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Dear Anthony,

GBECM-11: Charging arrangements for transmission infrastructure assets local to generation connections

National Grid welcomes the opportunity to comment on the Regulatory Impact Assessment relating to National Grid's Charging Modification Conclusion Report regarding the charging arrangements for local connections (GBECM-11) that was submitted to the Authority on 15th September 2008.

Within the Regulatory Impact Assessment, Ofgem poses a number of specific questions relating to the local charging modification and specifically the Conclusion Report and the further supporting analysis provided by National Grid. Consequently National Grid has not repeated comments presented in the previous industry consultations within this response. This response has been generally limited to areas of further clarifications and to any interactions with ongoing industry developments such as Offshore Transmission Charging and the Transmission Access Review (TAR).

Questions within Chapter 3

Questions 1-3 have been answered within the Conclusions Report and Consultation document:

Question 4: Do respondents wish to present any additional views on the different treatment of generation and demand connections, both in general and in terms of the treatment of circuit and substation elements, resulting from this proposal?

National Grid believes the different treatment of generation and demand users, by applying local charges to generation only, is appropriate. Generators are able to directly influence the level of transmission infrastructure investment that is triggered from their connection through such decisions as their location (in relation to centres of demand) and customer choice design variations. Consequently, National Grid believes that for those generators whose connection decisions have the largest cost impact, namely those not connecting directly to a MITS node, a local charge with enhanced cost reflectivity is required to achieve the overall most economic decision. Whilst the local charging arrangements could be extended to demand users, the significant issue is with generators, at this time.

Demand users, such as Distribution Network Operator, do not have such a direct ability to influence location or connection security which is determined partly by the Distribution Planning Standards ER P2/6 and in part by the location of conurbations and industry. Consequently a locational charge based on the existing averaging assumptions provides a stable and predictable tariff of an appropriate level of cost reflectivity.

Question 5: We welcome further views on both the proposed approach and the effect of not including consideration of partial redundancy in the local charge calculation, particularly on the generators deemed to have partial redundancy.

As stated in the Conclusions Report, National Grid reiterates that there are a small number of generators who currently have user choice design variations that have 'partial redundancy'. Such connections have multiple circuits although under specific outage and System Operation conditions their connection capacity is not sufficient to allow full export. The required associated access restrictions for such connections typically may reduce the asset investment requirement although the majority of asset savings will be reflected in a lower connection asset charge.

In order to assess the validity or quantify any infrastructure asset savings due to partial redundancy, National Grid believes further industry engagement and consultation is required. For example, a principle behind the current Charging Methodology is to model the transmission at winter peak demand, which is assumed to be the time of maximum network usage. At such a time multiple-circuit partial-redundancy generators are unlikely to have constrained access restrictions applied, as such access restrictions are often due to overhead line thermal ratings which are highest in winter. National Grid believes the current number of partial redundancy connections and the magnitude and infrequency on the access restrictions applied justifies implementing a local charge without partial redundancy arrangements at this time. It should be noted that by applying the proposed GB average Security Factor of 1.8 to double circuit partial redundancy users, it is inherently assumed that the export level is reduced to 90%.

As discussed in further detail at the end of this response, it has been proposed within the Offshore Further Consultation document, GBECM-08[1], that future offshore connections, which will all either be via single circuit or partial redundancy connections, that a nodal specific security factor will be applied. This is appropriate as the level of redundancy is readily quantifiable and constant, varies significantly between connections and has a high capital cost.

Questions 6: Do respondents wish to present any further analysis on the proposed treatment of spare asset capacity relative to contracted TEC, particularly the effect on the cost signal to adopt the most economic and efficient option available?

National Grid continues to believe that the implementation of the shallow "Plug" achieved several advantages including protecting Users from the cost of lumpy or strategic Transmission Owner investment and the action of others, such as projects failing to connect at a shared site. Additionally the shallow "Plug" removes the requirement for an accurate shared connection asset apportionment methodology

[1] http://www.nationalgrid.com/uk/Electricity/Charges/modifications/uscmc/

which would be problematic to define. A consequence of the shallow boundary is that a User is only charged for capacity booked and not that installed and therefore the cost of 'spare' capacity is socialised.

It is important that a design variation signal must be calculated on the same basis as the Use of System Charge so as to avoid a perverse incentive where overall charges decrease as the connection location is moved further from the transmission network. As was shown in the Consultation for GBECM-09[2] (Design Variation Discount) a discount that is sharper than the locational signal would in fact incentivise Users to choose the least economic and efficient option.

National Grid believes that the proposed treatment of spare capacity maintains the benefits associated with a shallow boundary and should not have a material effect on the connection decisions made by Users when considered with the TO's overriding license obligation to build efficient and economic connections with minimal redundant capacity.

Question 7 has been answered within the Conclusions Report and Consultation document.

Question 8: Do respondents consider that the proposal complements the changing nature of the transmission network and assists the development of an economic and efficient transmission system?

The majority of generation projects awaiting connection to the transmission network, as part of the GB queue, are renewable projects which typically are not located in close proximity to heavily reinforced parts of the network and are expected to have a relatively low load factor. Consequently, transmission investment will be required to enable such connections and without a cost reflective signal relating to design variation decisions, which may be the efficient connection solution, there is a risk of uneconomic over-investment.

This must also be considered alongside the ongoing development of various models under the Transmission Access Review all of which may bring forward the early connection of a proportion of these projects.

Questions within Chapter 4

Question 1-2: National Grid does not have any additional analysis to present

Question 3: Do respondents consider that the exclusion of demand connection by the proposal would appear to discriminate between generation and demand users?

For the justification outlined in the answer to question 4 above, National Grid does not believe it is discriminatory to apply local charging to generators only at this time.

[2] http://www.nationalgrid.com/NR/rdonlyres/0CA66A3C-2D04-47FD-A6DB-BC7D1E80DC9D/21148/GBECM09DesignVariationDiscount.pdf - (Appendix 4)

Question 4: We welcome further views on whether the proposals, by providing more cost-reflective charge signals to users choosing less secure connection designs, could have adverse impact on security of supply.

The system is operated so as to be secured against the largest feasible loss on the system, currently 1320MW. Whilst it could be assumed that the implementation of an improved signal for design variation (e.g. single circuit) connections may lead to the more frequent choice of such connections, the typical size of these generators is unlikely to increase the frequency of large simultaneous losses on the system. In addition, very large generators would be unlikely to pass the design variation criteria as set out in the SQSS.

A secondary effect that may result from the implementation of the local charging methodology, in conjunction with the Transmission Access Review, is the increase in the number of wind farm connections. It is problematic to accurately forecast wind speeds in any time period apart from the short term and therefore there is uncertainty around wind farm export levels. This requires more plant to be held as contingency reserve in order for any shortfall to be met.

Question 5: Do respondents wish to present any further analysis on the wider implications of the benefit that may ultimately be expected to be passed through to consumers?

In relation to the Charging Methodology and the associated local charging proposal, there are two key factors that must be considered in order to assess how the benefits will be passed through to consumers. Firstly, demand users pick up 73% of the Maximum Allowed Revenue National Grid is permitted to fund the installation, maintenance and operation of the GB transmission network. As a result, if an enhanced local signal ensures more economic and efficient decisions are made, then the total revenue collected from demand will also proportionally decrease.

Secondly, under the “Plugs” shallow boundary a generator’s charge will only reflect the cost of the transmission capacity booked and not the capacity investment that it triggers. Consequently, infrastructure assets local to generation are partly funded by the local generators and the ‘unbooked’ capacity is socialised amongst all users through the residual (of which demand users pick up 73%).

As a result of both these factors the enhanced signal provided by this modification, relating to a generator’s connection investment decisions, will lead to more efficient and economic investment of which a proportion is passed through to consumers.

Question 6: Do respondents have any views on the interaction of NGET’s charging proposal with TAR as set out in this chapter

A number of potential solutions from the Transmission Access Review, such as more flexible short-term access products and the ability for generators to share TEC between two nodes, would give generators access to the wider system without the provision of additional infrastructure, i.e. a “local only” connection.

It is therefore inappropriate to levy the current investment based charge on generators in such circumstances (although alternative charges, such as one based on operational

costs for short-term products, may also be appropriate). However, in order to use these products a "local-only" connection and associated assets are still required. As the costs of local and wider locational infrastructure are currently recovered through the single TNUoS charge, there is a requirement to split TNUoS down into its constituent local and wider components. The ability to offer alternative access products enabling earlier and possibly more efficient access to the transmission system was therefore another important driver leading National Grid to submit charging arrangements for generators' local infrastructure.

In order to facilitate the connection of additional renewable generation and to make more efficient use of the transmission network, a key principle is the sharing of wider system capacity. This may accelerate the investment in local infrastructure for connecting generators but there should be a net efficiency gain as the requirement for wider capacity is reduced and the existing assets have a higher utilisation. The existing charging methodology does not reflect the full cost signal associated with the sharing of wider infrastructure and investment in connection infrastructure and therefore it is necessary to split out the local and wider charge components. Without such a mechanism to produce the correct signals there would be a cross subsidy between those that require sole use dedicated capacity investment and those with shared connections, which leads to inefficiency.

The six models of access reform that have been worked up by the Working Groups and have been published for industry consultation could all independently or in combination accelerate the process for connection of new generation. The industry is assessing the relative benefits and issues associated with each amendment following the existing CUSC and charging governance processes.

The local charging arrangements and Local Capacity Nomination have been developed by the TAR Enabling sub-group (Working Group 3). For TAR, the key aspect of the Local Charging proposals is the ability to distinguish between local and wider infrastructure assets. In addition, the proposed definition of local works within the CUSC required for a user to connect, and subsequently be in a position to use short term access products, is wholly consistent with the definition used in Local Charging to define a MITS node.

Additional information - Offshore Transmission Charging

Concurrently with developing the Local Charging modification, National Grid has also published a series of consultations (GBECM-08) around the charging arrangements for offshore transmission networks. Although not specifically covered within the Impact Assessment, following receiving industry comments relating to both local and offshore charging, we would also like to make the following points of clarification concerning the use of specific and average security factors.

National Grid strongly believes that the offshore charging arrangements should be consistent with those onshore, unless sufficient justification exists for an alternative treatment. Consequently, the offshore charging arrangements as proposed within the most recent document, the Further Consultation[3], are extensively consistent with the current methodology and the local charging proposals.

[3] http://www.nationalgrid.com/NR/rdonlyres/EDF97DC1-2A07-407B-80B1-DA1E9C171546/29207/GBECM08OffshoreChargingFurtherConsultation.pdf

One area in which it is felt that there is justification to propose an alternative treatment between offshore and onshore charging is the specific security factor. If a generator is not directly connected at a MITS node, both onshore and offshore, then it will be liable to a circuit local charge component. Onshore generators that have a connection with redundancy and therefore will not lose the ability to export after a circuit outage, have a local charge determined with the GB average security factor of 1.8. Whereas offshore users with redundancy connections have a nodal specific security factor calculated and applied.

This alternative treatment, namely the use of a GB average onshore and a nodal specific factor offshore, can be explained by a number of inherent differences between the nature of the two types of local network:

Relative circuit lengths. Local offshore circuits are inherently long and relatively expensive and therefore have a marginal length at least an order of magnitude greater than the local circuits onshore.

Nature of offshore connections. For an interconnected network, such as onshore, the calculation of a specific security factor is only accurate if all parallel paths are considered. As the majority of generators connect to the MITS via several paths, the entire GB network would have to be considered in order to calculate a specific security factor, as is performed by the Secured Load Flow (SECULF) model. As discussed in the Local Charging Conclusions Report[4], such an approach (option B) was considered and rejected by the majority of respondees. It can be assumed that all the offshore connections will be via radial circuits, which have a single onshore landing node. In fact, as drafted in the offshore SQSS if the offshore network were to parallel the onshore, it would be required to meet the more onerous onshore SQSS standards. Consequently, a specific security factor can be simply accurately calculated for the offshore network component only.

Variance of redundancy. The variance of redundancy is far greater offshore. The proposed Offshore SQSS states a minimum connection security of zero redundancy, although the User is able to fund 100% redundancy, consistent with a fully compliant onshore connection. This equates to a Security Factor range of 1.0 to 2.0. Onshore redundancy variance is far smaller, whereby a double circuit spur would have a redundancy of 2.0 as compared to a node connected by three single circuits would have a security factor of 1.5[5]

National Grid believes the far greater range of variance and magnitude of the offshore local circuit flow requires the use of a specific security factor offshore, the calculation of which is simplified by the single onshore connection node, characteristic of the offshore transmission networks. That withstanding, the application of a GB average security factor is correct onshore as it is the appropriate balance between absolute cost reflectivity and providing a transparent and predictable tariff.

[4] Local Charging Conclusion Report - Page 13
[5] Local Charging Conclusion Report - Page 13

If you would like to discuss any of the points made within the response please do not hesitate to contact me.

Yours sincerely,

Tom Ireland
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