

Consultation Conclusion Report

This consultation conclusion report memorandum is based on various comments received on our 2023/24 Cost and Technical Parameter Review report.

1 Comments by Clean Energy Finance Corporation

A meeting was held on 20 February 2024. Aurecon, CSIRO and AEMO participated. Various items were discussed and clarified. Some comments were clarified by CSIRO regarding GenCost analysis.

CEFC raised the following issue regarding the electrolyser.

- Cost divergence of electrolysers between 2022 and 2023 reports (for both PEM and alkaline)

The cost divergence was addressed as below.

Key points of difference between 2022 and 2023 electrolyser costs include the following:

- 2022 include Alkaline costs which factored in Chinese supply. PEM was Western suppliers only. 10 MW and 20-30 MW sizes.*
- 2023 include Alkaline costs which do not factor in Chinese supply due to datapoints. PEM is Western suppliers only. 10's MW size (<100 MW), and > 100 MW sizes – price increase seen from 2022 to 2023 but with a scale cost benefit also.*

2 Comments provided by ASTRI

A meeting was held on 3 April 2024 with ASTRI. Both Aurecon and CSIRO participated. The CSP section of Aurecon's report is based on Fichtner Report commissioned by ASTRI. However, two issues were raised that require attention.

- Escalation of 3.4% - Needed to check whether there was any double counting
- Location factor – Report considered NSW medium whereas this should be Victoria low.

Aurecon looked at the above and made necessary adjustments in the report.

3 Comments by ISP Consumer Panel

- Land and Development Costs

A question was raised around the land and development cost. Aurecon was asked to check what it includes and state clearly if it is a percentage of capital cost. As a result, land and development cost have increased for those technologies whose equipment costs have increased.

Aurecon has addressed these in the report.

- Offshore wind project costing

Please check that the international benchmark offshore wind projects used as input to Australian costs reflect more recent higher cost projects.

We have included the following text in the report.

For the purpose of this report, we have considered international average costs without considering any regional uplift of costs that would be expected for the deployment of an offshore wind farm in Australian waters. Given the uncertainties surrounding turbine unit capacity (and associated

component size), vessel and lifting equipment availability, workforce availability, the requirements for a particular level of local content, and the fact that there is no present experience in the installation of offshore wind, there are too many unknowns to accurately characterise a regional pricing uplift, therefore international cost averages from recognised intergovernmental agencies have been drawn upon for the purposes of this report.

4 CSIRO feedback

■ Coal capacity factor

The coal capacity factor seems high based on historical data. For historical data from last ten years see from page 81 in the GenCost 2022-23 report: [CSIRO Research Publications Repository - Publication](#). For data going back to the beginning of last century see: [CSIRO Data Access Portal - Australian energy transition data](#). Click on the 'Files' tab. Also note that new coal would be competing with existing coal that has mostly paid down its capital costs. Options to address this are to remove coal capacity factor, redefine it as an availability factor, include a range that better reflects history and future competitive position or provide some justification of the 93% (table has blank cell currently whereas all other technologies include some justification).

Aurecon has revised this as Availability Factor, provided a range (89% - 93%) and included the following comment in the report.

Availability factor is based on forced and planned outages for plants burning Australian Black Coal. Availability factor varies with the age of the plant, its operating characteristics and type of coal being burnt. The range does not include rare catastrophic failure (e. g Callide C4 failure in 2021).

■ Alkaline and PEM electrolyzers minimum runrate

Check with both PEM and Alkaline electrolyzers should have the same minimum run rate (currently 10% in Excel file). CSIRO data indicated PEM could do lower.

We have added the following text in the report as a comment.

PEM electrolyser turndown ability is quite specific to suppliers.

For rapid response, the electrolyser would likely need to be in a hot standby or minimum turndown and as such not turning off the load completely.

Typically, minimum turndown for PEM modules can range from 5-15%, with Alkaline modules ranging from 10-20% depending on OEM and unit module size. Lower overall plant minimum turndown is possible by combining multi-module configurations in larger MW scale plants if some modules are turned off. However, this is at the consequence of the fast responsive capacity being only available from those modules kept in hot standby or service.