Statkraft

Response to Project TransmiT consultation: Electricity transmission charging: Assessment of options for change

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Introduction

There is an unprecedented change taking place in the UK power generation system with the aim of decarbonising the electricity sector over the next 10-20 years. Major investments are needed both in generation and transmission. The necessary total investment between now and 2020 is estimated to be in the order of £110bn in electricity generation and related transmission infrastructure.

Within this context, the grid charging arrangements constitute an important part of the enabling framework. It is very important that grid charging should not put this development at risk.

Ofgem has, under Project TransmiT, chosen to look at three different models for charging; ICRP (status quo), improved ICRP to reflect cost drivers more precisely, and a socialised model where there is no locational element in the charging.

Conclusions

Our position, substantiated below, is that the modelling exercise undertaken by Redpoint and Ofgem has some important weaknesses. This means that the conclusion of the exercise - that a socialised charging option would result in additional costs - may be inaccurate. Whilst we recognise that locational signals in the current Investment Cost Related Pricing (ICRP) charging model (and improved ICRP) may lead to some cost reductions compared to the socialised charging model, we do not believe this will be to the extent suggested by the Redpoint analysis.

Regarding the improved ICRP, we welcome the fact that this takes into account differences between intermittent and thermal generators through a 'peak security wider tariff' charged on Transmission Entry Capacity (TEC). This would be levied only on those generators which have a high probability of operating at significant volumes during peak demand periods, and would offer an obvious improvement compared to the original ICRP charging.

Finally, we believe that the scope for developing the grid through new HVDC links also calls for necessary modifications of locational signals. An additional point to note regarding transmission charging for offshore wind is that Project Transmit has not been able to incorporate current developments in offshore co-ordinated networks into its analysis. This is an important weakness.

Modelling

In order to compare the different charging models, Ofgem has used Redpoint to conduct a full modelling exercise. Such modelling will obviously be very useful as a tool to analyse the impact of different charging models. A challenge is however that results are highly dependent on the underlying assumptions taken.

The modelling assumptions relating to the Dogger Bank site (Round 3) are of particular concern to Statkraft. Under the recommended option ("improved ICRP"), the analysis concludes that none of the Dogger Bank zones would be built before 2030 (see page 32 of the consultation document).

This seems to be based on modelling from Redpoint showing that, owing to the distance from shore in relation to other offshore wind development areas, the cost of transmission for Dogger Bank is less competitive than other Round 3 zones. However we do not believe that this modelling has sufficiently taken into account the relative merits of each development zone in turning this into merit order of offshore wind project build out.

In the modelling assumptions, all offshore wind Round 3 zones are treated as having the same capital costs, operating costs, wind resource and financing costs, with the only differentiator being the cost of transmission infrastructure. Transmission charges are a relatively small percentage of overall construction and operating costs of an offshore wind farm. We therefore believe that this modelling is too simplistic to determine a merit order for Round 3 projects, and hence the conclusion that under improved ICRP Dogger Bank is less competitive than other Round 3 zones is inaccurate. The Dogger Bank zone was selected for development due to its shallow water, excellent wind resource, economies of scale, and financially strong and experienced development partners, all of which give it a competitive advantage that is not reflected in Redpoint's assessment.

Socialised charges option

Ofgem and Redpoint's analysis shows that a socialised model would best stimulate the construction of new low carbon generation capacity. This would allow renewable capacity to be established at the best locations from a resource point of view. However, due to differences in transmission cost, the total cost for society is assessed to be higher under socialised tariffs than under locational tariffs (ICRP, improved ICRP). The cost for expansion of transmission capacity and constraints is found to more than outweigh higher cost for renewables as the best resources are less exploited.

Of particular note, the modelling suggests that the choice between a socialised model versus the status quo and improved ICRP models would impact the level of offshore wind deployment most out of all renewable technologies. In particular, the modelling assumes that 'far from shore' offshore wind projects would not be constructed under the status quo and improved ICRP models because they represent the projects which would trigger the largest capital costs of transmission infrastructure. However, we believe that this conclusion is incorrect, and that some 'far from shore' offshore wind would still materialise under status quo and improved ICRP models. Therefore, the conclusion that under socialised charging the total cost of transmission infrastructure required would be disproportionate, should be re-evaluated.

A sensitivity analysis should be performed on the differential between socialised charging and the status quo and improved ICRP charging if comparable levels of offshore wind were deployed, to establish whether or not this would make a material difference to the conclusions.

It is hence not clear to us that the work of Project Transmit has sufficiently justified the conclusion to rule out socialised charging as an option for transmission charging. In particular, the conclusion that socialised charging achieves the government objectives for renewables deployment in 2020 but at disproportionate cost is highly dependent on the cost modelling performed, which we believe has significant weaknesses.

ICRP charging option (status quo)

The current ICRP methodology assesses the impact of adding 1MW of generation or demand at different locations on transmission cost.

Locational price signals consistent with the expected cost of necessary grid expansions will give generators an incentive to take grid cost into account. The modelling implies that this would lead to huge savings in grid reinforcement and constraint costs compared to the situation under a socialised model. However, as stated above, we think there are significant weaknesses in the modelling.

Despite this, we recognise that grid expansion costs and constraint costs can be considerable, and therefore we do not rule out that an ICRP and improved ICRP could give a more optimal outcome than a socialised model.

Improved ICRP

Ofgem has been developing an improved ICRP tariff in order to better reflect cost. This would be achieved with a peak security wider tariff charged on Transmission Entry Capacity (TEC) and levied only on those generators which have a high probability of operating at significant volumes during peak demand periods. The peak security wider tariff for intermittent generators will be zero (for both positive and negative tariff zones) due to its lack of contribution to the need for transmission network investments to ensure demand security. This reflects the reality that wind power and other intermittent capacity do need relatively less transmission capacity than thermal capacity that can be operated at full load at any time. The improved ICRP model is hence an obvious improvement compared to the original ICRP model.

Other Issues

HVDC will be an important technology for developing the grid going forward, both onshore and offshore. We agree with Ofgem's suggestions that there are long term strategic benefits associated with the development of HVDC technology. To take this duly into account, there was a discussion on removing the cost of HVDC converter stations (for parallel links only) from the expansion factor calculation. This seems like a reasonable way of reflecting some long term strategic sustainability issues.

An additional point to note regarding transmission charging for offshore wind is that Project TransmiT has not been able to incorporate current developments in offshore co-ordinated networks. Obviously the Department of Energy and Climate Change and Ofgem are jointly leading a working group looking at the potential benefits of utilising offshore wind transmission assets to become an active part of the transmission network. Depending on the recommendations from this work, the charging regime for offshore wind transmission assets that also provide wider system benefits and avoid the need for onshore network reinforcements may change. As part of the Electricity Market Reform White Paper, DECC is consulting on different forms of capacity mechanisms that could be introduced in the GB power market.