

# Demand Response Competitive Round Funding Announcement

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# Demand Response Competitive Round

This Funding Announcement details the competitive process that will be used by the Australian Renewable Energy Agency (**ARENA**) under the Advancing Renewables Program (**ARP**) to fund a number of demand management activities. The process is referred to as the **Competitive Round**.

This Funding Announcement should be read in conjunction with the ARP Program Guidelines. Definitions contained in the ARP Program Guidelines also apply to this Funding Announcement. Further definitions of terms used in this Funding Announcement are included in the Glossary at section 17.

In order to apply for funding under the Competitive Round, Applicants are required to prepare and submit to ARENA (via [ARENANet](#)) each of the documents listed at [Attachment A - Application Requirements](#) detailing their proposed Demand Response Activity.

Applications under the Competitive Round are due by **5pm AEST on 10 July 2017** (the **Application Due Date**). Applications will not be accepted after the Application Due Date.

## 1. Background

On 2 May 2017 ARENA and the Australian Energy Market Operator (**AEMO**) entered into a Memorandum of Understanding to jointly develop 'proof of concept' projects that support the integration of renewable energy into the energy market, while maintaining system reliability and security.

The development of a joint program of work between ARENA and AEMO is supported by the Council of Australian Governments' Energy Council as a means of accelerating 'proof of concept' projects that will strengthen security and reliability in the National Electricity Market (**NEM**).

As part of these joint efforts, ARENA and AEMO have developed the Competitive Round to drive innovation in grid management, in particular in the current context of increasing output from variable renewable energy generators. A flexible and responsive set of demand side resources (**Demand Response**) will be integral to managing an energy system increasingly powered by renewable energy.

The Competitive Round is part of ARENA's support for innovation in managing the electricity system with an increased proportion of renewable energy, supporting ARENA's investment priority of delivering secure and reliable electricity.

ARENA will provide grant funding to successful Applicants under the Competitive Round to assist a range of energy users to become Demand Response-enabled for load reduction. Successful Applicants are required to join AEMO's Short Notice Reliability and Emergency

Reserve Trader (**SN RERT**) Panel and satisfy the other RERT requirements set out in section 10 of this Funding Announcement. If AEMO calls on a successful Applicant to Activate Demand Response under the the SN RERT mechanism, AEMO will pay for this Activation (referred to as the **Usage Charge**).

The Competitive Round is intended to provide funding to enable approximately 100MW of Demand Response capacity per annum over three years to be made available to AEMO for Activation under the SN RERT mechanism. The capacity secured in the first year of funding may be less than 100MW, but would be expected to increase to approximately 100MW per annum over the the duration of the Competitive Round. The Demand Response technologies which ARENA is seeking to support through this Competitive Round include equipment and appliance load controls, metering and communications technology, distributed generation assets and storage.

## 2. Competitive Round Objectives

The Competitive Round Objectives are set out below.

- (a) Demonstrate that Demand Response is an effective source of reserve capacity for maintaining reliability of the electricity grid during Contingency Events and that Demand Response resources can be rapidly developed for deployment from summer 2017/18.
- (b) Provide an evidence base to inform the merits and design of a new market or other mechanism, for Demand Response to assist with grid reliability and security, allowing for greater uptake of renewable energy.
- (c) Improve the commercial and technical readiness of Demand Response providers and technologies, in particular to help demonstrate and commercialise the use of Demand Response for grid security and reliability.

## 3. Applications under the Competitive Round

Applicants may choose whether to apply for funding under the Competitive Round for one or both of the product specifications set out in Attachment C - Product Scope and Specifications (Product 1 being for 60 minute Activation notification and Product 2 being for 10 minute Activation notification).

Where an Applicant seeks to apply for funding for both Product 1 and Product 2, in order to enable fair comparison of similar Activities, ARENA requires a separate application to be completed for each of the two products. Where an Applicant submits two applications they will also be required to nominate any cost savings that would be achieved if both Activities were to receive ARENA funding.

In submitting an application for the Competitive Round, Applicants are required to provide details of:

- (a) the Demand Response services they are able to make available, including the proposed amount of Demand Response capacity (the **Reserve**) measured in megawatts as set out in section 7 and Attachment C - Product Scope and Specifications;

- (b) the funding requested from ARENA to make the specified Reserve available (the **ARENA Funding**). The ARENA Funding must be comprised of Eligible Expenditure to be incurred by the Applicant in becoming Reserve-enabled and undertaking the Activity over the term of the Funding Agreement;  
In pricing their requests for ARENA Funding, Applicants should take into account the payment instalment framework set out at Attachment B - Funding Mechanism;
- (c) the Usage Charge in Australian Dollars per megawatt hour, payable by AEMO, for which Applicants are able to provide Demand Response under the SN RERT mechanism. Applicants must propose a Usage Charge of between \$0 and \$1000 per megawatt hour. Except that the Usage Charge may not exceed \$1000/MWh, ARENA will not take the proposed Usage Charge into account when assessing applications; and
- (d) any change to the Applicant's proposed ARENA Funding amount for a hypothetical Usage Charge of \$10,000 per MWh, assuming an equal Reserve amount as that proposed in the Applicant's application. The details requested in this paragraph (d) are required for market information purposes only and will not be used in any way in assessing Competitive Round applications.

A meritorious application would demonstrate value for money in terms of the ARENA Funding per MW made available relative to other applications and be highly rated against the merit criteria in section 7 of this Funding Announcement by utilising innovative Demand Response processes or methods.

Set out in Tables 1 and 2 below are two scenarios explaining the interaction of the details listed in paragraphs (a), (b) and (c) above. The pricing and assumptions in these Tables are for illustrative purposes only and are not intended to provide any guidance to Applicants in their application pricing.

Table 1 outlines how ARENA would evaluate two hypothetical Applicants' pricing for ARENA Funding where their applications otherwise score equally against the merit criteria. It shows that ARENA would rank Applicant B more highly than Applicant A because, despite Applicant A having a lower AEMO Usage Charge, Applicant B proposes a lower amount of ARENA funding in relation to the volume of Demand Response services provided.

**Table 1**

Applicant	ARENA Funding (\$/MW/year)	AEMO Usage Charge (\$/MWh)	Merit criteria assessment	Overall ARENA ranking
A	\$100,000	\$500	High merit	2nd
B	\$50,000	\$900	High merit	1st

Table 2 outlines the possible payments available to three hypothetical Providers of Demand Response under the SN RERT mechanism. Applicants should note that selection for

Activation and payment of the Usage Charge will be made by AEMO independently of ARENA and without regard to the level of ARENA Funding received by an Applicant.

**Table 2**

Variable	Applicant A (not ARENA-funded)	Applicant B	Applicant C
ARENA Funding (\$/MW/year)	\$0	\$50,000	\$30,000
AEMO Usage Charge (\$/MWh)	\$300	\$500	\$900
Payment to Applicant where AEMO Activates <sup>1</sup> SN RERT Providers up to hypothetical usage price of \$550/MWh	Usage Charge	Funding Amount plus Usage Charge	Funding Amount
Payment to Applicant when SN RERT is not Activated	\$0	Funding Amount	Funding Amount

Table 2 illustrates that where AEMO issues an Activation under the SN RERT at a price above that stipulated in a successful Applicant's SN RERT Panel Agreement, that Applicant may not be called on by AEMO to Activate and so would not receive any Usage Charge, as shown for Applicant C.

A further worked example of the interaction between ARENA Funding and the AEMO Usage Charge is included at [Attachment B - Funding Mechanism](#).

#### 4. Competitive Round funding

ARENA has allocated up to AU\$22.5 million (**Total Funding Amount**) to help commercialise Demand Response technologies and associated delivery methods under the Competitive Round.

This funding will be provided in the form of grants to be paid over approximately a three year period under ARENA Funding Agreements. Further specifications regarding the types of technologies which are eligible for funding under the Competitive Round are included in section 5 and at [Attachment C - Demand Response Scope and Product Specifications](#).

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<sup>1</sup> A Demand Response Provider would need to satisfy AEMO's Activation requirements in order to receive a Usage Charge.

ARENA may allocate less than the Total Funding Amount if the applications received are not of sufficient merit. ARENA may also allocate an amount greater than the Total Funding Amount if it considers this would represent value for money. The Total Funding Amount is subject to ARENA Board approval. Further information regarding the funding mechanism for the Competitive Round is included at [Attachment B - Funding Mechanism](#).

## 5. Scope of Activity

Applicants may choose to apply for funding to deliver Demand Response services that meet the specifications of one or both products described in [Attachment C - Product Scope and Specifications](#). As noted above, Applicants should submit an application for each product separately, but identify in each application the savings that may be realised if the Applicant is successful in obtaining funding for both products.

Applicants with proposals for Demand Response services which do not meet the specifications in [Attachment C - Product Scope and Specifications](#) can apply for ARENA funding separately to this Competitive Round under the Advancing Renewables Program<sup>2</sup> or alternatively may respond to AEMO's independent request for expressions of interest for RERT Providers. Further information on this process is available at AEMO's [website](#).

[Attachment E - Testing, Activation and Settlement](#) sets out technical requirements for Activities including metering, testing, Activation and settlement.

[Attachment F - Baselines](#) describes the calculation of baselines to determine demand reductions achieved by Activities.

## 6. Eligibility requirements

Applicants under this Competitive Round are required to meet all eligibility criteria as outlined in the ARP Program Guidelines.

## 7. Merit criteria

The following table sets out the merit criteria for the Competitive Round. These criteria include all those in clause 3 of the ARP Program Guidelines with additional clarifications identified below. Applications must clearly address each of these merit criteria.

ARP merit criteria	Application to Competitive Round
<i>A – Contributes to the Program Outcomes (clauses 1.5, 3.3 and 3.4 of</i>	<i>This criterion assesses how well the Activity contributes to the ARP Program Outcomes, taking into account the investment priorities in the Investment Plan and any relevant funding announcements.</i>

<sup>2</sup> ARENA anticipates that it will not evaluate any Demand Response proposals that are similar in nature to those proposed in the Competitive Round until after Funding Agreements pursuant to the Competitive Round have been finalised. ARENA will then take this existing Demand Response portfolio into account when assessing new applications.

<p><i>the ARP Program Guidelines)</i></p>	<p>In assessing the application against this criteria, ARENA may choose to consider:</p> <ul style="list-style-type: none"> <li>(a) technology or business model innovation, including consideration of whether the application involves first-of-a-kind Demand Response Activities in the Australian market;</li> <li>(b) the potential for the Activity to bring in new participant segments (such as residential Customers) which are not currently participating in the Demand Response services market;</li> <li>(c) the likelihood of the Activity contributing capacity reserves in any Region of the NEM that is experiencing or is forecast by AEMO to experience reserve shortfalls;</li> <li>(d) which of the two product types in <u>Attachment C - Product Scope and Specifications</u> the application relates to (noting that ARENA may give higher merit weighting to applications relating to Product 2);</li> <li>(e) proposed capacity start date (noting that ARENA may give higher merit weighting to applications demonstrating capacity to make available their total nominated capacity from the commencement of an Funding Agreement rather than scaling up capacity over time); and</li> <li>(f) ARENA’s intention to fund a range of different Activities, including: <ul style="list-style-type: none"> <li>(i) diverse Customer types providing Demand Response services, noting that Activities utilising industrial Customers are expected to comprise less than 50 per cent of the Reserve funded under the Competitive Round;</li> <li>(ii) diverse geographic location of Activities; and</li> <li>(iii) diverse Applicants, noting that ARENA will not provide funding for more than 30MW of Reserve to any one Applicant and its Related Parties even if the Applicant and any Related Parties submit more than one application.</li> </ul> </li> </ul>
<p><i>B – Applicant capability and capacity (clauses 3.5 and 3.6 of the ARP Program Guidelines)</i></p>	<p><i>This criterion assesses the capability and capacity of the Applicant and Activity partners to deliver the Activity.</i></p> <p>In assessing this criterion, ARENA may choose to consider:</p> <ul style="list-style-type: none"> <li>(a) the Applicant’s capability relevant to the Activity and the Applicant’s Activity partners including: <ul style="list-style-type: none"> <li>(i) management, commercial, professional and technical expertise including the Applicant’s ability to deliver its nominated Demand Response capacity in the timeframes submitted in its application; and</li> <li>(ii) track record (if any) in delivering Demand Response outcomes from similar activities (either in Australia or internationally); and</li> </ul> </li> <li>(b) the Applicant’s capacity as it is relevant to the Activity, including: <ul style="list-style-type: none"> <li>(i) the resources, processes and systems proposed to be used to deliver the Activity including confirmation that</li> </ul> </li> </ul>

	<p>they will be available at the times necessary during the Activity; and</p> <p>(ii) the nature and status of any agreements between Activity partners and the proposed allocation of responsibilities to the Activity partners.</p>
<p><i>C – Activity design, methodology, risk and compliance (clauses 3.7 and 3.8 of the ARP Program Guidelines)</i></p>	<p><i>This criterion assesses the design documentation provided in the application as well as risk and compliance matters.</i></p> <p>In assessing this criterion, ARENA may choose to consider:</p> <ul style="list-style-type: none"> <li>(a) how well designed and planned the Activity is, including the quality and completeness of the Project Plan, Risk Management Plan and WHS Management Plan;</li> <li>(b) Activity risk in terms of the likely success of the Activity and the extent to which key risks have been identified and mitigated including in the Activity Budget and cash flows;</li> <li>(c) any anticipated risks in negotiating and executing the ARENA Funding Arrangement including any proposed material departures from the Funding Agreement (noting that ARENA is unlikely to accept any material amendments to the General Conditions of the Funding Agreement);</li> <li>(d) any anticipated risks in the Applicant’s execution and compliance with the RERT Panel Agreement, Procedure for Exercise of the RERT, the RERT Principles, RERT Guidelines and the Rules; and</li> <li>(e) the Applicant’s compliance with any other requirements outlined in Part 4 of the ARP Program Guidelines.</li> </ul> <p><i>As part of assessing this criterion, ARENA will take into consideration the likelihood of the Applicant delivering the proposed Reserve</i></p>
<p><i>D – Financial viability and co-funding commitment (clauses 3.9 and 3.10 of the ARP Program Guidelines)</i></p>	<p><i>This criterion assesses the Applicant’s financial capacity to deliver the Activity and whether the amount of ARENA funding sought and the total cost of the Activity are appropriate.</i></p> <p>In assessing this criterion, ARENA may choose to consider:</p> <ul style="list-style-type: none"> <li>(a) whether the Applicant and any Activity partners have the financial capacity to deliver the Activity successfully including the risk of cost overruns;</li> <li>(b) the extent to which the Applicant or other Activity partners demonstrate capacity to provide funding or in-kind support for the Activity and any conditionality of funding commitments;</li> <li>(c) relevant industry benchmarks for the economics of a particular Activity;</li> <li>(d) whether the amount of ARENA funding sought for the proposed Activity is appropriate including consideration of a detailed budget showing the total cost of the Activity, cash flows and a breakdown of expenses;</li> <li>(e) any other activities in a similar field for which the Applicant has received funding from any Australian Government, state government or local government sources;</li> </ul>



	<p>(f) the level of financial transparency of the Activity; and  (g) the level of certainty of delivering the Activity within the required timeframe, including demonstration of a sound approach to managing risks that might impact the financial viability of the Activity (such as uncertainties relating to any arrangements between Aggregators and end Customers).</p> <p><i>In assessing this merit criterion, ARENA may take into account the value for money of the Activity by considering the ARENA Funding / (Reserve Year 1 + Reserve Year 2 + Reserve Year 3) to account the cost on a \$ / MW (per year) basis</i></p>
<p><i>E – Knowledge sharing (clauses 3.11 and 3.12 of the ARP Program Guidelines)</i></p>	<p><i>This criterion assesses the knowledge generated by the Activity in contributing to the Program Outcomes.</i></p> <p>In assessing this criterion, ARENA may chose to consider:</p> <ul style="list-style-type: none"> <li>(a) the value of the knowledge expected to be generated by the Activity and its contribution to the ARP Program Outcomes and the Objectives of the Competitive Round;</li> <li>(b) how well that knowledge is targeted to specific audiences;</li> <li>(c) how the data, information and lessons learned from the Activity will be collected, stored, analysed and disseminated so that it reaches the target audiences;</li> <li>(d) the Applicant’s commitment to utilise resources to deliver high quality knowledge sharing products including the extent to which the Applicant is willing to comply with ARENA’s Knowledge Sharing Plan;</li> <li>(e) the extent to which knowledge or data obtained through the Activity will be shared publicly;</li> <li>(f) any constraints on sharing knowledge from the Activity publicly including intellectual property rights matters; and</li> <li>(g) where relevant, the Applicant’s track record in providing knowledge under existing ARENA-supported activities.</li> </ul> <p>In considering this knowledge sharing criterion, Applicants should note that AEMO will share with ARENA data obtained through AEMO’s management and use of the SN RERT Panel.</p>

## 8. Assessment process

### (a) Assessment of applications

Applications will be assessed and ranked against the ARP merit criteria as clarified in section 7 of this Funding Announcement, with each merit criterion being given equal weight. Only those applications that are assessed as being of overall high merit against the ARP merit criteria will be considered for funding (**High Merit Activities**). The highest ranked High Merit Activities will be recommended for funding subject to the Total Funding Amount available and the portfolio considerations described in merit criterion A in section 7. ARENA will then enter into Funding Agreement negotiations with Applicants of the highest ranked High Merit Activities.

ARENA may reject, refuse to consider, or cease evaluating an application at any time if ARENA determines (at its absolute discretion) that the application is unlikely to be successful. For example, ARENA reserves the right to reject any application which ARENA considers does not fit within the product scope and specifications set out in Attachment C - Product Scope and Specifications for this Competitive Round.

(b) Reserve list of applications for High Merit Activities

Those applications which are ranked as High Merit Activities but which are not the highest ranked High Merit Activities will form a reserve list.

At any time prior to execution of an ARENA Funding Agreement, ARENA may in its absolute discretion cease evaluating any of the highest ranked High Merit Activities including (but not limited to) where it appears to ARENA, acting reasonably that:

- (i) the negotiations for finalising that Funding Agreement are not progressing in a sufficiently timely manner;
- (ii) the Applicant is not making sufficient progress in securing the Demand Response capacity proposed in the Application to be in a position to commit the capacity by 1 December 2017;
- (iii) the Applicant is not acting in good faith in the Funding Agreement negotiations; or
- (iv) the Applicant is insolvent or in liquidation.

If ARENA ceases negotiations with an Applicant in this manner, ARENA may commence Funding Agreement negotiations with any of the Applicants on the reserve list of High Merit Activities. If after execution of an ARENA Funding Agreement an Activity fails to deliver its obligations under that Agreement, or the RERT Panel Agreement, ARENA may commence negotiations with Applicants in relation to funding for reserve list Activities.

(c) Portfolio evaluation

As outlined in merit criterion A in section 7, ARENA will consider the broader portfolio of proposed Activities when assessing individual applications and offering funding under the Competitive Round (in accordance with clauses 4.23 and 4.24 of the ARP Program Guidelines).

## 9. Funding Agreement

The Funding Agreement will provide the legal framework for the obligations of each party and terms of payment for each successful application under the Competitive Round.

ARENA's Funding Agreement template for the Competitive Round is provided on the Demand Response Competitive Round page on [ARENA's website](#). Applicants are expected to agree to comply with this Funding Agreement with no or very limited changes. However, ARENA will accept comments on the Funding Agreement until **5pm AEST on 16 June 2017**. These should be submitted to [demandresponse@arena.gov.au](mailto:demandresponse@arena.gov.au). ARENA will consider any comments received and issue an updated bid version of the Funding Agreement in

accordance with the Competitive Round timetable.

Applicants are required to provide a response to the template Funding Agreement with their application. ARENA expects that the Funding Agreement will be accepted with minimal (if any) proposed amendments and that Applicants will raise any proposed amendments in the initial review period described above. If the proposed amendments are material ARENA will consider the amendments in its assessment of Activity risk under merit criterion C set out in section 7.

ARENA retains discretion to revise the Funding Agreement at all times prior to execution, having regard to, among other things, the nature of the Activity and contribution of the Activity to the Competitive Round Objectives.

## 10. RERT Panel Agreement

Successful Applicants will be required to:

- (a) subject to approval by AEMO, accept membership of the SN RERT Panel;
- (b) execute the RERT Panel Agreement with AEMO; and
- (c) respond to any requests for tender under the RERT Panel Agreement.

The SN RERT Panel is a pool of Providers from which AEMO can contract for provision of Demand Response services.

Further information about the RERT Panel Agreement, including a worked example, is included at [Attachment B - Funding Mechanism](#) and [Attachment D - SN RERT Panel Agreement](#). The RERT Panel Agreement template for the Competitive Round is available on [ARENA's website](#).

AEMO has separately sought expressions of interest for the Long Notice RERT and SN RERT Panel. Applicants under the Competitive Round are not required to submit an expression of interest to AEMO for the purpose of applying to the SN RERT Panel. However Applicants should notify AEMO of their intention to apply for Competitive Round funding if they have already submitted an expression of interest for the SN RERT Panel prior to submitting their application under the Competitive Round.

By submitting an application for the Competitive Round, an Applicant will be taken to consent to:

- (a) ARENA disclosing to, and discussing with, AEMO any details of their application; and
  - (b) ARENA sharing any of the Applicant's application documents with AEMO,
- for the purpose of assessing the suitability of the application for the SN RERT Panel.

## 11. Knowledge Sharing Plan

A template Knowledge Sharing Plan for the Competitive Round is provided at [ARENA's website](#). The Knowledge Sharing Plan will form part of the Funding Agreement. Applicants are required to provide a response to the Knowledge Sharing Plan (in conjunction with the Funding Agreement) with their application. As outlined in section 7, ARENA will consider

compliance with the Knowledge Sharing Plan in its assessment of merit against ARP merit criterion E.

## 12. Timetable

The timetable for the Competitive Round is presented in the table below.

<b>Date</b>	<b>Activity</b>
<i>8 June 2017</i>	Funding Announcement released / applications open
<i>16 June 2017</i>	By 5pm Australian Eastern Standard Time, Applicants are to: (a) register intent to apply for funding <sup>3</sup> ; and (b) where relevant, provide feedback on the draft Funding Agreement, including the Knowledge Sharing Plan, via email to <a href="mailto:demandresponse@arena.gov.au">demandresponse@arena.gov.au</a>
<i>23 June 2017</i>	Final Funding Agreement template released
<i>10 July 2017</i>	Applications close at 5pm Australian Eastern Standard Time
<i>July - August 2017</i>	ARENA and AEMO assessment of applications and ARENA funding awarded
<i>September 2017</i>	Funding Agreement executed
<i>December 2017</i>	Test Activation and program live

ARENA reserves the right to amend or alter the timetable at its absolute discretion.

## 13. Nature of this Funding Announcement

This Funding Announcement is an invitation to treat and is not intended to have any contractual effect.

## 14. Disclaimer

Except to the extent required by law, ARENA and AEMO do not accept any responsibility to Applicants or third parties under the law of contract, tort (including negligence) or otherwise, for any loss or damage whatsoever that may arise from any information provided by ARENA or AEMO in relation to the Competitive Round.

ARENA and AEMO accept no responsibility for any interpretation that may be placed on this Funding Announcement.

The information contained in this Funding Announcement is provided for the convenience of Applicants. Any information provided by ARENA or AEMO is not guaranteed and applications must be based on Applicants' own investigations and determinations. ARENA

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<sup>3</sup> Note that failure to register an intent to apply for funding does not preclude an Applicant from submitting, and ARENA from assessing that application. Information about those parties that have registered an intent to apply will be kept confidential.

and AEMO make no warranties or representations on the contents or adequacy of any information provided to Applicants.

## 15. No liability

Except where it would be illegal, ARENA and AEMO are not liable in any way for the accuracy or completeness of this Funding Announcement or for any loss or damage of whatever kind (whether foreseeable or not) however arising, suffered or incurred by any person in connection with this Funding Announcement (including by reason of any negligence, default or lack of care).

## 16. ARENA's and AEMO's rights with respect to the Competitive Round

Any reference to ARENA's rights, including reserved rights and discretions, throughout this Funding Announcement are not to be interpreted as limiting in any way ARENA's rights under the ARP Program Guidelines or under relevant legislation.

ARENA retains the right to extend, accelerate or alter any element of the Competitive Round (including the timetable in section 12) at its absolute discretion.

ARENA is under no obligation to complete the process outlined in this Funding Announcement or ultimately fund any Demand Response Activity.

AEMO is under no obligation to appoint an Applicant to the SN RERT Panel, accept any Applicant, or complete the process outlined in this document or ultimately purchase any goods or services that comprise any part of the Demand Response services offered by the Applicant.

## 17. Glossary

The table below explains the meaning of defined terms in this Funding Announcement. Note that further definitions specific to Attachment F - Baselines are included in a table in that Attachment.

Term	Meaning
Activate / Activated / Activation	A reduction in demand (other than a scheduled load) undertaken in response to a request by AEMO in accordance with the SN RERT Reserve Contract
Activity	The Demand Response services for which the Applicant seeks ARENA funding under the Competitive Round
Activity Budget	The budget for the proposed Activity required to be submitted as part of an application under the Competitive Round
AEMC	The Australian Energy Market Commission
AEMO	The Australian Energy Market Operator
Aggregator	A Provider that aggregates more than one site in providing a Demand Response
AMI	The Victorian Government's Advanced Metering Infrastructure Program
Annual Anniversary Test	The test required to be completed as described in <u>Attachment E - Testing, Activation and Settlement</u>
Applicant	The party seeking ARENA funding under the Competitive Round
Application Due Date	5pm AEST on 10 July 2017
ARENA	The Australian Renewable Energy Agency
ARENA Funding	The total grant funding requested by an Applicant
ARP / Advancing Renewables Program	The ARENA funding program under which the Competitive Round has been established

ARP Program Guidelines	ARENA's 2017 guidelines setting out the standard parameters for ARENA's Advancing Renewables Program, available on <a href="#">ARENA's website</a>
CAISO	California Independent System Operator
Competitive Round	The ARENA funding round described in this Funding Announcement
Competitive Round Objectives	The Objectives set out in section 2 of this Funding Announcement
Contingency Event	An event described in clause 4.2.3(a) or the Rules being an event affecting the power system which AEMO expects would be likely to involve the failure or removal from operational service of one or more generating units and/or transmission elements
Customer	A person who engages in the activity of purchasing electricity supplied through a transmission or distribution system to a connection point
Demand Response	A reduction in demand measured as the difference between a baseline and the actual metered quantity
Distribution System	A distribution network, together with the connection assets associated with the distribution network, which is connected to another transmission or distribution system
DRM	AEMO's Demand Response mechanism described in <a href="#">Attachment F - Baselines</a>
Eligible Expenditure	This term has the meaning given in the Eligible Expenditure Guidelines at Appendix B of the <a href="#">ARP Program Guidelines</a>
Funding Agreement	A contract for provision of ARENA funding under this Competitive Round signed by ARENA and a successful Applicant, in the form made available by ARENA during the Competitive Round or otherwise in a form acceptable to ARENA
Half-Yearly Test	The test required to be completed as described in <a href="#">Attachment E - Testing, Activation and Settlement</a>
High Merit Activities	Those applications that are assessed as being of overall high merit against the ARP merit criteria
Investment Plan	ARENA's Investment Plan 2017 available on <a href="#">ARENA's website</a>

Knowledge Sharing Amount	The ARENA funding contingent on knowledge sharing objectives and to be paid according to the payment instalment framework set out at Attachment B
Low Operating Reserve 2 / LOR2	When AEMO considers that the occurrence of the credible Contingency Event which has the potential for the most significant impact on the power system is likely to require involuntary load shedding. This would generally be the instantaneous loss of the largest generating unit on the power system. Alternatively, it might be the loss of any interconnection under the abnormal conditions.
Low Operating Reserve 3 / LOR3	A more extreme situation than LOR2 when AEMO considers that Customer load (other than ancillary services or contracted interruptible loads) would be, or is actually being, interrupted automatically or manually in order to maintain or restore the security of the power system.
MW	Megawatt
NEM	The National Electricity Market
NMI	National Metering Identifier
Payment Period	Each period of six calendar months ending on 31 May and 30 November, commencing from 1 December 2017 and ending on 30 November 2020
Performance Amount	The ARENA funding contingent on performance-based objectives and to be paid according to the payment instalment framework set out at Attachment B
Project Plan	The Project Plan which Applicants are required to submit as part of their application under the Competitive Round which should include details of the proposed Activity and pricing, Applicant entity, Activity background and execution, financing, legal considerations and any other matters identified in the Project Plan template, a link to which is in Attachment A.
Provider	An available provider of Demand Response pursuant to a RERT Panel Agreement and SN RERT Reserve Contract
Recipient	An Applicant which receives ARENA Funding under the Competitive Round
Region	An area determined by the AEMC in accordance with Chapter 2A of the Rules, being an area served by a particular part of the



	transmission network containing one or more load centres or generation centres or both
Related Party	An entity defined as a related party under section 228 of the <i>Corporations Act 2001</i> (Cth)
RERT	Reliability and Emergency Reserve Trader
RERT Guidelines	The guidelines developed and published by the AEMC's Reliability Panel under clause 3.20.8 of the Rules
RERT Panel Agreement	The contract required to be executed by all AEMO SN RERT Providers including Recipients of funding under the Competitive Round
RERT Principles	The principles referred to in clause 3.20.2(b) of the Rules
Reserve	The quantity of Demand Response that could be available under the RERT Panel Agreement or SN RERT Reserve Contract
Reserve Contract	Each contract created pursuant to the RERT Panel Agreement for the Activation of Reserve
Risk Management Plan	The risk management plan which the Applicant is required to submit as part of its application under the Competitive Round
Rules	The rules called the National Electricity Rules made under Part 7 of the National Electricity Law as amended from time to time in accordance with that Part
Small Generation Aggregator	A person who: (a) intends to supply, or supplies, electricity from one or more small generating units that are connected to a transmission or distribution system; and (b) is registered by AEMO as a Small Generation Aggregator under Chapter 2 of the Rules
SN RERT	Short Notice Reliability and Emergency Reserve Trader
SN RERT Panel	The panel of available SN RERT Providers
SN RERT Reserve Contract	The contract for Demand Response services formed under the RERT Panel Agreement
System Security	The power systems is in a secure operating state as defined in section 4.2.4 of the Rules

Total Funding Amount	The total funding allocated for the Competitive Round
Trading Interval	A 30 minute period ending on the hour (Australian Eastern Standard Time) or on the half hour and, where identified by a time, means the 30 minute period ending at that time
Usage Charge	<p>A \$/MWh payment for Demand Response established under ARENA processes but payable by AEMO and available upon Activation under a SN RERT Reserve Contract.</p> <p>For load reduction, this is calculated as the reduction in energy usage by the relevant load.</p>
WHS Management Plan	The workplace health and safety plan which the Applicant is required to submit as part of their application under the Competitive Round

## ATTACHMENT A - APPLICATION REQUIREMENTS

### 1. ARP Program Guidelines and waiver of expression of interest

An application made under the Competitive Round must be completed in accordance with the ARP Program Guidelines. ARENA has waived the requirement for Applicants to submit an expression of interest under the Competitive Round.

### 2. Application documents

In order to apply for funding under the Competitive Round, Applicants must complete and submit the following documentation:

- Project Plan (template provided)
- Activity Budget
- [ARENANet](#) application (online portal)
- Knowledge Sharing Plan (template provided)
- Risk Management Plan
- Work Health and Safety Plan
- Departures and/or compliance with Funding Agreement and RERT Panel Agreement (template provided)
- Returnable schedules for Funding Agreement and RERT Panel Agreement (templates provided)
- Executed Consent to Disclosure of Agreements and Arrangement (template provided)

Where templates are provided for the above documents, these are available on ARENA's Demand Response [webpage](#).

Applications must be submitted via [ARENANet](#) by the Application Due Date. Applications will not be accepted after the Application Due Date (subject to ARENA's rights with respect to the Competitive Round portfolio set out in section 16 of this Funding Announcement).

By submitting an application, the Applicant agrees that the amounts included in the application for both the ARENA Funding and the Usage Charge will remain fixed and valid until 31 December 2017.

### 3. No collusion of dealings with competitors

Applicants must ensure that they (and their principals, employees, agents and contractors) do not engage in any conduct that is designed to, or might have the effect of, lessening competition in the supply of Demand Response services funded by ARENA.

### 4. Ownership of assets used to provide Demand Response

ARENA does not require that Applicants own the assets proposed to be used in an Activity, but they must advise ARENA if they do not own such assets (or any part of the overall Activity assets). Where an Applicant does not own all the relevant assets they will need to satisfy ARENA of the underlying arrangements that enable the Applicant to use the assets

for the purpose of carrying out the Activity. This evidence must be provided to ARENA prior to the execution of the Funding Agreement but preferably will be provided earlier for consideration by ARENA during its evaluation of applications. If it is not clear to ARENA whether these arrangements can be secured by 1 December 2017 this will impact the evaluation of the application as a High Merit Activity.

#### 5. Question and answer process

ARENA will establish a question and answer process during the application period to respond to any Applicant queries. All questions regarding the application stage of the Competitive Round should be submitted to [demandresponse@arena.gov.au](mailto:demandresponse@arena.gov.au). Questions received and ARENA's responses will be accessible to all potential Applicants and will be posted on ARENA's website, except where:

- (a) the Applicant indicates in writing that its question relates to proprietary information relevant to its application;<sup>4</sup> and
- (b) ARENA considers that the question and ARENA's response are not material to the integrity or the competitiveness of the Competitive Round.

ARENA will not assist Applicants in preparing applications or facilitate collaboration with third parties except through the provision of information in this question and answer process. Accordingly, clause 4.20 of the ARP Program Guidelines does not apply to the Competitive Round.

#### 6. Publication of information

ARENA may publish aggregated and anonymised data from the applications received at the conclusion of the application stage in order to provide an indication for stakeholders of the range of applications received, including but not limited to:

- (a) ARENA grant funding amount per megawatt of Demand Response capacity;
- (b) portfolio breakdown by Customer segment and technology types; and
- (c) proposed Activity details and metrics by State/Territory location.

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<sup>4</sup> If ARENA is of the view that the question is not proprietary, it will advise the relevant Applicant, who will then have the option to withdraw the question. If the Applicant continues to request a response to that question, the question and the response may be provided to all Applicants (subject to the point in section 5(b) above).

## ATTACHMENT B - FUNDING MECHANISM

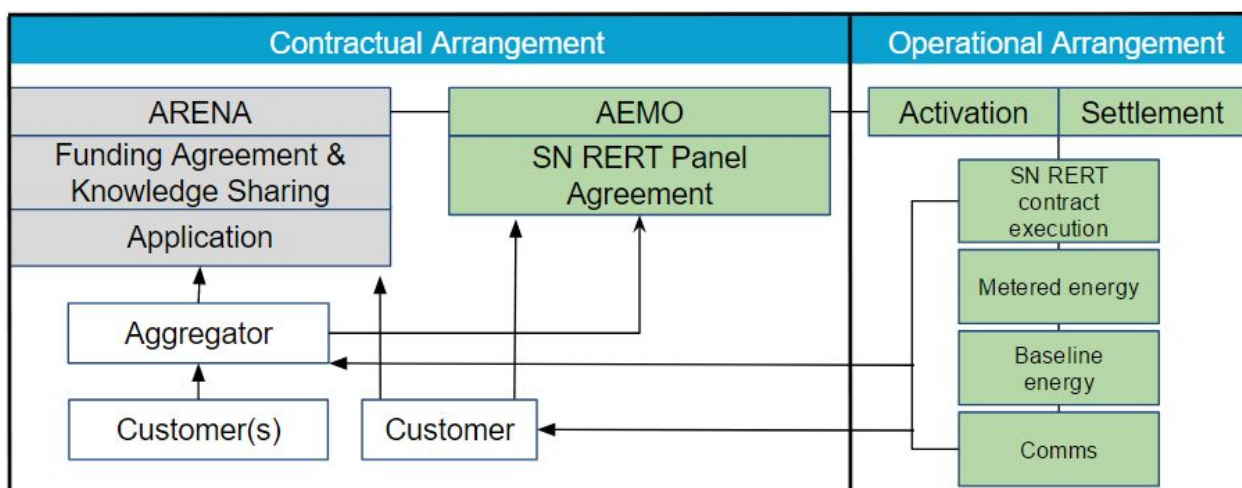
### 1. Relationship between SN RERT and ARENA funding

Under the National Electricity Rules (**Rules**) AEMO must take all reasonable actions to ensure reliability of supply, and where practicable, AEMO must maintain power system security by negotiating and entering into reserve contracts. In doing so, AEMO must comply with the Rules, the RERT Guidelines and the Procedure for the Exercise of RERT.

Subject to approval of AEMO, successful Applicants under the Competitive Round will be required to join the SN RERT Panel under terms set out in the ARENA Funding Agreement and RERT Panel Agreement. Further information regarding AEMO’s powers and obligations with respect to the RERT can be found on AEMO’s [website](#).

The figure below summarises the relationship between ARENA’s funding and the SN RERT arrangements with AEMO. Note in relation to the figure:

- (a) Recipients of ARENA funding will have a contractual arrangement with both ARENA and AEMO;
- (b) Activation and settlement will be the responsibility of AEMO (independently of ARENA and without regard to the ARENA Funding provided to the Applicant); and
- (c) information such as Activation performance and knowledge sharing deliverables will be shared between AEMO and ARENA.



A hypothetical example showing the outcomes of pricing under the AEMO SN RERT mechanism and the ARENA Funding is set out in Table 3 below. In the example below ARENA Funding is split into two components, the Performance Amount and Knowledge Sharing Amount (both terms described further in Section 17). These amounts will be determined in consultation with ARENA during negotiation of the Funding Agreement.

**Table 3**

Annual Payments				
	ARENA Funding		AEMO Usage Charge	Total Payment
	ARENA Performance Amount (per year)	ARENA Knowledge Sharing Amount (per year)		
<b>Scenario 1:</b> 0 hours called	\$1,000	\$1,000	= \$10 x 0 = \$0	\$2,000
<b>Scenario 2:</b> 10 hours called	\$1,000	\$1,000	= \$10 x 10 = \$100	\$2,100
<b>Scenario 3:</b> 40 hours called	\$1,000	\$1,000	= \$10 x 40 = \$400	\$2,400

**Assumptions:**

<i>Performance Amount (\$), paid by ARENA</i>	<i>\$1,000</i>
<i>Knowledge Sharing Amount (\$), paid by ARENA*</i>	<i>\$1,000</i>
<i>Usage Charge (\$/MWh), paid by AEMO</i>	<i>\$10</i>
<i>Reserve (MW)</i>	<i>10</i>

*\* The Performance Amount and Knowledge Sharing Amount are conditional upon compliance with, and are subject to adjustment in accordance with, the Funding Agreement, including satisfaction of Payment Conditions (as set out in the Funding Agreement).*

**2. Payment instalment framework**

If an Applicant enters into a Funding Agreement with ARENA under the Competitive Round, ARENA funding will be provided in the following instalments (pursuant to the Funding Agreement):

- (a) upon execution of the Funding Agreement, an upfront payment of 5% of the ARENA Funding;
- (b) upon satisfaction of the Annual Anniversary Test for the first year of the Funding Agreement or successful Activation of Demand Response under the Reserve Contract prior to 1 February 2018, 25% of the ARENA Funding; and
- (c) upon satisfaction of the ongoing testing, performance and knowledge sharing requirements set out in the Funding Agreement, 6 equal payments of the remaining ARENA Funding paid every 6 calendar months ending on 31 May and 30 November, from 31 May 2018 to 30 November 2020, noting that pursuant to the Funding Agreement ARENA may vary these payments from the originally contracted amounts based on performance of the reserves during testing and activation.

## ATTACHMENT C - PRODUCT SCOPE AND SPECIFICATIONS

### 1. Scope details

#### (a) Types of Demand Response

The Demand Response undertaken in an Activity can be an aggregation of one or more Customer loads across multiple sites within a Region which:

- (i) must be Distribution System connected unscheduled Customer load;
- (ii) must have the relevant distribution connection point(s) metered by a Type 1-4 Meter, or a smart meter installed in Victoria as part of the Victorian Government's Advanced Metering Infrastructure (**AMI**) Program, which is used for settlement by AEMO in the NEM; and
- (iii) can be a reduction in load as a result of the use of a generator which is behind the meter, however, it cannot be a generator in the NEM which is earning the wholesale price and cannot be contributing to a Small Generation Aggregator's portfolio.

#### (b) Demand Response available through other arrangements

As set out in the RERT Panel Agreement, Applicants must undertake that the Reserve provided to AEMO through the RERT will not be:

- (i) the subject of any Activation offers, Activation bids, or Activation payments during the period for which Reserve is contracted under a SN RERT Reserve Contract;
- (ii) offered to the market through any other means during the period for which Reserve is contracted under a SN RERT Reserve Contract; or
- (iii) provided or available to be provided pursuant to any other arrangement or agreement, including any demand side management arrangement or agreement, during the period for which reserve is contracted under a SN RERT Reserve Contract.

Note that under the SN RERT Panel arrangements, SN RERT Reserve Contracts will be in place for no longer than seven days at a time.

Recipients of ARENA funding under the Competitive Round can enter into other Demand Response arrangements only where those arrangements do not conflict with their obligations under the ARENA Funding Agreement or the RERT Panel Agreement.

#### (c) Treatment of fossil fuel generation

An Activity will not be eligible for ARENA funding under the Competitive Round if it includes:

- (i) more than 20 per cent fossil fuel generation as a proportion of MW capacity;
- (ii) new fossil-fuel generators; or
- (iii) newly rented fossil-fuel generators.

(d) Reserve offered

A minimum Reserve of 5MW in year one in a single NEM Region may be offered by Applicants. The smallest increment of capacity above this minimum is 1MW. This means that ARENA could fund an Activity with 6MW of Demand Response capacity, but one with 5.5MW would be treated as 5.0MW of capacity.

(e) Reserve per Applicant and Related Parties

ARENA will fund Activities with a maximum of 30MW per annum of Reserve across the NEM:

- (i) per Applicant; or
- (ii) if any Related Parties of the Applicant are successful in the Competitive Round, per Applicant and any Related Parties of the Applicant,

including where an Applicant and any Related Parties have submitted more than one application under the Competitive Round.

ARENA will allow Applicants to vary the Reserve offered on an annual basis. For example, in the first year of the Funding Agreement an Applicant could offer 5MW, in the second year 10MW and in the third year to 12MW.

(f) Changes to Customer National Metering Identifiers

ARENA will allow Demand Response Aggregators to vary the underlying National Metering Identifiers (**NMIs**) associated with the Customers within their portfolio delivering the Reserve relevant to their Activity:

- (i) after submissions of Applications and prior to the execution of any Funding Agreement, by notifying ARENA in writing prior to Funding Agreement execution; and
- (ii) after execution of any Funding Agreement and RERT Panel Agreement, by notifying ARENA as set out in the Knowledge Sharing Plan and notifying AEMO in accordance with the RERT Panel Agreement.

However, where there are changes to Customer NMIs within a portfolio, no material changes to the types of technologies delivering Demand Response or the Customer types represented in the Activity will be permitted.

## 2. Specifications

Features	Product 1: 60 Minute Notification	Product 2: 10 Minute Notification
Funding Agreement length	36 months from 1 December 2017	36 months from 1 December 2017



ARENA funds / funding installment	Based on offer	Based on offer
Pre-Activation payment (under SN RERT)	Zero	Zero
Usage Payment (under SN RERT)	Up to a maximum of \$1000/MWh of response when Activated	Up to maximum of \$1000/MWh of response when Activated
Location	By NEM Region	By NEM Region
Minimum capacity per annum (in any NEM region)	5MW	5MW
Minimum increment of capacity above minimum capacity per annum	1MW	1MW
Maximum capacity per Applicant (across the NEM) per annum	30MW	30MW
Activation notification (minimum) The start time does not have to be aligned with a Trading Interval	1 hour	10 minutes
Maximum period for which AEMO can Activate a Demand Response resource for per event	240 consecutive minutes within a single day.  AEMO may Activate for shorter periods but Activation must be for at least 60 consecutive minutes.	240 consecutive minutes within a single day.  AEMO may Activate for shorter periods but Activation must be for at least 60 consecutive minutes.
Activation trigger	LOR2, LOR3, System Security	LOR2, LOR3, System Security
Availability period	Peak (10 AM to 10 PM Business Day in Region)	Peak (10 AM to 10 PM Business Day in Region)

Testing requirements	<p>Tested for up to 2 hours every 6 months (unless successfully Activated prior to the test within the relevant six-month period) with availability reduced to level achieved in test(s).</p> <p>Participant can request a single retest.</p>	<p>Tested for up to 2 hours every 6 months (unless successfully Activated prior to the test within the relevant six month period) with availability reduced to level achieved in test(s).</p> <p>Participant can request a single retest.</p>
Limits on Activation per 12 month period starting 1 December	10 Activations (excluding tests)	10 Activations (excluding tests)
Allowed form of response	<p>Distribution system connected unscheduled Customer load.</p> <p>Load reduction can result from generation by a generator(s) which is behind the meter, however, it cannot be a generator in the NEM which is earning the wholesale price and cannot be contributing to a Small Generation Aggregator portfolio.</p>	<p>Distribution system connected unscheduled Customer load.</p> <p>Load reduction can result from generation by a generator(s) which is behind the meter, however, it cannot be a generator in the NEM which is earning the wholesale price and cannot be contributing to a Small Generation Aggregator portfolio.</p>

## ATTACHMENT D - RERT PANEL AGREEMENT

### 1. Formation of SN RERT Panel and tenders for Reserve

Under the SN RERT arrangements, AEMO can appoint potential Providers of Reserve in short notice situations (between three hours and seven days of the forecast reserve shortfall) to a RERT Panel. RERT Panel members sign a RERT Panel Agreement, which confirms their appointment to the RERT Panel and sets out the pre-agreed terms on which they would provide Reserve if required.

Under the RERT Panel Agreement, AEMO can issue requests for tender for Reserve from the members of the RERT Panel where it determines, using market forecasts, that it should procure Reserve within the next seven days. Where this occurs, Recipients of funding under the Competitive Round would be required to submit a response to tender to AEMO. AEMO then has discretion as to which responses to tender it accepts.

### 2. Activation instruction

If AEMO accepts a response from a Recipient, a SN RERT Reserve Contract is formed for that Reserve on the pre-agreed terms in the RERT Panel Agreement. AEMO then has discretion as to whether to issue an Activation instruction under a SN RERT Reserve Contract which would require the Recipient to reduce load in accordance with the SN RERT Reserve Contract.

### 3. Additional terms

Applicants should note the following in relation to the SN RERT Panel arrangement.

- (a) There is no availability payment under the RERT Panel Agreement or any SN RERT Reserve Contract entered into pursuant to the RERT Panel Agreement.
- (b) The standard RERT right to provide services elsewhere and to declare availability prior to the formation of an SN RERT Reserve Contract would be modified. For the duration of the SN RERT Reserve Contract period, the Recipient cannot be providing the same Demand Response capacity to any other party through any other mechanism or market (including the NEM spot market and ancillary services market).
- (c) A short notice situation is when AEMO has between three hours and seven days of a projected shortfall in reserves. The term of a SN RERT Reserve Contract is a maximum seven days.
- (d) When a SN RERT Reserve Contract is awarded by AEMO, a Provider must comply with that SN RERT Reserve Contract.
- (e) The Usage Charge for the Reserve provided under a SN RERT Reserve Contract is fixed in the RERT Panel Agreement and is payable by AEMO under each SN RERT Reserve Contract.

It is expected that AEMO would call on Demand Response (meaning it should be ready to be available) to address Lack of Reserve 2, Lack of Reserve 3 and security conditions, whereby not enough reserve is otherwise available to address the largest credible contingency in the system, or more serious conditions and system security events.

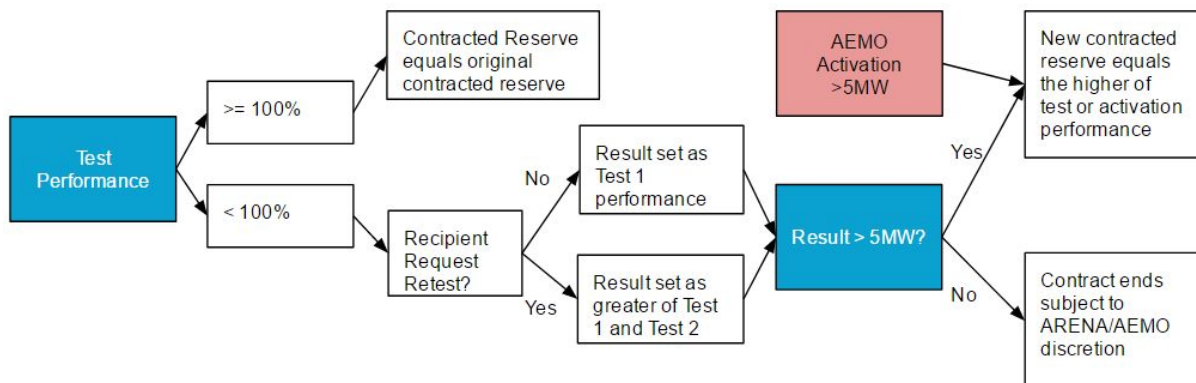
## ATTACHMENT E - TESTING, ACTIVATION AND SETTLEMENT

### 1. Testing requirements

Recipients must undertake the testing process as described below.

- Evidence of Reserve must be established for each 6 month payment period. This may be achieved by Activation under a SN RERT Reserve Contract or by testing.
- Where evidence of Reserve is not obtained by Activation within the relevant test window, the Recipient must request testing by AEMO in accordance with the testing provisions in the RERT Panel Agreement.
- Activation of each test requested by the Recipient will be undertaken by AEMO. Applicants should note that AEMO cannot pay for tests under the RERT Panel Agreement. Costs of testing should be factored into an Applicant's proposed Activity Budget as Eligible Expenditure.
- Each test will be for up to 2 hours in duration, with notification and other requirements as per the product specifications at [Attachment C - Product Scope and Specifications](#). Testing will include demonstration of Activation request receipt, Provider confirmation and delivery of Reserve.
- AEMO will facilitate the tests directly with Recipients and will provide operational results and performance data to ARENA.

### 2. Testing process



### 3. Annual Anniversary Test

- In year 1 of the Funding Agreement, this test can take place anytime from 1 December 2017 through to 1 April 2018. Testing may occur earlier by mutual agreement between the Recipient and AEMO.
- In years 2 and 3 of the Funding Agreement, this test must take place between 1 October and 30 November.
- Testing process is illustrated in the diagram above.
- If an actual Activation(s) occur in the Annual Anniversary Test window, then this Activation(s) can also be used to inform the Activity's new contracted reserve.
- The new contracted Reserve is set as the highest performance achieved in either a test or an actual Activation.

*Example test process and adjustment of contract Reserves in the Annual Anniversary Test*

- Original contracted Reserve is 10MW
- Activity’s performance in Annual Anniversary Test 1 = 7MW
- The Activity is subsequently tested by AEMO at the Recipient’s request within the test window and delivers 9MW
- The contracted Reserve for the payment period from 1 December through to the following 31 May is set as 9MW

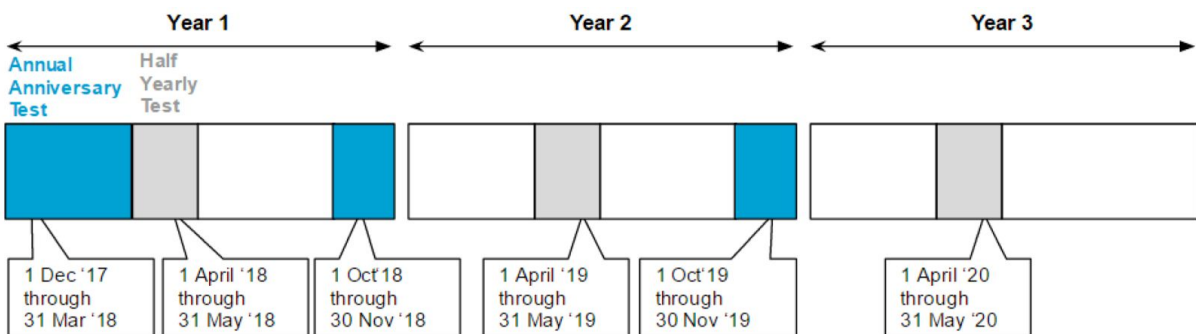
4. Half-Yearly Test

- This will take place between 1 April and 31 May for each year of the Funding Agreement.
- Testing process is illustrated in the diagram above.
- If an actual Activation(s) occur in the Half-Yearly Test window, then this Activation(s) can be also be used to inform the Activity’s new contracted reserve.
- The new contracted Reserve is set as the highest performance achieved in either a test or actual Activation during the test window.

*Example test process and adjustment of contract reserves in the Half-Yearly Test*

- Continuing the example from the text box above, the current contracted reserve for the Activity is 9MW
- The Activity will need to test in the 1 April to 31 May window and in doing so can increase its contracted Reserve up to the Activity’s original quantity of 10MW.
- On 3 April 2018 the Activity is tested by AEMO and delivers 10MW.
- The new contracted Reserve can be set at 10MW.

The figure below illustrates the tests and their respective timelines as described above.



5. Sanctions for underperformance in actual Activation

The ARENA Funding Agreement and RERT Panel Agreement set out the consequences of an Applicant failing to deliver its contracted Reserve during an Activation. These are summarised below.

- under the ARENA Funding Agreement, ARENA may seek to recoup from Recipients up to \$1,000 for each MWh that is not delivered during the Trading Intervals relevant

to the Activation, capped at the Performance Amount due for that Payment Period;  
and

- (b) Under an SN RERT Reserve Contract, AEMO will only pay the Usage Charge for the Reserve actually Activated by the Recipient; and
- (c) if a Recipient fails to deliver contracted Reserves ARENA and AEMO may consider this to be a breach of their respective agreements and seek to exercise their rights set out in the ARENA Funding Agreement and RERT Panel Agreement.

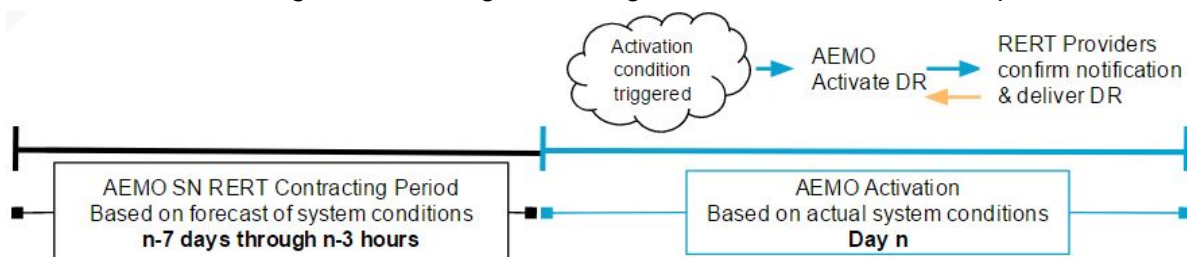
## 6. Activation Process

AEMO will use existing RERT processes in considering whether to tender for and enter into SN RERT Reserve Contracts and may take into account the outcomes of pre-activation, short term projections of system adequacy or other information.

If AEMO identifies the need to Activate Reserve:

1. AEMO will award and execute SN RERT Reserve Contracts based on a combination of technical and cost considerations governed by the National Electricity Rules and RERT Guidelines (taking into account the RERT principles of least-cost to consumers and least distortionary effects on the market). This can occur up to a week, but not less than three hours, prior to the Reserve requirement; and
2. AEMO will issue Activation instructions to Providers when Demand Response is required (as per the program specifications). Activation merit order is generally based on a combination of technical and cost considerations governed by the National Electricity Rules and RERT Guidelines, taking into account the RERT Procedures and RERT Principles of least-cost to consumers and least distortionary effects on the market. The Activation instruction will be via an electronic system which will either use SMS or a similar method. Where the Recipient has aggregated a number of sources of Demand Response then only the Aggregator will receive the Activation instruction and it will be the Aggregator's responsibility to deliver the Demand Response from its sources of Demand Response in the NEM Region to which the Activation instruction relates.

Activation instructions will inform Providers when to commence Demand Response provision and when to end it. AEMO will either Activate all or part of the contracted Reserve from a Provider held within a given NEM Region. The figure below summarises this process.



## 7. AEMO Settlement Process

### **Settlement Timeframe**

The start and end time of an Activation instruction will be recorded for settlement purposes. AEMO settlement will be based on standard RERT processes as described below:

- (a) a billing period is a period of 7 days commencing with the Trading Interval ending at 00:30 hours (Eastern Standard Time) on Sunday;
- (b) a preliminary settlement statement must be issued by AEMO within 5 business days after the end of each billing period in which the Recipient has provided reserve;
- (c) a final settlement statement must be issued by AEMO no later than 18 business days after the end of each billing period in which the Provider has provided Reserve; and
- (d) if a final statement indicates that a party must pay the other party a net amount, that party must pay the net amount specified in the final statement to the other party (whether or not there is a dispute in relation to the amount payable) on the later of:
  - (i) the 20th business day after the end of the billing period; and
  - (ii) the 2nd business day after AEMO gives the final statement.

AEMO's settlement processes allows for a further adjustment to settlement outcomes approximately 20 weeks, and again at 30 weeks, after the billing period. This process allows for any corrections in data to be reflected so that any changes in the settlement amount relative to the prior settlement can be corrected.

### **AEMO Settlement Data Requirements**

For each NMI contributing to the Reserve Activated by AEMO, the following data will be required for settlement and performance monitoring by AEMO:

- (a) half hour interval meter data from the period of Activation sourced from a Type 1-4 Meter, or a smart meter installed in Victoria as part of the Victorian Government's AMI Program, which is used for settlement by AEMO in the NEM; and
- (b) baseline data, described in Attachment C - Product Scope and Specifications, which is used to determine the Demand Response.

This will allow the determination of the MWh Demand Response by Trading Interval and the level of MW Demand Response achieved over the duration of the Activation instruction, being the ratio of:

- (a) the sum over all Trading Intervals within the time period covered by the Activation instruction of the Demand Response achieved in that Trading Interval; and
- (b) one thirtieth of the number of minutes between the start and end of the Activation of the Demand Response.

This means that if the Activation covers 15 minutes of one Trading Interval and delivers 6MWh of Demand Response and in each of the next two 30 minute Activated Trading Intervals delivers 12MWh of Demand Response, then the total delivery equals 30MWh of Demand Response. The time over which that was delivered was 1.25 hours, hence the Recipient is delivering 24MWh or 24MW for an hour.

The proportion of Demand Response delivered will be the ratio of the MW Demand Response achieved and the MW level of Reserve that is Activated. Thus if 24MW were Activated then in the above example 100% was delivered. The process through which the MW of Demand Response achieved will be calculated is set out in [Attachment F - Baselines](#).

Settlement depends on the provision of meter data. Either Option 1 or 2 below can be used for the provision of data for preliminary settlement statements. Only Option 2 will be used for final settlement statements (and settlement payments)

**Option 1 – Provider submits data to AEMO**

The Provider will be required to provide for each Activated resource a populated spreadsheet template (provided by AEMO) with data by NMI of the consumption during the period of Activation and other baseline data.

**Option 2 – AEMO estimates response**

AEMO will use the NMI level data it receives for NEM settlement to generate the same data as under Option 1.



## *Example end-to-end process for Aggregator ACME*

### **Contracting Phase**

1. ACME applies to ARENA for funding before 10 July for 10MW of Demand Response Reserve, sourced from a combination of commercial and residential Customers.
2. ACME executes a Funding Agreement with ARENA and a RERT Panel Agreement with AEMO.
3. ACME is eligible to receive 5% of the approved ARENA grant upon contract execution with ARENA and AEMO.

**\*\*\* Go-Live 1 December 2017 \*\*\***

### **Annual Anniversary Test**

1. ACME is Activated by AEMO for a test on 7 Dec 2017 and delivers 7MW
2. ACME requests a retest as it would like to demonstrate it can deliver 10MW
3. AEMO Activates ACME for a second test on 20 Dec 2017 and it delivers 9MW
4. ACME's reserve is set at the higher of the two test results (9MW), and is effective for the period 1 Dec 2017 through 30 May 2018
5. Having successfully completed testing, ACME satisfies ARENA's condition precedent and is eligible to receive 25% of the total grant (scaled by 9/10) stipulated in the ARENA Funding Agreement

### **Actual Activation Activity**

1. On 5 January 2018 AEMO forecast a need for reserve within the next 7 day window, issue a Request for Tender and award a SN RERT Reserve Contract to ACME
2. ACME is Activated on 10 January 2018 from 2-6pm and delivers 36MWh (i.e 9MW reduction for 4 hours, 100% performance)
3. ACME is Activated again on 11 January 2018 from 5-9pm and delivers 33MWh (i.e 8.25MW for 4 hours, 92% performance)
4. ACME may be subject to shortfall payments of up to [\$1,000/MWh] for any underperformance
5. ACME is owed usage payments from AEMO (36MWh + 33MWh) x \$/MWh usage payment specified in the SN RERT Panel Agreement (note that the usage payment will be capped at \$1,000/MWh, though the Recipient can specify a lower amount)
6. On 19 February 2018 AEMO forecast a need for reserve within the next 7 day window, issue a Request for Tender, ACME request but is not ultimately selected by AEMO
7. On 21 February 2018 AEMO Activate other SN RERT Providers whose Usage Charge is lower than ACME's usage charge
8. No further RERT Activations until 1 April 2018

### **Half-Yearly Test**

1. ACME is required to undertake a test(s) in the period between 1 April 2018 and 31 May 2018 and in doing so can increase its contracted reserve back up to 10MW
2. ACME is tested by AEMO and delivers 10MW
3. ACME's reserve is set at 10MW, and is effective from 1 June 2018 to 30 Nov 2018

## ATTACHMENT F - BASELINES

### 1. Baseline and delivered Demand Response

The baseline methodology draws on approaches developed under AEMO's Demand Response Mechanism (**DRM**) proposals in 2013,<sup>5</sup> which was based on methods used internationally and assessed for application within a NEM context. While the type of Demand Response used in the Competitive Round may not match the assumptions used in development of the baselines for the DRM the differences are not expected to be material.

When a Demand Response event occurs, the response calculated for payment is the difference between the metered quantity of the resource and the baseline energy for the resource, where the baseline energy is an estimate of what demand would have been had there been no Demand Response.

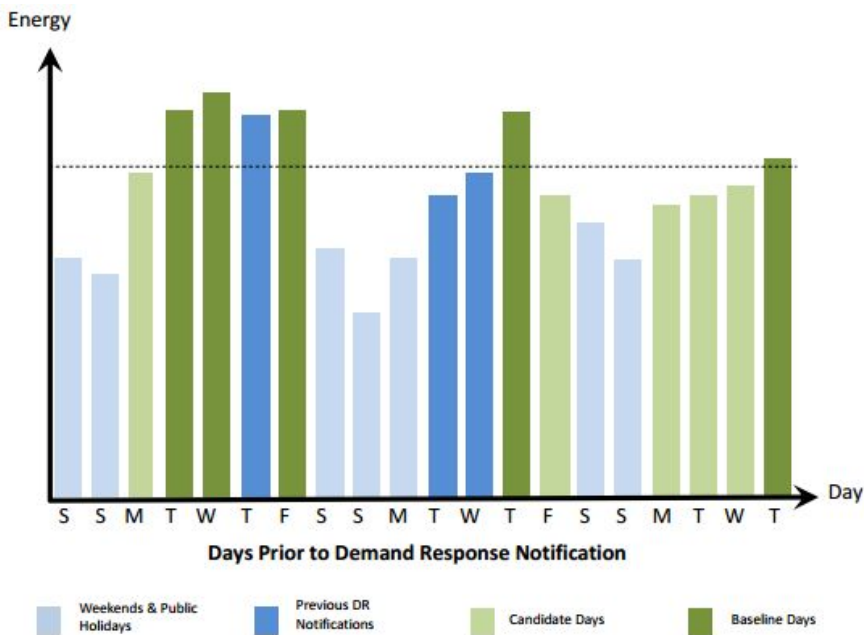
The baseline methodology proposed in 2013 included a validation process to establish if meter data associated with a NMI was within a tolerance of variability. While a desirable feature for baseline accuracy, no equivalent test is being employed as part of this Competitive Round.

The following diagrams were presented in the DRM high-level market design and illustrate the core concepts and items used to generate a dynamic profile baseline. Please note that these diagrams are for illustration purposes only and do not accurately reflect the baseline methodology for the Competitive Round. Key items include:

- Candidate and selected days used to drive unadjusted baseline
- Excluded days i.e business days and not previous Activation days

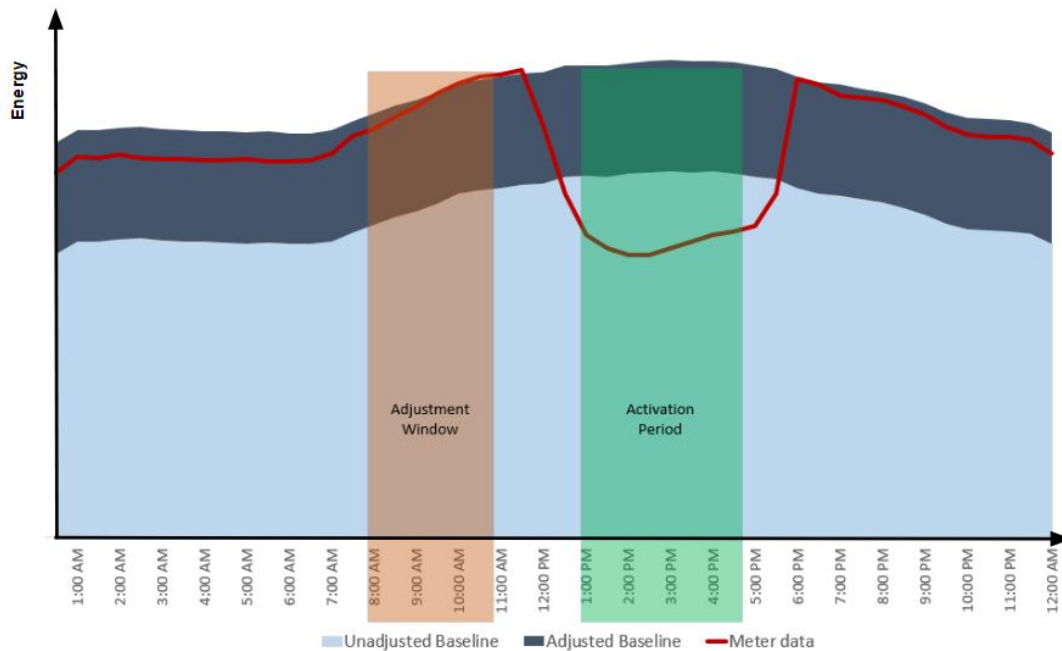
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<sup>5</sup> AEMO, July 2013. Demand Response Mechanism and Ancillary Services Unbundling - High Level Market Design. Available at:  
[https://www.aemo.com.au/-/media/Files/PDF/DRM\\_High\\_Level\\_Market\\_Design\\_Final.pdf](https://www.aemo.com.au/-/media/Files/PDF/DRM_High_Level_Market_Design_Final.pdf)



The following diagram further illustrates concepts used. Key items include:

- Activation period
- Adjustment window
- Unadjusted and adjusted baseline



For the Activation of Demand Response on a day, an unadjusted baseline energy is derived from meter data for a set number of prior qualifying days, collectively called the selected days. A qualifying day must satisfy requirements like not having Demand Response Activated on that day, or not being a weekend or holiday. The set of qualifying days is taken from the baseline window period.

The adjustment window is a time period prior to the Activation of the Demand Response, and differences between metered data on the day of Activation and a corresponding derived value from the selected days are used to determine an additive adjustment (which may be negative). This is added to the unadjusted baseline energy to give the adjusted baseline energy. The Demand Response in a Trading Interval is the amount by which metered demand is less than the baseline energy, though not exceeding the amount Activated by AEMO.

The following table describes these terms.

Term	Description
adjustment window	A period of time prior to Activation of Demand Response from which meter data is used to adjust the baseline to reflect conditions on the day of Activation
average actual adjustment window energy	The simple average of the metered energy over the adjustment window
average baseline adjustment window energy	The simple average of the unadjusted baseline energy over the adjustment window
baseline consumption methodology	A methodology used to calculate baseline energy for a Demand Response Trading Interval
baseline energy	The MWh energy derived from a baseline consumption methodology and associated with a NMI included in a Demand Response for settlement purposes for a Demand Response Trading Interval.  baseline energy = unadjusted baseline energy + additive adjustment
baseline window	The period of days preceding a Demand Response Trading Interval from which qualifying days are selected for the purpose of calculating baseline energy for that Demand Response Trading Interval.  In this instance it is 45 calendar days. This time range is long enough to allow for a significant number of qualifying days but not so long as to create serious distortions due to changing seasons.
qualifying days	Calendar weekdays within the baseline window which are not public holidays (in that location) and on which Demand Response events have not been called for the NMI

selected days	A subset of the qualifying days within the baseline window associated with a Demand Response Trading Interval from which meter data is used for the purpose of calculating baseline energy for that Demand Response Trading Interval
symmetric additive adjustment	An adjustment applied in baseline calculation to increase or decrease the baseline energy based on the average difference between predicted and metered energy during an adjustment window prior to a Demand Response interval.  This is calculated as the average actual adjustment window energy – average baseline adjustment window energy. This may be positive or negative.
unadjusted baseline energy	For a Trading Interval, the average metered values for the corresponding Trading Interval on each of the selected days

## 2. Calculations

The calculation of the Demand Response for a Trading Interval is described as follows. Where a resource is Activated to provide Demand Response on that day then it is necessary to use meter data for prior days to determine an unadjusted baseline which reflects an average historic consumption over the period of the Demand Response based on a set of prior selected days.

### Unadjusted baseline calculation

$$b_t = \frac{1}{S} \sum_{i=1,2,\dots,S} c_{ti}$$

Where:

$b$  = unadjusted baseline MWh for a given time interval ( $t$ )

$i$  = one of  $S$  selected days

$S$  = the set of selected days in the 45 calendar days immediately preceding the weekday on which Reserve was Activated and for which the calculation is being made (the **45 day period**). The days in the 45 day period selected for the set will be based on weekdays on which Reserve was not Activated (**Non-Activated**) and weekdays on which Reserve was Activated (**Activated**) and determined as follows:

Step 1 - This set of selected days normally comprise the 10 Non-Activated Days immediately preceding the weekday on which Reserve was Activated and for which the calculation is being made.

Step 2 - If, in the 45 day period, there are less than 10 Non-Activated Days but 5 or more Non-Activated Days, then S comprises those Non-Activated Days.

Step 3 - If, in the 45 day period, there are less than 5 Non-Activated Days, then S comprises the Non-Activated Days plus one or more of the Activated Days in the 45 days period will added to the number of Non-Activated Days so that the total number of days in the set equals 5. The Activated Days added to the Non-Activated Days will be determined based on the level of demand during the Trading Intervals during the period of Activation on the Activated Days (with the Activated Day with the highest demand during any Trading Interval during the period of Activation on that Activated Day ranked highest and added to the Non-Activated Days, with the next highest ranked Activated Day added and so on, until the total number of days in the set equals 5). If 2 or more Activated Days are ranked the same based on the highest demand during any Trading Interval during the period of Activation, the Activated Day closest in time to the weekday on which Reserve was Activated and for which the calculation is being made will be ranked higher.

$t$  = Trading Interval

$c$  = MWh electricity demand for a given Trading Interval ( $t$ ) occurring on one of the selected days

To account for the possibility that the day on which the Reserve Activation occurs was different from the average day, an adjustment factor is applied. This uses data from hours prior to the Activation instruction but on the same day and compares them against historic days.

#### **Adjustment factor calculation**

$$a = \frac{\sum_{t=s-8}^{t=s-3} (c_t - b_t)}{6}$$

Where:

$a$  = adjustment factor (this may be positive or negative)

$s$  = the start of the Trading Interval ( $t$ ) during which the reserve has been Activated and for which the calculation is being made

$c$  = MWh electricity demand for a given time interval ( $t$ ) during the period of Reserve Activation for which the calculation is being made.

$s - n$  = Trading Interval  $n$  30-min intervals before Activation start time. For the avoidance of doubt, the adjustment window will always be from  $s-8$  through  $s-3$  as presented above.

An adjusted baseline is then determined by adding the adjustment factor (which may be positive or negative) to each value in the unadjusted baseline.

#### **Adjusted baseline calculation**

$$B_t = b_t + a$$

$B$  = adjusted baseline MWh for a given Trading Interval ( $t$ )

### Delivered reserve

The delivered Reserve provided by the Demand Response in a Trading Interval is based on the difference between the adjusted baseline, representing what would be expected to have happened without a Demand Response, and the actual metered consumption, which should reflect the Demand Response.

$$D_t = B_t - c_t$$

$D$  = quantity of Reserve Activated for a given Trading Interval ( $t$ ).

$c$  = MWh electricity demand for a given Trading Interval ( $t$ ) during the period of Reserve Activation for which the calculation is being made.

Where  $D$  is more than the level specified in the relevant Activation instruction,  $D$  = the level specified in the relevant Activation instruction. Where  $D$  is less than zero, then  $D = 0$ .

### 3. Example of baseline calculations

#### Example of the CAISO “10 of 10” Unadjusted Baseline for Weekdays Excluding Public Holidays

Consider an Activity is providing Demand Response on Tuesday 29th of the month for a period that includes the Trading Interval ending 1330 hours for a NMI. In order to calculate the baseline energy for that Trading Interval (and all other Trading Intervals included in the Activation period), the last 10 days that are not public holidays, weekend days or previous Activation days are used. These are shown in the table below (shaded days are selected days).

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	1	2	3	4	5	6
7	8 Prior Activation	9	10 Prior Activation	11	12	13
14	15	16 Prior Activation	17	18	19	20
21	22 Prior Activation	23	24	25 Holiday	26	27
28	29 Reserve Activated	30	31			

For these days the half hour ending 1330 hours metered energy is collected with these averaged to form the unadjusted baseline energy, as shown in the table below.

Date	Type	1 PM Meter Value
9 Jan	Weekday	840
11 Jan	Weekday	910
14 Jan	Weekday	800
15 Jan	Weekday	780
17 Jan	Weekday	810
18 Jan	Weekday	860
21 Jan	Weekday	900
23 Jan	Weekday	890
24 Jan	Weekday	910
28 Jan	Weekday	800
<b>Total:</b>		<b>8,500</b>
<b>Unadjusted Baseline Energy (Total / 10)</b>		<b>850</b>

### Example of Symmetric Additive Adjustment

A symmetric additive adjustment allows the unadjusted baseline to be increased or decreased by the adjustment. In the example in the Table below the adjustment window comprises the 6 Trading Intervals (1 to 6) ending one hour before the start of the Demand Response interval, which runs from Trading Intervals 9 to 16.

	Adjustment Window						Activation Period									
Trading Interval	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Meter Read	5	6	7	9	10	11	12	14	8	10	12	14	13	12	14	16
Unadjusted Baseline Energy	2	2	4	6	8	8	10	12	14	15	20	21	20	20	21	22



Additive Adjustment	Average meter read = 8 Average unadjusted baseline energy = 5 Additive adjustment = 3			3	3	3	3	3	3	3	3
Adjusted Baseline Energy				17	18	23	24	23	23	24	25
Delivered Reserve				9	8	11	10	10	11	10	9

In this scenario, usage during the adjustment window is higher than the unadjusted baseline energy and the use of the additive adjustment results in a positive (higher) adjustment to the baseline energy.