Minutes

Meeting Title:	BRCP WEM Procedure Review Working Group	
Meeting Number:	2024_02_06	
Date & Time:	Tuesday, 6 February 2024; 2:00PM – 3:00PM (AWST)	
Location:	Hybrid: • Online via Teams • ERA office (Level 4, Albert Facey House, Perth)	
Attendees:	Matt Shahnazari	Economic Regulation Authority (Working Group Chair)
	Wesley Medrana	Synergy
	Ben Tan	Tesla Holdings
	Oscar Carlberg	Alinta Energy
	Hari Sridhar	Transalta Corporation
	Tessa Liddelow	Shell Energy
	Gerry Devereux	Australian Energy Market Operator
	Vincent Chye	AGL/Perth Energy
	Dimitri Lorenzo	Bluewaters Power
	Jake Flynn	Collgar Renewables
	Dora Guzeleva	Energy Policy WA
	Jason Dignard	Economic Regulation Authority
	Jimmy Tran	Economic Regulation Authority
	Lipakshi Dhar	Economic Regulation Authority
	Richard Cheng	Economic Regulation Authority
	Jesse Barker	Economic Regulation Authority
	Elena Mikhaltsevitch	Economic Regulation Authority
	Lachlan Bunyan	Economic Regulation Authority
Apologies	Noel Schubert	WA Expert Consumer Panel
DMS:	D272970	

1. Welcome

- The Working Group Chair, Shahnazari, opened the meeting at 2:00PM.
- The Chair noted the Competition and Consumer Law obligations of the Working Group and invited members to bring to his attention any issues should they arise. Working Group Members did not raise any conflicts of interest or competition law issues.
- The Chair noted the attendance and apologies as listed above.

2. Minutes of Meeting 2023_12_18

- The Chair sought feedback on the minutes of the 18 December 2023 meeting. Working Group Members did not raise any concerns.
- The minutes of the 18 December 2023 meeting were endorsed as a true and accurate record of the meeting. The minutes will be published on the Working Group website.

3. Progress update

The ERA Secretariat provided an update on its approach for determining the battery chemistry and annualisation elements of the BRCP calculation for the Working Group's feedback.

3.1 Battery chemistry

- Dignard noted that:
  - Capital costs are a major component of the BRCP. BESS chemistries and sub-chemistries have been evolving rapidly, which affect their capital costs and capabilities. Given the change in reference technology, the ERA will consider the appropriateness of the method to determine capital costs.
  - The Coordinator of Energy has determined the Benchmark Capacity Providers to be lithium-ion BESS, but there are many sub-chemistries. Traditional nickel-based lithium chemistries have been common in the past, while lithium iron phosphate (LFP) chemistries have been increasingly successful due to their operating characteristics and lower cost.
  - The ERA is considering which sub-chemistries are being commonly implemented across battery systems, what is the cheapest sub-chemistry and if there are multiple sub-chemistries that may be reasonable for the BRCP.
- Tan noted there is currently no mature market for second-hand batteries. Given the battery technology is quite new, the Australian Prudential Regulation Authority does not allocate any capital benefit to residual values. As a result, the cost of debt needs to account for technology risk.
- Dignard highlighted that one of the issues with BESS is that it is a new emerging technology that is slowly maturing, which has implications on project financing and risk. As a result, there is a challenge in identifying how parties finance these projects and whether it is managed through the life of the asset, warranty period or a longer technical life.
- Carlberg suggested that the selected sub-chemistry should be one that has been tested and seen in the market. Carlberg queried whether the choice of sub-chemistry affects assumptions on battery degradation and cycling costs.
- Dignard noted recent announcements of new battery projects across Australia have relied on LFP BESS. The sub-chemistry does affect operating characteristics. The Coordinator's determination of the lithium-ion chemistry precludes other chemistries (such as sodium); however, this may be reviewed in future triennial reviews conducted by the Coordinator.
- Shahnazari noted the ERA has engaged GHD to provide technical advice on the battery sub-chemistry suitable for the purpose of the BRCP determinations. Shahnazari noted the ERA Secretariat is considering whether the BRCP

Procedure will lock in the sub-chemistry or provide the framework for determining the sub-chemistry.

3.2 Weighted average cost of capital

- Dignard noted that:
  - Investors must be confident they can recover equity and debt funding costs to undertake an investment. The rate of return provides for funding costs required by investors to provide investment capital for the project. This rate is usually based on calculating debt and equity costs on a benchmark basis and weighting these costs to form a weighted average cost of capital (WACC).
  - In this review, the ERA will consider whether the previous form and parameters of the WACC remain appropriate for the risk associated with BESS. For instance, a BESS has different construction and operational cost components – and the resulting risk profile – compared to an open cycle gas turbine (OCGT). The BESS technology is relatively new compared to OCGT but there may be other commercial considerations that make it less risky for investors.
  - The ERA Secretariat's current working approach considers the nominal pre-tax rate of return remains appropriate. However, the underlying parameters must be updated to reflect the change in reference technology to BESS.
- Tan queried where the technology risk is reflected in the analysis.
- Dignard noted:
  - The new BESS technology may elevate investors' perceived level of risk and that may lead to a higher rate of return required by investors.
  - These risks may be managed through relatively conservative engineering, procurement and construction (EPC) contracts that guarantee fixed price of delivery, as well as robust warranties that provide clear degradation profiles that improve investors' confidence in the technology.
  - If the risk profile is different, the approach for the BRCP determination will have to consider if project specific factors, like credit rating, equity premium and gearing, may have to be updated.
- Chye reiterated Tan's point and noted the appropriateness of the risk rating depends on how the business case is modelled and whether it considers the residual value of the BESS. For instance, the risk rating may be appropriate if the rate of return is modelled by fully depreciating the BESS and assuming no residual value. However, the risk rating may be higher if the modelling assumes a greater residual value in the future.
- Chye considered GHD's scope should include the requirement to have a bankability model so the BRCP determination approach is aligned with the commercial lending for the bankability of the project. For example, the BESS is unlikely to have a 20-year warranty and there would be some assumptions on failure and replacement of parts. It would be useful to have advice on what factors a technical advisor like GHD would consider if they were modelling a financial close on a BESS asset. A potential investor could take a bankable model to a banking syndicate and identify if there is a disconnect between the way these projections are modelled by potential investors and banks. Dignard noted the ERA Secretariat is seeking GHD's advice on BESS warranties.

3.3 Annuity tilt

- Dignard noted:
  - Investors expect to receive a return of (depreciation) and return on (financing costs) capital invested in a project over the life of the project. Capital recovery can be set such that each method will have the same present value but with different recovery profiles.
  - Given BESS projects are capital-intensive and there is an expectation that BESS capital costs will continue to reduce, the ERA Secretariat is considering which method is appropriate to incentivise BESS investments.
  - The current approach in the BRCP Procedure assumes a straight-line annuity, which provides equal payments for depreciation and the rate of return in the form of a constant annuity. The ERA Secretariat is considering the benefits of adopting a 'tilted' annuity, which is an accelerated depreciation approach and allows an investor to bring forward cash flows but recover the same amount in present value terms. The ERA Secretariat is considering whether a straight-line (simple) or tilted annuity approach is more appropriate for the BRCP Procedure.
- Devereux queried how the choice of cashflow profiles affects the BRCP determination. Dignard noted the capital cost of BESS technology has been decreasing over time and is likely to continue over time. Under the straight-line annuity approach that is updated annually to reflect expected lower costs, an investor may under-recover their depreciation and rate of return over the life of the project.
- Chye considered a better approach would be for an investor to procure enough reserve capacity based on the Australian Energy Market Operator's (AEMO) view on capacity requirements at a point in time, and then guarantee that reserve capacity price for projects that are accepted into the reserve capacity mechanism at that point in time. Chye expressed a preference to lock-in revenues from the capacity mechanism over a longer period. If the reserve capacity mechanism allows for fluctuation of return (through a changing price), investors will build in more risk and ultimately the system will pay less for a return on risk equity if the investment is de-risked.
- Dignard explained that the tilted annuity approach could be adopted until decreasing capital costs stabilise, at which point a straight-line annuity approach could be readopted. Tan considered there is no difference in either annuity approach if the net present value of the investment under both approaches is the same. Dignard clarified that a tilted annuity reduces the present value loss expected to occur from an annual reset of the BRCP and reducing capital costs. Tan clarified if the cashflows are bought forward, then the BRCP will be higher.
- Chye considered a tilted annuity is not the appropriate approach to address uncertainty in the cashflows for the BRCP determination process. Chye preferred entering into a longer-term contract that fixes revenues at the commencement of the BESS. Shahnazari clarified the annuity tilt is not intended to de-risk investment or address uncertainty about future reserve capacity cash flows, but to provide an investor with an expected cashflow profile that incentivises their entry into the market.
- Chye reiterated the issue raised in the previous Working Group meeting of adopting an approach that considers a fixed price period at the point in time the project is approved. If the current process is de-risked, it may provide greater certainty for investors.

- Dignard noted this review is conducted from the perspective of determining the BRCP and providing appropriate investment signals to the market through an annual update, not providing certainty on investment return or revenue.
- Guzleva noted:
  - The actual reserve capacity price (RCP) is determined annually using the BRCP and also considering whether the reserve capacity target as set in the Electricity Statement of Opportunities (ESOO) has been met.
  - Recently, and for the foreseeable future, the RCP will be going up the RCP curve due to shortfalls in capacity.
  - The RCP for an entrant will be fixed for five years, based on the price in the first capacity year and will be indexed annually.
  - The revenue from capacity credits is determined by both the duration of storage and the prevailing RCP.
  - The Coordinator determined the BRCP must be determined on a gross cost of new entry (CONE) basis, which means a BESS will get higher revenue from participating in the energy market for what it requires to be viable.
  - The Coordinator will review the technology underlying the Benchmark Capacity Providers every three years. The review may be conducted even more frequently as the electricity storage resource obligation duration (ESROD) changes.
- Chye acknowledged the BRCP is not the RCP, but the reserve capacity mechanism (RCM) is trying to encourage investment in a long-term asset based on a dominant revenue stream that changes annually. Investors will wait for a major shortfall to have the buffer of an RCP that is higher than their cost of capital. It is better to adopt an infrastructure investment approach, like an access arrangement for a gas pipeline, where the rate of return is not changed annually.
- Shahnazari noted:
  - The tilting annuity approach is not intended to manage risk, but to ensure the cashflow profile is consistent with investors' expectations of the cost of technology. An investor entering the capacity market will form an expectation of the BRCP, and ultimately RCP, in the future which will determine their cashflows in the RCM.
  - The WACC addresses the risks that will affect the BRCP, such as the expectation of future technology costs.
  - The ERA does not have the scope to lock-in the BRCP for a fixed number of years, which is a policy consideration. The ERA must determine the BRCP annually following the guidance in the WEM Rules.
- Dignard summarised the matters the ERA will consider:
  - What are the costs of the reference technology?
  - What is the rate of return required for a BESS BRCP?
  - What is the profile of cashflows for capital costs?

4. Next steps

- The Working Group Chair noted:

- The ERA has engaged GHD to support and provide technical advice for this review.
- The ERA may prepare an indicative BRCP to inform this review. This indicative BRCP will *not* be used for the next determination but is a high-level estimate derived for the purpose of developing the BRCP Procedure.
- The next Working Group meeting will be held during the week beginning 19 February 2024. Meeting papers will be circulated ahead of the meeting. The agenda will focus on seeking feedback on GHD's initial advice and the ERA's working approach to determine transmission and land costs.
- The ERA expects to publish a procedure change proposal for consultation in early April 2024.

5. General business

- No other items were raised.

6. Meeting closed at 3:00PM