**Centre for Sustainable Electricity &**
**Distributed Generation**

# Response to the National Grid Offshore Electricity Transmission Access and Compensation Industry Workshop Outputs (03/12/07)

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## Response of the Centre for Sustainable Electricity & Distributed Generation to the National Grid Offshore Electricity Transmission Access and Compensation Industry Workshop Outputs (03/12/07)

*This response to the consultation from the National Grid meeting on Offshore Access and Compensation arrangement specifically addresses the concerns of the Centre for Sustainable Electricity and Distributed Generation (SEDG) regarding the proposals for offshore compensation payments.*

We are concerned about the current proposal to treat onshore and offshore transmission networks differently in the context of compensation that generators may be entitled to receive due to unavailability of transmission network. Our primary concern comes from the interpretation of the relevance of the different levels of redundancy in the onshore and proposed offshore networks.

The standards for onshore networks have been defined on the basis of optimising network design to accommodate requirements for reliability and economic efficiency at least cost. The cost benefit approach to offshore network design (developed by SEDG[1]) determines the economically efficient design of offshore networks and is conceptually *identical* to that used onshore (although the detailed solutions are different due to different cost structure and the fundamental characteristics of generation). The resulting *optimum* standard represents the efficient network solution that balances costs of operation (e.g. constraint costs, losses etc) and maintenance against capital investment costs. In the case of the onshore network, the resulting optimal design features a certain level of redundancy. In the case of the offshore network the *economically most efficient* offshore design features *less redundancy*, due to the significantly higher cost of undersea cables when compared to overhead lines, the absence of demand offshore, the relatively low load factor of wind generation and the low capacity (security) value of offshore wind generation that can be relied upon to secure onshore demand.

The current proposals attempt to justify the lack of compensation for offshore generators on the basis that offshore generators are opting for a connection level that is below the onshore standard (on account of the lower levels of redundancy in the offshore network). When generators onshore opt for a network connection that is lower than the SQSS defined standards they also accept a lower level of compensation when loss of access occurs. However, this analogy should not be applied to the offshore network. Despite the lower level of redundancy relative to the onshore network, generators connecting offshore under the new design standards are connecting to an *optimal* network. The reduced redundancy in the offshore network design is a product of the optimisation, not an explicit requirement or pre-specification of the standard. To penalise offshore generators on the basis of reduced redundancy offshore is therefore both unjustifiable and discriminatory.

It is also important to stress that if the criteria for development of the standard are to change, then this will have repercussions for the optimal network design recommended by the efficient standard. The methodology that we developed (that was also used to form the recommendations for the planning standard), is based on a key assumption that wind energy curtailed due to the unavailability of network represents a *long term average (expected) value* of energy constrained over the life time of the project. These expected values of energy curtailed can be approximately achieved when considering the operation *of a portfolio of offshore schemes over a long period of time*.

If the reality is one of no compensation for constrained off-shore generation, then individual generators are effectively bearing the risk of restricted access and energy curtailment alone. This is a very different scenario from the consideration of a diversified portfolio of risk from a group of offshore wind farms, as there is potentially a significant variation in the energy curtailed when considering single farms. An individual farm may experience a higher or lower number of outages than the expected long term average would suggest, and hence higher or lower levels of constrained energy than the long term average. For an individual project, the

[1] Djapic, P & Strbac, G (2008) Cost Benefit Methodology for Optimal Design of Offshore Transmission Systems, BERR Centre for Sustainable Electricity & Distributed Generation, Feb 2008.

risk of experiencing constraints that are higher than the long term average value has serious and potentially catastrophic consequences; particularly for small schemes connected onshore via a single cable.

In the offshore SQSS, the risk of loss of access is based on the onshore model where the GBSO is responsible for a portfolio of generators and can thus diversify the risk of any single one being unable to access the network. If the GBSO does not have this responsibility offshore and generation projects are considered in isolation, this might warrant network designs with higher levels of redundancy (and higher investment costs). If this is the case, the new recommendations for standards on the design of offshore networks may not be appropriate. This design is only applicable where the constraint costs are spread across a portfolio of schemes (as in the onshore network) and not borne by individual generators. Given this, the proposal in the Policy Document (and supported by the National grid workshop) to treat on- and offshore networks differently with regard to compensation for loss of access fundamentally undermines the new offshore SQSS.

In summary, we believe that there is no evidence in either the National Grid workshop output or the Ofgem/BERR Offshore Policy Document to support the assertion that the compensation regime offshore should differ from that onshore. The fact that both networks have been designed on the same principles means that unequal treatment with regard to compensation payments for transmission access is not justified. The outcome of the optimisation for design of on- and offshore networks may lead to different levels of network redundancy, but this is a product of different input characteristics, it is not indicative of a pre-specified compromise in level of security of offshore networks. To withhold payment of compensation also fails to recognise that the offshore network was designed on the basis of long-term average costs for the portfolio of all offshore generators. This is an approach which is consistent with a single GBSO using a portfolio approach to diversify and minimise the risk of loss of access and minimise the costs of the entire system over a long period of time. Any alternative approach (e.g. individual generators bearing the risk of loss of access) would result in a more expensive and less than optimal network design.

We hope that National Grid will take note of our concerns, and that together with Ofgem and BERR you will review the proposed arrangements for compensation regime associated with offshore transmission networks in the light of this response.

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