Australian Government

Department of Climate Change, Energy, the Environment and Water

Capacity Investment Scheme

Market Briefing Note | Guidance on evaluation of Merit Criteria 5 – Financial Value

April 2024

Purpose

This Market Briefing sets out information relating to the evaluation of Merit Criteria (MC) 5 – Financial Value in the Capacity Investment Scheme (CIS) South Australia-Victoria tender (SA-VIC Tender).

This Market Briefing intends to help Proponents prepare competitive Financial Value Bids for the CIS SA-VIC Tender. Proponents should refer to the Tender Guidelines as the primary source of information for all tender related matters.

This Market Briefing is issued by the Commonwealth pursuant to the Tender Guidelines. Capitalised terms not otherwise defined have the meaning set out in the Tender Guidelines.

The Financial Value of Projects is assessed as a function of estimates for cost and benefit (including benefits for reliability). This Market Briefing provides an overview of the factors that affect the Financial Value of Projects.

Tender assessment process

The Tender Guidelines are the single source of information for Proponents seeking to understand how Bids will be assessed in the CIS SA-VIC Tender. This Market Briefing is intended to facilitate understanding of the MC5 assessment. Bids are assessed against seven Merit Criteria under a two-step process which is summarised below:

Stage A – Project Bid

Assessment against four Merit Criteria designed to assess contribution to system reliability and system benefits, Project deliverability and timetable, Organisational capability to deliver Project, and Community and First Nations engagement.

Stage B – Financial Value Bid

Financial Value Bids sought and assessed for Financial Value, Commercial Departures and Social Licence Commitments.

Projects may be recommended to enter into a Capacity CIS Agreement (CISA) with the Australian Government based on the outcomes of the tender assessment process, as detailed in the Tender Guidelines.

Providing Bid Variables

In the MC5 Returnable Schedule, Proponents must submit, among other things, details of their Project and their nominated Annual Revenue Floor, Annual Revenue Ceiling, Annual Payment Cap, COD (Target) and Support Period (by proposing a Support Period Start Date and Final Expiry Date).

Many parameters for a Project will have been committed to in Stage A (e.g. storage duration, location, technology). These may be key drivers of the Project's Contribution to Reliability and Project Benefits. In Stage B, Proponents should focus on achieving a competitively low Net CISA Cost through the Bid Variables.

A low Annual Payment Cap and a low Annual Revenue Floor are expected to be the most impactful Bid Variables for lowering Net CISA Cost.

Objective for the SA-VIC Tender

A Policy Objective for the SA VIC Tender is to encourage new investment in clean dispatchable capacity to support reliability, and to reduce market volatility in Australia's rapidly changing energy markets.

Stage B seeks to:

- Assess Projects and Bids based on their potential to contribute to the Policy Objective, with a focus on Contribution to Reliability.
- Encourage competitive bidding behaviour in relation to Bid Variable

How will Financial Value be assessed?

The nature of the MC5 assessment is intended to ensure Bids are not awarded a CISA solely for being lowest cost without considering the value of their Project's addition to the market in terms of contributing to reliability and having Project Benefits. The assessment is described below.

Note: The description of Financial Value in this Market Briefing is not an exhaustive or comprehensive summary of the evaluation process. Each of the Commonwealth and AEMO retain discretion to score and assess Bids and make recommendations in accordance with the Tender Guidelines.

Component Analysis

The components analysed under MC5, and how they vary based on key Project Parameters and Bid Variables, are listed in Table 1. These components may vary for each Project and Bid depending on several factors, as also listed in Table 1. A Project with high Contribution to Reliability, low Net CISA Cost and high Project Benefits will score favourably.

Table 1: Components assessed under Financial Value in MC5

Component	What does it measure	Impact of variables to consider when preparing your bid
Contribution to Reliability	Measured through the potential unserved energy that may be avoided by the Project in a particular modelled year. The modelling for this is taken from one component of the assessment for Merit Criteria 1. Analysis will consider a Project's location, duration, and capacity.	In absolute terms (i.e. not divided by MWh) the Contribution to Reliability is expected to be higher for Projects that: • Are unconstrained in times of high demand, e.g. located closer to load centres. • Have longer duration capabilities. • Have higher capacity in MW.
Net CISA Costs	The net present value of forecast payments to, and from, the Australian Government under a CISA. Costs to the Australian Government are a function of the Project's Net Operational Revenue and Bid Variables.	Costs could be reduced if the Bid or Project has the following features (all else being equal): • Lower Annual Payment Cap. • Low Annual Revenue Floor. • Low Annual Revenue Ceiling. • Fewer Support Periods. • High forecast Net Operational Revenue for the Project (modelled for the Proponent's Project).
Project Benefits	The forecast wholesale price impact of each Project in the NEM toward lowering price volatility and load cost, improving supply adequacy and reducing potential curtailment. Project Benefits will consider the Project parameters and modelled operation in the energy market. The physical parameters of a Project also affect its forecast Net Operational Revenue.	Assessment could reward Projects that can: • Commit to an earlier Commercial Operation Date (COD) as there is expected to be greater opportunity in early years for Projects to have a beneficial wholesale market impact. • Provide longer periods of benefit through higher dispatch duration or longer asset lives of different technologies. • Provide greater amounts of energy in peak periods through a higher dispatch capacity in MW. • Provide greater contribution to the market by locating in network locations that have good access to load centres. • Operate more efficiently through a high round-trip efficiency or low fuel cost and high fuel availability.

Scenario analysis

MC5 modelling will consider forecasts for each Financial Value Bid across a range of future energy market scenarios for the assessment. High merit Bids should demonstrate value across a diverse range of future energy market scenarios. Lower merit Bids may have low value in one or multiple scenarios. Applying scenario analysis provides robustness and ensures that the evaluation has considered a range of plausible outcomes.

Scenarios will be developed to represent a range of theoretical future market conditions with varying levels of volatility. These scenarios may include a base case scenario supported by higher and lower volatility scenarios that reflect plausible but extreme bookends. Volatility is seen as a key driver of how Projects will perform and the revenues they can earn when they operate in a way that seeks to maximise arbitrage revenue from the wholesale market. Therefore, the opportunity for Projects to provide a wholesale market impact and to earn revenues may vary widely between scenarios.

Input assumptions for the scenarios may differ by:

- **Key market assumptions** including but not limited to demand, coal retirements, fuel prices, uptake of distributed energy resources, renewable energy availability and transmission augmentation.
- **Non-equilibrium inputs**, induced through inputs which can increase price volatility, e.g. through renewable droughts and generator/transmission outages, “Volatility Levers”.
- **Weather reference years,** as weather variations impact both renewable generation output and consumer demand. Multiple historical reference years may be used to reduce the risk of basing evaluation on particular patterns of any individual year.
- **Policy objectives**, i.e. when the Australian Government or State-based targets are met in each scenario.

Scenarios are weighted. The weighting may consider the importance of each scenario for evaluation, and the expected probabilities of a scenario occurring.

Financial Value Metrics

Financial Value Metrics are used to translate the analysis from MC5 into useful information for making recommendations. The MC5 assessment will seek to score Bids highly if they perform well against the metrics listed in the table below.

Table 2: Financial Value Metrics for MC5 assessment

Metric	Description	Preferred outcome
Reliability-Cost Metric (RCM)	Contribution to Reliability per dollar of Net CISA Cost. This considers both the Project’s Contribution to Reliability as well as its Net CISA Cost.	A higher value is preferred.
Scenario-Weighted Benefit-Cost Ratio (BCR)	Project Benefits per dollar of Net CISA Cost. It is calculated by dividing Scenario-Weighted Project Benefits by Scenario-Weighted Net CISA Cost.	
Scenario-Weighted Project Benefits	Project Benefits, weighted across scenarios.	

Metric	Description	Preferred outcome
Scenario-Weighted Net CISA Cost	Net CISA Costs, weighted across scenarios.	A lower value, particularly a low Annual Revenue Floor and a low Annual Payment Cap (if the Australian Government is a net payor), is preferred.
Maximum CISA Cost	Maximum potential payments under the CISA.	

Further Financial Value Metrics or a combination of the metrics above which are developed to assess the cost, financial risks and benefits of Bids may also be considered. These may be less aggregated, e.g. per scenario, or scenario-weighted, and may be based on one or several of the components identified.

Financial Value Component: Contribution to Reliability

Contribution to reliability

A Project's forecast contribution to reduce projected unserved energy.

A key objective of the CIS for the SA-VIC Tender is to support system reliability, and the impact that a Project has on system reliability will be considered as a Financial Value Component within MC5.

Projects that Bid in the Tender will be rewarded for having more potential to reduce unserved energy. This will be used as the numerator in calculating the Reliability Cost Metric.

Modelling Contribution to Reliability

Projects bidding into this Tender are expected to contribute to improving reliability. Contribution to Reliability will be assessed through the modelled contribution that a Project has in reducing unserved energy across South Australia (SA) and Victoria (Vic).

The Contribution to Reliability in MC5 is informed by the modelling performed for MC1 ('Contribution to system reliability and system benefits').

In MC1, Projects are assessed on their ability to:

- Reduce unserved energy.
- Alleviate network congestion.
- Provide additional system benefits.

MC5 leverages the MC1 modelling component that is a Project's ability to reduce unserved energy. The Project's potential of reducing unserved energy is estimated considering the location and duration of each Project, as well as network limitations.

In MC5, Contribution to Reliability will be considered on both a Per Unit (i.e. per MWh of energy capacity) and absolute basis.

Impact of Project Parameters

Modelling for Contribution to Reliability considers at least three key Project Parameters which are outlined in Table 3 below.

Table 3: Project Parameters and their potential impact to Contribution to Reliability in MC1, all else equal

Project Parameters	Potential Impact in MC1 (all else equal)
Network Connection Point	A Project connected at a location that would unlikely be constrained during high demand periods – e.g. close to load centres – is expected to provide higher Contribution to Reliability.
Duration (hours)	Given a fixed capacity, a Project with a longer duration is expected to contribute more to avoided unserved energy, in absolute terms.
Capacity (MW)	Given a fixed duration, a Project with a larger capacity is expected to contribute more to avoided unserved energy, in absolute terms.

Financial Value Component: Project Benefits

Project Benefits

The forecast wholesale price impact of each Project in the NEM toward lowering price volatility and load cost, improving supply adequacy and reducing potential curtailment.

Projects that bid in the Tender are added to an Energy Market Model. Any reduction in load cost (i.e. the cost of meeting demand) in the Project-specific modelling when compared with the counterfactual is attributed as a benefit of the Project. This modelling considers the Project Parameters to model a dispatch profile for each Project across scenarios.

Projects will be rewarded through the Energy Market Model for reducing price volatility, lowering load cost, improving supply adequacy, and reducing potential curtailment.

Calculating Project Benefits

Projects bidding into this Tender are expected to operate on a price arbitrage strategy and are expected to reduce price volatility (both the average spread of prices and number of very high price events).

Modelling considers the impact of Projects on load cost across the NEM as benefits may be shared, particularly where Projects are located near interconnectors. Project Benefits in regions outside of SA and Vic may have a lower weighting than those within SA and Vic.

Formulaically, Project Benefits may be represented as below:

$$Project\ Benefits\ is\ the\ present\ value\ of\ W_s \times W_r \times (ALC - ALC')\ for\ each\ Region\ in\ the\ NEM, all\ Scenarios\ and\ over\ the\ Project's\ asset\ life.$$

Where:

- W_s is the weighting of each modelled scenario.
- W_r is the weighting of each region in the NEM.
- ALC is the annual load cost in a region and scenario before the addition of the Project being assessed.
- ALC' is the annual load cost in a region and scenario following the addition of the Project being assessed.

Impact of Project Parameters

Modelling will be Project-specific to better reflect differences in technology, location and other Project Parameters. Some parameters may be standardised for similar types of Projects (e.g., round-trip efficiency for 2-hour BESS).

Table 4: Project Parameters and their potential impact on Project Benefits in MC5, all else equal

Project Parameters	Potential impact in MC5 (all else equal)
Network Connection Point	Network locations with greater connection to load centres may allow for higher Project Benefits.
Storage duration	Longer storage duration may increase Project Benefits on an absolute basis.
Storage capacity	Larger Projects have a proportional increase to Project Benefits in absolute terms.
Commercial Operation	Earlier Projects may have higher Project Benefits if there are less competing Projects in earlier years and a greater opportunity to provide a wholesale price impact.
Round-trip efficiency	Technologies that can operate more efficiently may have higher Project Benefits.
Asset Life	Technologies with a longer asset life have a longer period to accrue Project Benefits.

Financial Value Component: Net CISA Cost

Net CISA Cost

Net CISA Cost considers the Bid Variables of a CISA and forecasts each Project's Net Operational Revenue to produce a net present value of payments to, and from, the Australian Government under a CISA.

Forecasting Net Operational Revenue

Energy market modelling is conducted for each Project to forecast Net Operational Revenue considering the Project's Parameters. Revenues are scenario-specific and will take on a range of values.

Net Operational Revenue is estimated by the sum of forecast merchant revenues:

- from buying and selling energy in the electricity spot market, *Potential Energy Arbitrage Revenue* (PEAR); and
- revenue from provision of regulation and contingency *Frequency Control Ancillary Services* (FCAS).

FCAS is quantified and accounted for as it may form a significant component of a Project's Net Operational Revenue over time.

Calculation of Net CISA Cost

Net CISA Costs are a function of the Project's Net Operational Revenue and Bid Variables. Formulaically, the calculation of annual CISA cash flows may be represented as below:

$$Net\ CISA\ Cost\ is\ the\ net\ present\ value\ of\ ACF\ over\ the\ Bid's\ Support\ Period.$$

$$ACF = \begin{cases} SP, & if\ NOR_{year} < ARF \\ 0, & if\ ARF < NOR_{year} < ARC \\ -RS, & if\ NOR_{year} > ARC \end{cases}$$

$$SP = minimum(90\% \times (ARF - NOR), APC)$$

$$RS = minimum\ (50\% \times (NOR - ARC), APC)$$

Where:

- ACF is the annual CISA cashflow.
- NOR is Net Operational Revenue.
- SP is the Annual Support Amount paid to the Project (as defined in the CISA).
- RS is the Annual Revenue Sharing Amount paid by the Project (as defined in the CISA).
- ARC is the Annual Revenue Ceiling.
- ARF is the Annual Revenue Floor.
- APC is the Annual Payment Cap.

Impact of variables

Project Parameters and Bid Variables impact Net CISA Costs. Net CISA Costs are reduced by higher Net Operational Revenues and lower Bid Variables.

Table 5: Key variables and potential impact on Net Operational Revenues and Net CISA Cost in MC5, all else equal

Variable	Potential impact in MC5 (all else equal)
Project Parameters	
Storage duration	Longer duration Projects have more opportunities to dispatch, which can increase revenues.
Storage capacity	Larger Projects have a proportional increase to revenue in absolute terms.
Round-Trip Efficiency	More efficient technologies can operate more often and at lower cost to earn higher revenue.
Bid Variables	
Support Years and Support Period	Cost may be reduced by a Bid with fewer Support Years or one with Support Years coinciding with modelled years of high revenues.
Annual Revenue Floor	A higher value puts upward pressure on costs as it requires a CISA support payment for a wider range of Net Operational Revenues.
Annual Payment Cap	A lower value reduces the maximum exposure of the Australian Government and puts downward pressure on costs if costs are forecast to be paid from the Australian Government to the Project.
Annual Revenue Ceiling	A higher value puts upward pressure on costs as it lifts the minimum Net Operational Revenue before CISA revenue sharing occurs.

Definitions

Term	Definition
Annual Payment Cap	Maximum revenue sharing or support amount provided to or from the Australian Government over a financial year.
Annual Revenue Ceiling	Maximum Net Operational Revenue before CISA revenue sharing is required by the CISA Operator.
Annual Revenue Floor	Minimum Net Operational Revenue before no CISA support payment is made to the CISA Operator.
Annual Revenue Sharing Amount	Has the meaning given to it in the CISA.
Annual Support Amount	Has the meaning given to it in the CISA.
Asset Life	Operational life of the Project facility
BCR	Benefit-Cost Ratio
Bid	Has the meaning given to it in Tender Guidelines.
Bid Variables	Has the meaning given to it in Tender Guidelines.
CIS	Has the meaning given to it in Tender Guidelines.
CISA (or 'Capacity CIS Agreement')	Has the meaning given to it in Tender Guidelines.
COD	Has the meaning given to it in the CISA.
Commonwealth	The Australian Government (Commonwealth of Australia) represented by the Department of Climate Change, Energy, the Environment and Water.
Contribution to Reliability	A Project's forecast contribution to reduce projected unserved energy, as assessed in MC5.
Energy Market Model	An energy market model is used to forecast each Project's impact on forecast power prices, and Project revenue.
FCAS	Frequency Control Ancillary Services
Financial Value Component	Contribution to Reliability, Project Benefits and Net CISA Cost, as assessed in MC5.
Financial Value Evaluation Framework (or 'Framework')	Framework to evaluate Financial Value
Financial Value Metrics	Metrics that are used to translate the analysis from MC5 into useful information for developing a score.
Maximum CISA Cost	Maximum CISA payments modelled under the agreement.
NEM	Has the meaning given to it in Tender Guidelines.
Net CISA Cost	CISA's cost to the Commonwealth
Net Operational Revenue	All revenue that can be attributed to the Project facility. Estimated as only the sum of merchant revenue from PEAR and FCAS for MC5 modelling purposes.
PEAR	Potential Energy Arbitrage Revenue. A CISA Project's net market revenues from buying and selling energy in the wholesale energy market.
Per Unit	Unit for a value that has been calculated by dividing an outcome for the full Project by the Project's MWh of energy capacity.
Policy Objectives	Has the meaning given to it in Tender Guidelines.
Project	Has the meaning given to it in Tender Guidelines.
Project Benefits	Project's benefits to the wholesale market
Project Parameters	Facility information sought from Proponents to support evaluation
Proponent	Has the meaning given to it in Tender Guidelines.
Reliability-Cost Metric	Metric which are used to represent the potential value or cost of a Project's modelled Contribution to Reliability.
Scenario-Weighted	Indicates that the metric uses weighted outcomes from multiple scenarios.
Support Period	Period between CISA contract's effective start date and end date
Tender Guidelines	The document titled "Capacity Investment Scheme - South Australia and Victoria Tender Guidelines" issued by the Commonwealth on 15 December 2023.
Volatility Levers	Inputs which are likely to cause higher volatility in market modelling, including renewable energy drought conditions, demand and/or extended generation/transmission outages.

Acknowledgement to Country | The Australian Government would like to acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, water and culture. We pay our respect to their Elders, past, present and emerging.