Scottish & Southern Electricity Networks
TRANSMISSION

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Dear Harriet,

SSEN Transmission response to Call for Evidence – Transmission Network Use of System Charges

This response is prepared on behalf of Scottish Hydro Electric Transmission Plc (SSEN Transmission), part of the SSE Group, responsible for the electricity transmission network in the north of Scotland.

We strongly welcome the opportunity to respond to Ofgem's call for evidence on Transmission Use of System (TNUoS) charges. As a facilitator in the connection of renewable energy we have consistently heard strong concerns from our generation customers that wider TNUoS charging is adversely affecting the investment case of new and existing projects due to high, volatile, and unpredictable costs. In responding, we have provided an overview of the large body of existing evidence that we believe demonstrates the need for wider reform, along with the views of our stakeholders gathered from the SSEN Transmission & RenewableUK '*TNUoS: Road to Reform*' webinar held on 28th October 2021.

We welcome further engagement in this area, and should you wish to discuss any aspect of this response please do not hesitate to get in touch.

Yours sincerely,

Cara Dalziel
Senior Regulation Analyst

Annex 1

The extent to which reform of transmission network use of system charges is needed

Why is reform needed?

The current TNUoS charging methodology was established nearly 30 years ago and is not designed for an electricity system that will enable a net zero world. We know that in today's society that in order for us to achieve the necessary low carbon transition all areas of industry should be enabling, not hindering its progress. As a facilitator in the connection of renewable energy we have consistently heard strong concerns from our generation customers that **wider TNUoS charging is adversely affecting the investment case of new and existing projects due to high, volatile and unpredictable costs.**

In response to our stakeholder's concerns, we published *'Transmission Charges: An overview of charges for use of the GB transmission system'* which found that:

- **Forecasting wider TNUoS is extremely unpredictable and volatile for all GB generators**. For example, the final tariffs for 2021/22 charges and the forecast that was published by the ESO show material differences each year and in the most extreme case was as much as a 305% difference. Generators also see swings in their TNUoS charges typically over 50% up or down each year and in some instance's year-on-year changes have been between up 774% and down 2090%. This volatility and unpredictability affects **all** GB generators, not just those in the north of Scotland.
- This volatility and unpredictability is in contrast to the stable and largely predictable TO allowed revenue.
- The current wider TNUoS methodology results in **more expensive charges for renewable, intermittent generation in the north of Scotland where natural renewable resources are abundant**, resulting in a barrier for development. For example, an onshore wind farm in the north of Scotland currently pays £5.54/MWh as part of the locational TNUoS charges compared to a similar site in Wales that will be paid £2.81/MWh. The higher cost of Scottish projects will ultimately be passed back to consumers through the energy market and support schemes, such as the Contracts for Difference (CfD).

Following feedback from offshore wind developers that the impact of transmission charging is more acute for offshore wind than other technologies, we then produced *'Offshore Wind Transmission Charges: Are transmission charges a barrier to GB achieving 40GW of offshore wind by 2030?'*. This report looked to undertake further analysis of transmission charging for offshore wind and concluded that:

- There is **no apparent value in the locational 'signal' to offshore wind farm developers** as location is determined by the allocation of seabed that is leased via auction, and the point of connection to the onshore transmission system does not sit with the developer, but rather with transmission licensees.
- Given the lead time for offshore wind farm developments, **investment decisions and CfD bidding must be made without confidence in future TNUoS charges**. This has two main impacts. Firstly, the uncertainty and volatility from unpredictable charges increases risk in future cashflows. Secondly as the CfD auction is price-based, those generators that under-forecast future transmission charges are more likely to be successful – a "winners curse" – which, in the extreme, could cause some developments not to proceed. On the flipside, the highest successful CfD bid sets the strike price for all others and therefore there is the potential for windfall gains to generators located in zones with relatively low TNUoS tariffs if the strike price is set by generators located in regions of high transmission charges.
- The effect of **connecting an additional 1GW of offshore wind generation into East Aberdeenshire (zone 2) could see the wider TNUoS tariff in seven of the eight zones in the north of Scotland increase**. This increase could be up to £3/kW.

The concerns around higher charges in Scotland was further analysed by a recent report from Cornwall Insights. In *'Charging differentials for 132KV generation'*, Cornwall Insights looked to quantify any differential in network charges

paid by small (<100MW) generators connected to the 132kV transmission network in Scotland compared to those connected to the 132kV distribution network in England and Wales. It concluded that:

- The mean charge for England and Wales generators is a fraction of the mean for their Scottish equivalents. In 2021-22 and 2022-23, **the differential was over £1mn** for our modelled 40MW sites**. Even after reforms expected to be introduced in 2023-24, our modelling suggested the Scottish generators would pay more than six times as much in network charges on average.**
- With the lowest load factors solar has the highest cost at £22/MWh in Scotland and £0.35/MWh in E&W in 2021-22. In comparison wind sites in E&W pay £0.11/MWh on average, while the average Scottish windfarm would pay almost £11/MWh in network charges.

The higher costs for northern projects feed through into the CfD and affects the competitiveness of projects competing in the auction round. An explainer of the key issues around TNUoS from Scottish Renewables demonstrated that:

- The higher costs of paying TNUoS makes Scottish projects less competitive within the CfD auction as evidenced by the **fall in capacity awarded to Scottish projects from 39% in AR1 to 9% in AR3**. 1GW of renewable electricity generation means £133 million to the Scottish economy and therefore fewer projects will have a detrimental impact to the local economy.
- The situation looks to get worse as **the average locational charge in Scotland will increase from £11/kW in 2016 to a predicted £27/kW by 2024 – an increase of 145%.**

However, this is not just a Scottish issue. TNUoS also has an impact on the competitiveness of GB generators when compared against EU generators as shown in '*Charging the wrong way*' published by RIDG (Renewable Infrastructure Development Group):

- **Power stations located in the northern half of GB pay 16 times more for using the transmission system compared to the European average**. This puts these generators at a significant disadvantage compared to sites in France, Netherlands, Belgium, Germany, Denmark or Norway. As the renewables sector continues to evolve beyond subsidy mechanisms and rely more heavily on market forces (across Europe), this distortion will likely play a significant role in determining where renewable energy projects get built.
- Of the 36 European networks covered by ENTSOE, 20 do not charge generators at all and only five charge based on location (three of which are GB, Northern Ireland and Ireland). This means that investors looking across Europe have far less network charging risk to consider in foreign markets compared to northern sites in GB.

Ultimately the cost of TNUoS will be passed through to consumers, either through energy market prices or into support mechanisms such as the CfD. The uncertainty from **volatile and unpredictable charges adds additional risk onto projects that consumers end up paying for**. NERA's '*Quantifying the Risk of TNUoS Charge Volatility for Wind Developers*[1]*'* found that TNUoS risk associated with the variability of charges could increase the cost of capital for onshore and offshore wind farms and given the scale of investment expected in the coming year, this additional cost will have significant implications for the costs faced by consumers**. It is estimated that the cost of that risk could be between £122 to £391 million per year by 2030. We estimate that this would equate to an additional £4-£14 per GB household by 2030.**

This evidence has been further supported from the findings of an inquiry into renewable energy in Scotland by the Scottish Affairs Committee, made up of MPs from across the main political parties. The committee recognised that short-term volatility of transmission charges is a barrier to the development of renewable energy as it affects confidence in investment and the future cost of a project. This was backed up Dr Gareth Davies—Managing Director, Aquatera—who told the committee how the volatility is specifically affecting investment in Orkney: '*Ranges have gone from £150 down to £50 in Orkney [per KWh]. […] To go to the investment proposition, if you are going to investors and saying, "Your access to market could vary from here to here," it is an incredibly difficult economic proposition to make*.' The committee recommended that the UK Government specifies that Ofgem must consider the financial burden of transmission

[1] Quantifying the Risk of TNUoS Charge Volatility for Wind Developers, NERA Economic Consulting, March 2021

charges in Scotland and Ofgem should consider the long-term impacts on net zero targets, rather than pushing for a short-term, lowest cost view.

High, volatile and unpredictable charges are also having an impact on us as a Transmission Owner (TO). TOs have a critical role to play in delivering the infrastructure that will underpin GB's decarbonisation efforts. A key part in carrying out that role is having a level of certainty as to when and how generation will connect. We are not just hearing from generation customers that wider TNUoS charging is impacting the investment case of new projects, we are seeing first-hand that connections are not proceeding because of this. For example, the decision for one customer letting their offer lapse was down to "*the impact of very high forecast TNUoS charges for Argyll and the potential further increase that is likely to arise from the change in Expansion Constant under RIIO-2*".

It is important to note that, pending Ofgem's decision on whether to introduce wider TNUoS to distributed generation (DG) under the Access and Forward-Looking Charges review, the outcome of this call for evidence will not just impact transmission connected generation. If Ofgem's minded-to position to expose DG to wider TNUoS is implemented without reform to the current methodology, the issues evidenced above will simply be emulated by a wider set of generators. Anecdotal evidence from our stakeholders has told us that there is a very real risk that paying wider TNUoS will bankrupt their existing developments and jeopardise future projects in Scotland. DG play an incredibly important role in the generation mix that will get us to net zero, currently accounting for 35-39% of connected capacity and potentially up 27% by 2050 (under the net zero compliant FES scenarios). Exposing these generators to the current TNUoS charging regime will simply act as another blocker to the timely development of new and repowered renewable generation required to deliver net zero.

We would also note the interaction between any future review of TNUoS and the recent consultation from Ofgem to take the review of Distribution Use of System (DUoS) charges forward under a dedicated Significant Code Review (SCR). There is already a great deal of uncertainty for DG over their future network charges and we know that uncertainty can act as a barrier to the renewable generation projects that will be vital to meeting net zero. We have concerns that treating moving parts of the regulatory landscape in a siloed approach will have unintended consequences and therefore it is crucial that the DUoS SCR will be considered alongside wider TNUoS reform.

<u>What does this all mean?</u>

Bringing this evidence together paints a clear picture: TNUoS is high, volatile, and unpredictable and is already having an impact across GB.

Everyone is impacted. Volatile and unpredictable charges are creating a barrier to developers securing the necessary investment in renewable projects, with projects located in the areas of the highest natural renewable resources put at a competitive disadvantage due to higher costs. This creates huge uncertainty for us, as a TO, in terms of efficient system planning as we work to connect the renewable energy needed to support greater electrification in society and deliver a network for net zero. Most importantly, the impact of these high cost, volatile, and unpredictable charges is already flowing through to consumer bills.

These impacts falling on consumers, generators, and network owners and operators, creates a challenging environment in which to meet net zero. Our North of Scotland Future Energy Scenarios[2] tell us that we need 20-23GW by 2030 and 33-37GW by 2050 of renewable electricity from the north of Scotland alone to put us on the correct pathway to net zero. We currently have just over 8GW connected in our network area and there is a clear need to have regulatory policy in place that enables the required development. The current TNUoS charging regime already does not send the appropriate signal to enable the capacity required, in fact it does the contrary.

Taking the scale of these impacts into consideration, we strongly believe that wider reform of TNUoS is necessary to ensure net zero can be delivered at best value for consumers.

[2] North of Scotland Future Energy Scenarios, SSEN Transmission, February 2021

Priorities for reform

There are a variety of views on, and experiences of, the transmission charging regime and different parties rightly have different areas of concern. We believe addressing the problems of the TNUoS methodology should be done in the interests of all stakeholders: those who pay directly and indirectly, now and in the future.

We asked our stakeholders for their view on the key factors that they believe should be considered within any reform of TNUoS. The top five areas identified from that feedback were:

1. Net zero
2. Simplicity
3. Cost to consumers
4. Just transition
5. Flexibility

The feedback from stakeholders was that a pragmatic approach is needed in considering all these areas to determine what works to best facilitate net zero at best value. We also heard strong calls for stability and predictability, long-term visibility of charges and creating a level playing field across the transmission system.

The evidence outlined earlier in our response shows that TNUoS undoubtedly has interactions with wider government policies. Meeting net zero will require a joined up regulatory and policy landscape and stakeholders have told us that these interactions must be considered going forward. This includes the impact TNUoS has within the CfD auctions and enabling government's offshore wind ambitions, as well as taking into account how siting decision for renewables are made in reality.

Vehicle for change

In considering the vehicle for change, a task force approach appears to be the most favourable. The open governance process would not be appropriate for the holistic review that is needed, while a SCR would likely take too long and be too inflexible.

This view is supported by our stakeholders, of which 54% agreed that establishing a task force was their preferred option. The leadership and composition of the task force will need to be considered, although we would suggest that adopting a similar approach to the Offshore Transmission Network Review (OTNR), where both Ofgem and BEIS are involved, could be beneficial.

Timescales

Intervention is needed urgently, however there is a recognition that delivering the extensive reform needed will take time.

Ofgem has recognised within the call for evidence that there are some quick wins that could be considered. Feedback from our stakeholders tells us that the majority do not feel quick wins would appropriately address the current issues however, considering the potential timescales for reform there could be benefits to addressing glaring concerns in the short-term while an enduring solution is developed. It is crucial that any quick wins are recognised as a temporary solution and do not detract from developing a long-term, enduring regime.