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Dear Mr Cox

### **Future Structure of Electricity Distribution Charging**

Highlands and Islands Enterprise (HIE) welcomes Ofgem's publication of the consultation on the longer term charging framework for the structure of electricity distribution charges. As you may be aware, HIE is the Government's agency responsible for economic and community development across the northern half of Scotland, an area recognised as having access to the largest natural resource for the development of renewable energy within Great Britain. Government is promoting renewables for environmental and economic objectives, and the North of Scotland is expected to make an important contribution to meeting its renewables aspirations.

The HIE area is served by Scottish and Southern Electric Power Distribution (SSEPD). In addition to the high levels of interest for connection from embedded generation, SSEPD and HIE expect considerable future interest, also from embedded generators (many of which will be community owned), and particularly from wind energy and other renewables.

HIE agrees with Ofgem's stated objectives to achieve: competition in supply and demand; cost reflectivity; simplicity; transparency; and predictability, but considers the wider implications and objectives of national Government and regional organisations, such as HIE, should be taken into account.

### **Models**

HIE welcomes Ofgem's intentions to develop a model better able to cope with modern distribution systems and in particular the increasing connection of generation within distribution systems. Having noted the criticisms voiced against the Distribution Reinforcement Model (DRM) model within the consultation, HIE is of the view that the DRM currently used for assessing the allocation of system expenditure to end users is not appropriate for application to generation, and needs to be either replaced or updated.

There is merit in development of a loadflow based model if capacity is considered the key cost driving factor. A suitable loadflow model can best model capacity issues with the

various DNO systems, and this could be developed from one of the existing models such as that under development at University of Manchester or National Grid Company's DC loadflow. HIE does not agree with the development of locational UoS charging as outlined in the models however, and expands on this point below.

Regarding these two models in particular, there are concerns that power factor is correctly accounted for in capacity modelling – demand load often operates at poor power factors, tying up additional capacity whereas generation can, and often does, operate at unity, or a power factor designed to support the local load and local DNO system.

The University of Manchester approach may be overly sensitive to changes in generation since it allocates charges on the basis of whether power flow directions are generation or demand based. In marginal cases, small additions of generation (or indeed load) could result in power flow direction changes and thus rather radical changes to the charging, i.e. the system “flips” from generation to demand dominated or vice versa.

As Ofgem notes, Turvey's proposed model may lead to discrimination through the site by site assessment process.

HIE notes the comments on the European Union, in that most DNO's levy shallow connection charges and recognise the benefits of embedded generation in reducing losses and avoiding reinforcements. HIE believes these issues should be recognised within the UK distribution charging.

The adoption of Transco's modelling approach in electricity distribution is too complex.

HIE is in favour of the postal UoS approach adopted by gas distribution charging and considers this an appropriate approach to electricity distribution.

HIE is supportive of Ofgem's view that DNO models should be available to distribution system users, item 4.54 of consultation. HIE believes this leads to transparency, and a better understanding of potential charge variability and volatility to distribution system users.

## **Tariffs**

HIE believes the consultation should seek to align tariff structures and levies across the DNO businesses as far as possible, and that this will lead to simplicity, transparency, lower costs for implementation, and consistency in the market playing field across the UK. HIE notes and supports Ofgem's comments in Section 4.46 onwards of the consultation in respect of tariff alignment.

HIE welcomes Ofgem's comments that there is a need to develop new UoS products. HIE considers this is relevant to transmission and distribution, and that a product solely based on capacity is not appropriate for intermittent generators such as wind where the capacity is only utilised a fraction of the time – HIE does not see this as cost effective use of the distribution system.

## **Locational Aspects**

Whilst HIE is respectful of the need for cost reflective charging, HIE disagrees with penal locational based charging. It is in direct contradiction to the Government's objectives for the North of Scotland, which is to promote the development of renewables, and to align customer distribution costs with those of other areas (through the common tariff obligation). HIE very strongly believes that where Ofgem and Government are working to different objectives, the outcome is much less than ideal, and does not result in the most efficient solution for customers now and in the future.

Generation using the transmission system in Scotland, and particularly in HIE's area, is already heavily penalised through proposed locational Transmission Use of System charges. These charges, by the nature of the SSEPD network, extend to many generators connected within the distribution network. The introduction of additional locational charges within the region will very strongly act as a disincentive to generation.

The correct positioning of the connection boundary and apportionment of costs, together with the DNO's indications regarding capacity, reinforcement issues and timescales, will be a strong enough locational signal to generators as to the suitability of their proposed location in the distribution network.

Development of locational DUoS charges will lead to over-complication of charging modelling and tariff structures and will not assist in meeting Ofgem's objectives of simplicity, transparency, predictability, or cost reflectivity.

HIE does not agree with Turvey's view (3.64) that assessment of UoS should be on a site specific basis for all of the reasons detailed above. HIE also believes that removing deep reinforcement costs but replacing them with site specific and/or locational UoS charges does not remove the cost barriers to embedded generation uptake, it merely replaces one cost barrier with another.

## **Cost Drivers and Reflectivity**

HIE welcomes the DNO's undertaking to determine the extent to which each cost driver contributes to overall costs. HIE believes the level at which generation and demand DUoS be set should be reflective of the future system costs and that these costs should be allocated on a shallow basis.

## **Predictability**

HIE considers predictability of GDUoS charges year on year as essential. HIE would therefore welcome a charging structure which places limitations on the year on year variation of GDUoS charges and on their magnitude. Failure to do so will introduce further uncertainty and risk to the financing and profitability of generation projects and will act as a disincentive to investment in new (renewable) generation projects.

## **Connection Boundary and Cost Apportionment**

HIE notes that generation distribution connection charging has moved from a deep to shallow structure, as of 1 April 2005. HIE welcomes this change, but notes that current cost apportionment still results in very significant connection charges for those generators which would formerly have been subject to deep reinforcement costs, and increased costs for those that are not subject to any deep reinforcements. HIE is strongly of the view that the shared apportionment of deep reinforcements needs to be carefully considered and should be made shallower. HIE does not support Turvey's view that deep charging is more cost reflective and strongly agrees with Strbac and Newberry in support of shallow charging. HIE believes deep reinforcement charging is a barrier to embedded generation uptake, as does Strbac.

As some generators, particularly in Scotland and the HIE area, will tend to locate relatively far from the existing grid, the costs associated with the new connection assets to the current connection boundary are a sufficient cost signal to generators as to the suitability of their location.

## **Secondary Issues**

HIE considers the following issues as secondary to dealing with the modelling and charging structure for distribution system connection and use as discussed above.

### **▪ Losses**

Losses should be considered, but are a secondary issue that should be addressed after or in parallel with the main subject of this consultation, unless losses are found to be a key cost driver. As Ofgem notes, loss adjustment factors are not transparent, and this needs to be addressed. A common methodology should be adopted across the DNOs.

### **▪ Pre-April 1 2005 Generators**

HIE is not supportive of the imposition of GDUoS on generators which were connected under the deep reinforcement connection charging in place prior to 1 April 2005. However, HIE welcomes the rebate currently applied to such generators until 2010 and considers that this should be extended. HIE recognises that operating with such a rebate system in place is discordant with current practices and causes some difficulties and therefore is open to further consultation from Ofgem on this issue.

### **▪ Deferred Expenditure, ancillary services and active system management**

HIE is supportive of a charging structure which reflects the benefits embedded generation can bring to the distribution network and would welcome further consultation on this issue. The same can be said of ancillary service provision and active system management, which are important to assisting uptake of generation and in making the most cost effective use of the future distribution system.

We hope you find these comments useful.

Yours sincerely

**Elaine Hanton**  
**Head of Renewables**