WESTERN POWER DISTRIBUTION
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Our Ref	*Your Ref*	*Direct Line*	*Date*
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Dear Rachel

Consultation and impact assessment on Scottish Power's (SP) proposed modification to their use of system methodology: longer term methodology for EHV and revised approach to HV/LV demand and generation charging

This response is from Western Power Distribution (South West) and Western Power Distribution (South Wales).

At present there appear to be three core algorithms being used/proposed by electricity network companies to better reflect locational costs at higher voltage levels, ICRP, LRIC and FCP. The ICRP and LRIC methods adopt an approach of incrementing each node in turn to see the effect on power flows. A symmetrical approach is used in these methods to assess the impact of generation. In contrast the FCP method defines zones before assessing costs and then produces a cost for a change in the zone. Additionally, it uses a different approach to assess generation costs by use of a 'typical' generator connecting to the source busbar for each pre defined zone. The FCP approach has characteristics similar to annuitising an expected plan for developing the network rather than providing cost signals to demand and generation of the impact they have on future costs.

Due to the effect of different impedances in different paths within a network, the impact of changes in load at different parts of a zone can result in significantly different effects on the loading of circuits and hence future reinforcement costs. If zonal charges are desirable then it is better to initially calculate nodal prices and where adjacent nodes have similar prices to group these into zones. The approach under the FCP method of using a percentage increment rather than a fixed MW increment will also result in incremental costs that are not comparable between zones as the magnitudes of the changes in demand will be different in different zones. Whilst SP's decision on zones may result in zones with similar nodal charges there does not appear to be any analysis to support this nor are

the resulting incremental costs between zones comparable and hence we do not believe that the method better meets the objective of reflecting costs.

The location, size and configuration of a generator connection can have a significant influence over the impact on system fault levels. As SP highlight, the volume of generation is currently low. Their method of selecting a 'typical' generator and then connecting it to the source busbar of the predefined zone will result in costs associated with one possible future outcome. Given the low level of generation connections at present and hence the significant uncertainties in fault level costs it appears sensible to continue to provide the fault level costs message (when such cost exist) via connection charges at the time of connection. Similarly for the impact on system loading levels the use of a typical generator only gives costs for one outcome. We do not believe that the use of this typical generator is cost reflective for most connections that will occur.

SPs method uses 'F' factors from P2/6 to assess the contribution of generation to system security. The method uses (on page 68 of SP's proposal) a 24% F factor for wind generation. EHV systems will usually have loads in excess of 12MW and hence will fall within Group C of P2/6. Table 2-4 defines a persistence factor of 15 days for Group C unplanned outages which is what needs to be considered under a full contingency analysis. Table 2-2A of P2/6 gives an F factor of 0% for a persistence factor greater than 24 hours. The proposed method is clearly not consistent with the security standard P2/6 which is the main driver of costs for expanding systems.

The FCP method uses a reinforcement horizon of 15%. This means that there would be no cost signal in a zone where the firm capacity is 17.5MW and the current load is 15MW. This is not a characteristic of a forward looking method.

Overall, the proposed method appears to strive for very stable incremental costs, but appears to seek to do this by sacrificing cost reflectivity. The use of a 'typical' generator will only give costs for one size of generator and hence is unlikely to facilitate competition in the generation of electricity and will provide a perverse incentive to seek connection to the voltage level showing the lowest charge even though this charge has been derived using a significantly different sized generator. We do not believe that the proposal better meets the relevant objectives and should be vetoed by the Authority.

Should you wish to discuss any aspect of this response, please do not hesitate to contact Nigel Turvey (nturvey@westernpower.co.uk).

Yours sincerely

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