TRANSMISSION CAPITAL PARTNERS

James Norman
New Transmission Investment
9 Millbank
London
SW1P 3GE

22nd February 2017

BY EMAIL ONLY

Dear James,

North West Coast Connections – Consultation on the project's Initial Needs Case and suitability for tendering

Transmission Capital Partners manages one of the largest offshore electricity transmission portfolios in terms of the capacity of offshore wind connected. Our managed portfolio of Offshore Transmission Owner (OFTO) assets includes the connections to the Robin Rigg, Gunfleet Sands, Barrow, Ormonde, Lincs and Westermost Rough offshore wind farms - a portfolio of over 1000MW (circa £800m in capital employed).

The shareholders of Transmission Capital Partners are also investors in major new-build infrastructure projects in the UK including the:

- Thames Tideway Tunnel; and the
- France-Alderney-Britain Electricity Interconnector

We remain strong advocates of introducing competition into the delivery of onshore electricity transmission and we continue to support the development of the required arrangements *inter alia* through industry groups, responding to consultations such as these and, when called upon, providing evidence to parliament.

We are broadly supportive of the proposals in the consultation document but we consider that it should be in the interests of the GB consumer that any decision not to compete any part of the North West Coast Connections should only be made when the required timescales for the project are better defined.

Our response to your specific questions is attached as Annex 1.

Yours sincerely,

Chris Veal
Director, Transmission Capital Partners GP Limited
for and on behalf of Transmission Capital Partners Limited Partnership

TRANSMISSION CAPITAL PARTNERS

Annex 1 – Responses to specific questions

Question 1: Do you agree that there is a technical need for the project if Nugen's project goes ahead?	Given the 3.8GW size of the proposed Moorside power station and the lack of existing electricity transmission network close to the proposed power station site it is clear that that a substantial connection scheme is required to enable the export of power from the proposed power station to the national transmission system.
Question 2: Do you agree that connecting the Moorside site using four 400kV circuits is appropriate and compliant with SQSS requirements?	A power station of 3.8GW will require at least three circuits (to cope with the N-2 outage situation required by the SQSS[1]) and given the maximum loading on a single circuit will probably require four circuits (so that two remain under N-2 conditions). It has been considered that three circuits may be sufficient if coupled with an intertrip scheme to reduce generation output under N-2 conditions, but that this would be more expensive than a four circuit connection given the cost of a "commercial" inter-trip. The costs of the commercial inter-trip are not disclosed though and therefore it is not possible for us to comment further on this option.
Question 3: Do you agree with our initial conclusions?	*Northern v Southern connections* Options have been considered as to whether the four circuits should go north, south or two north and two south. We agree that two north and two south is probably the best option given the need to not have all circuits going north (and therefore putting more loading on boundary B07), and the cost and environmental impact of having all four circuits going south. We also note that two north and two south may not put any materially higher strain on boundary B07 compared to all four circuits going south as:

[1] SQSS: Security and Quality of Supply Standards

	i) whilst an N-2 outage of the NWCC southerly circuits would leave all of the generation connected to the north, under this outage scenario the existing boundary B07 circuits would still be considered to be intact; ii) under alternative N-2 outage scenarios, the NWCC scheme will add to boundary capability. *Routing of the Southerly circuits* Options have been considered as to whether to route the southerly circuits across Morecambe Bay or further offshore (either from a landfall near Moorside itself to run offshore southwards to a landfall near Stanah, or from a landfall at Kirksanton to a landfall near Stanah). It has been concluded that routing across Morecambe Bay would need to be by tunnel rather than installed in the sea-bed or by overhead line (for environmental reasons). It has also been concluded that the costs of routing across Morecambe Bay by tunnel would be less than going further offshore. There is insufficient cost and routing detail provided in the consultation document and the accompanying TNEI report for us to take a view on this conclusion.
Question 4: Are there any additional factors that we should consider as part of our Initial Needs Case assessment?	[Nothing additional to that mentioned above]
Question 5: Do you agree with our view that: (a) the overall project meets the criteria for tendering?	It is clear that the proposed scheme meets the tendering requirements of new, large and separable, whether in whole or broken down into three as follows: i) Northern 400kV double circuit overhead line ii) Southern 400kV double circuit overhead line and 400kV double circuit onshore cabled section;

(b) the potential sections meet the criteria for tendering?	iii) Southern 400kV double circuit offshore tunnelled section. We agree that the decision whether to separate and if so into what lots is a balance of[2]: i) "The economies of scale associated with higher value projects and the ability to engage the market more readily; ii) The greater risk associated with larger projects and potential for lower engagement from prospective CATOs if there are fewer opportunities; iii) The risk associated with increasing number of technical and commercial interfaces between various parties and co-ordination of these." And as such we agree with the proposed lotting strategy summarised in Table 4-1 of the TNEI report[3]. For clarity we have assumed that the tunnel section includes the 400kV cables installed within the tunnel and all associated cooling and other ancillary equipment associated with the tunnel and with the cables in the tunnel.
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.	We have concerns that any deliverability assessments taken at this stage may unnecessarily lead to parts of the project not being tendered (and consequently the benefits of competition not being gained) for two reasons: i) What turn out to be unrealistic timescales for the power station project; ii) The need for site supplies driving the timing of the connection works when cost effective alternative arrangements could be made for those site supplies.

[2] Section 4.1.2, page 85, TNEI/Poyry: Report No 11305-01-R2: North West Coast Connections Initial Needs Case Assessment (Redacted), 14th December 2016 (hereafter referred to as the "TNEI report")

[3] Section 4.1.2, page 86, TNEI report

	The consultation report recognises the former whilst also noting that the timescales to implement competitive tendering, being dependent on primary legislation, may also lead to delay (from the expected date of mid-2020) in a CATO licensee being appointed. Taking each in turn: *Power station project timescales* At present there appears uncertainty regarding the timing of the power station project itself as it does not yet have a Contract for Difference, has yet to submit its DCO application, and it has been reported that the project partners (Toshiba and Engie) will need further support from additional shareholders or the UK government in order to be able to finance the power station[4]. The project's website[5] states that a final investment decision is scheduled for 2018 and the TEC register currently[6] has the connection dates for the three units for Moorside as October 2024, 2025 and 2026 although the consultation document cites August 2025 as the date the first reactor is due to come online[7] and the TNEI report states that "*NuGen does not intend to connect the first reactor until 2025*"[8]. Whilst we are not in a position to comment specifically on the risk of a schedule slippage for the Moorside project we note that projects of this type and size have a poor track record in meeting scheduled timelines. We also note that TNEI in its report recommends

[4] See for example FT article on 23rd January 2017: "Toshiba faces pressure to secure funding for UK nuclear project", https://www.ft.com/content/c0b01308-e0aa-11e6-8405-9e5580d6e5fb?sharetype=share or FT article on 4th February 2017 "Moorside nuclear plant braced for potential Toshiba pull out", https://www.ft.com/content/fc9d036e-ea44-11e6-967b-c88452263daf

[5] http://www.nugeneration.com/timeline.html

[6] As at 23rd January 2017

[7] Para 3.20, page 27, Ofgem: North West Coast Connections – Consultation on the Project's Initial Needs Case and suitability for tendering, 14th December 2016 (hereafter referred to as the "Consultation document")

[8] Section 3.1.2.4, page 71, TNEI report

	that NGET seek an update on several issues which could affect the power station schedule[9]. We understand that the GB System Operator will have a contractual obligation (via a Construction Agreement) with the project to provide a phased connection by the dates listed in the TEC register and will seek to meet this obligation. Ofgem will be mindful of this when assessing which parts of the connection scheme should be tendered and which should be left with the incumbent TO. We consider that it should be beneficial for consumers if Ofgem can defer the decision on which lots can be tendered for as long as possible so that as much of the project can be tendered as possible, if resultant timescales allow. We would therefore suggest that the decision on whether to tender elements (for which there is a timing concern if tendered) is taken as late as possible (perhaps at the Final Needs Case checkpoint or later) and that work to progress both the incumbent delivery and competitive delivery is progressed in parallel to that point, subject to the TO not incurring significant costs that could not be transferred to a successful bidder if the competitive route were ultimately followed. We also note that recently the GB System Operator has been inserting wording into Construction Agreements (including existing agreements in the event that the user requests an unrelated modification) which essentially states that all dates in the Construction Agreement are subject to the GB System Operator being satisfied that the User is progressing with its project such that it will connect to the system in the specified timescales. There should therefore be a contractual route to amending the power station connection dates if there is evidence to suggest that the current dates are unrealistic (particularly in light of the modification request below).

[9] Section 3.4, page 79, TNEI report

	Providing Site Supplies The current proposal is that the Northern 400kV double circuit is scheduled to be installed in time to provide site supplies to the Moorside project during construction. We note that the generator had, at the date of the consultation document, submitted a modification application to defer its requirement for these site supplies by one year until August 2022, and that it had requested that these site supplies be provided via the Northern 400kV overhead line (the "Customer Choice" option) rather than via the local distribution company, ENW Ltd (the "As-Is" option). We acknowledge that significant site supplies will be required during construction and we note that the TNEI report concludes that "*the Customer Choice programme seems to be a more appropriate delivery plan that avoids the build of costly assets that will be removed at a later date, for a relatively small additional commercial charge that is more than offset by the cost of site supplies as provided by ENWL*"[10]. However, the TNEI report does not provide any detail on this decision which effectively prevents the Northern 400kV overhead line being tendered when otherwise timescales would allow this. We do not think that building the Northern 400kV double circuit to provide site supplies four years in advance of the need for a power export route is likely to be economically justifiable. There is also a risk that operating such a long 400kV line with very little loading on it could exacerbate existing voltage control issues on the main transmission system thereby driving the need for further investment (for example in shunt reactors etc.). We would consider that how site supplies should be provided in the most

[10] Section 3.4, page 78, TNEI report

	economical manner should be looked at again by a specialist power system planning consultant. *Tunnel section* If the Northern 400kV double circuit is constructed first (in time to provide site supplies) then this Northern 400kV double circuit could also provide the export route for the first 1129MW unit. There may be transient stability considerations around this but these could probably be dealt with by an inter-trip scheme that would only need to be in place until the Southern 400kV double circuit had been commissioned. The issue of site supplies in the event that the northern circuit was unavailable would also need to be addressed for this short interim period. As such it should not be necessary for the Southern 400kV double circuit (and therefore the tunnel) to be constructed until the second power station unit requires connection. The Moorside project schedule (according to the TEC register) currently has a unit-a-year coming on stream and therefore the second unit will probably not need a connection until end 2026 (although the TEC register currently has it as 31st October 2025). We have also examined the likely timescales required to construct the tunnel section and to install the 400kV cables in it through the publicly available information and understand that: • The proposed tunnel would be 22km in length with an internal diameter of 5m; • There would be 3 permanent shafts: two at 20m depth – one of these at Heysham and one at Roosecote; and the third a 70m deep shaft from an artificial island in Morecambe Bay itself – used for ventilation and for extraction of the Tunnel Boring Machines (TBMs); • Installation of two 400kV cable circuits; • Construction of a headhouse at each shaft.

	• The geology is complex but not outside of current technologies, and the TBM's can do 100m/week[11]; • The "island" in the middle of Morecambe Bay will be 100m diameter at its base, and 25m at the top. We have consulted with a tunnelling expert who has proposed the following as a conservative programme: • 9 months to get DCO conditions discharged, design, early procurement items. • 6 months to set sites up for shaft sinking. • 4 months to sink shafts and line (this applies to Heysham and Roosecote). • 3 months to get TBM set up and ready for tunnelling. • 31 months to complete tunnelling (based on 100m/week – as per video commentary). • The above assumes that the island in Morecambe Bay is constructed concurrently during the above. • 18 months to install the brackets, cables and joint, test and commission. • 3 months for the headhouse structures. TOTAL: 74 months from CATO licence grant in mid-2020 and indicating that a completion date of mid 2026 is achievable. Given the above timescales, and coupled with the likelihood of further delay to the power station project, we do not think it is appropriate to discount the option to tender the tunnel section at this time.

[11] See video on proposed tunnelling at http://www.northwestcoastconnections.com/bgo/projectfilms.asp

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?	Co-ordination of the different packages being tendered will require a clear definition of each interface and the responsibilities of each party at the interface. This is business as usual for the connection of new plant to the transmission system, whether it is an onshore generation connection or an OFTO. The most complex issues will be where there are construction activities being carried out by two parties at the same site, principally at Moorside and at the junction between the tunnel section and the overhead line section on the Southern 400kV double circuit. Neither of these interfaces need to be complicated and in our view co-ordination would be best achieved bilaterally between the (CA)TOs delivering these works. There will also need to be an overall project schedule co-ordination to deal with changes (delays or changes in size) in the need for the project. This is best co-ordinated by an independent GB System Operator, together with consequential amendments agreed with Ofgem.
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?	The question of allocation of risks across TO, CATOs and consumers is a wide question and there does not appear to be any explanatory text in the consultation document (risk is really only mentioned in chapter 3 of the consultation document in respect of interface works, including with ENW). In general we agree with the risk allocation that has been consulted upon as part of the ECIT process[12]. With respect to the packages of the NWCC that could be tendered we identify two specific areas which merit further mention: i) Ground risk

[12] See for example: "Extending Competition in Electricity Transmission: Tender Models and Market Offering", Ofgem 4th August 2016

	ii) Interface risk (including with ENW) Taking each in turn: *Ground Risk* We do not have knowledge of the extent to which the incumbent TO has carried out ground investigations to date, and what information will therefore be made available to tenderers. In respect of the overhead line sections we would expect that information on ground conditions (to suitable depths) would be made available at each of the proposed tower locations. This should enable CATO bidders to price in ground condition risk and not to seek to pass this on to consumers. In respect of the onshore cabled sections we would expect to have ground investigation information at each location where Horizontal Directional Drilling (HDD) is expected to be required and some local information along the rest of the onshore cable route. For the tunnel section we would expect to see detailed geotechnical information for at least every km of the tunnel route to the proposed depths of the tunnel. In the absence of this it is unlikely that contractors (whether overhead line, cable or tunnelling) would be prepared to offer fixed prices, and so either a CATO bidder would need to include a significant contingency to manage the risk or the risk would need to be passed to consumers (or some combination of these two). Our view is that it would be most efficient (in the absence of full ground data) that at least some of this risk was taken by the consumers.

	Interface risk It would not be appropriate for a CATO to be asked to assume the performance risk of third parties over whom it has no control. In particular the CATO should be held whole to the impact of delays caused *inter alia*: • By the incumbent TO in completing its works; • By another CATO in the event that two are selected for different lots; or • By ENW in progressing the works it needs to complete to allow the construction of the Northern 400kV double circuit route. The CATO should also not be exposed to changes in the Moorside power station project timescales.
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?	Unfortunately neither the consultation document nor the TNEI report provide single line diagrams of the works required at each end of the project (the existing Harker and Middleton 400kV substations or the proposed Moorside 400kV substation). The consultation document sets out three high level ownership options at the interface. At a high level we agree that option 2 is not preferred as it would require transfer of existing TO assets to a CATO for no obvious benefit. Similarly though we do not see any advantages in Option 1 (in which the incumbent TO would own all the new assets at Harker and/or Middleton 400kV substations as well as the existing assets). We would consider that Option 3 is preferred under which the new assets are constructed and owned by the CATO.

{End}