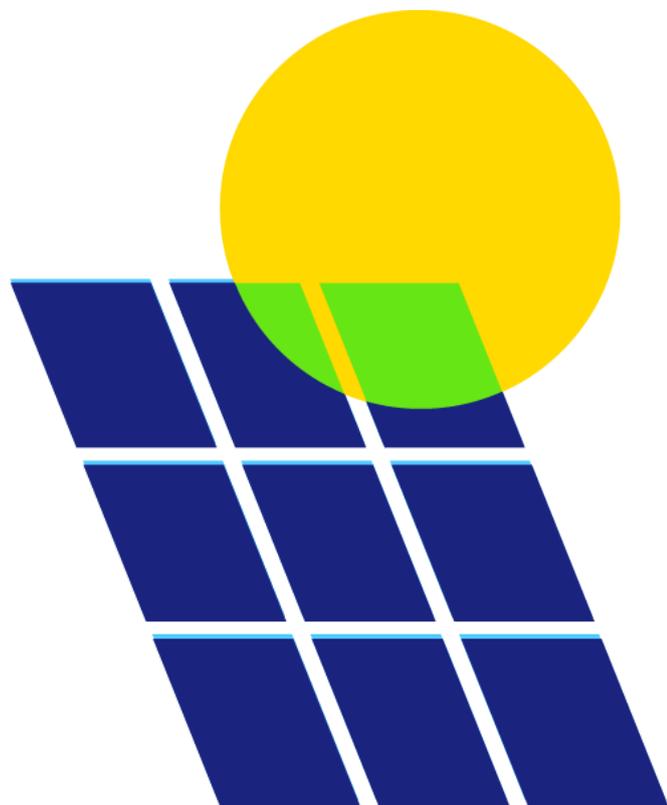




Call for Evidence – Transmission Network Use of System Charging Solar Energy UK Response



About us

Since 1978, Solar Energy UK has worked to promote the benefits of solar energy and to make its adoption easy and profitable for domestic and commercial users. A not-for-profit association, we are funded entirely by our membership of over 250 companies, including installers, manufacturers, distributors, utility-scale developers, investors, and law firms across the UK solar energy industry.

Our mission is to empower the UK solar transformation. We are catalysing our members to pave the way for 40GW of solar energy capacity by 2030. We represent solar heat, solar power, and energy storage, with a proven track record of securing breakthroughs for all three.

Respondent details

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Would you like this response to remain confidential? No

Introduction

Solar Energy UK welcomes the opportunity to submit comments to this call for evidence on Transmission Network Use of System (TNUoS) charges. A broader review of TNUoS charging is very welcome and needed, and we appreciate Ofgem's engagement with the industry on this important issue. There is a strong case to review the transmission charging methodology to ensure that development of renewable energy generation is not discouraged in locations with an abundance of renewable resources to meet our net zero obligations most effectively.

Our members were especially concerned with the proposals included in the Access and Forward Looking Charges Significant Code Review (Access SCR) to extend TNUoS charging to Small Distributed Generation (SDG). As set out, the proposed methodology for charging TNUoS to SDG would have significantly disincentivised solar generation projects in the north of England and in Scotland particularly, which runs directly counter to the Government's intentions of levelling up. We welcomed the withdrawal of this proposal from the Access SCR minded to and a review of how charging arrangements would impact SDG should be in scope of any TNUoS review.

As it stands, the methodology for calculating TNUoS charges continues to disproportionately impact renewable generation assets, and solar and storage especially. The TNUoS regime is no longer fit for purpose to deliver the UK Government's net zero targets. Analysis from the Climate Change Committee and other independent bodies shows that the UK will need to deploy at least 40GW of solar

by 2030 if it is to achieve a net zero economy by 2050.¹ Doing so will require installed solar capacity to triple over the next decade, with an average annual installation rate of 2.6GW. Solar Energy UK expects roughly 10% of this total to be deployed in Scotland.²

We have set out below several recommendations for areas which should be within the scope of a broader review of TNUoS. Ultimately, what the industry wants and needs from this process is greater certainty and a level playing field to unlock the growth in renewables that is needed to deliver net zero. As such, it is important that where possible Ofgem can continue to move forward with implementing quick wins to improve the situation for renewable generators, considering the rapidly approaching deadline to decarbonise the electricity system by 2035. We have therefore also indicated which reforms could potentially be implemented more quickly and the best mechanism to allow for this parallel process.

Priority areas for reform and potential impacts

The methodology behind the TNUoS charge is no longer reflective of the electricity system as it currently stands, nor does it adequately enable the delivery of the distributed, flexible system we need for the future.

We are still reliant on a charging regime designed to incentivise developers to build fossil fuel power stations close to demand centres. This regime is now sending the wrong signals as the system evolves into a smarter, more distributed, renewable energy based energy network.

TNUoS must be reformed to align with net zero, provide stability, predictability, and proportionality in charges for network users. It must also recognise the wide geographic diversity of renewable generation technologies.

Solar, for example, is commercially viable at all latitudes in the UK. However, the current charging regime is disincentivising solar in the north of England and in Scotland in particular. At present, solar accounts for just 3% of installed capacity across all Scottish renewables, whereas neighbouring countries on similar latitudes with similar levels of irradiation, such as Northern Ireland and Denmark, are already delivering 400-500% more solar into the energy mix of their electricity systems, as shown in Figure 1 below.

¹ <https://www.theccc.org.uk/publication/net-zero-technical-report/>

² <https://solarenergyuk.org/resource/lighting-the-way-making-net-zero-a-reality-with-solar-energy/>

Average Percentage of Solar in Electricity Mix

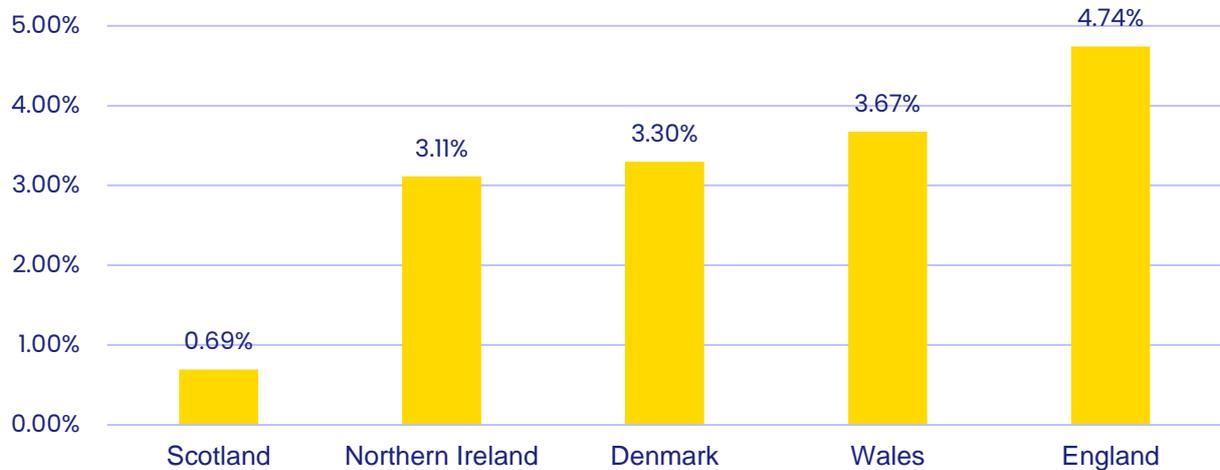


Figure 1: PV's contribution to total electricity generation, 2019. Sources: Danish Energy Agency, BEIS

We would also highlight the recent report by the Renewable Infrastructure Development Group (RIGD) which shows that transmission system charges in Scotland are the highest in Europe.³ This has knock-on impacts which disincentivise developers and ultimately lead to higher consumer costs.

The charging regime should be designed to incentivise the delivery of technologies and investments in the network which will be necessary over the longer term to deliver the most efficient and affordable net zero system for all end users, as opposed to prioritising simply minimising current costs for consumers.

We have set out below the priority areas of reform that should be included in a broader review of TNUoS charging:

- 1. Capacity based charging:** Fundamentally, that TNUoS is a capacity-based charge disadvantages solar vis-à-vis other renewable technologies due to the lower load factors associated with solar, which are typically between 11-12%. At a minimum, the TNUoS methodology should be reformed to charge users on an output or generation basis (MWh) as opposed to capacity (MW).
- 2. Shared/Not Shared:** The main elements of the TNUoS methodology that are driving the current disparity in locational charges are in the wider tariff, specifically in the Year Round Shared and Year Round Not Shared elements. The Shared/Not Shared approach creates significant regional disparities, resulting in much higher charges in the north of England and in Scotland. This approach is particularly damaging for solar, again because of the load factors for the technology. As noted

³ https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/210524_tnuos_paper_final_for.pdf

above, solar load factors are typically between 11-12%, which is hugely out of step with a charging methodology that assumes 100% of potential output capacity on Not Shared circuits. A review of these elements is critical as they are driving volatility, disincentivising renewables, and leading to misalignment with net zero.

3. **System wide benefits of decentralised generation:** Ofgem have a legal duty to ensure cost reflective network pricing – from this starting point, TNUoS pricing should recognise the system wide benefits of incentivising geographic diversity in variable renewable generation technologies. Enabling truly a distributed generation system provides a range of grid services, reduces the amount of flexibility that the System Operator must procure, and improves the costs of managing the network overall. We know that the electrification of heating and transport will result in major increases in demand everywhere and put serious strain on the transmission and distribution network. TNUoS should therefore be designed to send locational signals to better diversify the geographic spread of renewable generation.
4. **Volatility in price signals:** The methodology currently relies on narrow time windows for determining which projects can be used to help inform forward looking charges. This results in significant volatility in price signals. There are several ways to address this, either by using a wider range of project pricing, averages, or otherwise limiting change in output tariffs to help to mitigate volatility and the disparity on locational charges. These reforms should be in scope and could lead to a more cost reflective regime.
5. **Connection costs:** An enormous amount of work has gone into modelling Future Energy Scenarios (FES) at both the transmission and distribution levels, and the FES and DFES have already identified areas where grid reinforcement will be necessary under all scenarios. Where this is the case, TNUoS should not be deterring developers from building in these areas by sending additional pricing signals for reinforcement that the Distribution Network Operators (DNOs) and ESO have already said must be built. Rather, TNUoS should be reformed to send signals for reinforcement above and beyond this.
6. **Expansion constant:** As it stands, the expansion constant is constraining potential development by sending overly strong price signals based on a methodology that always determines costs based on building brand new high voltage (400kV) assets and supporting grid infrastructure, where this is often not the reality of the reinforcement or mitigation options that are ultimately put in place. The expansion constant should therefore be reformed to be more reflective of the actual costs of reinforcement or mitigation where alternative solutions are implemented by network operators.

7. **Modelling improvements:** The modelling assumptions feeding into TNUoS charges can also be improved. At present, the models assume fixed demand, which as we know is not reflective of the reality of the future energy system. Networks should and will become much more intelligent, flexible, and distributed, and this should be reflected in the assumptions behind the charging methodology. For example, the methodology should build in greater accommodation for Demand Side Response (DSR). This will necessarily shift the applicable model “backgrounds” used for both demand and generation tariff setting. As set out in the CfE, a single peak security or single cold-spell background may not be possible nor reflective of a 2040 or even 2030 electricity system. Backgrounds must be within the scope of a TNUoS review, importantly looking to remain relevant as the system evolves on a net zero pathway.
8. **Collocation:** Collocation of storage is rapidly becoming the norm with all manner of renewable generation technologies, especially solar. The review should also examine how TNUoS can be reformed to avoid unduly penalising collocated sites, and ensure charges are fit for a range of on-site combinations, in order to cost-effectively deliver plant (and combinations of plant) which can best deliver a low-cost net zero pathway and minimise costs for consumers by taking into account collocation in charge design.

Vehicles and timelines for reforms

We would support a review of TNUoS charging run jointly with BEIS. We would suggest that a task force approach would be the best option to carry out a wider review and allow for the swift implementation of reforms where possible in the shorter term. This could be similar to the BSUoS task force process which ran alongside the Targeted Charging Review. We feel a Significant Code Review process would not move swiftly enough and would preclude the running of a parallel process to rapidly implement easy fixes.

The TNUoS task force should be given a clear mandate to deliver the comprehensive reforms necessary to accelerate the delivery of the Government’s net zero commitments and enable greater penetration of renewable generation on the network.

There are several potential reforms which we believe could be delivered more swiftly, ideally within a few years, which could run in parallel to a more extensive task force process:

1. **Modelling improvements:** Implement averaged network cost data into TNUoS modelling to make charges less volatile. Again, this can be achieved through multiple routes such as reforming the methodology to allow wider timescales for identifying projects which can be used to inform network cost assumptions.

2. **Expansion constant:** Reform the expansion constant to make it more cost-reflective for system users, reducing the status quo distortion which over-estimates the cost impact of northern intermittent generation.
3. **Transmission charging in Scotland:** In Scotland, 132kV lines onshore are classed as transmission assets, despite mainly serving as distribution. To more appropriately reflect network costs, 132kV assets in Scotland should be moved to DUoS charging.

Ofgem and BEIS should aim to conclude the review process and deliver needed TNUoS reforms by the end of 2023, to align as closely as possible with the implementation timeline of the other pending charging reforms.