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Response to Consultation

Offshore Electricity Transmission – Joint Ofgem/BERR Policy Statement

on behalf of

Siemens Transmission and Distribution Ltd

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Sir William Siemens House
Princess Road
Manchester
M20 2UR
Tel 0161 446 5104

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Siemens in energy

Siemens has been established in the UK since 1843 and has been working in the energy and water industries ever since. Today, it serves every aspect of the energy sector, from building and maintaining power stations through to customer data collection. Individually, Siemens' products and services are designed to deliver premium performance. They create resilience, security of supply and safety, as well as timely, high quality data, all of which underpin the infrastructure of the energy sector. Siemens has created energy infrastructures in some of the world's most demanding environments and its experience in the UK has provided a deep and detailed understanding of the way the market is developing.

Siemens Transmission and Distribution Ltd

Siemens Transmission and Distribution Ltd (STDL) is the UK's largest transmission substation contractor, employing around 700 employees in the UK. Headquartered in Manchester, STDL also has principal sites and offices in Hebburn (Tyneside) and Garforth (Leeds) as well as a number of other locations around the UK.

STDL designs and constructs AC and DC substations for UK generation, transmission and distribution companies and industrial customers. In addition it provides services covering all stages of transmission and distribution asset lifecycles including power network studies, operation and maintenance and decommissioning. Siemens also offers a full range of substation equipment including switchgear, transformers and protection for all network voltages.

STDL designed, built and continues to service the converter substations for the Scotland-Ireland HVDC link, and has recently been awarded the contract to design and build the converter stations for the Brit-Ned HVDC link.

Siemens is also committed to supporting the renewables industry in the UK and has built or provided equipment to several onshore and offshore wind farm connections. The business is currently working on design and build contracts for three UK offshore wind farm connections.

Based on our experience of interconnectors and offshore transmission, Siemens expects to be a key supplier to Offshore Transmission Owners, (OFTOs) either as a main contractor or consortium partner, hence our interest in this area of regulation and commitment to the various working groups.

Further information

If you wish to discuss or clarify any part of the following response, or to receive further information on Siemens involvement with the energy sector please contact:

Matthew Knight
Business Development Manager
Siemens Transmission and Distribution Ltd
0161 446 5104

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Response to Policy Statement

Siemens has become increasingly concerned over recent months that the chosen option - non-exclusive, price regulated licensing, will not meet the objective of delivering timely, cost effective offshore renewable connections.

We are also aware that many of the other stakeholders engaged with Ofgem and BERR in developing the details of the proposed approach to licensing have similar concerns. We are not aware of any who are wholeheartedly supportive.

The intuitively attractive non-exclusive option was widely supported in the last consultation, but some serious issues have become apparent as the details are worked out.

There is a need to conclude the long running design of the offshore transmission regime, to provide certainty for the industry as soon as possible, but we believe this should not be at the price of creating a regime that will hinder the development of Britain's offshore renewable resource for years to come.

We therefore believe it is time for the industry as a whole, with Ofgem and BERR, to take the brave step of recognising that we have collectively gone the wrong way and move to the best compromise option - exclusive OFTO licenses.

The work done over the last few months is not wasted, as it has clarified the issues. We believe stakeholders would be ready to work with Ofgem & BERR on the detail of the compromise and together we could still achieve the overall timetable for go live if the decision to change is made now.

What is wrong with non-exclusive price regulation?

Ineffective competition and risk premium

The assumed benefit in competitively selecting an OFTO for each separate grid connection is that this competition will discover the lowest cost solution.

We believe that in practice it would be so complex to design an effective competitive process that the costs of staging the competition would far outweigh any gains.

The biggest driver of outturn cost is not who owns the asset, but what asset gets built and when. The uncertainty over the eventual OFTO and their once removed relationship to the Generator, will result in a less optimal asset, delivered later than necessary.

The key issue that cannot be resolved is the timing at which the competition takes place in relation to when significant cost drivers can be known (by any one). The greatest drivers of construction cost are the export cable route and length and the ground conditions along that route. These are iteratively linked with the selection of cable, installation method and electrical system design and only emerge at the end of detailed survey and engineering design. The final route is also subject to consenting risk. These risks could be of the same order of magnitude as the cost of the connection itself, i.e potentially halving or doubling outturn costs. They far outweigh the credible difference between the most and least efficient OFTOs.

If OFTOs are asked to bear this route risk they will have to offer a price that includes a significant premium above the most likely outturn cost. If the risk falls to the Generator and demand customers the OFTO would have significant opportunity to

claim variations when there is no longer competitive pressure on their price. In either case the competitive process would not have delivered the lowest outturn cost.

Delay and lack of OFTO at feasibility stage

The competitive process itself adds several months to the lead time of each connection. The cost of this delay in each renewable generation project coming on line to the developer will be several months fewer ROC payments and to the country several thousand tonnes of CO_2 in the atmosphere.

Further delays may be caused as the successful OFTO can only start lengthy processes such as consenting once they have been selected.

Because the OFTO will not be known until a later stage of the project, there is no opportunity for the OFTO and Developer to do optioneering before the tender process. This is likely to result in a less optimal connection and significant wasted effort by many parties in a resource constrained industry.

Potential for few bidders

In practice the renewable developer will need to do his own feasibility work for the grid connection. If they involve a potential future OFTO in this work it may provide an unfair advantage, yet if they do not there is less incentive to get the feasibility stage 'right' and the benefits of involving OFTO expertise would be missed.

The risk of bidding for OFTO licenses may result in few or no bidders coming forward. The Generator would be forced to encourage at least one bidder. This may in turn put others off the idea of bidding against the generator's favourite.

Reduced ability to co-ordinate between projects

If adjacent projects could potentially have different OFTOs there is reduced ability to co-ordinate between them.

Competition in the supply chain

It is likely that OFTOs will competitively procure construction (and maintenance) contracts for the connection, and that these contracts will form the major part of the OFTO's bid price. Since most of the cost is already exposed to competition, any additional competition to select an OFTO could at best have any effect on a minority of the overall cost.

Technical issues

Cable and other electrical equipment ratings vary with ambient conditions and historic load patterns. The optimum solution comes where the wind farm and its connection are carefully matched. This involves trade offs between the array layout and operating parameters of the wind turbines and the grid connection. The late choice of OFTO and the need to bid against a consistent specification are likely to result in a less than optimal match.

In summary, Siemens believes in the benefits of *effective* competition, but we believe that competition for every grid connection as envisaged would be ineffective. It would also be wasteful of limited resources, add delay to the process and result in a less optimal technical solution.

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What are the alternatives?

The alternatives were discussed at length in our previous consultation responses. Siemens still believes a merchant approach would have been simpler and delivered the benefits of genuine competition. (It is the existing situation and has already delivered real projects.) However, we recognise that the potential for socialisation of connection costs across all customers motivated the decision in July 2005 for price regulation. Whilst we believe this to be an inefficient way of subsidising the cost of grid connections, we recognise that a change back to merchant connections would not now achieve consensus of all stakeholders.

We believe consensus is possible for, and would therefore support a change to, exclusive price regulated OFTOs.

Exclusive price regulated OFTOs – now the best compromise?

Under this arrangement OFTOs would be appointed for various regions or connection zones on the mainland Main Interconnected Transmission System (MITS)

The method of allocation could take several forms. We have no strong preference, provided it resulted in sufficient OFTOs for regulatory comparisons to be made between them and that the chosen companies had the necessary attributes to be effective. We would suggest that the 'franchise' for a network area be long term or indefinite, as with DNO's onshore. This would allow long term views to be taken, comparable with the assets being created and managed. There should be ultimate sanction for extreme poor performance to loose the OFTO license.

As stated before, we believe the greatest driver of outturn cost is what gets built, not who owns it. Regulation should focus on the efficiency of the OFTOs, their procurement and management of assets. It should also accept that the OFTO should be allowed to take moderate risks of assets becoming stranded to allow it to develop the best long term network. i.e. there should be a form of phased commitment by generators so that a later project that is actively seeking to develop, but has not yet reached the stage where it could make a full commitment to final sums can be allowed for when building assets for a nearby earlier connection.

We would expect the role of the monopoly GBSO to be kept to the minimum required for the safe and efficient design and operation of the network. A 'thin GBSO, thick OFTO' model.

Once an OFTO is appointed for a zone, a renewable generation developer would know from the outset who to approach to refine the design of their project and its connection.

We would like to see clear pricing signals between the developer and the OFTO for trade offs between capital cost and connection date, and between the location (on either side of the ownership boundary) of assets such as reactive compensation.

Where costs are borne 73% by demand customers and only 27% by the generator this presents a problem, but valid price signals could be given via a similar mechanism to that discussed in para 3.32 & 3.33 of the policy statement.

We believe it is vital that developers are able to influence the design of their connection asset in terms of rating, redundancy and method of grid code compliance. These trade offs should be cost reflective.

We agree with the proposed principle of having a default standard SQSS and the allocation of code compliance between the parties, etc. as recommended by the GBSQSS and Grid Code working groups, but that individual projects should be able to pay for enhanced standards or to benefit from reduced standards. For this reason we would want to see a direct relationship between the Generator and the OFTO.

Non-exclusive price regulated licensing will bring the greatest benefit where the Generators in a region and the host OFTO are allowed to work together from the earliest stages to deliver a timely and appropriate connection.

Remaining issues with this option

Relationships

As envisaged in the policy statement there is no direct relationship between a generator and the TO whose assets connect them to the MITS. The Generator talks to the GBSO, who then talks to the OFTO, whilst Ofgem acts as a surrogate customer for the OFTO on behalf of both the connected generator and the demand customers who are paying the majority of the cost.

As an engineering company we know that the generation and connection assets perform as an integrated system. We believe that many technical issues would be improved by the existence of a direct relationship between the two owners.

Paying for timely connection

The timing of completion of the works will depend on the consenting process, and then on lead times in the supply chain. If the OFTO is required to take consenting risk it will only offer a very long dated connection. Alternatively if connection offers are made subject to consenting this introduces significant scope for cost and schedule change. The policy statement is not clear on how this issue would be handled, nor when a Crown Estates license for the connection would be negotiated.

Onshore licensees feel obliged to seek the lowest cost transmission solution, usually overhead. This may result in several years of planning delay compared to a more expensive cable or GIL link. The developer of an offshore generator should be able to pay the differential cost of an alternative technology where it results in a more timely connection. Again this situation is made more complex under price regulation and the pricing signal needs to represent the genuine marginal cost.

We would expect planning inspectors to insist that environmental impact assessments etc. cover the complete system. This will require the Generator and OFTO to work together on the consenting process.

Specific comments on the Policy Statement

Specific comments from Siemens have been included in the response by the BWEA Offshore Grid Group.

Taking things forward

Siemens is prepared to work with the other stakeholders in the coming months to develop the regulation of offshore grid connections.

We have supported some of the working groups established to advise Ofgem and BERR and will continue to do so. We have found that these are quite demanding of time for limited benefit. The groups each have a separate remit to tackle one area and it is not clear how the steering group is joining up the overall process.

We support the BWEA offshore grid group as a representative forum of the interested parties and would urge Ofgem and BERR to make best use of the expertise of the companies represented there to develop the details of the licensing regime.

Siemens has significant experience of process creation and improvement across a wide range of public and private sector organisations including the Passport Agency, National Savings, and several PFI hospitals.

We feel that one way to speed up the development of the detailed licensing regime would be to hold a structured process mapping workshop to model the steps involved in the whole process. The workshop would identify the information flows and the parties involved at each stage. This would highlight the key issues and allow lessons to be learned in a simulation rather than on real projects.

Through the BWEA we proposed such an approach earlier this year[i] and would again urge BERR and Ofgem to consider using this well proven process improvement technique.

Moving from Connections to Networks

The assets considered in all the licensing process so far are not 'transmission networks' as they would be understood onshore, but radial offshore connections above 132kV. None of the options so far considered is able to address any strategic need for Great Britain to develop a high capacity backbone network for bringing it renewable resource from the North to the South and on to mainland Europe.[ii]

Classifying connections as 'transmission' has led to some red herring issues, such as the concern over the proposed separation of ownership of generation and transmission by the EU. An individual grid connection serving an individual generator is simply a grid connection and need not be of interest to any other party. It is only where it affects other network users, or shares assets that it should be regarded as part of the transmission network.

Why do the options so far considered only apply to connections?

All of the regulatory options considered are based on sending signals to a market, (either real or surrogate) and letting it provide connections as they are requested. There is no provision for anyone other than a generator to trigger the building of an asset.

Each radial connection will be treated individually for the following reasons:

- Connections will arise and have to be cost justified in isolation.
- It is commercially difficult to get two independent projects to financially close on the same day. If only one can commit the OFTO cannot make provision for the later project.
- It is uneconomic to create 'spare' capacity without some party having committed to take it before hand.
- Indeed, under price regulation the OFTO would not be allowed to make any recovery on the 'unused capacity'.
- There is little likelihood of significant generation connecting to pre-existing grid connections as they would have limited marginal capacity.

The GBSQSS working group also highlighted that its recommendations only apply to radial connections. If any part of the offshore network runs in parallel with the onshore MITS it would have to meet the onshore design criteria, as it would be subject to supergrid power flows.

Strategic consequences of the proposed regime

The one-by-one, first-come-first-served, nature of grid connections does not allow for strategic planning to allow for later works. A price regulated OFTO would be penalised were they to try to do so before the second party has made a firm commitment.

We believe there would be little improvement in co-ordination through annual application windows.

Where the first come, first served rule applies, the best cable landfall sites are likely to be taken up by early projects, possibly preventing the use of that location for later projects. For example a round 1 site may use several 33kV cables to export to shore, taking up valuable landfall that could be used for 132kV or 220 kV cables carrying much higher power from future projects.

We believe that the EU target of 20% all energy from renewables by 2020 is achievable, but the UK will only deliver its share of this renewable capacity if some Strategic leadership takes place in a number of areas and soon. One of these will be the need to create significant new north south transmission capacity, possibly offshore. The offshore transmission licensing regime should not create a barrier to strategic projects of this nature.

Such schemes will only happen through political will and backed by government funding. The proposed regime (and the other discarded options) is silent on these issues and makes no provision for the licensing of strategic assets for inter regional transmission that do not serve a specific generator.

Conclusions

Non-exclusive price regulated licensing does not have the support of the industry stakeholders and will not deliver timely or cost effective grid connections.

The focus on trying to create competition between OFTOs is detracting from other forms of regulation that could achieve better results.

Exclusive TO licensing is the compromise most likely to be supported by all parties.

It's main benefit will be through creating the opportunity for Generator and OFTO to work together at earlier stages of each project.

This benefit will be greatest where the OFTO is allowed to make provision for reasonably likely future developments, (at the risk of some stranding.)

We urge Ofgem and DTI to work with the stakeholder to develop this alternative option. A process mapping workshop would help identify key issues and develop details.

Neither form of licensing considered supports a more strategic approach to creating offshore networks. Such an initiative will be needed for the UK to meet its EU targets for renewable generation.

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[i] BWEA proposal for a process mapping workshop was attached to an e-mail from Neil Birch dated 23rd April 2007.

[ii] The limited Transmission Capacity available from Scotland to England is already delaying renewable projects. The existing onshore regulatory system is slow in bringing about projects to add to this capacity. A number of grand schemes for creating new North-South links offshore have been suggested, most recently the Crown Estates proposal for a backbone HVDC link from the Western Isles and Shetland down the Eastern side of Scotland to the Wash and the study being scoped for the Scottish executive.