Market Briefing Note

Financial Value and System Benefits assessment for Long Duration Storage Infrastructure in Tender Round 9

Introduction

This Market Briefing Note sets out information relating to the assessment of Merit Criterion 1 (MC1) – Financial Value and System Benefits in Tender Round 9 for Long Duration Storage Infrastructure.

What you need to know when preparing your Bid

MC1 assesses costs and benefits of the Project associated with Bids for a Long-Term Energy Service Agreement (**LTESA**). The Bid Variables (**Bid Variables**) drive forecast costs and a Project's physical characteristics (**Project Parameters**) inform costs and benefits. The MC1 assessment uses financial value metrics (**Metrics**) for scoring Bids from high merit to low merit.

How bids are assessed – In the MC1 assessment, costs and benefits are considered across Wholesale Market Benefits, Net LTESA Cost, Reliability Contribution, System Strength Remediation Costs, System Strength Benefits, and System Security Services (collectively '**Components**'). Three of these Components are modelled across Scenarios: Reliability Contribution is modelled across Reliability Scenarios; and Wholesale Market Benefits and Net LTESA Cost are modelled across Electricity Market Scenarios (collectively '**Scenarios'**). These Components are used to calculate **Metrics** for MC1 scoring. The Metrics are expected to be Wholesale-Market Benefit-to-Cost Ratio (**BCR**), Reliability Contribution, System Strength Contribution, System Security Services and Maximum Liability.

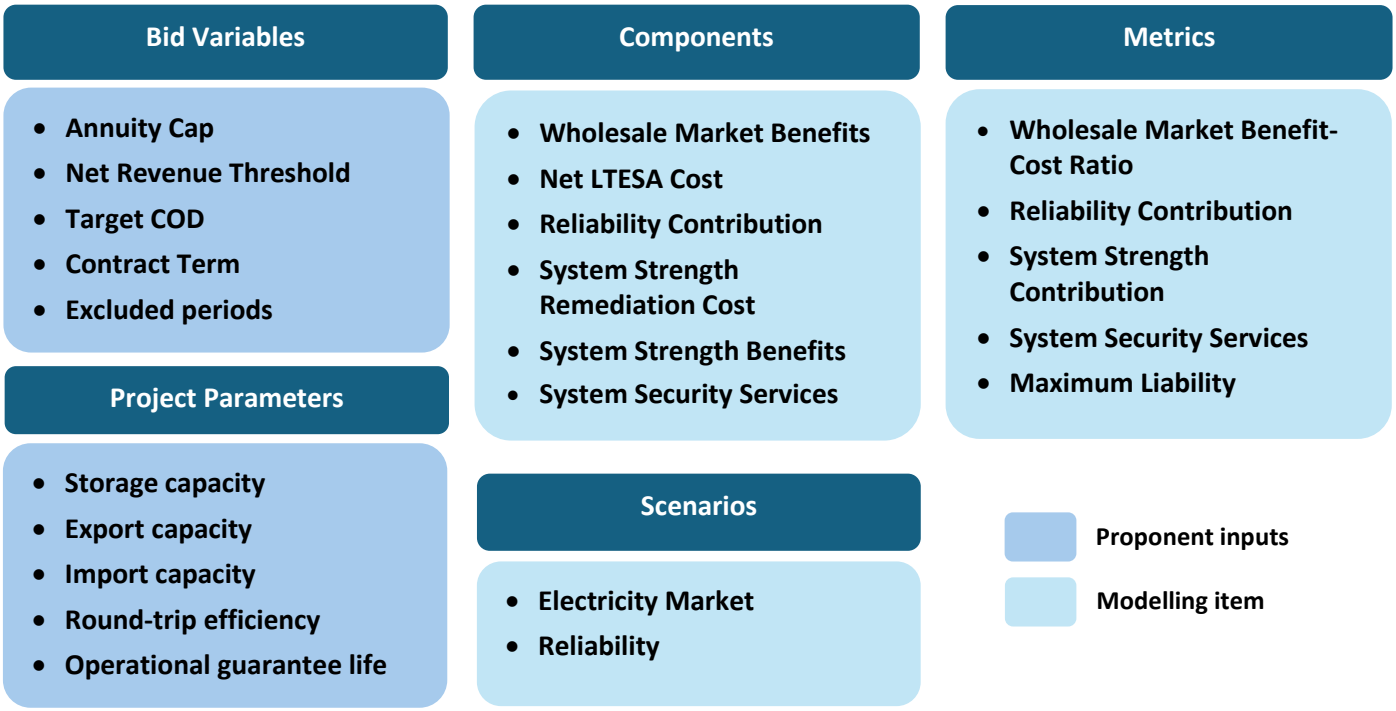
What makes a competitive Bid – A Project with a high contribution to reducing wholesale market costs and improving reliability, low LTESA costs, and providing system security benefits. All else being equal, characteristics of a competitive Bid are expected to include: low Annuity Caps and low Net Revenue Thresholds to reduce costs; and being located in a strong network location and having longer duration through overbuild of storage capacity to improve benefits. An early Commercial Operations Date (**COD**), where assessed as credible, can improve benefits.

When bidding for an LTESA, it is expected that Proponents consider the level of revenue support required to ensure their Project is commercially viable and can be delivered. Proponents are expected to aim to offer the most competitive Bid Variables that reflect the Project's financing and delivery requirements, and still provide sufficient value to the Project i.e., reasonable contract length and Bid Variables. Section 3 provides more detail on features of competitive Bids in MC1.

What to provide – Proponents are required to complete the MC1 Returnable Schedule with Bid Variables and Project Parameters. Proponents should focus on providing a competitive set of Bid Variables to achieve the lowest Net LTESA Cost relative to the Project's benefits.

The figure below provides an overview of the MC1 process.

Figure 1: MC1 assessment approach overview



Please note, the description of the financial value assessment in this Market Briefing is not an exhaustive or comprehensive summary of the assessment process. It is provided for information purposes only and is not intended as advice. Scoring against Merit Criteria is a key input considered by ASL. Under the *Electricity Infrastructure Investment Act 2020* (NSW) (**EII Act**) ASL may only recommend a Bid where it considers that the recommendation would be in the long-term financial interests of NSW electricity customers (having regard to the assessment as a whole), and the recommendation satisfies or is consistent with all relevant statutory requirements and duties. ASL retains discretion in how it scores and assesses Bids and how it makes recommendations. It will not be held to a rigid assessment formula or policy. Nothing in this Market Briefing should be construed as binding on ASL or limiting its statutory discretion. To the extent of any inconsistency between this Market Briefing and the Tender Guidelines, the Tender Guidelines will prevail.

1. Purpose of this Document

This Market Briefing aims to help Proponents understand the assessment process for MC1. It provides an overview of factors expected to impact this assessment and provides examples of what was assessed as being competitive in previous Tender Rounds. This information is provided to support Proponents in preparing competitive Bids.

The Tender Guidelines are the single source of information for Proponents seeking to understand how ASL (acting as the Consumer Trustee under the EII Act) will evaluate Bids.

Competition and assessment methodologies evolve with each Tender and as such, examples of competitive Bid characteristics provided in this Market Briefing are provided for information purposes only and are not indicative of the characteristics that may constitute a winning Bid.

This Market Briefing refers to the Long Duration Storage (**LDS**) LTESA for Tender Round 9. Please refer to Section 2 of the Tender Guidelines for additional details.

In this Market Briefing:

- Section 2 provides an overview of the MC1 assessment process.
- Section 3 outlines the characteristics of high performing Bids in previous Tenders.
- Appendix provides further details on how the Components are calculated.

This Market Briefing should be read in its entirety. For information on submitting a Bid, please see the Tender Guidelines.

2. MC1 assessment overview

2.1 Objectives

The basis for conducting NSW Roadmap Tenders is underpinned by the Infrastructure Investment Objective (**IIO**) Reports, which sets the infrastructure development pathways to achieve NSW Roadmap objectives.

This MC1 assessment approach is designed to identify Projects that can best contribute to meeting the IIOs for LDS, which includes minimising costs to NSW electricity customers and meeting the NSW Reliability Standard. Please refer to the Tender Guidelines for the tender target and IIO minimum objectives.

Competitive Bids are expected to have a low Annuity Cap, low Net Revenue Threshold, other competitive Bid Variables, be located in a strong network location and provide a long duration of storage. Projects are also expected to be available to the market in-time to meet the minimum IIO targets. Further, high value Bids would also be expected to contribute to meeting system strength requirements in NSW and have the capability of providing other system security services.

2.2 Components

The Components consider a range of benefits and costs, and drive the Metrics used for scoring MC1, as outlined below and in Section 2.4.

Components are modelled using Bid Variables and Project Parameters submitted by Proponents through the Bid Form and MC1 Returnable Schedule. ASL will review and verify Project Parameters, including with input from technical advisors where required. As part of the assessment, ASL may apply standardised assumptions or undertake sensitivity analysis to test the impact of these parameters on outcomes.

A summary of Components is provided in Table 1, Table 2 and Table 3 below. Refer to the Appendices for more information on the calculation of Components.

Table 1: BCR Components

Component	Summary
Wholesale Market Benefits	• Projects incentivised to enter the market through an LDS LTESA are expected to put downward pressure on wholesale electricity prices, reducing costs to NSW electricity customers. • Electricity market modelling is conducted to compare the wholesale cost impact of the Project (**Project-Specific Case**) against baseline scenarios of the future without the Project (**Counterfactual Case**). • Modelled across several Electricity Market Scenarios (see Section 2.3.1).
Net LTESA Cost	• Estimated costs to the Scheme Financial Vehicle (**SFV**) which may be incurred under an LTESA. • Calculated with the Annuity Cap and Net Revenue Threshold of the Bid, and the forecast revenues of the Project considering its Project Parameters. • There are no costs in periods where Proponents have excluded an LTESA option or after the final year of the Contract Term. • Modelled across several Electricity Market Scenarios (see Section 2.3.1).

Table 2: Reliability Components

Component	Summary
Reliability Contribution	• Forecasts a Project's potential to reduce unserved energy in NSW. • System reliability contribution assessment is based on modelling that draws on methodologies used in AEMO's Electricity Statement of Opportunities (**ESOO**). • Modelled across different time-horizons in Reliability Scenarios (see Section 2.3.2)

Table 3: System Security Components

Component	Summary
System Strength Remediation Cost	• Estimated remediation cost of any general system strength impact in NSW, if applicable, and potential ability for the Project to avoid or defer the cost of procuring network solutions such as synchronous condensers. • Expected to consider a Project's requirement for system strength remediation and, if relevant, the remediation option, inverter-type and Withstand Short Circuit Ratio (**WSCR**).
System Strength Benefits	• Estimated contribution to meet minimum fault level or achieve efficient levels of system strength in NSW.
System Security Services	• Assessment of a Project's ability to provide system security services. • Assessed system security services may include voltage management, frequency management, synchronous or synthetic inertia, and black start capability.

2.2.1 Hybrid Projects

Hybrid Projects are defined in the Tender Guidelines as co-located LDS and generation assets where both assets share a common connection point.

A Hybrid Project can participate in this Tender Round as a non-Assessed Hybrid.

Projects that bid as a non-Assessed Hybrid are expected to be contractually committed to deliver only the LDS component under the PDA if awarded an LTESA. Only the LDS component is expected to be assessed against MC1.

2.3 Scenario based analysis

Wholesale Market Benefits, Reliability Contribution, and Net LTESA Cost are modelled across Scenarios to test for robustness of outcomes. Three Electricity Market Scenarios are expected to be used to model Wholesale Market Benefits and Net LTESA Cost. Reliability Contribution uses a distinct modelling approach to the other Components, with separate Reliability Scenarios reflecting reliability risks over different time-horizons. Table 4 outlines which Components applies to which Scenarios.

Table 4: Scenarios used to assess the Components (a tick indicates that the Scenario applies to a related Component)

Scenarios		Components		
		Wholesale Market Benefits	**Net LTESA Cost**	**Reliability Contribution**
Electricity Market	**Central**	✓	✓	
	Low	✓	✓	
	High	✓	✓	
Reliability	**Medium-Term**			✓

	Long-Term			✓
	Long-Term (low VRE)			✓

ASL retains discretion to consider additional Scenarios beyond those listed above in assessment.

2.3.1 Electricity Market Scenarios

Future electricity market prices are uncertain due to rapid changes underway in the National Electricity Market (**NEM**). Wholesale Market Benefits and Net LTESA Cost will be tested across Electricity Market Scenarios which represent a range of possible future market outcomes. This tests how Projects perform against multiple potential future pathways and helps to understand potential risks.

The Electricity Market Scenarios will consider a range of price and volatility outcomes. Competitive Bids are expected to have relatively high value to NSW electricity customers across the Electricity Market Scenarios.

Scenarios used in previous Tender Rounds have generally aligned with the narratives below:

- **Central Scenario:** Intended to represent the most likely future state, built on assumptions from the latest Input Assumptions and Scenarios Report by AEMO and the IIO Report by ASL but updated to reflect investor sentiment. This Scenario has previously considered delays to new generation development and possible delays to coal retirement.
- **Low Scenario:** A Scenario where market prices and volatility are low. This Scenario is driven by timely coal closures, low gas prices, low capex prices, timely transmission build and rapid renewable uptake. This Scenario expects lower Wholesale Market Benefits and higher Net LTESA Costs for Bids, compared with the Central Scenario.
- **High Scenario:** A scenario where there is high volatility through increased average volatility or extended duration of volatility events. This scenario is driven by high demand, high gas prices, early coal retirements, increased thermal generator outages, high demand growth, slow transmission build, slow renewable uptake and renewable energy droughts. This Scenario expects higher Wholesale Market Benefits and lower Net LTESA Cost for Bids, compared with the Central Scenario.

Weather variations impact both renewable generation output and consumer demand. Multiple historical reference years may be used to reduce the risk of basing the assessment on the weather patterns of a particular year.

A weighting is assigned to each Electricity Market Scenario based on relative importance for assessment. This can consider the Scenario's likelihood of occurrence (for example, a high weighting for the Central Scenario if it is considered the more likely) or risk-tolerance (for example, a high weighting on the Low Scenario to reflect preference for reducing Net LTESA Cost).

2.3.2 Reliability Scenarios

Reliability Contribution reflects a Project's forecast ability to reduce unserved energy across different forecast horizons. Assumptions are generally based on inputs to AEMO's 2025 Enhanced Locational Information Report with updates to consider the impacts of additional committed and anticipated generation consistent with AEMO's January 2026 Generation Information. The Reliability Scenarios are designed to reflect different horizons of the energy transition and aim to reward Projects that contribute the most to reducing system reliability risks.

The Reliability Scenarios are expected to consider the following narratives:

- **Medium-Term**: focus on broad NSW reliability risks in the medium term. Major networks limitations are largely resolved, and Eraring has retired.
- **Long-Term**: focus on reliability risks in the longer-term horizon where all coal thermal plants in NSW are retired and includes high levels of VRE. Coal retirements are expected to put upward pressure on potential unserved energy.
- **Long-Term (low VRE)**: based on the Long-Term scenario but focuses on a single historical weather year

where low VRE generation contributes most to unserved energy to consider its impact on Reliability Contribution.

It is expected that as many as 14 historical weather reference years will be used for the modelling of Medium-Term and Long-Term. Only a single reference year will be considered for the Long-Term (low VRE). The Long Term and Long-Term (low VRE) scenarios have been designed to meet the requirements under *Electricity Infrastructure Investment Amendment Regulation 2025*.

2.4 Metrics

The information in Components is translated into Metrics used for scoring. Metrics that are expected to inform scoring are outlined in the tables below. BCR and Reliability Contribution are expected to be the primary Metrics for MC1 scoring, supported by System Strength Contribution, System Security Services, and Maximum Liability. Projects are expected to need to perform competitively across multiple Metrics to achieve a high score in MC1.

Table 5: Components for MC1 assessment

Components	Unit	Description	Direction of preference
Wholesale Market Benefits	$, net present value	Reduction in wholesale electricity market costs of meeting NSW demand.	Higher
Net LTESA Cost	$, net present value	Forecast costs to the SFV which may be incurred under an LTESA.	Lower
Reliability Contribution	%, contribution	A Firmness Factor which reflects a Project's potential to reduce modelled unserved energy.	Higher
System Strength Remediation Cost	$ per MVA	Calculates the Project's remediation cost for its impact to system strength.	Lower
System Strength Benefit	$ per MVA	A Project's potential fault current contribution and effectiveness across NSW system strength nodes.	Higher
System Security Services	Number of services	Project's ability to provide essential system security services.	Higher

Table 6: Metrics for MC1 assessment

Key Metrics	Unit	Description	Direction of preference
BCR	$/$	Calculated by dividing the scenario-weighted Wholesale Market Benefits by scenario-weighted Net LTESA Cost.	Higher
Reliability Contribution	%, contribution	A Firmness Factor which reflects a Project's potential to reduce modelled unserved energy.	Higher
System Strength Contribution	$ per MVA	Calculated by subtracting System Strength Remediation Costs from System Strength Benefits.	Higher
System Security Services	Number of services	Project's ability to provide essential system security services.	Higher
Maximum Liability	$	Total potential cost to the SFV, calculated by assuming the Project earns zero Net Operational Revenue and is paid the full Annuity Cap for the Contract Term of the LTESA. This is not dependent on Scenarios.	Lower

Components and Metrics may be considered on an absolute or a per unit (i.e. per MW or per MWh) basis, with the assessment expected to not bias towards smaller or larger Project capacities (in MW).

Further Metrics than those listed above may also be considered, or a combination of the Metrics above, where they are developed to assess the benefits, cost and financial risks of Bids. These additional Metrics may be less aggregated (e.g. per Scenario, or Scenario-weighted) and may be based on one or several of the Components

identified. For example, a version of BCR adjusted by the potential value of avoided or deferred costs of procuring network solutions such as synchronous condensers, may be considered in scoring MC1.

3. Characteristics of high performing Bids in previous Tender Rounds

Competitive Bids are expected to be tailored to the Proponent's needs while minimising LTESA costs to NSW electricity customers. There is significant flexibility embedded in the LDS LTESA which can balance providing support to Projects, while unlocking value for NSW electricity customers. Proponents may use this flexibility across their Default and Alternative Financial Value Bids as outlined in Section 3.2.3 and Section 3.2.4 of the Tender Guidelines.

This section draws on insights into the factors that made LDS LTESA Bids competitive in previous tenders and is informed by previous Market Briefing Notes (relating to financial value assessments and outcomes). Please refer to these documents for further information.

Table 7: Characteristics of high performing Bids in the LTESA assessment from previous tender rounds

	Key	Outcomes
Financial	**Net LTESA Cost**	A low Net LTESA Cost is a key driver for Bid success. Previous assessments have seen these following features improve Bid competitiveness through lowering the Net LTESA Cost: • Low Annuity Cap and low Net Revenue Threshold. • Reduced Contract Term or excluding multiple Annuity Periods. • Nominal dollar Bid Prices which reduce the SFV's exposure to Consumer Price Index (CPI) risk. All else being equal, these features are expected to reduce both cost and risk to the SFV on behalf of NSW electricity customers.
	Bid Prices	While both low Annuity Caps and Net Revenue Thresholds contribute to competitiveness, previous assessments have seen Annuity Cap having a greater impact on MC1 through reduced Net LTESA Costs and Maximum Liability (all else being equal), compared with the Net Revenue Threshold. Bidders often set Annuity Caps below their Net Revenue Thresholds, indicating they are accepting some market revenue risk and not relying on the LTESA to fully cover their investment costs. This approach helps reduce Net LTESA Cost and Maximum Liability.
	Maximum Liability	Maximum Liability considers the maximum potential payment from the SFV over the Contract Term assuming zero Net Operational Revenue. Projects were more competitive if they had a competitively low Maximum Liability. Annuity Cap is a key driver for minimising both Net LTESA Cost and Maximum Liability. Bids could also reduce their Maximum Liability by reducing their Contract Term; excluding Annuity Periods; or, by bidding in nominal dollars and reducing CPI-risk for the SFV (all else equal).
Physical	**Network location**	Connecting to strong parts of the NSW electricity network is critical to providing high Reliability Contribution, a key driver in delivering Wholesale Market Benefits, and is likely to allow for a higher contribution to System Strength Contribution. Stronger parts of the network are better able to transfer a Project's power to load centres during times of highest need. Refer to Tender Guidelines Section 4.2.1 for further information on the locational reliability factors.
	Storage duration	Overbuilding the Project to provide greater than 8 hours of storage duration has been assessed favourably, as the additional storage is assessed to provide higher absolute Wholesale Market Benefits, all else being equal. A longer storage duration may also be assessed to have higher Reliability Contribution if it allows the Project to further reduce modelled unserved energy. Projects in previous tenders have demonstrated this by providing up to 15 hours of nominal storage duration.

Key		Outcomes
	COD	An earlier COD, where considered credible, has been assessed favourably where it allowed the Project to capture more market opportunities arising from early wholesale market volatility and fewer competing Projects. This led to higher forecast Net Operational Revenues in earlier years which can put downward pressure on Net LTESA Costs. Earlier CODs can also increase Wholesale Market Benefits where the Project can contribute towards reducing forecast wholesale market costs in early modelled years.
	Technology	All else being equal, the following technology-specific parameters would increase Wholesale Market Benefits and maximise System Strength Contribution: • Technologies that are assessed to have longer asset lives would be more competitive, all else equal, as they can earn Wholesale Market Benefits over a longer period. • Technology-parameters, such as round-trip efficiency, may also increase a Project's modelled operation in the market and could increase Wholesale Market Benefits and potentially reduce Net LTESA Costs. • Technologies with a lower WSCR and higher fault current contribution, through being synchronous or potentially enabled by using grid-forming capabilities, could be more competitive as they can minimise System Strength Remediation Costs while maximising System Strength Benefits.

Appendix A: Further details on Net LTESA Cost and Maximum Liability

A1. Net LTESA Cost

The Net LTESA Cost is the forecast costs to the SFV which may be incurred under an LTESA. This is calculated using the Bid Variables and forecasts of the Project's Net Operational Revenues under different scenarios. The Project's dispatch duration, network location and load potential are considered in forecasting Net Operational Revenue. There are no forecast costs during excluded periods or after the Contract Term.

Competition in the process is expected to require Bid Prices to be set competitively low to demonstrate high Financial Value in MC1

The Annuity Cap and Net Revenue Threshold (collectively **Bid Prices**) are expected to be set to reflect a Project's potential Net Operational Revenues and the residual funding gap. The Bid Prices and other Bid Variables are determinants of a Bid's Financial Value. The Annuity Cap sets an upper bound on annual LTESA payments from the SFV to the Project and has a high impact on Net LTESA Costs. Projects with a lower Annuity Cap are likely to have lower costs to the SFV and NSW electricity customers. The Net Revenue Threshold, on the other hand, is a threshold of Net Operational Revenues, below which the SFV is expected to make a payment to the Project. Revenues above the Net Revenue Threshold may be shared between the Project and SFV. This is also intended to be reflected in the assessment.

Bid Prices may not be immediately comparable across Projects. Projects with higher capacity and longer duration may naturally have higher Bid Prices but these can be offset by higher revenue potential which put downward pressure on Net LTESA Cost, or more broadly through higher Wholesale Market Benefits and Reliability Contribution.

Net LTESA Cost is driven by the forecast Net Operational Revenue of a Project

For MC1, Net Operational Revenues are modelled as the sum of Potential Energy Arbitrage Revenues (**PEAR**) and Frequency Control Ancillary Services Market Revenues (**FCAS**). These can take a range of values across the modelled scenarios. These Components are brought together in the formula below and used to estimate Net LTESA Costs.

$$Net\ Operational\ Revenue = MerchantRevenues_{PEAR} + MerchantRevenues_{FCAS}$$

Where:

- *Net Operational Revenue* is the estimated Net Operational Revenue for the Project in a given year.
- $MerchantRevenues_{PEAR}$ is the estimate of Potential Energy Arbitrage Revenues for the Project assuming it operates in a way that maximises energy arbitrage revenue in the wholesale energy market. This may capture additional value to Projects with higher durations as the additional dispatch periods may be used to earn higher arbitrage revenues.
- $MerchantRevenues_{FCAS}$ is the estimate of FCAS market revenues.

The Net LTESA Cost calculation is designed to reflect the payment mechanics of the LDS LTESA structure

Net LTESA Cost is expected to reduce as Bid Prices reduce, rewarding competitive Bid Prices. A low Annuity Cap is expected to be more impactful on assessment as it becomes increasingly likely to bind and limit payments to the SFV. This can affect both the Net LTESA Cost and Maximum Liability.

$$Net\ LTESA\ Costs = Present\ Value\left(CostEstimate_{year} - RepayEstimate_{year}\right)$$

$$for\ all\ scenarios\ and\ over\ all\ years\ for\ Contract\ Term$$

$$CostEstimate_{year} = \begin{cases} AC\ if\ NOR \leq NRT - AC \\ AC - 0.75\big(NOR - (NRT - AC)\big)\ if\ NRT - AC < NOR \leq NRT + \frac{AC}{3} \\ 0\ if\ NRT + \frac{AC}{3} < NOR \end{cases}$$

$$And\ if\ Historical\ Net\ Payment\ is\ non\text{-}zero,$$

$$RepayEstimate_{year} = \begin{cases} 0, & if\ NOR_{year} \leq NRT - AC \\ \frac{1}{8}(NOR - (NRT - AC)), & if\ NRT - AC < NOR \leq NRT + \frac{AC}{3} \\ \frac{1}{2}(NOR - NRT), & if\ NRT + \frac{AC}{3} < NOR \end{cases}$$

Where:

- AC is the Annuity Cap bid in a given year.
- NRT is the Net Revenue Threshold bid in a given year.
- *NOR* is Net Operational Revenue as previously defined.

If net revenues are below NRT minus AC, the LTES Operator receives the full AC. The LDS LTESA annuity payment is reduced by 75% of every additional dollar of revenues above NRT minus AC. This is reflected in the formula as the additional term $0.75 \times \big(NOR - (NRT - AC)\big)$. This adjustment ensures that the LTES Operator continues to be incentivised to earn market revenues by retaining some of the additional net revenues it earns. As a result, the point above which the annuity payment is equal to zero is slightly above the NRT, and is equal to $NRT + \frac{AC}{3}$.

A2. Maximum Liability

Maximum Liability represents the total potential cost to the SFV over the full Contract Term, calculated by assuming an extreme scenario where the Project earns no Net Operational Revenue and is paid the full Annuity Cap for the entire Contract Term. This Metric is scenario-independent and reflects the highest possible financial exposure for the SFV.

While both the Annuity Cap and Net Revenue Threshold influence a Bid's competitiveness, the Net Revenue Threshold does not affect the Maximum Liability calculation. Its impact is generally more significant in scenarios where the Project is forecast to earn high Net Operational Revenues. Projects with a competitively low Maximum Liability have been assessed favourably, as they present lower financial risk to the SFV.

Appendix B: Further details on Wholesale Market Benefits

B1. Wholesale Market Benefits

Wholesale Market Benefits are measured based on the difference in the cost of meeting NSW electricity demand (load cost) between a Project-Specific Case and Counterfactual Case. This is modelled across the Electricity Market Scenarios and weighted by their respective weightings. Any reduction in wholesale electricity market costs is attributed as a benefit of the Project. As such, Wholesale Market Benefits are expected to occur where a Project lowers load-weighted prices, for example, by reducing intra-day price spreads and volatility, or by improving supply adequacy and reducing curtailment of low-cost generators.

For an individual Electricity Market Scenario, both the Counterfactual Case (see ***ALC*** in the equation below) and the Project-Specific Case (see ***ALC'*** in the equation below) are based on the same forecast of market developments including NSW demand growth and wholesale spot prices. The only difference is that the Project-Specific Case includes the Project being assessed.

Projects are assumed to dispatch based on modelled price signals – charging any storage during low market price periods and dispatching when prices are high. Modelled dispatch may also take into account any relevant dispatch constraints for the Project.

Wholesale Market Benefits are represented by the following calculation:

$$Wholesale\ Market\ Benefits = \sum_{s=1}^{n} W_s \times (ALC - ALC')$$

for the NSW region in the NEM, all Electricity Market Scenarios and over the Project's expected operational life

Where:

- W_s is the weighting of each modelled Electricity Market Scenario,
- *S* is a particular Electricity Market Scenario,
- *N* is the number of modelled Electricity Market Scenarios,
- *ALC* is the annual load cost in NSW in a scenario before the addition of the Project being assessed,
- *ALC'* is the annual load cost in NSW in a scenario after the addition of the Project being assessed.

While not explicitly shown, the summation in the above equation refers to the sum of discounted future cashflows to develop a present value.

Projects with a status of 'In Service' in AEMO's NEM July 2025 Generation Information (Gen Info) page will be assessed as not providing Wholesale Market Benefits. The July 2025 Gen Info page is the latest version issued prior to the release of the most recent biennial IIO Report (being the 2025 IIO Report published August 2025).

B2. Reliability Contribution

Reliability Contribution considers a Project's ability to reduce potential unserved energy, and therefore reliability risks, in NSW. Reliability Contribution is calculated as the effectiveness of the Project in reducing modelled unserved energy, relative to an energy-unlimited hypothetical Project optimally located for reliability in NSW.

Reliability modelling is conducted over the Reliability Scenarios using methods aligned with ESOO modelling.

Refer to Tender Guidelines Section 4.2 for further information on locational reliability factors.

Appendix C: Further details on System Strength Contribution and System Security Services

C1. System Strength Contribution

System Strength Contribution considers a Project's ability to effectively provide fault level support and the cost of remediation for a Project's system strength impact on NSW. The need for additional system strength solutions in NSW is necessary as thermal generators, which currently provide substantial fault levels to the system, retire.

When calculating System Strength Contribution, the potential for the Project to avoid or defer the procurement of network solutions such as synchronous condensers is considered, and may be included as part of an adjusted BCR calculation.

The System Strength Remediation Cost of the Project considers the Project's locational factors with respect to system strength nodes, WSCR and System Strength Unit pricing.

The System Strength Benefit of the Project considers the amount and effectiveness of fault current contribution that the Project may supply to NSW.

C2. System Security Services

Projects capable of providing system security services will be assessed favourably in MC1. Projects will be assessed on their ability to provide the following essential system services:

- Voltage management
- Synchronous or synthetic inertia
- Frequency management
- Black start capability

Appendix D: Glossary

Term	Definition
Annuity Cap	Annuity Cap is a Bid Variable. It sets the maximum payment that may be paid by the SFV to the LTES Operator in a Financial Year of an Annuity Period.
ASL	AusEnergy Services Limited.
BCR	Wholesale-Market Benefit-to-Cost Ratio. One of the Metrics used in the MC1 assessment. Calculated by dividing Wholesale Market Benefits by Net LTESA Costs (both scenario-weighted and discounted).
Bid	Bid submitted by Proponents in a Tender Round.
Bid Prices	Refers to the Annuity Cap and Net Revenue Threshold.
Bid Variables	Nominated inputs from a Project in the MC1 Returnable Schedule. Includes Annuity Cap, Net Revenue Threshold, Contract Term, excluded periods and Target COD.
COD (or Target COD)	Target Commercial Operations Date. Target COD is a Bid Variable.
Components	As defined in Section 2.2 of this Market Briefing.
Consumer Trustee	As defined in the Tender Guidelines.
Contract Term	Under a Default Bid, the Contract Term is fixed at 14 years for chemical batteries, and 40 years for pumped hydro. Under an Alternative Bid, the Contract Term is a Bid Variable. Please see Tender Guidelines Section 3.2.4 for more detail.
Counterfactual Case	The no-Project, baseline case for calculating Components for Electricity Market Scenarios.
CPI	Consumer Price Index.
Electricity Market Scenarios	Scenarios used for Electricity Market modelling.
EII Act	Electricity Infrastructure Investment Act 2020 (NSW).
ESOO	AEMO's Electricity Statement of Opportunities.
FCAS	Frequency Control Ancillary Services.
Firmness Factor	The firmness of various technologies in meeting maximum demand, in MW.
Hybrid Project	Hybrid Projects are defined in the Tender Guidelines as co-located firming and generation assets, in which both assets share a common connection point.
IIO	Infrastructure Investment Objectives.
IIO Report	Infrastructure Investment Objective Report prepared by the Consumer Trustee under Section 45(2) of the EII Act.
LDS	Long Duration Storage. Storage Projects with a minimum duration of 8-hours.
LTESA (or LDS LTESA)	Long-Term Energy Service Agreement.
Maximum Liability	Equal to the sum of the full Annuity Cap being paid in every Annuity Period over the Contract Term.
MC1	Merit Criterion 1 - Financial Value and System Benefits.
Metrics	Metrics including BCR, Reliability Contribution, System Strength Contribution, System Security Services, and Maximum Liability that are used to evaluate Projects.
NEM	National Electricity Market.
Net LTESA Cost	As defined in Section 2.4 and Section A1 of this Market Briefing.
Net Operational Revenue	Intended to cover all revenue streams for the Project that are received by the LTES Operator, netted off against permitted costs. This would be gross revenue generated through the wholesale energy market, ancillary markets, network support, any future emerging markets and any other eligible contracts, minus certain costs of purchasing energy to generate these revenues.
Net Revenue Threshold	The Net Revenue Threshold is a Bid Variable. As a Project's Net Operational Revenue increases toward the Net Revenue Threshold, the annuity payment from SFV reduces below the Annuity Cap. If Net Operational Revenue exceeds the Net Revenue Threshold, a 50% revenue sharing percentage applies and a repayment to the SFV may apply. Repayments are capped at Historical Net Payments. A lower Net Revenue Threshold may reduce the Net LTESA Cost, all else being equal, but it had a lesser impact on Net LTESA Cost than minimising an Annuity Cap.
PDA	A contract that governs the achievement of financial close, the construction and relevant social licence commitments of a Project awarded an LTESA.
PEAR	Potential Energy Arbitrage Revenues.
Project Parameters	The Project's physical characteristics.
Project-Specific Case	The Project-inclusive, project case for calculating Components for Electricity Market Scenarios.
Proponent	Participants in a Tender Round.

Reliability Contribution	As defined in Section 2.4 and Section B2 of this Market Briefing.
Reliability Scenarios	Scenarios used for system reliability modelling.
Reliability Standard	As defined in the Tender Guidelines.
Scenarios	Electricity Market Scenarios and Reliability Scenarios.
SFV	Scheme Financial Vehicle - the counterparty to the LTESAs and responsible for administering payments pursuant to Section 62 of the EII Act.
System Security Services	As defined in Section 2.4 and Section C2 of this Market Briefing.
System Strength Contribution	As defined in Section 2.4 and Section C1 of this Market Briefing.
System Strength Benefit	As defined in Section 2.4 and Section C1 of this Market Briefing.
System Strength Remediation Cost	As defined in Section 2.4 and Section C1 of this Market Briefing.
Tender Guidelines	Please see Tender Guidelines on the ASL website.
VRE	Variable renewable energy.
Wholesale Market Benefits	As defined in Section 2.4 and Section B1 of this Market Briefing.
WSCR	Withstand Short Circuit Ratio.

Please see the Tender Guidelines, LDS LTESA, or Project Development Agreement (all of which can be found on the ASL website), for any definitions that are not included in this glossary.

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