perthenergy

28 August 2017

Australian Energy Market Operator
Attn: Group Manager, Operations and Technology (WA)
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Submission in respect to the 2017 Energy Price Limits Review

In reviewing the final draft report from Jacobs, dated 28 July 2017, there has been a very large increase in the price component that is driven by the variable maintenance costs assumed for the reference gas turbine power plant – the Pinjar Frame 6 units. The assessment is very thorough and, while the overall approach is sound, there are some assumptions that should be re-assessed.

The variable costs are based on considering the total cost over the maintenance cycle and then assigning these to the number of factored starts. If the machines were new and were expected to operate through a number of cycles then this approach would be appropriate. The report notes that the units range in age between 24 to 28 years old and that the average of 82.2 factored starts implies a maintenance cycle of 29 years. It further notes that these types of machines can be run for at least two or three maintenance cycles and that it is reasonable to assume that the machines are either late in their first cycle or early in their second cycle. The precise position of each machine in the maintenance cycle was not provided by Synergy.

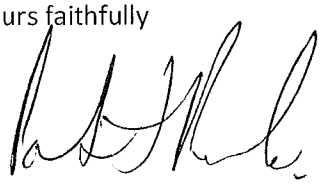
Perth Energy suggests that, because of the age of these machines, they will not run through a complete overhaul cycle so to use the costs associated with a full cycle overestimates the real cost. Synergy has recently announced that the similar Mungarra and West Kalgoorlie Frame 6 gas turbines are to be taken out of service within a few years. Synergy has not announced when the Pinjar machines will be withdrawn from service but it is reasonable to assume that this will occur when a major overhaul becomes due. So the cost of their current overhaul cycle is not $10 million, as stated by Jacobs in Table 4, but a lesser number that acknowledges that their life cycle will end prior to their "final" overhaul. Given the age of the machines it is most unlikely that they will run through another complete 29 year cycle – even those that are still on their first cycle. So the overhaul cycle cost should not be $10 million but a lesser number. If the machines are retired when a Type C overhaul is due then the cycle cost will only be around $5.5 million.

Ideally Synergy could advise Jacobs where each machine is its overhaul cycle and also advise when they are expected to be withdrawn. If this information is not available Jacobs could develop a notional life cycle for the fleet, based on fair assumptions. This would be more realistic and would most likely indicate that a lower maintenance cost could be assumed.

There is a second issue. The operating cost has been based on a high heat rate because the machine is assumed to be operating at low load. Jacobs has calculated the cost per start as $4,279. However, according to GE's manual "Heavy-Duty Gas Turbine Operating and Maintenance Considerations GER-3620M" if the machine is started and then run at low load, below 60% of output, the factored start value for a GE Frame 6 is only one half of a start where the machine then runs to full power. The cost for a start during which the machine is only run at low load would then be only $2,140.

Can Jacobs confirm that they have not combined the cost for a full power start with the heat rate cost of a low output run? These would be inconsistent.

Yours faithfully



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