Central Networks

A company of e·on

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Dear Mark,

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

I refer to Martin Crouch's letter of 13th January and the Bath University benefit analysis work that Martin refers to in the letter.

We welcome Bath's study of the benefits that might arise through the introduction of a new 'economic' charging regime for distribution use of system. It will be necessary to understand and quantify all such benefits, and to balance these against all relevant costs, before moving to any new charging regime.

We believe the benefits identified in the study are substantially overstated however, because these are based on a number of fundamental assumptions which are flawed - the main ones of these being that:

- distributed generation will respond 'perfectly' to distribution price messages
- distributed generation will completely obviate the need for network reinforcement;
- EHV load is more price elastic than HV;
- current connection charges are ineffective in influencing location; and
- the wider economic impacts of locational prices are ignored.

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Distributed generation will respond 'perfectly' to distribution price messages

A key assumption in the study is that generation will locate wherever the distribution charges are lowest. This is at odds with what has happened to date – i.e. generation has located wherever is best for it in the round. Wind generation, for instance, locates where there is sufficient wind, where land is sufficiently cheap and where planning permission can be obtained. It is unlikely that strong price messages encouraging wind generation to locate to urban areas, for example, will work where the above prerequisites are unsatisfied, and may instead simply serve to curtail its development altogether.

The study (paragraph 71) assumes that, in the DRM charging regime, wind generation would site where it is windy and that CHP would site in the industrial area. These assumptions would seem to align with common sense. However, in the LRIC regimes the generation is assumed to connect exclusively to the urban areas because of the locational signals. This is clearly an absurd assumption - especially given that the report specifies that 80% of distributed generation will be wind generation – and stretches the economic principle of "ceteris parabus" too far. Assumptions about the location of generation are crucial to the modelled reinforcement costs for connecting demand and generation under the LRIC regimes and, therefore, the reinforcement costs for these models are hugely understated.

Distributed generation will completely obviate the need for network reinforcement

This seems unduly optimistic, even if distribution prices give very strong locational signals. In addition to the points made above, the nature of much distributed generation is such that it is unlikely to be sufficiently available / reliable to provide a complete alternative to conventional reinforcement. Under Engineering Recommendation P2/5 the DNO could not rely on generation capacity for system security, and even P2/6 will only allow a small fraction of the capacity of wind generation to be used for a short period of time for system security purposes, and only if changes are made to network protection regimes.

EHV load is more price elastic than HV

This assumption is made without any supporting logic or justification, and seems likely to be untrue for many types of EHV customers – notably those where electricity is not a major element of total input costs.

Current connection charges are ineffective in influencing location

The analysis appears to ignore the economic signals that would be provided by connection charges. For this reason it incorrectly deduces where new 'rational behaving' EHV load would site under the DRM model and therefore implicitly overstates the reinforcement costs over the study period. Models other than DRM would not be affected by this starting assumption, since they contain locational signals in the non-connection charge element of charges.

The wider economic impacts of locational prices are ignored

Locational DUoS will presumably be charged to all large business customers, not just those currently choosing locations. Most existing businesses will not change location as a result of the charges, but will nonetheless be subject to real economic impacts. It is therefore likely that many existing businesses will be disadvantaged (and others advantaged) arbitrarily by locational prices. Others will change location, and this 'churn' will give rise to economic costs beyond the narrow area of electricity distribution. The wider impacts of locational charges

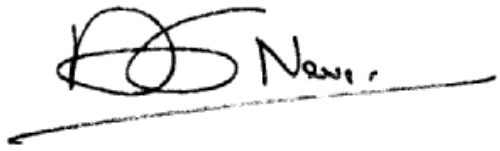
should be evaluated and weighed against the potential advantages in terms of reduced network investment.

As outlined above we believe the benefits identified in the study are substantially overstated. We do however support the need for assessment of the costs and benefits, and hope that the model can be further developed to address some of the points made above. We would be very happy to contribute towards this development work if appropriate.

I hope that these few comments are helpful.

Yours sincerely,

Andrew Neves



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