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Dear Mr Adams

2018 – AER - Wholesale electricity market performance monitoring – Staff working paper on 2018 approach to LCOE analysis

EnergyAustralia is one of Australia's largest energy companies with over 2.6 million electricity and gas accounts in NSW, Victoria, Queensland, South Australia, and the Australian Capital Territory. We also own and operate a multi-billion dollar energy generation portfolio across Australia, including coal, gas, and wind assets with control of over 4,500MW of generation in the National Electricity Market (NEM).

We welcome the opportunity to comment on the AER's Staff working paper on 2018 approach to Levalised Cost of Energy (LCOE) which will be used to inform the AER's wholesale market performance monitoring.

As recognised in the paper, LCOE analysis is one method that can be used to provide information and insights into the cost of establishing new generation provided it is applied and interpreted correctly. It is especially important to consider how to apply LCOE across different generation technologies. For example, consider a dispatchable Open Cycle Gas Turbine (OCGT) *vs* a battery that is cycled once a day (e.g. fully charged and discharged):

- The capacity factor of an OCGT can be increased simply by using more fuel (with associated fuel, transport and variable cost) without a corresponding increase in capital costs.

- To increase the capacity factor of a battery you would either need to:

    a) cycle the battery more often which would increase degradation and therefore increase maintenance costs, or;

    b) increase the size of the battery which increases the capital cost.

    Both (a) and (b) would need to be captured in the LCOE analysis for a battery.

The limitations of applying LCOE analysis to non-dispatchable forms of generation such as wind and solar should also be recognised. Assessing the electricity prices that these

technologies can realise in the wholesale market using a price duration curve (PDC) can be misleading. As an example, consider a new entrant wind generator that may have an LCOE of $50/MWh. A PDC may suggest that wholesale prices are above $50/MWh for a large portion of the time but due to the intermittent nature of the technology the wind generator may not be able to capture these prices. Without some form of storage attached, the wind generator has no control over when it generates. The coincidence of the intermittent production to the wholesale price needs to be considered when assessing a project.

Like the battery example above, the capacity factor of intermittent generation cannot be increased by '*running the plant harder'.* Capacity factors of intermittent generation are around 20-30% for solar and up to 45% for wind plants and the only way this can be improved is to increase the size of the project with the associated increase in capital costs. This needs to be considered when comparing LCOE outcomes of dispatchable vs intermittent generation.

As discussed in the paper, consideration should also be given to other plant assumptions such as fixed and variable operating and maintenance costs. As an example, LCOE analysis needs to take into account any plant limitations such as minimum run times and start costs and how these may impact outcomes.

In conclusion LCOE analysis can be a valuable method of assessing the potential for new entrant generation provided the limitations of the methodology are identified and understood especially when comparing different forms of generation technology. Where the factors we raise may not be able to be accounted for quantitatively, we encourage the AER to fully discuss the qualitative issues.

If you would like to discuss this submission, please contact Andrew Godfrey on 03 8628 1630 or Andrew.Godfrey@energyaustralia.com.au.

Regards

Melinda Green
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