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Dear Charlotte,

**JOHN MUIR TRUST RESPONSE TO OFGEM CONSULTATION –
INTEGRATED TRANSMISSION PLANNING AND REGULATION PROJECT:
EMERGING THINKING 5 JUNE 2013**

OVERVIEW

1. Thank you for the opportunity to respond to this important consultation, and to attend the workshop discussions on 26 June 2013, which Helen McDade and I felt were extremely worthwhile. The John Muir Trust's response primarily concerns Chapter 3 of the consultation (system planning) but we are grateful for the opportunity to raise related issues about transmission arrangements.
2. Our prime concern is protecting what is left of the UK's fast-disappearing wild land. As things stand, governance and subsidy regimes encourage energy developments in remote, upland areas that in turn require transmission over long distances to consumers. We feel that insufficient account is taken of social and environmental factors and that this needs to be addressed urgently. We therefore agree that current governance arrangements for planning and delivering transmission need to change.
3. Given the huge programme of energy network reinforcement anticipated across the UK - £22billion according to The Electricity Networks Strategy Group¹ - and the pressure to

¹ The Electricity Networks Strategy Group paper 'Our Electricity Transmission Network, a Vision for 2020' (February 2012)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48274/4263-ensgFull.pdf

proceed quickly² there is an urgent need for schemes to be properly scrutinized to ensure they are both justified and economically viable, particularly in remote, vulnerable landscapes.

4. The Trust proposes that **governance** and **cost analysis** of grid infrastructure should be improved to ensure that it is only approved if it is both necessary and cost effective.

BETTER GOVERNANCE

Co-ordinating model – system planning of strategic investments.

5. Under current arrangements it is too easy for investment in infrastructure to be driven by transmission owners' commercial interests, a point well made by Professor Pollit in his presentation to the workshop, in which he said: '*Commercial interests of incumbent TOs ... are potentially aligned with inefficient investment*³'.

6. The Trust agrees that there is a case for a stronger, ideally public sector co-ordinating function to sit between commercial transmission operators and the government. The '**enhanced co-ordinator**' model set out on p14 of the consultation would appear to be a sensible and pragmatic approach, however, we feel that the co-ordinator should also have a role in local planning. Furthermore we would want to see sufficient safeguards in place to shield the co-ordinator from commercial influence, particularly at the 'option' stage.

Strategic Energy Policy.

7. We feel, however, that more is needed to improve governance arrangements. We contend that it is not enough just to have a co-ordinating body for transmission. Without an overall strategic energy policy context it would exist within a vacuum, a point that came out clearly in some of the workshop discussions. It is difficult to understand how decisions about transmission infrastructure could be appropriately weighted in the absence of clear direction on, eg the future energy mix.

8. At the moment it is difficult to understand what the government's long-term strategic energy strategy is, and how it is to be delivered. Responsibility seems to be spread across a wide range of committees and advisory boards, panels and forums. One of the main sources of advice to Government on long term energy needs is the quarterly energy leaders forum comprising the DECC Secretary of State, Ministers and senior officials, and CEOs of generators and suppliers. Baroness Verma has said '*The high-level and wide-ranging discussions help government and industry to anticipate and respond to existing and future issues in energy policy*⁴'. This tends to confirm our misgiving that the Government currently relies too much on commercial interests for 'strategic' advice. The Regulator cannot provide this service as its role is in vetting, not making plans.

9. We therefore propose there should be some sort of body - we call it a **National Energy Commission** but the title does not particularly matter - to provide independent, technical and economic advice to government, free from vested interests. We think its role should include

² Ofgem announcement

<http://www.ofgem.gov.uk/Media/PressRel/Documents1/RIIO%20T1%20fast%20track.pdf>

³ Professor Michael Pollitt, University of Cambridge, '*Drivers for Change*' Presentation to Ofgem ITPR Project Workshop 26 June 2013.

⁴ Lords Hansard 16 July 2013. <http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/130716-gc0001.htm#13071699000185>

ensuring energy policy would achieve a secure, adequate and affordable energy supply while protecting our local, national and global environment, and incentivising energy conservation and research into new technologies.

10. We are not alone in proposing some sort of independent advisory body. Eminent engineers and economists are advocating it (eg Colin Gibson (former power Networks Director at National Grid), Professor Andrew Bain, Sir Donald Miller, the Institution of Engineers and Shipbuilders in Scotland). Most recently, Lord Oxburgh has proposed such a body at the Lords 'Committee debate on the Energy Bill⁵ and is expected to return to it at Report stage.

COST ANALYSIS

Current problem.

11. The Trust feels that the cost of integrating large scale wind power generation into the electricity grid is being underestimated, causing installations to be sited inappropriately⁶, grid infrastructure to be over engineered and costs to consumers to rise unnecessarily.

12. In 2006 a Royal Society of Edinburgh's Committee of Inquiry⁷ said:

'we have grave doubts about the overall economic rationale for large-scale wind turbine installations in locations remote from the consumer...Remotely located wind turbine installations will require costly new or substantially upgraded grid connections, resulting in greater transmission loss of electricity from the source to the consumer compared with more centrally-located installations...The existence of a source of energy does not guarantee that it can be delivered economically to the market'.

13. It is perhaps helpful to include an illustration here. In the Public Local Inquiry into a major wind development, Muaitheabhal, (South Lewis, Western Isles) Professor Andrew Bain calculated whether the increased wind load factor in Lewis, compared to the Scottish mainland, offset the increased costs to the UK of that development's share of the required sub-sea inter-connector⁸. Professor Bain found that:

'taking figures from the TNEI consultants' report sponsored by Highlands and Islands Enterprise and the Western Isles Council, the cost of providing Muaitheabhal's share of a transmission line to Beaully will add at least 40% to the capital cost of a wind farm – and that doesn't allow anything for transmission or other losses along the way.

Of course the wind conditions in Lewis are good, so a wind farm here will be more productive than one in, eg, central Scotland – though not necessarily much better than one on the mainland in the Highlands. But the difference isn't nearly enough to compensate for the additional costs. If a wind farm in Lewis can operate with a 35% load factor, that is only 15-20% better than elsewhere in mainland Scotland, and about a third of that margin

⁵ House of Lords Hansard 16 July 2013

<http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/130716-gc0001.htm#13071699000185>

⁶ Wild land is being lost at a dramatic rate [SNH figures]. This is largely due to wind power installations and their associated infrastructure.

⁷ Royal Society of Edinburgh Committee of Inquiry 'Inquiry Into Energy Issues for Scotland' June 2006

http://www.rse.org.uk/cms/files/advice-papers/inquiry/energysupply/full_report.pdf

⁸ Scottish Economy, Energy and Tourism Committee papers 14 March 2012

http://www.scottish.parliament.uk/S4_EconomyEnergyandTourismCommittee/Meeting%20Papers/20120314_EET.pdf

disappears as heat loss during transmission between Stornoway and Beaully. So while the wind conditions on Lewis are good, they are not good enough to compensate for the additional transmission costs – 10-15% more productive, but with costs that are going to be at least 40% higher.'

These figures led Professor Bain to conclude:

'The cost of transmitting energy from remote wind farms to their markets is so high as to make wind farms in the Western Isles, if they are dependent on a new interconnector to the UK mainland, uneconomic.'

Professor Bain's point has recently been reinforced by one of the Government's own reports. 'Renewable Energy in the Scottish Islands', produced jointly by the Scottish Government and DECC⁹ concluded that there is plenty of generating potential in the Islands but grid access is very difficult and transmission costs are prohibitive. So if the Scottish Government wants Island renewables to make a serious contribution to 2020 targets further very significant subsidies would be required. SSE subsequently shelved plans for the Western isles sub-sea connector because they wanted the government to come up with a solution *'which would allow it [SSE] to submit a sound, economic case to Ofgem to permit construction of the Island links'*. Such a 'solution' would inevitable entail considerable subsidies from the consumer, and very significant impacts on the landscape and marine environment.

14. In the light of these arguments the Trust feels it is critical that the true costs of energy systems are considered in cost/benefit analyses for wind power installations.

Total Systems Cost Analysis approach.

The levelized cost methodology traditionally used in decisions about electricity generators and infrastructure needs to be revised to take proper account of the full costs of new technologies. The current approach sees things from an investor's viewpoint and focuses primarily on power generation. However, this does not include all the hidden, additional costs to the consumer.

In order to ensure cost/benefit analyses for large electricity generating installations are properly informed, a **Total Systems Cost Analysis** approach is needed. This would expose the total cost of getting a MWh from the generator to an end user.

The additional costs that would be captured include:

- additional network equipment (eg lines and sub-stations)
- system management costs (eg to correct errors in the wind forecast, constraining generation on and off the system, frequency and voltage control, and Short Term Operating Reserve.
- Increased generation costs for conventional plant still required to guarantee security of supply, but operating at a reduced load factor and perhaps experiencing increased operation and maintenance costs¹⁰.
- extra system losses (generation in the north; load in the south)

We understand that most of the costs of the transmission reinforcements required to bring power from generators, which are increasingly in remote areas of the UK, to the major

⁹ Scottish Islands Renewables Report

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/199038/Scottish_Islands_Renewable_Project_Baringa_TNEI_FINAL_Report_Publication_version_14May2013_2_.pdf

¹⁰ Dr John Constable, Renewable Energy Foundation, evidence to the Royal Academy of Engineers Inquiry into the implications of large scale wind deployment in the UK electricity system, 29 May 2013.

population centres are not currently met by the developers. These costs fall into the Use of System Charges, and only 23% of these are shared between the Generators, with the rest being paid by the Distribution Companies and ultimately consumer. All this makes development where land is cheap an attractive option, but this may not be an appropriate use of public money.

Governments are incentivising wind power as part of their policy to reduce the UK's greenhouse gas emissions (ghg). But the current regime incentivises renewable developers to site wind farms, perversely, on carbon sequestering peat lands, to the detriment of precious ecosystems and the environment.

As Lord Krebs, Chair of the Climate Change Committee Adaption group said recently "*It really makes no sense to be draining peat when we are trying to cut carbon emissions*".

A total systems cost analysis approach would highlight where developments are not a good deal for consumers or the environment, and might result in very different options and decisions on the deployment of infrastructure.

SUMMARY

Strategic planning arrangements for transmission would benefit from greater, co-ordination, as outlined in the '**enhanced co-ordinator**' model set out in the consultation. However, to be effective this would need to sit within an overall strategic energy policy regime, advised by a **body of independent technical experts**. Current cost/benefit analysis for energy installations and their transmission costs, particularly in remote areas, is inadequate. This is leading to inappropriate decisions on the siting of wind power installations, over-engineering of the grid and unnecessary costs to consumers. A **total systems** approach is needed so that all costs are properly considered.

If you would like to discuss any of these matters further please get in touch. We would like to stay involved with the ITPR project as it moves forward.

Yours sincerely

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By e mail