

Independent Renewable Energy Generators Group (IREGG) -Written evidence (ONZ0009)

Introduction

IREGG was established in 2012 and is a partnership of independent renewable energy generators and developers as well as the manufacturer Enercon which have together invested hundreds of millions of pounds in UK energy infrastructure including in Scotland.

IREGG members include:

- **Falck Renewables:** a renewable energy company with headquarters in Milan, Italy, with two offices and a significant number of operational and development projects in the UK.
- **Banks:** a County Durham-headquartered renewables business operating and developing wind and solar projects.
- **BayWa:** a German headquartered solar, wind, and bioenergy company.
- **ERG:** an Italy-based onshore wind and solar developer and operator with assets across Europe.
- **Infinergy:** an energy company, developing large, medium and small-scale onshore wind and solar PV projects in the UK, the Netherlands and Australia.
- **Enercon:** a German-based wind turbine manufacturer and one of the world's leading companies in the wind energy industry.
- **Fred. Olsen Renewables:** a Norwegian-headquartered onshore and offshore wind business with currently ten operational windfarms in the UK (Scotland) and several more at consent stage. The group includes Scotland's Natural Power consultants and offshore specialists Fred. Olsen Ocean.
- **Ventient Energy:** a pan-European renewable energy business and one of the largest independent generators of onshore wind energy in Europe.

Summary

- **Ofgem's network charging agenda undermines the speed and scale of deployment of additional green energy generation, affecting consumer interests as a result**
Ofgem sets out a commitment to protecting consumers' interests, but its network charging agenda (which ostensibly seeks to encourage the development of energy assets in locations close to major UK demand centres, minimising the cost of grid maintenance as a result) disincentivises the development of renewable assets in

locations of the UK which are most suitable to host these assets, with regards to natural resource and planning (as most are located far from major demand centres). Ofgem's suite of network charging policies are therefore incentivising the development of less efficient forms of energy generation at the expense of more efficient forms of energy generation, e.g. onshore wind, one of the cheapest forms of energy generation.

The result of Ofgem's policies is that it pays out substantial credits to new and existing fossil-fuel generators due to their locations near major demand centres. There are also issues for renewables sites located near demand centres when it comes to efficiency – if Ofgem's policies, for example, mean that 12GW of onshore wind in Scotland is not developed, an additional 45GW of solar in the midlands would be needed to produce the equivalent number of renewable MWh, (which touches upon issues, in turn, such as land-use).

All of this is detrimental to consumer interests as it will lead to higher levies on bills to support less efficient generation, as well as higher system balancing costs.

Ofgem's reforms have increased Transmission Network Use of System (TNUoS) costs for generators and made them more volatile, increasing energy generators' cost of capital which is ultimately passed onto suppliers and onto consumers, and are not in fact reflective of the actual cost or spend by generators. TNUoS volatility will also mean that developers will submit higher bid prices into the next Contracts for Difference (CfD) auction round (due to take place at the end of this year), causing the Government to spend more on the process as a result.

Ofgem has recognised the need for a TNUoS review but this could take from five to ten years. As a result, it is imperative that all stakeholders, in this year of COP26, proceed to review the quick solutions that are available to both Ofgem and ministers that could ameliorate the damage of Ofgem's policies. The difficulties arising from Ofgem's network charging policies do unfortunately place the UK's net-zero targets at risk.

Consultation Questions

What role should Ofgem play in the transition to net zero? What changes, if any, should be made to its remit, responsibilities and resources?

1. As the recent Intergovernmental Panel on Climate Change (IPCC) report makes clear, the need to decarbonise and reach Net Zero is the greatest and most pressing challenge that we face, and it is therefore vital that all parts of the energy sector are aligned in meeting this challenge.
2. Ofgem needs to ensure that the impact of its regulatory approach is aligned with, and supportive of, Net Zero. Given the scale of impact that Ofgem's regulatory approach has in this space, if Ofgem's approach does not support Net Zero then it risks undermining it.
3. Ofgem's remit needs to ensure not only that it has a formal responsibility for ensuring the above, but that it is independently assessed to fulfil that responsibility. The Climate Change Committee (CCC), for example, could be tasked with reviewing policies being in line with Net Zero but also appoint an independent panel equipped to stress test the modelling underpinning decisions. Without that independent benchmarking, it will be impossible to ensure that Ofgem's policies do not detract from Net Zero until it is too late to avoid them having a negative impact within the clearly defined Net Zero timeframe.
 - a. Ofgem's remit needs to give it specific responsibility for ensuring that it regulates for Net Zero and for ensuring that its regulatory decisions are taken with regard to the actual regulatory and policy framework that others have put in place. Ofgem, as such, should align more with the particular scenarios put forward by the CCC and National Grid ESO's Future Energy Scenarios that account more for local restrictions such as planning and are therefore more realistic projections, rather than using the scenarios that suit their agenda. With regards to the Future Energy Scenarios, Ofgem should continue to align more with those that adhere to the UK reaching its net-zero targets (as Ofgem does in its recent consultation regarding its [Access and Forward-looking Charges Significant Code Review](#)). By aligning with scenarios which account more for local restrictions, Ofgem would be more pragmatic and reasonable than if it was to adhere to an approach which doesn't account for these complexities, risking cost increases to the consumer as a result.

1. How well does Ofgem balance environmental objectives against its responsibilities in relation to affordability for consumers?

4. With regards to network charging, particularly its Transmission Network Use of System (TNUoS) charges, Ofgem's modelling processes do not yet balance environmental objectives against its responsibilities in relation to affordability for consumers because they do not yet take account of the risk of promoting a false economy.
5. The main theme of much of Ofgem's previous work on network reforms has been a narrow focus on ensuring fairness and affordability for today's consumers, which in practice has meant a net transfer of costs from consumers to (predominantly renewable) generators. Whilst Ofgem likes to trumpet these consumer benefits as the main rationale behind their reforms, there are several major problems with their approach:
 - a. The focus on a transfer from one group to another as a benefit in its own right, when in fact the net impact is zero: one group loses as another gains.
 - b. Whilst distributional changes are potentially beneficial, Ofgem's modelling does not accurately assess the impact such reforms have on investor confidence in the GB market, cost of capital increases and the additional risk premiums that generators must price in as a result, all of which lead to costs that are ultimately borne by consumers, and are often deadweight system losses overall.
 - c. Ofgem's modelling is based on unrealistic assumptions about future technology mixes, which do not represent reasonable outcomes based on the current GB policy mix. Furthermore, their modelling does not factor in additional system balancing costs that their reforms will incur, meaning that the overall impact of their reforms is a significantly negative on a system-wide basis, and consumer benefits will also be lower than claimed.
 - d. This means that not only is Ofgem not correctly modelling the effects of its reforms on current customers, but due to the risk that its reforms detrimentally affect Net Zero, it is also failing in its duties to *future* consumers as well.
 - e. Even though the modelled net benefits to consumers from these reforms are relatively minor in the context of bills overall, they create significant uncertainty for investors at exactly the time that massive and rapid investment is required to avert a climate catastrophe. Whilst of course we accept that Ofgem has a duty to protect consumers from paying over-the-odds for unnecessarily expensive climate mitigation, the precautionary principle should on balance be given greater weight when

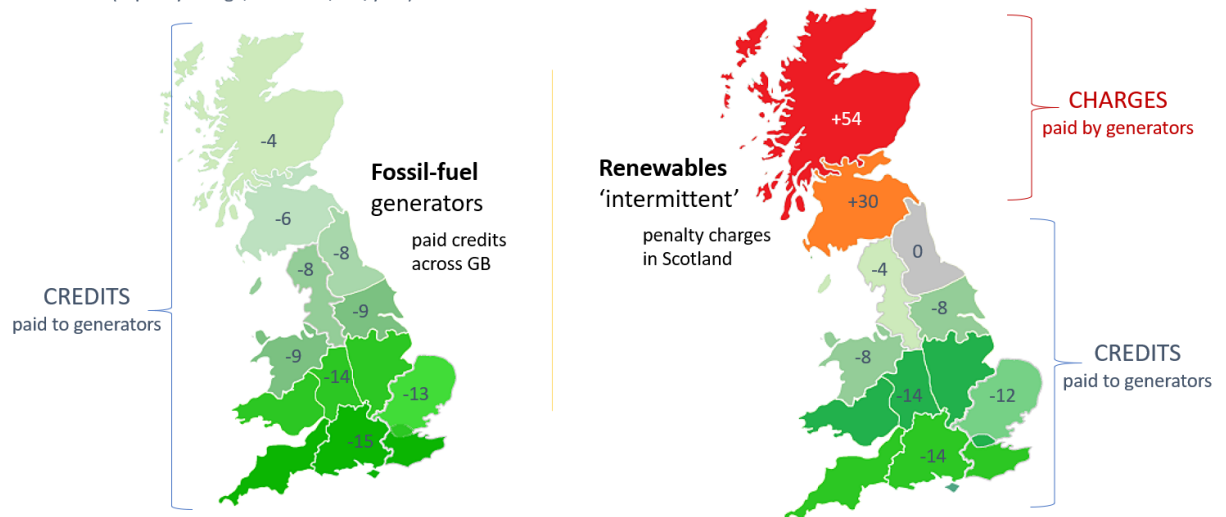
investment in proven mature technologies is being potentially put at risk.

6. Central to the premise of Ofgem's approach remains the presumption that minimising the investment required to adapt the electricity networks to meet the requirements of Net Zero, will of itself guarantee that the transition to Net Zero is most "efficient" and cost effective for consumers.
7. Ofgem's current approach, which subscribes to the locational charging concept, aims to penalise new generation that does not locate in the right place with regard to the structure of the pre-existing grid. In turn, it actually serves to penalises *existing* green energy sites in Scotland (much of which are far from major UK population centres), all of which incur high penalty charges despite the need for green energy sites to be developed in the most optimum locations (again, much of which are far from major UK population centres). Moreover, the superior ability of fossil fuel generation to react to locational charging signals as compared to renewable generation means that Ofgem's agenda perversely incentivises the development of large new fossil fuel power stations over renewables. On this point, please see the illustration under point 16 below.
8. Even if wind generators, for example, were free to locate close to major demand centres in the south of England, they would simply generate less power, and less frequently, than those in windier locations in Scotland. Ofgem's reforms would therefore hypothetically require greater numbers of non-optimally located wind farms to be developed in places where obstructions such as planning hurdles and meteorological hurdles are present. Far greater capital investment would be needed to secure a given amount of power generation as a result.
9. The Prime Minister recently stated: "As Saudi Arabia is to oil, the UK is to wind - a place of almost limitless resource, but in the case of wind without the carbon emissions and without the damage to the environment. We've got huge, huge gusts of wind going around the north of our country - Scotland. Quite extraordinary potential we have for wind."
10. Counter to this, however, Ofgem's network charging proposals will impose extra charges on zero-carbon generation in Scotland and other places in "the north of our country". This will undermine the economics of such projects relative to EU imports via the continental interconnectors (which face no grid charges) and will therefore have a negative impact on the GB renewable energy sector.

11. Ofgem has not addressed the tension that resides between its locational charging proposals, developed in a pre-Net Zero era, and the locational aspect of the UK planning system. Such tension, and a lack of support on Ofgem's part for the realisation of UK Government policies, could undermine investor confidence. It is not yet clear how Ofgem plans to resolve this tension.
12. Furthermore, the effect of Ofgem's reforms has been to not only increase TNUoS costs for generators, but also to make TNUoS more volatile ([e.g. as indicated in paragraph 3 of the decision document for CUSC modification proposals 324/325](#)). This means that generators must calculate not only a higher quantum of risk for a given level of volatility, but also a higher level of risk premium for the same given return to account for the higher volatility overall. The magnitude of this effect is calculated at 35% of the total increase in TNUoS due to the Ofgem's Targeted Charing Review (TCR) over the next 5 years, of which 25% is due to higher volatility and 10% is due to the higher level overall.
13. TNUoS volatility adds cost to billpayers as it makes it more difficult for renewable energy developers to secure lowest cost capital on account of the impossibility of accurately quantifying the added risk that needs to be taken into account. Accounting for the impact of this additional volatility on project returns would require an additional £1.50/MWh Contracts for Difference (CfD) strike price, on top of the additional £3.50/MWh required to mitigate the impact of Ofgem's Targeted Charing Review for a wind farm in north Scotland. As a result of these higher CfD clearing prices, the Government needs to invest more money into the CfD scheme. The impact on consumers, meanwhile, primarily stems from the fact that Ofgem's policies mean that less efficient energy generation is being encouraged to develop at the behest of more efficient forms of energy generation.
14. Moreover, there remains an absence of an independent holistic impact assessment developed by modelling Ofgem's combined TCR decisions, Access SCR proposals, and Connection and Use of System Code (CUSC) modifications that impact use of system charging. The uncoordinated manner in which Ofgem has approached transmission charging reform has led to perverse inconsistencies in Ofgem's reasoning between the two code reforms, the result of which is to further increase costs on new and existing renewable energy generators. For instance, a key rationale in the TCR for removing the TGR was that it was unfair that only TNUoS-liable generation could receive this, but having acted to remove the TGR, and therefore increase TNUoS costs for all generation, Ofgem subsequently announced via the AFLCR that they believed Smaller, distribution-connected generation (SDG) should also pay TNUoS.

15. While Ofgem in its current consultation on the Access and Forward-looking Charges Significant Code Review has at last conceded that its approach to TNUoS may not be optimally aligned with Net Zero and that a review could be constructive, such a review could take 5-10 years, and every year that measures continue to be imposed by Ofgem that undermine the scale and rate of green energy deployment necessary to attain Net Zero is a year that will set back the UK's net-zero ambition. While waiting for a review to reach and report its conclusions, it is vital that the "quick fixes" available to Ofgem and ministers to address challenges like this are implemented.
16. To illustrate the scale of the problem, we've shown below the geographic spread of generator network charges, forecast to 2040 under Ofgem's approved methodology, with data from Ofgem's own June 2021 Minded-To consultation on Access and Forward-Looking Charges. This shows a methodology which pays out substantial credits to new and existing fossil-fuel generators *wherever they are* in GB whilst the best wind resources are overtly penalised to compensate.

Generator network access charges (TNUoS) – Ofgem view, 2040
(capacity charge, units of £/kW/year)



source data: Ofgem, June 2021: Access & Forward Looking Charges SCR Minded-To publication, document (3) CEPA-TNEI Quantitative Analysis, page 29 Table 5.3

2. How well does Ofgem fulfil its obligations to consumers? Does Ofgem take consumer views into account sufficiently, particularly those of vulnerable consumers?

17. Ofgem risks adding costs to consumers via decisions and policies that create false economies within the context of Net Zero. A decision not to pay to invest in net-zero infrastructure in the short term does not necessarily make Net Zero cheaper for consumers over the medium and long-term.

18. For example, Ofgem’s policy of imposing penalty charges on wind power built in windy areas of Britain, if allowed to endure, will require a greater volume of wind power to be built, at greater cost, because it will need to be built in less windy locations. 45GW of solar in the midlands would be needed to substitute for 12GW of onshore wind in Scotland if Ofgem succeeds in its policy of disincentivising power generation construction in windier locations. Such a situation would mean that more land would be needed to be used for energy generation. Moreover, such a situation is indicative of a consumer disbenefit given that Ofgem’s policies would mean that more, less-efficient energy generation is being encouraged to develop.
19. Ofgem’s locational penalty charges were conceived to drive energy generation investment away from Scotland towards the centre and south of England. Given that this pushes wind farms to less efficient sites, research undertaken by Aurora states that it would require 6GW additional wind turbines and 3GW additional batteries to the existing lowest cost paths to Net Zero, assuming planning hurdles can be overcome¹. Even if the necessary replacement renewables can be built in England and Wales, it is expected to produce a net disbenefit to consumers, as the avoided grid investment is significantly over-estimated by the 2013 TNUoS methodology, which omits various transmission company efficiencies². Noting that Scottish generator transmission charges have increased 250% in a decade where Transmission Owner spend has dropped 7% in real terms [NERA 2021³, SSEN 2021⁴], TNUoS grossly over-estimates the cost of new grid capacity, and so TNUoS unduly inflates the cost of, and thereby unduly deters, generation in the North.

3. What implications will the transition to net zero have for the security of the UK’s energy supply? How does Ofgem currently manage issues relating to security of supply?

20. The transition to Net Zero at least cost to consumers will require the harnessing of the maximum amount of least-cost zero-carbon energy: wind power installed in efficient windy locations and solar power installed in optimally sunny locations. Unless this is achieved, Net Zero will be more expensive because more of the zero-carbon power necessary will have to be secured from more expensive sources (e.g

¹ [Aurora Energy Research, March 2021] Aurora Energy Research, Impact analysis of different geographic distributions of wind generation in GB, Prepared for Ocean Winds, 3 March 2021.

² Efficiencies of spend, upgrades of existing circuits rather than new construction, using commercial and flexibility solutions to manage constraints at times of high output rather than new construction to increase overall capacity, and diversity of renewables output.

³ [NERA 2021] NERA Economic consulting, Quantifying the Risk of TNUoS Charge Volatility for Wind Developers, Prepared for Ocean Winds, 8 March 2021.

⁴ [SSEN, February 2021] [Transmission Charges: An Overview of Charges for use of the GB Transmission System](#)

nuclear; or less efficient renewables installed in insufficiently windy or sunny locations).

21. Ofgem's current regulatory approach exacerbates risk for security of supply. This can be seen with regard to the impact of Ofgem's imposition of penalty locational TNUoS charges on power generation in a way that risks poor geographic diversity of the low carbon power needed for Net Zero: the current TNUoS methodology encourages a dense roll-out of renewables in central and southern England, driving up volatility of output, extremes of wholesale prices and driving additional system balancing costs, alongside typically poorer load factors (for wind further south). Aurora modelling suggests this drives 6GW extra onshore wind in the South (above baseline) and 3GW extra batteries (above baseline) to cope.⁵

4. Is Ofgem's current system of price controls appropriate? Does it provide sufficient incentives to invest in the context of the transition to net zero?

22. Ofgem has not yet ensured that its system of price controls does not undermine Net Zero. Currently, generation needed for a net-zero future is penalised for locating in areas supported by planning policy and strong resource which are distant to GB demand centres, because they have the potential to trigger investment in the grid network. Price controls send stable signals to network owners while the signals sent to generators are widely volatile and unpredictable, further increasing OPEX-exposure risk and cost of capital for zero marginal cost generators that already suffer the highest forward looking locational charges in Europe. As a result, investment in generation for a net-zero future may not be undertaken, or may be undertaken in a less cost-effective way at a later date when time pressures may add to cost.
23. Evidence and analysis from SSEN⁶ has shown that the levels of investment in futureproofing energy networks for Net Zero is materially less than the level of charges imposed on generation by Ofgem to signal these costs. As SSEN set out in the graphic below, Transmission Owner spend has decreased, while over the same period TNUoS charges imposed by Ofgem on Scottish power generation have gone up on average 250%.

⁵ [Aurora Energy Research, March 2021] Aurora Energy Research, Impact analysis of different geographic distributions of wind generation in GB, Prepared for Ocean Winds, 3 March 2021.

⁶ [SSEN, February 2021] [Transmission Charges: An Overview of Charges for use of the GB Transmission System](#)

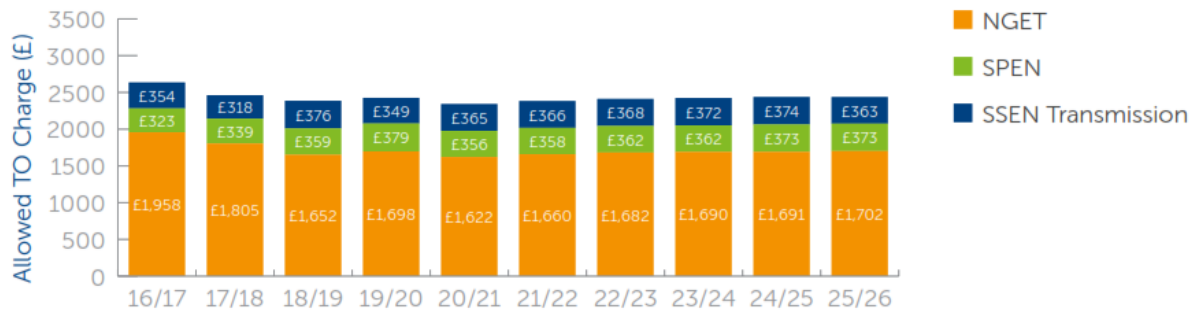


Figure 4 The maximum allowed TO charges (in 2019/20 prices)

Figure – SSEN report – [Transmission Charges: An Overview of Charges for use of the GB Transmission System](#), February 2021.

5. Is the current system of governance for the UK energy market appropriate to secure the transition to net zero? What improvements could be made and what role should Ofgem play?

- 24. The current system of governance for the UK energy market fails to ensure that measures implemented by Ofgem are independently checked and benchmarked for their alignment with Net Zero before they are imposed, and that pre-existing Ofgem regulation is aligned with Net Zero.
- 25. Given the imperative created by net-zero timelines, this creates considerable delivery risk.

6. Are Ofgem’s duties and powers appropriate and sufficiently clearly defined? Do Ofgem’s objectives conflict and, if so, how should any conflicts be managed?

- 26. Despite the best intentions of the new CEO and his team, Ofgem’s objectives still appear to conflict with the legally binding net-zero commitment that the UK government and parliament have entered into.
- 27. As Ofgem has stated, Net Zero will require a reconfiguration of the UK energy system. It is vital that the regulatory measures that Ofgem implements and the modelling assumptions that underpin those measures are transparently and independently benchmarked against the Net Zero yardstick by the Climate Change Committee.
- 28. Ofgem’s recent history of decisions in network charging have been weighted towards short-term distribution of benefit from generation to consumer, rather than sustained systemic benefit, and not stress-tested against longer-term decarbonisation obligations which actually have the potential to harm consumers’ interests.

29. Take for example the TCR decision to eliminate the generator residual element of charges and proposed Balancing Services Use of System (BSUoS) changes – Oxera Consulting showed that with corrected costs of carbon and a net-zero-aligned pathway there would likely be a net systemic *disbenefit* to consumers as a result⁷. A stronger mandate which would prioritise where generation makes most sense with regard to the grid that is needed in 2030-50, not the centralised fossil fuel grid that GB has inherited from the 1950s, would make more sense.
30. Moreover, Ofgem will need to be able to react more flexibly and quickly during the transition to a net-zero energy system and be able to take more of a holistic view of how a change in one area of policy, for example, can have unintended consequences in other areas which can serve to reduce the chances that the UK will reach its net-zero targets.

7. Is Ofgem’s relationship to Government and Parliament appropriate? Are there issues related to the split of responsibilities, transparency or accountability?

31. Ofgem’s current relationship to government and parliament is not yet efficient or sufficient in the context of Net Zero.
32. Such is the complexity of the GB energy market and its regulatory system that few have the breadth and depth of technical expertise to hold Ofgem to account. It will be important for parliamentary select committees to be given access to greater specialist support to assist with that. A second challenge is that the BEIS Select Committee has such a wide remit, like the department it shadows, that only a limited proportion of its time can be given over to the scrutiny of Ofgem’s work. Moreover, until Ofgem is obliged to ensure that its modelling assumptions are independently stress-tested against Net Zero via a process (verified, by example, by the Climate Change Committee), it will be unlikely that the regulatory framework can be re-aligned with Net Zero.
33. With regards to Ofgem’s charging policies, there is a clear discrepancy between the desire of the PM and the Government for greater investment in onshore wind, particularly in Scotland, and a regulator which has put in place policies which are encouraging the development of generation in the south of Great Britain – an area in which the development of onshore wind faces significant hurdles.

⁷ [Oxera, April 2019] [Ofgem’s Targeted Charging Review Impact Assessment](#)

34. We have discussed with Ofgem the fact that previous modelling found its reforms will add £1.4bn to the cost of the CfD scheme if sufficient generation is to be built. Following discussions with IREGG, this is no longer a figure in current modelling and had not been shared with BEIS but it does illustrate the gravity of the reform impact. Further, this is likely to be a significant underestimate as it fails to properly account for the design of the CfD auction, nor does it account for basic economic theory around participant bidding behaviour.
35. Moreover, it illustrates a case in which Ofgem policy has significant impact on Government climate policy spending, given the impact the reforms would have on increasing CfD costs. IREGG would question if the regulator should be able to act in this way without discussions with BEIS or Treasury, who have shown themselves concerned about these estimated costs in discussions with IREGG.
36. Similarly, the impact of Ofgem's reforms is to shift the geographical balance of investment from the north to the south of the country; whilst it made sense to incentivise fossil-fuelled generation to locate close to demand centres, there is a clear geographical rationale for new forms of generation to locate where the renewable resource is strongest. This means that the locational signals that Ofgem has been keen to strengthen will increasingly lead to changes in the technology mix (greater levels of solar and less wind). We would question the appropriateness for the regulator to favour certain technologies over others through its actions, particularly when the full costs that different generation types impose on the system are not properly accounted for, and indeed counters the stated policy aim of achieving Net Zero.

8. How does Ofgem compare to similar bodies internationally? What lessons can be drawn from the experience of other countries or jurisdictions?

37. While GB is an island, Ofgem has been keen to ensure that its energy market is promoting interconnection with the EU. Yet unlike similar bodies internationally, Ofgem's regulatory approach does not recognise the impact of this continuing EU interconnection with regard to the locational discrimination it imposes within GB.
38. Ofgem's network charging agenda increases the costs of new and existing generation in Scotland relative to generation imported from the EU via continental interconnectors, which seems to be surprisingly ill-aligned with the government's ambition for post-Brexit Britain.
39. Given that the UK has now left the EU, imposing penalty charges on Scottish generation that exports power to England, a charge exempted for EU generation exporting power to England, creates unfavourable

optics at a time when the government is seeking investment from international sovereign wealth funds in UK green infrastructure including in Scotland.

40. Scottish generation has only recently become fully integrated into the GB transmission system, via Ofgem's British Electricity Trading and Transmission Arrangements (BETTA) process which re-designated the former Anglo-Scottish interconnector as "normal" GB transmission. At the same time, Ofgem rules state that transmission connectors labelled "interconnectors" that go into England are not liable to pay transmission charges. This creates an apparent double standard which renders Scottish generation less competitive in England than generation imported from, for example, the Netherlands.
41. As can be seen in the graphic below, TNUoS levels in Great Britain are on average five times higher than they are on the continent, and in Scotland 15 times higher at a time when increasing numbers of interconnectors are being connected to the GB grid. The Prime Minister has spoken of harnessing Scotland's wind to make the UK the Saudi Arabia of wind power, and a promise of BETTA was that Scottish energy generation would be better placed to export. Ofgem's Scottish locational charging penalties, however, have had the opposite effect as they have undermined the competitiveness of Scottish energy as a result.
42. Other international bodies can see the problem that such an approach as Ofgem takes would create in their own countries and choose not to take it. After all, Ofgem's regulatory approach levies such high charges on generators (depending on location) to the point that an 'adjustment factor' (a credit) is required to be paid to all generators (regardless of whether they pay a charge or receive a credit, depending on location) in order to ensure network use charges fall within the maximum allowable limit as per European regulation.
43. Other European countries have recognised that imposing high grid charges on their generation fleets is not an economically efficient system, particularly for existing generation where no 'signal' can be sent. Rather, they have recognised that such costs are ultimately borne by consumers anyway, via higher wholesale or policy costs plus adjustments to cover generators' risk. Therefore, levying the charges directly on consumers is a more efficient solution in the round, as it removes the need for generation to price in any risk premia, resulting in a net welfare benefit to society. This logic was actually accepted by Ofgem in its agreement with the BSUoS Taskforce's recommendation that BSUoS be levied on final demand only.

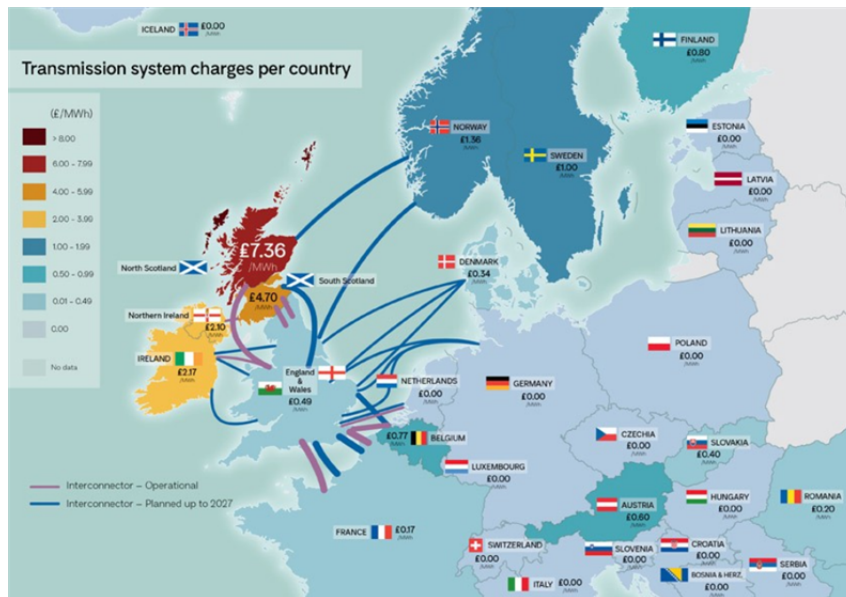


Figure – RenewableUK report “[Charging the Wrong Way](#)”, May 2021.

9. Are there any other aspects of Ofgem’s work that the Committee should consider?

44. Under Point 1 of Ofgem’s most recent consultation on its [Forward work programme 2021/22](#), Ofgem stated that a key objective is “decarbonising to deliver a net-zero economy at the lowest cost”. Elsewhere, it stated the first of the three components of its Objective as being “working with government, industry and consumer groups to deliver a net-zero economy, at the lowest cost to consumers”.
45. Ofgem further stated that “delivering on our vision will require Ofgem to take a leadership role in the transformation of the energy sector, establishing itself as a world leader in regulating for decarbonisation, making effective use of data, and taking a whole system approach to deliver Net Zero at the lowest cost.”
46. Under Point 4, the consultation further stated a key aim to be: “Efficiently transforming the onshore electricity network, connecting new sources of supply... to meet net-zero targets”.
47. It is well understood that the overall cost to the consumer of the transition to Net Zero in 2050 will be the sum of three things:
- a. The costs of new low and zero carbon generation to ensure there is sufficient zero carbon generation.
 - b. The costs of upgrading, adapting and digitising the pre-existing energy networks, designed as they were for a pre-net-zero generation system to take account of the foundational shift of

generation and demand characteristics and constraints (e.g. choice of location).

- c. The costs of consumer adaption, including, for example, costs in relation to the uptake of electric vehicles and costs stemming from replacements for gas boilers in homes and businesses, whether that be electric heat pumps, hydrogen boilers or alternatives.

Given that Ofgem's plans to minimise the extra costs of (b) involve raising the costs of (a) with the highest increases being levied in specific areas rather than making more uniform the already sloped playing field, what independent assessment will there be to stress test Ofgem's plans against the risk that they will increase the overall cost of Net Zero for the consumer by adding extra costs to (a) that will outweigh the avoided costs of (b)?

- 48. Given the importance that the CEO of Ofgem has given to Ofgem's support of the UK's net-zero goals, it is surprising that the new strategic framework does not reference this either in its two enduring priorities or its five strategic change programmes.
- 49. It would surely better align with the needs of securing Net Zero at least cost if Point 1 of the Forward Work Programme's five strategic change programmes, (currently "to enable investment in low carbon infrastructure at a fair price"), were more clearly aligned to the government's net-zero ambitions if it were updated as such: "To enable investment in sufficient low carbon infrastructure within the optimal timeframe to secure Net Zero at a fair price". We would also urge the consideration of clear instructions that link 'fair' to wider environmental metrics.

19 August 2021