



28 July 2020

The Market Operator
Power and Water Corporation
Attention: Matthew Phillips
GPO Box 1921
Darwin NT 0801

By email to market.operator@powerwater.com.au

Dear Market Operator

Generator Offer and Generating Unit Tie Break Procedures

Thank you for the opportunity to provide a submission regarding the draft Generator Offer and Generating Unit Tie Break Procedures published on 3 July 2020.

EDL is a leading global producer of sustainable distributed energy. We own and operate around one hundred power stations across Australia, North America and Europe including our Pine Creek generator connected into the Darwin-Katherine Power System (DKIS).

EDL has three comments on the proposed procedures.

Offer bands

The Generator Offer Procedure template splits the offer into three bands (minimum load, minimum load up to base capacity and additional capacity available after a manual process has been initiated). This works well for open cycle thermal units. However, for closed cycle units, there will be several minimum load tranches depending on the configuration of the generating system (ie 1x Gas Turbine (GT) + 1x Heat Recovery Steam Generator (HRSG) + 1x Steam Turbine (ST), 2x GT + 2x HRSG + 1x ST, etc.).

As an example, a gas turbine might be able to operate down to 5 MW in open cycle mode. However, with the steam turbine online, the GT may need to operate at a minimum of 10 MW to raise sufficient steam for the steam turbine to reach a stable operating point. At this point, the steam turbine might be generating, say 4 MW. In this case, the minimum load in 1xGT+1xHRSG+1xST mode is 14 MW.

This becomes more complicated for other configurations, such as where a single steam turbine is reliant on more than one gas turbine to generate sufficient steam to reach full capacity (effectively only running at part-load with only a single gas turbine).

The template should be designed to ensure that it can accommodate the above configurations.



Offer prices

The Offer Procedure states that the price in band 2 must not be lower than the price in band 1 (the minimum stable load). However, for thermal generators, the averaged running cost decreases as the output increases due to improved efficiency at higher loads. The price in band 2 will be lower than the price in band 1 for this reason.

As an aside, we note that generators will not have certainty on their dispatched output. In the case of thermal generators, they will therefore need to assess at what point on the efficiency curve they should determine the price.

Tie-break rules when out-of-merit

The Generating Unit Tie-break Procedure doesn't explain how generating units are selected to remain online in the event of a system security constraint, for example, where multiple units could satisfy the system issue.

Please feel free to contact me on (0412) 039 860 or anthony.englund@edlenergy.com should you wish to discuss any aspect of the above.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Anthony Englund', with a stylized, cursive style.

Anthony Englund
Head of Regulatory Affairs