John Muir Trust response to Ofgem's

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

February 2017

JOHN MUIR TRUST

OVERVIEW

The John Muir Trust welcomes the opportunity to respond to the Ofgem North West Coast Connection (NWCC) Initial Needs Case (INC) consultation. As an environmental organisation, our interest in this proposal is primarily due to the impact of the proposed line on nationally and internationally designated landscapes in the North West – the Lake District National Park (LDNP), Areas of Outstanding Natural Beauty (AONBs) and other natural heritage designated sites. The Trust has commented to National Grid (NG) in their consultations on the NWCC.

The Trust also has a sustained interest and knowledge of the UK's strategic electricity network, including with regard to whether projects which would have major impacts on the country's environment and landscapes are necessary. It is from that perspective that we comment on the Initial Needs Case.

This response considers whether the Initial Needs Case has been adequately demonstrated. We analyse Ofgem's statement in its consultation document about not taking a view regarding mitigation and we consider Ofgem's duty to have regard for the environment. We consider whether NG's choice of Preferred Route properly assesses and takes into account environmental and social factors in a holistic way. If it does not, then Ofgem's assessment must lead to further detailed consideration of the technical and cost case of the best alternative options.

The Trust notes that the financial case ruling out the sub-sea HVAC Option between Kirksanton and Rossall is regarded by Ofgem as "*finely balanced*" and the view given by the TNEI Poyry Report that "*a subsea HVAC cable could be routed around Morecambe bay at a comparable or possibly lower cost than NGET's preferred option*". The Trust believes that further work should be done on comparing the costs for the Preferred Route and the option with a subsea HVAC cable between Kirksanton and Rossall. This work must include revised costs for mitigation on the Preferred Route once the landscape and visual impacts have been re-assessed using standard procedures for views into the National Park – see Friends of the Lake District (FLD) and Lake District National Park Authority (LDNPA) responses to National Grid's consultation for detailed analysis regarding the inadequacy of NG's Landscape and Visual Impact Assessment and Friends of the Lake District's response to this consultation.

This response does not comment in detail on the suitability for tendering of this project. However, we have concerns about the increasing complexity which would result from splitting this project into several sections leading to difficulty of co-ordinating the whole, and the increased requirement for stakeholders to engage with more operators and processes.

Question 1: Do you agree that there is a technical need for the project if Nugen's project goes ahead?

Yes but –

- The **Initial Needs Case** for this development must be fully demonstrated before an irreversible commitment to this development is made. The need for this new connection is based on the requirement to connect the generation from Nugen's proposed Moorside Nuclear Power Station and

therefore no firm commitment to the NWCC should be made before there is certainty about Moorside progressing. Otherwise there is a risk of excessive transmission being built, impacting on landscapes and communities and at significant cost to the public purse, but then being found to be unnecessary at the proposed scale.

- **Consideration of Total Systems Costs** – One key aspect of protecting the public interest is that generation and transmission costs should be considered at the same time when a project is being developed and when electricity and planning consents are being considered. Whilst we appreciate that Ofgem is not in a position to deliver this change in the process, it is an aspect of the public good which must still be borne in mind when assessing the proposed NWCC to ensure that Ofgem is delivering on its public and environmental duties.

The final decision on NWCC should follow the decision on Moorside, not the other way around.

Question 2: Do you agree that connecting the Moorside site using four 400kV circuits is appropriate and compliant with SQSS requirements?

- The Trust does not have the technical expertise to assess this but has not seen evidence which would contradict Ofgem's assessment.

Question 3: Do you agree with our initial conclusions?

Question 4: Are there any additional factors that we should consider as part of our Initial needs case assessment?

OFGEM'S ROLE IN ACHIEVING BEST OPTION FOR THE PUBLIC

- **Best Option For The Public Isn't Necessarily The Cheapest** - The Trust would, in the longer term, like to see an obligation placed on companies to work together, along with Ofgem, to submit applications for large-scale generation and the related necessary transmission at the same time. While this is not within Ofgem's gift, even in the current regulatory framework for this proposal, Ofgem's environmental duties make it clear that the cheapest option is not the one which they are required to prefer. Ofgem can approve a more expensive option if it avoids significant environmental impacts and is a better option for the public. Ofgem and National Grid must ensure that they are delivering on their duty to the public in a holistic way, considering all significant economic, social and environmental costs, including impacts on the landscape and national and other designated sites when deciding on the BEST option for the nation. It must be remembered that the infra-structure will be in place for an estimated sixty years.

- **Ofgem's Role** - It is essential that Ofgem is closely involved alongside NG and other stakeholders at all key points in the iterative design process and decision-making regarding the selection of the route. It is not enough for Ofgem to look at NG's Preferred Route and assess that the costs are reasonable for that particular scheme considering the technical specification. Ofgem overview at all stages must ensure that the most attractive option for one provider - in this case, NG - does not become the only considered option, regardless of whether there are excessive or unacceptable impacts. So the changes in Ofgem's consenting process and earlier engagement with a wide range of stakeholders are welcome and we expect Ofgem to fully consider all responses responses and reconsider their view as appropriate.

- **The Momentum following the Preferred Option** - In Ofgem's consultation document in Section1.12, it states that "*Projects at this stage of development will still be subject to potential change so the Initial Needs Case is not a decision, on need or on funding*." This may sound re-assuring but previous decision-making on major transmission projects (see re Beauly Denny project below) suggests that once Ofgem has indicated there is a case for funding a particular proposal, planning authorities will mostly assume that the project, as presented, must go ahead - with a little mitigation if necessary. We appreciate that the INC system is a new process and it brings early consultation with a wide stakeholder group and that is welcome. However, there is a momentum in a decision-making process which tends towards the Preferred Route. So Ofgem's decision at this stage is of paramount

importance and must take account of relevant factors such as the need for mitigation.

- **Ofgem** says in the consultation –

"*Overall, we consider that a sensible and logical process has been followed to narrow down NGET's proposed design. However, we consider that* ***the decision between NGET's favoured use of a tunnel under Morecambe Bay and an alternative approach of using subsea cables around the bay is relatively finely balanced.*** *We have concerns that significant changes in the cost of the tunnel, or additional work identified through the planning process could indicate in the future that the subsea cable option could be better value for consumers*".

- **Ofgem's Duty** - This is an important warning that there is a significant risk of costs escalating for the Preferred Route. So we do not consider that Ofgem's way of dealing with this uncertainty is adequate when it states –

"*For this reason, if costs of the preferred option escalate significantly due to factors that NGET should have reasonably foreseen at this stage, we reserve the right as part of our Final Needs Case assessment to revisit the justification for its selected option. As part of our Project Assessment we may then disallow any inefficient costs that could have been avoided through selection of an alternative option*." This is tantamount to saying that Ofgem think NG may well have not done enough due diligence, since Ofgem feel it necessary to warn about a financial penalty.

- **Ofgem's Threatened Financial Penalty Does Not Adequately Fulfil Its Public Duty** The consultation, in 2.5, states, "*Our review of NGET's proposals to date has focused on how it has narrowed down its strategic options, to ensure that an efficient approach is being taken forward through the planning process. We do not play a formal role within the planning process. We have therefore not looked at the exact location of individual pylons or substations, but focused on the key design decisions that will impact on the cost of the project to consumers."*

- This assessment of Ofgem's role is reductionist - it underplays Ofgem's importance and role in the decision-making process and it appears to be aiming to absolve Ofgem of its environmental duty by saying it "*doesn't have a* ***formal*** *role within the planning process*." This ignores the weight which is put by planning authorities on Ofgem's view about whether a project is reasonable and justified. Moreover, Ofgem have commented on the environmental mitigation which NG are prepared to do – undergrounding in the National Park – so it must equally recognise the need to revisit the HVAC Option, as recommended in the TNEI – Poyry technical report. It is not enough for Ofgem to say that environmental assessment is NG's role or that it will be looked at in detail by planning authorities later. It is not good enough for Ofgem to support the Preferred Route on the understanding that a financial penalty might be brought in later if the preferred Route turns out to be more expensive than another option. That will not re-instate the environment or recompense the local businesses for loss of amenity.

- Ofgem have an environmental duty and so Ofgem, not just NG, must look more closely at the costs, environmental and social impacts of the two options – the Preferred Option with the Morecambe Bay Tunnel and the Kirksanton-Rossall subsea HVAC option. In particular, Ofgem must concern itself with considering how much mitigation would be necessary for the Preferred Route to be reasonably consented and whether the costs of the Morecambe Bay tunnel might well increase. It is not sufficient, and would not be doing their duty, to threaten to impose a notional financial penalty once the infra-structure is built, since the costs would not just be financial. The difference in the environmental and social impacts between the Preferred Option and the KR subsea route would be significant. It is essential the decision-making is thoroughly analysed and got right.

NATIONAL GRID'S NWCC PREFERRED ROUTE versus KIRKSANTON – ROSSALL (KR) HVAC SUBSEA CABLE – see NG's Optioneering Reports Volume 2.8

- **Undergrounding -** National Grid and Ofgem are to be congratulated on recognising the sensitivity of the National Park and the unacceptability of putting overhead lines through the Park and therefore including undergrounding of the line there.

- **Viability** - National Grid is to be congratulated on not ruling out sub-sea options entirely at the earliest stage and on performing a "backcheck" which subsequently identified a new, shorter HVAC option from Kirksanton – Rossall. This Option is considered by NG as being viable and NG have done considerable assessment work on this option before concluding they wish to rule it out at this stage.

- **Cost** – The KR HVAC option looks very promising but it has been discounted because of cost. There seem to be differing costs quoted in this consultation and the NG NWCC 2016 one. In the latter, the estimated costs for the whole NWCC project using the preferred route is £1.8 billion while the estimated cost for the whole project using the Kirksanton – Rossall subsea option is £2 billion. However, Ofgem's consultation mentions a "*base cost of £2.1 billion*" for the project. Any of these figures is eye-watering and they diverge sufficiently that it is clear that further detailed work must be done, so any decision which is taken is based on detailed and accurate costs. This has to include adequate assessment of environmental impacts and costs of mitigation and taking into account potential cost to all stakeholders. Moreover, the actual cost must not be allowed to go significantly over budget with additional costs for the public. More evidence is needed on these points.

- **Costs Must Be Accurate and Kept Within Budget** - Beauly Denny 400kV 220km overhead line was approved by Scottish Government in 2010 based on an estimated cost of £350 million but actually cost somewhere in the region of £800 million (see section 5 below). Whilst the transmission operators were not National Grid in that instance, it is a warning that the transmission industry can get estimates very badly wrong. Ofgem failed in its oversight role there, lessons must be learned and Ofgem and National Grid must ensure NWCC costs are controlled.

- **Least Impacts on the Environment -** The KR offshore HVAC cable would avoid landscape and visual impact on the setting of the Lake District along with possible ecological damage to the Duddon Mosses SAC and other wildlife sites in the Duddon and Whicham Valleys. It would also eliminate the need for a new overhead line along the Furness peninsula and prevent disruption to the communities of Dalton, Barrow and Roosecote from construction traffic which would be associated with the Morecambe Bay tunnel being built. These are significant environmental and social gains.

Because of NG's methodology for assessing landscape and visual impacts (which the Trust believes is not a correct methodology – see FLD, LDNPA submissions to NG's 2016 consultation), mitigation for damage within the setting of the Lake District (**i.e. assessing viewpoints outside the National Park looking in**) is not being put forward. National Grid has not evaluated the value of the National Park setting accurately. This has allowed the KR Option to be discounted by NG on the basis of cost.

The Kirksanton – Rossall variation is assessed by National Grid as having less adverse impacts on significant natural heritage sites. So it would appear it should be the preferred route, if the estimated cost differential was not so large as NG's estimate. Since this route would be preferable for a number of key reasons, if it is to be dropped, it is important to make sure that the assumptions used in NG's assessments do not either tend to under-estimate costs for the Preferred Route and/or over-estimate costs of the Kirksanton – Rossall variation.

- **MORECAMBE BAY TUNNEL -** this option would also have considerable technical and environmental challenges. The transmission Operators' evidence at the Beauly Denny Public Local Inquiry seemed to the Trust to suggest what subsequently proved to be the case – which the costs of the favoured option were severely under-estimated while the costs and technical challenges of alternatives were presented as being non-viable, despite inadequate evidence being produced in the public domain. This lesson must be taken on board and the challenges of the Morecambe Bay tunnel accurately and dispassionately considered.

- **The Trust believes the KR subsea option should be further investigated.** The Trust is not in a position at this time to comment on the costing of the subsea Kirksanton – Rossall option and notes that very detailed assessment of the technical and environmental challenges are enumerated in NG's 2016 consultation documentation. There was less detail about the challenges of the Morecambe Bay tunnel. It is natural that companies would wish to go with the tried and tested method of using mainly overhead pylons but **this Kirksanton - Rossall subsea alternative seems like an opportunity to be innovative and conserve a considerable area of valuable landscape and ecology**.

- **The TNEI Poyry Report**

The following sections from the Executive Summary of the TNEI Poyry technical report would appear to give significant support for further technical and cost investigation of this HVAC option (**bold** is our emphasis) -

"*Discounting of Options*

…We have engaged with specialist cable consultants at Petrofac to explore assumptions about installation costs for the "back check" routes around Morecambe Bay in more detail. Based on this discussion, we believe ***a subsea HVAC cable could be routed around Morecambe bay at a comparable or possibly lower cost than NGET's preferred option****. In addition, we do not believe the environmental impacts of routing a subsea cable around Morecambe Bay have been explored in enough detail yet to justify ruling them out on a consenting basis.*
We also have concerns in relation to the discounting of routing options for the southern route due to the potential for use of a high capacity three-core subsea cable. This could significantly reduce the cable corridor and has not been sufficiently explored by NGET in our view."

"*2.2.5.3*
Assumed HVAC Subsea Cable Designs and Installation for Back -Check Options
The "back-check" routing options around Morecambe Bay were largely ruled out based on cost, with consideration also given to environmental impacts……..
Based on our own independent assessment and through an examination of NGET's cost estimates, we consider that it may be possible for the overall costs of each of the back check cable options to be reduced significantly. These options could ultimately end up with comparable or even lower costs than NGET's preferred option.
Further opportunities for cost reduction exist, these are not explored further here as they are beyond the current scope.
…..As noted above, these options were largely ruled out based on cost."

LESSONS TO BE TAKEN FROM THE BEAULY DENNY 400Kv 220KM TRANSMISSION LINE

- When considering the viability of alternative methods of transmission, it should be noted that UK transmission companies and Ofgem have inadequately analysed cost-benefit evidence on at least one previous occasion – the 400kV Beauly Denny transmission line. This has had disastrous consequences for the Scottish Highland landscape, including where the 400kV line passes through the Cairngorms National Park. There has also been considerable cost to electricity consumers, over and above that estimated, through electricity bills.

- In that case, the transmission developers were Scottish and Southern Energy (SSE) and Scottish Power (SP). The costs of that line more than doubled – increasing from an estimate of about £350 million to costs of more than £800 million. This increase in costs was predicted in evidence presented at Public Local Inquiry (PLI) in 2007, by objectors, including the John Muir Trust, that the cost-benefit analysis used by SSE and SP was very optimistic on costs and over-estimated technical and economic benefit of the overhead line proposal.

- There is a very real risk that an early acceptance by National Grid and Ofgem that the overhead plus Morecambe Bay tunnel Preferred Option would be the most cost-effective option - without adequately considering and including the costs of essential mitigation in early analysis - then leads the process down a seemingly inevitable route to a development which is unacceptable to much of the public, with unassessed impacts on social and economic issues, such as tourism. Many members of the public and politicians who had not objected to the Beauly Denny line have expressed dismay about the actual development now that it blights so much of the approach from the south to the Scottish Highlands.

- At the Beauly Denny Inquiry, it became clear that a very significant error had been the early dismissal of methods of transmission other than overhead lines via Beauly and Denny. Regarding

subsea cables, it was stated that subsea cables were too expensive. However, the comparison between a subsea cable and the overhead line was not done on a like-for-like basis. Instead the cost of an overhead line between Beauly – Denny was compared with the total cost of a subsea cable which was significantly longer and took the power much closer to the main customers in England.

- **It is essential that NG don't make a similar mistake of "confirmation bias" under-estimating the challenges of the Morecambe Bay tunnel option and over-estimating the problems of the Kirksanton – Rossall subsea option.**

LANDSCAPE AND VISUAL ASSESSMENT AND MITIGATION

- The Trust has serious concerns about the way in which NG has assessed the landscape and visual impacts of the setting of the National Park – an unusual methodology which has led to NG under-estimating adverse impacts on people who are outside the National Park, looking in. This in turn under-estimates the need for mitigation of any kind, and its attendant costs.

- The existence of the 132kV route already present along this route is described by NG as an "opportunity corridor" to justify the proposed 400kV line. However, the existing 132kV pylons are already a detractor in the landscape of the LDNP and its setting so should not be used as a justification to allow much more serious impacts. This would not just be "an upgrade" as the new 400kV pylons would be nearly twice the height and more than 7 times the volume of the 132kV pylons. Moreover, the 400kV conductors themselves will be significantly more visible than the cables on the 132kV lines and so will impact much more on visual quality than the conductors on the current 132kV line, even between pylons. The final result of the similar overhead 400kV line, the Beauly Denny line, is instructive. (See photo below).

Question 5: Do you agree with our view that:

(a) The overall project meets the criteria for tendering?

The Trust believes that this huge and complex project is not a good candidate to be the first project to be subject to tendering. We have concerns about the increased complexity which would result from splitting this project into several sections; about the difficulty of co-ordinating the whole project and the increased requirement for stakeholders to engage with more operators and processes. This is already a very complex project and National Grid has had oversight of the whole for many years. It does not seem like the best project to be the first one for this new process.

So although the Trust generally believes that a competitive process in providing onshore transmission is desirable, we consider that this project is unlikely to run smoothly if it is the first to undergo that process, with the inevitable splitting of the project between different operators. It seems highly probable that apparent gains from accepting different bidders for different sections could be wiped out through the difficulties of being progressed separately.

(b) The potential sections meet the criteria for tendering?

The southern route selected for tender is a very complex and difficult part of the whole, including areas of major landscape sensitivity. So this does not seem like the best part of the project to trial the system on.

Questions 6 to 9

The Trust has no comment on these.

RELEVANCE OF THE JOHN MUIR TRUST'S EXPERIENCE

- The John Muir Trust is the leading wild land charity in the UK whose foremost aim is the protection of wild land and wild places. The Trust works extensively, alongside energy experts, on strategic energy and transmission issues because of the extensive impacts energy developments are

having on wild land.

- The Trust has gained considerable expertise about the strategic technical and economic aspects of transmission, as a leading objector at the Public Local Inquiry for the Beauly-Denny, 220km, 400kV transmission line in 2007, and subsequently. To consider the evidence at that Inquiry, and subsequently, the Trust benefited from advice from energy and economic experts including Sir Donald Miller, ex-Chairman of Scottish Power; Colin Gibson, Ex Networks Director of National Grid; and Professor Andrew Bain, Emeritus Professor of Economics. Some of the evidence presented at the Beauly-Denny Public Local Inquiry is very relevant to this Consultation and the Trust would be happy to discuss any aspect in more detail.

Below – 400kV Beauly Denny transmission line alongside a 132kV line