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Dear Martin

Electricity distribution use of system charging: Bath University benefit analysis work

The longer term development of electricity distribution use of system charging methodologies is important to ensure that economically efficient outcomes are achieved across the Electricity Supply Industry. As such, National Grid welcomes the opportunity to respond to the study undertaken at Bath University ("the study"), which considers the economic benefit of a number of alternative distribution charging models.

It is timely to consider alternative distribution charging arrangements given the expectation that a large proportion of renewable generation will choose to be embedded within distribution networks. Against this background, National Grid believes it is right that the manner in which generation is charged by DNOs is considered in the models that are being developed. Clearly, while the methodologies used for charging for access to the transmission and distribution networks need not necessarily be the same, the signals provided by the resultant charges should not create perverse incentives for parties to connect at a particular location or voltage level.

National Grid, as GBSO, is responsible for the development of the charging arrangements for parties that use the transmission system. These charges are designed to achieve a set of relevant objectives, which broadly relate to ensuring that charges are cost reflective and facilitate competition in the generation and supply of electricity. In addition, the charges must not discriminate between different users or classes of user. National Grid also has obligations to develop an efficient, economic and co-ordinated transmission system. Against this background, National Grid has had many years experience developing charging methodologies, which we believe are relevant to the development of distribution use of system charges. Our comments mainly focus on the high-level principles rather than the detail of the models considered in the study, and the possible impacts these might have on customer behaviour and long-term network investment.

Transparency of the methodology

National Grid considers there are merits in developing a methodology whereby charges can be derived in a transparent manner so that Users can be confident that they have been treated equitably.

Furthermore, by facilitating Users' ability to reproduce the charges they are exposed to, they can better understand how charges would change in a range of scenarios, to enhance their decision making processes and their ability to comment on future methodology changes. To achieve this, both the model itself and the data used by it, together with any necessary supporting information, should be available to the industry, except where such information has been provided on a confidential basis by industry participants or is commercially sensitive to the network owner. Ideally the use of any commercially sensitive information should be kept to a minimum. Similarly, National Grid believes that when deriving charges, the use of engineering judgement or "black boxes", such as whether future investments are required for entry or exit purposes (or some combination of both of these) and the specific costs and timings of these investments, should ideally also be kept to a minimum.

Practicality

As well as the possible questions regarding transparency, a new methodology must also be practical. An approach which required a huge amount of resource to implement, communicate and maintain should only be adopted if the benefits are significant and clear.

Cost-reflectivity of tariffs

Access charges should, to the extent possible, reflect the cost of provision so that Users face accurate signals that allow them to make economically efficient decisions about the voltage and location of their connection. However, it should be recognised that cost-reflectivity is one of a number of desirable qualities of a charging methodology that must be traded off against one another. In particular, there is a necessary trade-off between the desire to ensure that charges are cost reflective and the transparency of both the methodology and inputs used to derive charges. For example, a very complex charging methodology may enable charges to very accurately reflect network costs at individual nodes but it is less likely to be transparent. Accordingly it may not be appropriate, or necessary, for charging models to fully replicate all the load-related drivers for investment.

The study's very brief description of National Grid's ICRP charging model implies that the tariffs produced do not take account of the different investment costs of circuits at various voltages or, by extension, cost differentials between overhead lines and cables, and the cost of these in different TO areas. However, in determining the network investment required to accommodate an increase in generation or demand at a given node, several cost differentials are taken into account through the use of multiple expansion factors that are applied to each circuit, which act to increase the marginal km of those circuits (the proxy used for investment). These factors describe the investment costs of different circuit types, voltages, and in different TO areas relative to a 400kV overhead line on which the expansion constant is based so, for example, a circuit comprised of a 400kV cable for which the incremental investment costs are 20 times that of an equivalent 400kV overhead line would have an expansion factor of 20 to reflect this. Accordingly, the tariffs generated by National Grid's charging model reflect these factors.

Stability and predictability of tariffs

Users of the transmission system have expressed a desire for access charges to be stable and predictable, as they believe this facilitates competition. Again, there is a trade-off between promoting cost reflectivity but ensuring that this is not at the detriment of stability and predictability of tariffs and

therefore access charges. To this end, we believe there are several ways that this can be promoted in the methodologies that are being considered. For example, as with transmission network use of system charges, zonal average charges could be developed, and key parameters of the methodology can be fixed for a period of time (for example, the expansion constant).

We are always keen to assess alternative charging methodologies and we welcome this piece of work from Bath University. We have already spoken to those involved and are intending to discuss the detail of the alternative model in the coming months in order to consider the applicability of the theory to the GB transmission network.

Please contact me if you have any queries regarding the content of this response.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Easterbrook', written in a cursive style.

Stuart Easterbrook