MOTT MACDONALD

North West Coast Connection Consultation Response

RE: Consultation on the project's Initial Needs Case and suitability for tendering.

24 February 2017

Dear James Norman

We welcome the opportunity to respond to your latest consultation "North West Coast Connections – Consultation on the project's Initial Needs Case and suitability for tendering" published 14 December 2016.

Mott MacDonald is a US$2bn engineering, management and development consultancy including over 1,400 staff working directly on power-related projects. We are seen as world leaders in the power sector.

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For more than 100 years, we've delivered the industry's most prestigious and challenging assignments, playing a leading role on some of the world's milestone energy projects.

We are structured to support our global clients wherever in the world they are funding, developing or constructing power transmission and distribution projects and assets. We work closely with them and other parts of our business to bring together the skills needed for the specific requirements of their projects. We blend skills from our team of electrical, civil and environmental consultants, scientists, economists and project managers bringing this together with the rich and diverse skills available within our wider business as needed for our projects.

We have been engaged on all the OFTO tender rounds and are very familiar with the competition approach and mechanisms associated with the OFTO regime. We therefore consider ourselves well placed to comment on the important items addressed in this consultation.

Our responses to each of the questions that we have identified as key areas where we can add value to the discussions are included in the following sections of this document.

We trust that you find our responses valuable and we would be very happy to provide further support as may be required.

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Response to Question 1

Do you agree that there is a technical need for the project if NuGen's project goes ahead?

Transmission infrastructure is required to export power from a large generation source. Whilst there is existing 132 kV infrastructure within the area of Cumbria in which NuGen intends to commission its nuclear power station, there is no existing Extra High Voltage (EHV) transmission infrastructure. Whilst we recognise that the 132 kV network provided adequate capacity for earlier generation facilities in the area, considering the scale of the NuGen proposals we are aligned with NGET's conclusion that the existing infrastructure is inadequate for the purposes of exporting power from the new generators. We therefore conclude that there is a technical need for new EHV transmission infrastructure if the NuGen power station goes ahead.

Response to Question 2

Do you agree that connecting the Moorside site using four 400 kV circuits is appropriate and compliant with SQSS requirements?

We have reviewed the information presented by Ofgem, TNEI, and Poyry in the various supporting documents and conclude that connecting the Moorside site using four 400 kV circuits is compliant with the SQSS requirements.

We have reviewed the third-party analysis regarding two-circuit and three-circuit options; broadly summarised below:

- A two-circuit option is non-compliant with the SQSS requirements if the net output exceeds 1.8 GW.
- A three-circuit option triggers the requirement for a commercial intertrip. Whilst we have not looked in to the costs of such an intertrip we understand that NGET, TNEI, and Poyry have investigated this and conclude that the system is prohibitively costly.
- We would not expect the cost and environmental impact of constructing a single-circuit line (as would be required for a three-circuit option) to offer a significant benefit in comparison with that of a double circuit line.

Given the analysis presented by the parties we conclude that connecting the Moorside site using four 400 kV circuits is appropriate.

Response to Question 3

Do you agree with our initial conclusions?

We agree with Ofgem's initial conclusions that there will be a technical need for the NWCC project if NuGen commissions Moorside and that this would require four 400 kV circuits to be constructed in the local area if the net output exceeds 1.8 GW at any time. We similarly agree that NGET appears to have followed a sensible and logical process in selecting the routing options.

We decline to comment on Ofgem's conclusions regarding potentially disallowing particular costs within its Final Needs Case.

Response to Question 4

Are there any additional factors that we should consider as part of our Initial Needs Case assessment?

We consider the factors that have been considered sufficiently inform the Initial Needs Case assessment.

Response to Question 5a

Do you agree with our view that the overall project meets the criteria for tendering?

We have reviewed the documentation presented by Ofgem and TNEI and conclude that the overall projects meet the three criteria for tendering: New; Separable, and High Value.

We have reviewed the potential boundaries and are aligned with Ofgem's view that the interfaces should be manageable in line with normal industry arrangements. Whilst there will need to be additional consideration given to instances where modification/extension is required at each of the remote ends we expect that this will be broadly in line with the established approach taken on Offshore Transmission Owner projects and we have no undue concerns in this regard.

Response to Question 5b

Do you agree with our view that the potential sections meets the criteria for tendering?

We have reviewed the documentation presented by Ofgem and TNEI and conclude that the potential sections each meet the three criteria for tendering: New; Separable, and High Value.

We note that sectionalisation introduces further interfaces to be considered with reference to the Separable criterion. In this case the Separable criterion should consider the boundary of ownership not just between competed assets and existing assets, but also between multiple competed assets. We expand on this points in response to Question 7 below.

Response to Question 6

What are your views on our deliverability assessment for:

a) The overall project?

b) The potential sections?

In particular, considering our analysis of the design, procurement, and construction timelines as submitted by NGET.

Analysis of the deliverability of this complex project is a significant engineering task that we believe requires more comprehensive data than that made available via this consultation to explore credibly. In addition, given the lack of CATO track-record in the UK we cannot, with certainty, explore the balance between additional time needed for the tendering process versus possible time savings during design, construction and commissioning.

Response to Question 7

What are your views on the need for overall coordination of the whole NWCC project if the project were to be split into packages with different delivery parties?

As with any multi-package project with multiple stakeholders overall coordination and management of interfaces is key to successful and efficient delivery. Whilst different delivery parties would introduce additional complexities and interfaces we consider that effective delivery could still be achievable provided a robust approach is developed and adopted by all parties. At the current time, the commercial mechanism and incentives for cooperation and coordination between different delivery parties is not immediately apparent and we suggest that consideration is given to developing this ahead of the Final Tender Checkpoint so that Bidding Units are sufficiently informed. We note that the introduction of multiple delivery parties may introduce additional complexities regarding the interaction of multiple revenue stream commencement dates. There is associated potential for revenues from one of the packages to be impacted by delays in completion

of the other packages. This may impact the financeability of the individual packages; we suggest that consideration should be given to a commercial guarantee mechanism to address this potential issue.

We consider that the proposed split into three electrically delineated sections (North, South, and Tunnel) generates commercial interface points that are relatively standard within typical EPC contract packages for transmission grid projects. That said, these packages would usually be managed by a single project entity, whereas in this instance there is the potential for up to three delivery parties to be involved. However, the robust package management coordination and management practices adopted on typical transmission grid connection projects could be readily adopted for the different sections of the NWCC project.

We suggest that consideration is given to engaging the services of a third party to monitor and potentially to control the coordination of the delivery parties, complemented by commercial documentation that obligates and incentivises the coordination that will be required to ultimately drive down cost to the consumer.

Response to Question 8

If some, or all of NWCC were to be tendered, what, in your view, is the most appropriate allocation of risks across the relevant parties (TO, CATOs, and consumers)? How should these risks best be managed?

Such a risk allocation undertaking would be a significant task in itself. Without significant discussions with some of the potential parties and a more detailed assessment of all aspects of the project overall, we cannot offer an opinion. Except we would state the obvious guideline that risk should be allocated appropriately to those who can best control, mitigate, or otherwise manage that risk. There are contractual mechanisms available to enable risk apportionment and to incentivise interests accordingly.

Response to Question 9

What are your thoughts on the substation modification and extension works at Harker and Middleton, in the context of efficient CATO delivery, including the options presented in this document?

We have reviewed the documentation including the Harker and Middleton Substation site layout plans submitted for consultation. We consider that the proposed modification and extension works are typical of works required to facilitate other similar grid connections such as those for OFTOs. We conclude that whilst there is potential complexity and risk associated with working on or near existing assets owned by another party, there are established practices for managing this within the industry that can be directly applied to the potential NWCC project interfaces. We consider that provided the modification and extension works are well coordinated, they should not impact the effective CATO delivery nor indeed the effective delivery of the overall project.

With reference to the three options that Ofgem has considered for re-packaging of the substations, namely:

1. Incumbent Transmission Operator (TO) ownership of whole substation
2. CATO ownership of the whole substation
3. Ownership of substation split between CATO and incumbent TO

We are aligned with Ofgem's view that both option 1 and option 3 are likely to be the most appropriate for consideration if the projects were to be tendered.

We note that for existing GIS substations that require extension to satisfy a particular project there are likely to be constraints on the switchgear that is used for the extension. Typically, GIS extensions utilise switchgear by the same manufacturer as that of the existing GIS infrastructure.

We have reviewed how option 3 may work in practice, using Middleton Substation works as a reference site, as we consider it to be the more complex of the two substations. We would expect that the majority of the additional bays and shunt reactors required to facilitate the project could be designed, developed, constructed, and that stage one could be commissioned offline by the CATO. We would expect that the CATO and NGET would coordinate and interact to develop the design for and construct the 'coupling piece' that would be required to couple the substation extension constructed by the CATO with the existing NGET infrastructure. In principle, we consider that this approach should be readily achievable for both parties.

We note that the re-packaging options will need to be reviewed against the details of the availability/performance mechanism to determine the potential impact of the introduction of the various interfaces. Whilst this would require some detailed consideration we do not consider the interface coordination to be unmanageable in this regard.

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For further information, please contact us:

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