



Scottish Council for
Development and Industry

POLICY SUBMISSION

OFGEM ON 'PROJECT TRANSMIT'

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SCDI is an independent and inclusive economic development network which seeks to influence and inspire government and key stakeholders with our ambitious vision to create shared sustainable economic prosperity for Scotland.

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Project TransmiT – Ofgem’s Independent and Open Review of Transmission Charging and Associated Connection Arrangements

1. SCDI is an independent membership network that strengthens Scotland’s competitiveness by influencing Government policies to encourage sustainable economic prosperity. SCDI’s membership includes businesses, trades unions, local authorities, educational institutions, the voluntary sector and faith groups.

Introduction

2. SCDI has for many years raised concerns about the impact of the electricity transmission charging regime on investment in energy generation in Scotland, above all renewable energy. In our response to the inquiry on *The Future of Britain’s Electricity Networks*, by the UK Energy and Climate Change Committee, SCDI called for changes and the Committee concluded that transmission charges “should not discriminate against renewable energy wherever it is located in Britain”. Its report has led to this review and it is therefore welcomed by SCDI.
3. Both the UK’s electricity networks and the current transmission charging regime were designed for an age which is passing in which electricity has been mainly generated by a relatively small number of large-scale, fossil fuel power stations.
4. In the new age, decarbonisation of electricity by 2030 has been identified by the UK Committee on Climate Change as the most economic path to the 2050 climate change targets, and this will require large amounts of renewable and other low carbon generation to be able to connect to the GB electricity networks. Ofgem has identified the need for about £200bn of investment over the next decade, with the majority of these funds for low carbon electricity generation, with an investment of £32bn by 2020 to deliver the required network infrastructure. Scotland has a pivotal role in the transition to this new age, potentially supplying at least a third of the UK’s total of 40% of total electricity supply from renewable sources by 2020 and first deploying Carbon Capture and Storage technology.
5. The UK Government’s priorities for energy supply are that it is secure, affordable and low carbon, and that this will be delivered through a more balanced, diverse and decarbonised mix. As the most productive sources of renewable energy in the UK are distant from demand centres, locational charging is not designed to encourage transition to a geographically and technologically diverse supply. Transmission charges can be highly volatile. There is also evidence that the current charging system is acting as a disincentive to investment decisions in conventional and renewable generation. Higher and uncertain charges can increase the financial burdens and risks in project development, and, ultimately, lead to less affordable energy costs for consumers. The current charging model does not now appear to be supporting all of the UK’s priorities for energy supply.

6. Recent interventions and decisions by the Department of Energy and Climate Change to introduce a “connect and manage” approach for new renewable generation, and by Ofgem drop its proposal for locational Balancing Services use of system charging, support the principle of spreading the costs of delivering new low carbon generation, especially in areas with the best resources, across the GB network, which suggests that it could be applied to transmission charging. Ofgem has new duties to consider the lowering of greenhouse gas emissions, sustainability and the interests of existing and future customers in its regulation.
7. Even following these, the 2020 renewable energy target appears stretching, but changes to transmission charging could support the necessary rate of expansion.
8. Maximising the potential of Scotland’s low carbon assets is a priority which is identified in SCDI’s recently published *Blueprint* for the Scottish economy. SCDI highlighted that to support the investment in new generation, substantial reinforcements and upgrades are required, coupled with an enduring transmission access and charging regime, and that this investment should look decades ahead and not simply replace like with like. SCDI pointed out that grid connections to the Scottish islands to harness their high-capacity renewable resources are a once-in-a-generation socio-economic opportunity for the communities. SCDI suggested the concept of zones in remote locations where renewable energy projects could supply local businesses with cheaper power to help reduce UK regional growth disparities. SCDI also supported incremental development of a European super-grid to enable power exports from Scotland. These wider socio-economic issues should also be recognised in the review.

Issues for Review

Renewable Energy

9. For the Government to achieve its 2020 renewable energy targets, onshore wind must locate where the wind resource exists and project sites can be developed. These are in the main located in areas of Scotland remote from demand centres.
10. Transmission charging can be regarded as barrier to driving the significant scale of reinforcement which GB grid networks require to allow them to connect and transport energy from a more diverse and dispersed energy generating pattern.
11. The current system of locational charging for electricity transmission results in high charges for the renewable energy generation needed to meet 2020 targets. Onshore wind generators connected to the GB transmission network pay on average £15/kW compared to an average for all generation connected of £4/kW.
12. The impact is greatest in the areas with the best weather resources. For a typical onshore windfarm in the North of Scotland transmission charges at their current level would account for around 10% of the total capital, operating and maintenance costs over an assumed 20 year life. For the same windfarm, average ‘postage stamp’ charging would reduce lifetime costs by around

- 8%. Generators in North East Scotland pay on average £20/kW compared to a subsidy of £5.87/kW in South West England. Overall, Scottish generators pay 40% of UK transmission charging, which is £100m more than their 'fair share'.
13. Due to upgrades to the transmission network, locational signals are forecast to become even stronger in the run up to 2020 which may deter investment.
 14. The options for renewable developers if onshore sites in Scotland are not attractive are to invest outwith the UK or move offshore to the most attractive initial sites off the English coast. However, this would delay carbon reductions and increase existing and future consumers' bills. Capital cost for offshore wind generation is estimated, at around £2,700/kW, to be almost double the capital cost for onshore wind, at around £1,400/kW. The Electricity Networks Steering Group has estimated that the transmission capital costs, both offshore and onshore, to connect 10GW of offshore wind off the east coast of England would be almost double the capital cost to connect 10GW of onshore wind in Scotland.
 15. National Grid has recognised that a locational based approach to transmission charging is not appropriate for wind generation, principally because wind generates less transmission reinforcement than conventional base load generation. It is now actively looking to address the volatility of charging and deliver a charging methodology for wind generation based on year round use of system rather than peak demand. It has indicated that they believe charges for wind energy from Scotland could reduce the current locational tariff by 50%.
 16. Project Transmit should also develop scenarios for wave and tidal energy.

Carbon Capture and Storage

17. The only coal fired power station capable of having Carbon Capture and Storage operational by 2020 is located in Scotland at Longannet. The plant pays £13/kW and, based on this level of charge, it is estimated that Longannet will pay an additional £150m-£200m in transmission charges from 2010 to 2020 compared to a 'postage stamp' charge. However, the difference could be even higher. There is a risk that the UK may miss the opportunity to develop a world leading capability in a technology which is key to UK and international energy policy.
18. Higher charges for generation in the areas of the network with more wind generation connecting, especially Scotland, weakens the economics of conventional plants in these same areas and disincentivises life extensions. This would reduce security of supply and may result in a need to reinforce transmission networks to import capacity when wind does not meet demand.

Onshore/ Offshore

19. Under the current charging methodology, the development of offshore renewables and radial offshore transmission networks would have the unintended consequence of significantly cutting charges for onshore generators,

even if the amount of transmission used by onshore generators is unchanged. As offshore renewables develop, charges for onshore generation would fall to zero and then become negative overall. Project TransmiT should review this effect.

Islands

20. Charges currently proposed for Orkney are approximately 9 times more than the average based on generation capacity and 11 times more based on energy generated. This is the lowest estimate for the Northern and Western Isles.
21. The high level of transmission charges has been stated as the reason why generators were unable to make sufficient user commitment to the 450MW HVDC sub sea cable from the Western Isles, and Scottish and Southern Energy withdrew its request to Ofgem for investment in a connection which had been identified by the Electricity Networks Steering Group as of strategic importance.
22. Island charging must, therefore, be addressed as a priority in the review, and the Department of Energy and Climate Change should exercise its statutory powers in Section 185 of the Electricity Act 2004 to cap island transmission charges.

Distributed Generation

23. In consideration of the charging arrangements for Distributed Generation, the risks of exposing existing Distributed Generation to an unexpected increase in costs and the potential impact of any change to Government policy for on-site Combined Heat and Power projects and micro-generation should be considered.

Storage and Peaking Plant

24. Greater need is forecast for peaking and storage plant to ensure security of supply and to respond to market price signals with increasing variable wind generation. The current regime charges storage identically to other generation on the basis of export capacity, though it only generates when there was spare transmission capacity. It may also be charged for imports when, if it is located in transmission constrained areas of the network, it is actually reducing constraints.
25. Conventional generation operating as peaking plant in areas of the network with high variable low carbon generation only utilise surplus transmission capacity and have little impact on transmission cost or capacity. However, it is charged identically to other generation, and the current regime may force premature closure of such plants when they may be important for security of supply.
26. These factors, along with other uncertainties in the market arrangements, would appear to be delaying some investments in new peaking and storage plants.

HVDC

27. There is significant uncertainty under the methodology over the impact of HVDC sub sea links between Scotland and England on charges for Scottish generators. The Electricity Networks Steering Group has estimated that these 'bootstraps' are as cost effective as onshore reinforcements and yet the charging methodology can result in charges which are 8 to 9 times higher for HVDC. Revised estimates have reduced this difference, but the lack of stability in cost messages does not meet charging objectives and will make projects more expensive to finance and discourage investment in low carbon generation.

Gas

28. Decarbonisation of the electricity sector through the integration of low carbon technologies is the focus for Project TransmiT and completing the review by Spring/ Summer next year should be the priority. While there may be room for some improvement, the need for a major review of gas charging connection arrangements is unclear. It should only form part of Project TransmiT if it will not lengthen overall timescales, though changes to electricity charging should be assessed to ensure that no perverse incentives are produced by the interaction of gas and electricity charging on the location of gas fired power stations.

29. An issue which should be reviewed, within or outwith Project TransmiT, is the impact of the charging methodology on the forecast of a significant increase in investment in biomethane connecting to the distribution networks in response to the introduction of the Renewable Heat Incentive. This gas would attract a charge on exit, even though it had not utilised the National Transmission System.

Interconnectors

30. The European Union has directed that there should be no charges for interconnectors between national networks. In consequence, an interconnector arriving in the north of GB is exempt from entry charges whereas an onshore or offshore generator located or connecting in the same location would be charged. This can make GB generation less competitive compared to generation from the rest of Europe (including Northern Ireland) arriving through interconnectors and in some areas there is a substantial difference. More variable wind generation increases the need to facilitate cross border exports and imports and, as interconnection develops, this will become a bigger issue. The charging system for GB generators should be fair and also competitive with generation through the interconnectors with the rest of Europe, both for imports and exports.

European Arrangements

31. A series of European Directives have made it clear that all Members States must ensure that their charging of transmission and distribution tariffs does not discriminate against electricity from renewable energy sources, including in particular, electricity from renewable energy sources produced in peripheral regions, such as island regions, and in regions of low population density.

32. GB generators are currently pay far more in transmission network and connection charges than their closest European competitors and are thus at a disadvantage. Major continental Member States closest to the UK (France, Germany, Belgium and Netherlands) all have uniform charging, with only France requiring generators to pay any transmission charges, albeit these are set at a low level. These Member States also have connection charging methodologies which are at least as shallow as the GB methodology with the majority shallower.
33. The European Commission has given regulators a target of 2014 for removing any obstacles to cross-border trade. Removal of strong locational signals for transmission charging would move GB closer towards the rest of Europe.

Some Options for Reform

34. Britain's electricity networks need significant reinforcement and upgrades to connect and transmit rapid and significant growth in low carbon energy generation, from the areas with the best resources to demand centres. The arrangements to ensure, on behalf of consumers, that it is developed in a timely, efficient and economic way are a key to the success of UK energy policy. SCDI would support analysis of the following options for change to locational charging:
- **A flat rate charge**, irrespective of where on the grid generators seek to connect. It has been suggested that - by maximising the contribution of onshore wind developments in Scotland and Northern England to the 2020 targets, as opposed to more expensive renewable technologies, this could save up to £164m per annum by 2020, and by promoting an increased investment in thermal plant life extensions in areas with higher transmission charges, the resulting improvement in capacity margin could deliver reductions in wholesale energy prices with a net present value of around £300m - a flat rate charge could deliver lower energy costs for consumers.
 - **Revise the existing balance between the socialised and locational element of locational charging**, in the context of the scale of the grid upgrade which is needed and the changing policy framework and priorities.
 - **A simpler banded approach to charging**, to reduce the scale of disparity between parts of the GB network, introducing smoother banding of charges, and reducing the scale and extremity of the variances between charges.
 - **Removing the subsidy element** to apply a zero baseline for transmission charges and explore options for capping the upper limit of positive charging.
 - **Re-zoning of the locational charging map** to smooth the differential in the existing system and reflect more recent changes, including reinforcements to the grid system, changes in patterns of generation and centres of demand.

35. SCDI accepts that there may potentially be a need for a weaker form of locational signal to ensure generators do not impose excessive costs on other users.
36. An independent assessment process should thoroughly examine the proportions and levels of charges currently paid by different technologies in the market and in different areas of the UK, and likely future payments under existing and alternative charging regimes. Solutions should be assessed against criteria and scenarios to ensure that they are robust and future-proofed, and the likely impact on the generating mix and low carbon energy deployment has been understood.
37. Demand side management and smart grids, and the increasing electrification of both the heat and transport sectors, should form part of these future scenarios.

Next Steps

38. SCDI welcomes this independent and open review of transmission charging and associated connection arrangements. Given the priority of the issue and the need to provide investor certainty, it should be concluded in the planned timescale.
39. The review should include a review of charging methodologies used in other markets and countries, and the pluses and minuses of these methodologies.
40. It must consider how to phase-in changes so that disruption is minimised and take account the impact on investments made under the current charging regime.
41. SCDI trusts that Project TransmiT will lead to fundamental and lasting change in the transmission charging system to facilitate the objective of a timely move to a low carbon energy sector while continuing to provide safe, secure, high quality electricity network services at value for money to existing and future consumers.

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