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Australian Energy Market Operator
By email: FutureEnergy@aemo.com.au

Essential Energy submission to AEMO's Renewable Integration Study – Stage 1

Essential Energy welcomes the opportunity to provide a submission to the Renewable Integration Study – Stage 1 (RIS) published by the Australian Energy Market Operator (AEMO). Essential Energy is supportive of the Energy Networks Australia (ENA) submission but we also wish to address some additional areas of particular interest to our network.

Distribution network issues

Whilst the work toward minimum technical standards for distributed energy resources (DER) is already underway, Essential Energy cautions that any such setting changes need to ensure the physical limits of the distribution network are maintained in all scenarios to avoid unintentional system security issues arising.

Essential Energy would be concerned about AEMO or an aggregator actioning generation shedding on the distribution network unilaterally, as there are challenges with masked network peak load – this is of particular concern in high DER penetration areas. The effects of generation shedding need to be computed at the distribution level, to ensure assets remain operational within physical limits following the generation shedding event. For this reason, any optimal supply reduction or demand increase requested at the bulk system level, is best directed and/or actioned by the distribution network service provider (DNSP) at the local distribution level. This is until such time as operating envelopes are operational and accessible by each DER with generation shedding capability controlled by a third party.

Visibility and communications

Whilst the visibility of the low voltage network is an issue for Essential Energy and there a plans underway to address this (bearing in mind the need to balance cost and risk), communications remain a daily challenge. Establishing communications in rural areas can be very expensive - satellites are sometimes the only option in remote areas, and it may not be economically viable for all new DER systems to include communications, or they may be of a reduced capability or reliability.

The report references the aim for SCADA visibility of all new commercial scale systems >100kW – again, this will come at a cost and may not provide long term value for customers. Essential Energy suggests SCADA visibility is more useful when targeted on a location basis (where constraints are known/expected issues) rather than a blanket condition across all sites. This change may have unintended consequences, e.g. the high cost to connect individual real-time SCADA may be seen as restrictive by proponents to the point that they may be unwilling to invest.

The requirement for real-time visibility of individual sites down to 100kW is not necessary for bulk system decisions, and sufficient information could be provided by distribution level generation in aggregate or by transmission node identifier . It is also not clear in the report whether the information will be provided by an aggregator or by the DNSP.

Alternatives to load shedding

An important factor in this potential for generation shedding to support the National Electricity Market (NEM) is the cost – have lower cost alternatives been considered? Could load be switched on (i.e.

network controlled load) rather than generation shedding to achieve the same outcome? In addition, tariff reform and connections standards reform could be used to grow load and generation DER base capability, potentially through a multi-staged approach based on cost and time to achieve.

Update to table

In the RIS report, Table 7 – ‘Summary of DPV integration issues experienced by DNSPs’, appears to be out of date for Essential Energy, with impacts only shown in five areas. The business is now being impacted in significantly more areas by these issues. For completeness, please ensure that the following areas are also included to reflect DPV integration impacts for Essential Energy:

- Distribution substation transformer - tap setting;
- Distribution substation transformer - thermal capacity;
- Zone substation feeder - voltage regulation;
- Zone substation transformer - tap range;
- Zone substation transformer - voltage set point; and
- Subtransmission transformer - voltage set point.

Customer impacts

Essential Energy cautions the need to keep the customer and their protections top of mind. It is expected that the cost impacts on rural distribution networks of the RIS are likely to be significant; given the visibility and communication issues with DER, the variety of DER assets connected, the size of the DER generation investments, and the lower customer base to pay for the changes. It is imperative that a comprehensive cost benefit analysis of the RIS is undertaken to ensure customers are not paying more than is required to access the NEM. Anything that furthers the divide between rural and urban customers on the basis of cost or access to different products or services should be very carefully considered.

Essential Energy is supportive of such significant issues as renewable integration being dealt with through whole of industry action plans, rather than via individual rule change requests, with any changes paced to meet the circumstances prevailing in each individual network (including differences in the level of penetration of DER and the level of digital maturity) and taking account of the cost of change to customers.

If you have any questions regarding this submission, please contact Natalie Lindsay, Head of Regulatory Affairs on 02 6589 8419 or natalie.lindsay@essentialenergy.com.au

Yours sincerely



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