that we could have considered, and we welcome and support Ofgem's view that "SHE-T has considered an appropriate range of potential technical options".

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

We welcome and support Ofgem's view that *"the technical design would meet the export requirements that SHE-T has identified for the Shetland transmission project in the next few years"*

Cost efficiency will be achieved and demonstrated by applying a multi-contract procurement strategy. With SHE-Transmission taking responsibility for the management and co-ordination of the many project interfaces, supply chain contract costs will be minimised. Furthermore, we will be exploring opportunities to develop efficiencies by looking at synergies between the supply chain for items such as site accommodation and logistics.

We have some of the most extensive experience of implementing large capital projects, such as SWW projects Kintyre-Hunterston and Caithness-Moray. The range and scope of these previous projects puts us in a strong position to identify and implement "lessons learned" activities, employing our extensive experience to ensure risks can be managed effectively. We have also carried out recent offshore site investigation surveys to ensure tender returns for sub-sea cable requirements are priced on an accurate basis.

Best value will be achieved through competitive tenders for all key procurement awards for both framework and one-off contracts. Our tender events are carried out pursuant to the requirements of the EU Procurement Directives, as reflected in UK Statutory Instruments under the Utilities Contracts Regulations 2016 and Utilities Contracts (Scotland) Regulations 2016, ensuring transparency and equal treatment of all participants.

The use of framework agreements provides the following key benefits:

- Competition – a framework agreement is not a guarantee of work and successful framework contractors are aware they will likely have to compete with other framework providers for specific projects – ensuring costs are competitive.
- Enhanced quality – quality standards and experience on projects of a scale and cost commensurate with our projects and is a key criterion for qualification into our tender processes.
- Experienced programme management and delivery – ensuring projects are delivered to plan, on time and on budget.
- Commercial benefits - continuous work programmes avoiding duplication of resource and cost, cost efficiencies through project synergy and economies of scale.
- Accountability – should anything not go to plan there are clear contractual mechanisms and financial instruments, ensuring consumers' exposure to the potential cost of a contractor's act or omission is mitigated.

In addition to this supplier relationship management, processes are used for strategically important suppliers to measure and improve relationships, which encourages supplier innovation and drives value from the supply chain. We believe the costs achieved through these mechanisms are reflective, competitive and offer value to the GB consumer.

We note Ofgem's comments regarding benchmarking values. We maintain that Ofgem's benchmarking does not consider the specific challenges associated with the construction of the Shetland transmission link, nor does it contain the necessary sensitivity or accuracy to develop cost conclusions. In particular, we believe Ofgem's base data is flawed and it does not include a wide enough range of comparable projects, nor does it account for the unique characteristics, such as location, capacity, length, etc. We have raised these concerns with Ofgem and will further discuss at Project Assessment.

It should also be noted that our tender exercises are not complete and procurement negotiations and value engineering work is ongoing. We intend to present our final costs at Project Assessment stage which will be representative up to that point. These will include efficient costs driven by our approach to contract structure, negotiations, lessons learned, etc.

We believe that a competitive, multi-contract procurement strategy will determine the true benchmark value for the project.

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

We firmly support the ESO's analysis and findings. Fundamentally, the CBA compares the Present Value (PV) of reinforcement costs with the PV of forecasted constraint cost savings.

Where constraint cost savings exceed the investment cost, the reinforcement could be considered economical. This is an appropriate and established industry approach when considering the costs and benefits of the potential investment.

In order to develop its conclusions, the ESO considered a range of generation backgrounds, design options and sensitivities. In the baseline scenarios the ESO arrived at the same conclusion as GHD's that by applying the principles of Least Worst Regret (LWR) analysis the 600MW link was the best solution of the options considered.

Clearly the outcome was not as clear cut when reviewing the sensitivity scenarios that used the latest R3 CfD strike prices in place of the ROC value, however it should be noted that the low CfD R3 strike prices for wind may not be representative of the longer-term wind price and we therefore welcome confirmation from ESO that it is working to include more dynamic bid pricing capabilities within its modelling in due course.

Given the complexity of that task and recognising the limitations of the modelling capability available at the time of this submission, we agree that it was pragmatic to use the last CfD price as a proxy for ROC in this instance and welcome Ofgem's approach to investigate alternate methods to Investment Appraisal

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

Expected NPV approach

The expected NPV approach provides the user with a preferred option based on its position relative to the other reinforcement options.

The danger in assigning probabilities to future outcomes is that the outcomes are highly sensitive to subjective assumptions and the use of imperfect information. We therefore support Ofgem's decision to refrain from the allocation of probabilities to the outcomes.

LCoE

LCOE is still a powerful tool, however, there are unaccounted factors which need to be involved when analysing comparative options. For example, we have particular concerns regarding the use of established offshore wind as a comparator given the significant differences with on-island wind in terms of achievable economies of scale. LCOE works best when combined with other methods to give a more accurate, encompassing comparison of generation systems.

We welcome and support Ofgem's view that "the results of this analysis are sensitive to assumptions around capital costs, generation load factors and hurdle rates assumed and therefore should not be taken as definitive in assessing the GB consumer value of the project"

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

SHE-Transmission welcomes Ofgem's minded to position to conditionally approve our Needs Case and agree with the decision to make this approval conditional upon VEWf achieving FID and providing evidence of a suitable delivery milestone.

Question 8: *Do you agree with the findings of our analysis?*

SHE Transmission agrees with Ofgem's minded-to position not to apply the CPM to the Shetland transmission project. We agree there is not clear evidence that applying the CPM would be in the interests of consumers. In turn, we support delivery of the project through the existing SWW arrangements under RIIO.

Despite Ofgem concluding the SWW RIIO arrangements would be the applicable delivery model, we do not agree with Ofgem's view that this decision is 'finely balanced' as noted within paragraph 5.45 of the consultation document.

Delivery of any large transmission project through the CPM in its current form will likely lead to significant additional consumer detriment when compared the RIIO counterfactual. In response to several previous consultations, SHE Transmission has highlighted to Ofgem several errors within its calculation of the purported benefit of the CPM. We consider that once corrected, it will compound an already negative benefits case, particularly in the case of the Shetland transmission project. These errors must be corrected should Ofgem decide to conduct a cost-benefit-analysis for the use of the CPM in future.

These issues are addressed further in our response to question nine.

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?*

We agree with Ofgem's decision not to apply the CPM to the Shetland transmission project and believe a number of additional factors, if considered, would further support this decision.

Ofgem has made no amendment to the CPM modelling for the additional errors identified in our response to the Orkney Needs Case Consultation and which have been repeated in the Shetland Project cost-benefit-analysis.

When these errors are corrected, CPM is likely to lead to a significant additional detriment for consumers to that identified within the Shetland Final Needs Case consultation.

As noted in our response to Ofgem's 19 March 2019 Shetland Final Needs Case and Delivery Model consultation, the CPM is an exercise in artificiality, making broad and unrealistic

assumptions about what *would* have resulted from an efficient competition, in order to hypothesise supposed consumer benefits which are then sought to be replicated.

SHE Transmission has consistently raised issues in relation to:

- Ofgem's incorrect use of the OFTO regime as a direct comparator;
- Errors in relation to operational gearing;
- Errors in relation to the cost of equity;
- Errors in relation to the Weighted Average Cost of Capital (WACC); and
- Errors in relation to the calculation of RPI.

Ofgem's incorrect use of the OFTO regime as a direct comparator

Ofgem's current approach for CPM uses market-derived evidence from the OFTO regime as a direct benchmark for the project's allowed cost of equity during the operational period. We have previously raised a number of issues relating to this approach including "first of a kind premium" which would apply in the case of an onshore transmission asset being financed and delivered through an entirely new process, inaccurate interpretation of gearing levels for OFTO, and a failure to consider the different risk profile of an OFTO licenced asset compared to an integrated onshore transmission asset.

Further, it should be noted that OFTOs themselves are not directly comparable to the TOs, nor are the projects directly comparable. To date, each OFTO appointed has bid into a generator built, point to point connection serving one generator only, with no foreseeable adaptation to service additional generators or the wider transmission network. In such cases, the OFTOs appointed acquire a pre-built asset, constructed by the generator whose sole method of exporting generation, and therefore sole means of generating income, relies upon the connection. The risk in designing and building such a link is carried by the generator and due to the late model OFTO regime utilised, the OFTO itself acquires only the operational risk in a brand new, purpose built, completion tested asset. This is a wholly different prospect to the TO projects which are at the earliest stage of pre-construction.

Accordingly, OFTOs in current operation, are an unrealistic and inappropriate comparator and Ofgem's use of OFTO data is clearly not comparing like with like. In this circumstance the 'proxy' by which this theoretical competition is measured against, is inherently flawed. The costs and risks associated with an integrated onshore transmission asset are not comparable with a standalone single asset such as an OFTO connection. The risk profile is distinctly different therefore leading to a different outcome on the outturn cost of capital.

Errors in relation to operational gearing

The observed gearing range for OFTOs, as reported by CEPA, is 50-91%. The lower bound of the range is based on the TR2 (2012) OFTO for Lincs and the upper bound is based on the TR1 (2009) OFTO for Sheringham Shoal. Notwithstanding the wide range observed, Ofgem has advanced no reasoning for using a range at the upper bound. Further, OFTOs are stand-alone licensed projects with complex financing structures and these need to be examined more carefully before drawing inferences for Shetland¹. It is far from obvious that any of the OFTO projects cited are reasonable proxies for the Shetland Project.

Errors in relation to the cost of equity

Ofgem has wrongly interpreted evidence from the OFTOs when setting the cost of equity. OFTOs are an inappropriate benchmark because the data is not visible or transparent. The most recent independently verified data available is from the National Audit Office (NAO) in 2012, which calculated a materially higher cost of equity than that proposed by Ofgem.²

Errors in relation to the Weighted Average Cost of Capital (WACC)

Ofgem's WACC estimate implies that the risk premium on the asset is below the risk premium on (lower-risk) debt instruments. This is inconsistent with well recognised and accepted finance theory that the risk premium on unlevered equity would be lower than the risk premium on debt of the same company. Equity as an asset class is higher risk than debt, as equity holders rank behind debt holders, such that equity must earn a higher return than debt. Ofgem's assumption to the contrary wholly undermines the credibility of its assessment.

Errors in relation to the calculation of RPI

Ofgem's calculation of the RPI is incorrect. Ofgem estimates RPI to be 3.0% for the construction phase (based on five-year breakeven inflation) and 3.0-3.4% during the operations phase. There is no reason to consider that inflation in the longer term would deviate from the Bank of England's target inflation rate of 2%. This results in a material understatement of the real cost of debt during the operations phase, and therefore overstates the customer benefit.

¹ CEPA (2018), 'Review of Cost of Capital Ranges for New Assets for Ofgem's Network Division', p. 57.

² National Audit Office – Offshore electricity transmission: a new model for delivering infrastructure (22 June 2012)