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Mr Stuart Cook
Senior Partner, Smarter Grids and Governance
The Office of Gas and Electricity Markets
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Dear Mr Cook,

Response to Project TransmiT – A call for evidence

Thank you for the opportunity to respond to this very important consultation, the outcome of which may go a long way in deciding the fate of investment in renewable generation in peripheral areas for the foreseeable future.

We support the Government's aim to bring on more renewable generation bearing in mind the need to achieve the necessary, and ambitious, targets for both electricity from renewables by 2020 and corresponding reductions in carbon emissions.

Orkney Renewable Energy Forum (OREF) is one of the first of its kind in the UK, established in 2000. Its principal aims are to promote and develop sustainable local energy resources and promote local skills and expertise. Members of the Forum include representatives of the local authority, renewable energy generators, energy experts, civil engineers, Island Development Trusts, environmental consultants, educational and research establishments, electrical engineering and construction companies, amongst others. In addition to the local members (40 full and 27 supporters), links are maintained with a growing number of companies and consultants active in the renewables sector.

The Board of Directors has instructed me to make this response on behalf of the organisation.

Our full response is appended to this letter.

Yours sincerely

Dennis Gowland
Director

RESPONSE TO OFGEM CONSULTATION **TransmiT**

By Orkney Renewable Energy Forum (OREF)

Orkney is surrounded by some of the best resources of wind, wave and tidal power in Europe. Sites in Orkney were amongst the first in the UK to act as test-beds for the development of wind-powered generators in the early 1950s until the late 1990s. Orkney hosts the European Marine Energy Centre (EMEC) which is Europe's foremost accredited facility for testing marine wave and tidal devices.
Recently, a round of pilot development sites have been released by Crown Estates around Orkney and the Pentland Firth which are designed to begin exploitation of the several GW of tidal and wave power potentially available for electricity generation and export.

The connection of Orkney to the UK transmission system with significant export capacity is one of the 9 priorities for infrastructure in the Scottish National Plan.

It is vital, therefore, to meet National and European targets for renewable energy that generation based on and around Orkney and other peripheral areas has effective and fair access to the UK transmission grid and wider markets.

The current connection and charging regimes owe their design to a view of the world before large-scale renewable energy was a factor in the mix of generation in the UK. With the exception of Nuclear power, and Hydro –electricity schemes, most power stations could be sited reasonably near to large centres of population and industry. Indeed the current charging methodology for transmission favours the siting of generation next to demand.

It is a fact, however, that the best renewable sources for generation of electricity such as wind, wave and tidal are generally remote from the UK's cities and industrial centres. Transmission links to these areas are scant and in many areas non-existent.

UK Government and EU policy, driven by Global treaties to check CO2 production, has moved increasingly toward binding targets for production of electricity from renewable sources. In order to meet these targets investment £ Billions are required from private and public sources. This means that signals to invest must be put in place now so that development can continue at the pace necessary and in the right places, to secure large scale renewable generation within a new UK energy mix.

There are currently 3 major obstacles to development of large-scale renewables in peripheral regions. Each represents to one degree or another a potentially significant disincentive to the investment necessary to achieve the UK targets.

These are:

1) Definition of Local and Wider connections.

2) Security required from new generators connecting to the Transmission System

3) Locational TNUoS charges.

Definition of 'Local' and 'Wider'

Under the previous mix of generation, Local connections to the Main Interconnected Transmission System (MITS) or 'Wider' system have been relatively short. Changes due to 'connect and manage' and to the charging methodology have increasingly separated Local and Wider connections. New generation close to the MITS can now take advantage of the new enduring arrangements and connect early, but those with long, and in some cases, quite complicated, Local connections are unlikely to be able to benefit from the changes.

Fort instance a generator in Orkney would have all connections termed as Local from point of generation to the MITS (as recently defined by NGET) as far down the country at Beauly – a distance of some 200 km. This assumes a 132 kV AC connection.
More recent designs produced by SHETL indicate a possible mix of AC and HVDC technology, though the distance to the network defined as MITS is still likely to be of a similar order.

The point here is that generators operating in Orkney and Shetland and the North coast of Scotland face huge locational TNUoS and cannot take advantage of 'Connect and Manage' as, in some cases, the longest connection is termed Local. Expensive local assets also bring with am an increasing burden on new generators to provide security in the building phase.

Security required from new generators

The two options currently available for onshore connections are:
- Final Sums
- Interim Generic User Commitment Methodology (IGUM).

These options offer some choice between a more front-loaded but non-returnable commitment and a, possibly, returnable but heavier financial commitment (in both cases in the event of termination prior to connection). The common feature of both, however, is that demand for financial security ramps up to 100% of the value immediately before connection, with the highest liability for the generator lying in the year before the due connection date.
A recent change in the arrangements has led to the need to secure 'Wider' works being dropped. However in most cases in the North of Scotland and the Isles (and Offshore) most of the works will be defined as 'Local' so there will be little or no relief for generators in those areas.

For example

A new generator in Orkney connecting by way of 132kV AC, including subsea cabling of around 50km to the MITS at Beauly, is likely to face having to securitise £100 – 150 million in the year prior to connection under final sums or around £91 million under IGUM (10 times TNUoS).

This assumes a TEC of 150 MW and a TNUoS of £61 per kW and that the generator would 'share' the burden of the section between the North of Scotland landfall and Beauly with others.

Even at 4 years out from the due connection date the generator would face having to put in place £25 – £37.5 million under Final Sums or £22.75 million under IGUM.

Plans for larger networks with very expensive AC to HVDC hubs could push the levels of securities demanded far higher.

The reasoning behind the need for new generators to put up financial security is against the risk of leaving a stranded asset. However, under, both, Final Sums and IGUM new players can do nothing to mitigate the risk – which is deemed to be 100% at all times! The real risk profile is, thus, ignored – which can lead to an insurmountable barrier to entry.
It also tends to be discriminatory if one compares the case of an existing party, which can reduce TEC to zero on 5 days notice and be responsible for paying no more than 1 years TNUoS or less depending on the period within the financial year. That scenario may well result in a stranded asset but the 'penalties' are hugely different for new versus existing players.

Our view is that the provision of security should follow the real risk to the network (and other users) of a new party connecting. We would suggest security should follow certain **project specific milestones** such as:

- **Initial application for connection** - (assuming planning consent for the power station not yet obtained) 100% of the Final Sums or IGUM, though the amount of spend and therefore exposure of the TO and network would be low at this point.
- **Planning consent obtained** for the power station such the amount of TEC booked could be justified. – a significant reduction in the percentage of Final Sums or IGUM securitised by the generator. The spending by the TO would probably be significant but still well below the maximum spend.
- **Full capitalisation of the project** with the required funds in the project account – a further significant reduction in the percentage of Final Sums or IGUM.
- **Turbines or comparable major items of plant ordered** and first installments paid – a further reduction to10% of the maximum Final Sums or IGUM. This scenario is likely to occur one or 2 years before connection and would coincide with the peak spend of the TO concerned.

We believe that a profile which follows actual project risk is not only fair, but would offer a good balance between the risk of stranded assets on the one hand and the reduction of barriers to entry on the other.

Locational TNUoS charges

The current charging methodology leads to extreme figures for locational TNUoS for expensive transmission assets connected to remote generation.
A major wind developer in Orkney cited the high figure, in February 2009, as its reason to withdraw from Orkney.

Historically, Orkney has been quoted very high rates for TNUoS ranging from £61/kW to £113/kW for a double 132kV AC connection. Latterly (2009) the £61 figure has been upheld by Grid as the most likely. In Shetland a figure of over £120/kW has been reported.

There has not been sufficient transparency (in relation to offshore cables), for generators to gain enough confidence that indicative costs, put up as estimates for costs of transmission assets (and therefore tariffs), will be robust enough to allow the degree of confidence necessary to allow investment decisions to be made.

Under the present charging methodolog,y Orkney would have its own charging zone. That means that the generation in that zone must pick up the whole cost, which the charging methodology apportions to that zone.

An example of a 150 MW wind generation project operating in Orkney

Imbalance of locational charges as a proportion of the UK whole.

The Orkney charging zone is very remote from the nominal charging centre in central England. As charges are currently loaded in proportion to the distance away from this point (locational charge) - going North, Orkney will always pay the highest cost (except Shetland) and will pay a higher proportion of any future increase in overall charging. Most of the 61/kW of TNUoS - all but £4.11 - is the locational charge. Not only would it be one of the 3 highest (with Shetland and W Isles) singular charges - it would also contribute an inordinate proportion of the whole UK charging base for the transmission network.

Total UK Generation 75,000 MW (as TEC) 2009 figure
Orkney Generation 150MW
Total locational charges from Generation (Whole UK) £50m 2009 figure
Orkney locational charges £8.5m
Orkney percentage potential share of all locational charges for UK 17% (if it was connected in 2010)
Orkney percentage of all UK Generation 0.2%

The Orkney zone would be paying 85 times its proportion of generation on the grid as its locational element.

What happens in the instance of over-recovery of the planned UK locational element?

Given the maximum allowable recovery from UK generation (in the split with demand 27:73) and the split between locational and residual elements of TNUoS - any likely over-recovery of the overall locational part of the global receipts, due to high charges for peripheral generation, would give rise to smearing back to all generators via the residual element. In this way generators in the south of the UK could gain by effectively receiving payments from 'penalised' remote generators. Though some locational element by itself would be reasonable as a signal, surely the smearing back of any over-recovery to others could be a cross subsidy?

Orkney would face a huge hike in TNUoS levels when compared with the adjacent charging zone in the North of Scotland.

If the current levels of use of system charges remained unmitigated then the net deficit, year on year, for a 150MW wind project based in Orkney, when compared with a similar based in North Scotland, would be in the order of £6.15 million or £153.75m (uncorrected for RPI) over the 25year lifetime of the project.

This assumes TNUoS levels or £20/kW in North of Scotland and £61/kW in Orkney.

A wind project in Orkney would face paying nearly 22% of its gross income in TNUoS alone (based on a power price of £80/MW hr).
Projects using wind and wave resources, although attracting higher levels of ROCs , would similarly face very significant levels of TNUoS payments whilst having to pay very high capital costs and high operational overheads.

It is our view that the charging regime, under which Island schemes have been quoted very high rates for TNUoS, is in need of significant reform in order to allow renewable generation to have fair and economic access to the market.

Although we have used Orkney as an example in this evidence we believe the points are well made for all peripheral areas including offshore generation.

How could locational TNUoS charges be mitigated for peripheral areas and how could this be justified?

Clearly if levels of TNUoS levied in peripheral areas of generation were in some way capped - then either levels paid by the rest of the generation and demand community would increase or a degree of socialisation would have to be applied. The consumer would, in the end, face an increase in electricity bills.

Set against that we should identify and quantify the benefits in sustainable generation and carbon reduction (and achievement of UK and EU targets) on the one hand, whilst identifying and quantifying carbon costs on the other.

If we consider carbon costs – or weakness in sustainability – not just the proximity of generation to demand, and in some way overlay this onto the cost background of the grid then it may be possible to arrive at a more equitable apportionment.
It may be argued that ROCS were set up to do just that but if the costs spiral, as well they may, in the provision of a significant new and extensive electricity network in the North of the UK and offshore - then generators triggering such reinforcement could well see the whole value of ROCS, and more, absorbed by the resulting high TNUoS charges.

On a more radical note is may be that future methodologies could replace signals to simply put any generation near to demand centres with one that looked to see the right kind of generation situated at the right places in a modernised grid. The signals in the current charging methodology do not do this.

Perhaps an overlay of a cost reflective element less a carbon saving (or plus for a carbon producer) for TNUoS could eventually replace ROCS for an increasingly renewable proportion of generation. Incentives, as a subsidy, may then be needed to attract such plant or inter-connectors that would be necessary to balance the system and to allow for peak flows.

Dennis Gowland

Director - OREF

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