

# Request for Expressions of Interest

## Long Notice RERT

Services:

Long Notice RERT

Contact:

[rert@aemo.com.au](mailto:rert@aemo.com.au)

Closing Date:

4 September 2019

Australian Energy Market Operator Limited  
ABN 94 072 010 327  
Level 22, 530 Collins Street  
MELBOURNE VIC 3000  
TEL: 03 9609 8000

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## SECTION A REQUEST FOR EXPRESSIONS OF INTEREST

### A.1 Background

AEMO is a company limited by guarantee. It has statutory functions under the National Electricity Law, National Gas Law and Rules made under those Laws, including:

- Market and system operator and national transmission planner for the National Electricity Market
- Market and system operator of the Victorian wholesale gas market
- Market operator of gas short term trading markets, gas trading exchanges and retail gas markets in eastern and southern Australia.

With its broad national focus for the future, AEMO's objectives are to promote efficient investment in and operation of Australia's electricity and gas services for the long-term interests of consumers with respect to price, quality, safety, reliability and security of energy supply.

### A.2 Reserve

One of AEMO's functions under the National Electricity Rules (NER) is to monitor the reliability of *supply* in the *NEM* and to take all reasonable actions to ensure reliability of supply, and where practicable, maintain power system security, including by negotiating and entering into reserve contracts. In doing so, AEMO must comply with the RERT principles and RERT guidelines.

#### (a) The Need for Long Notice RERT

AEMO may procure reserve through the creation of a panel of entities that may be called upon to tender for and enter into reserve contracts under certain circumstances where notice of projected shortfall is relatively short.

Alternatively, AEMO may also procure reserve through invitations to tender to ensure that reliability of supply in a region meets the reliability standard. The procedure AEMO will follow for tendering is detailed in the Procedure for the Exercise of the RERT. This Request for Expressions of Interest is designed to help prepare potential tenderers for any future Invitation to Tender for Long Notice RERT for the coming summer so that such a tender process can be expedited if AEMO determines that long notice RERT may be required.

The duration of the reserve period is expected to be between 1 November 2019 to 31 March 2020. This is indicative only and is not a fixed or final period and is for the purposes of determining what may be available (including by way of RERT). AEMO will continue to monitor supply and demand conditions before determining whether to issue an Invitation to Tender for long notice RERT (and subsequently whether to contract for long notice reserve for the coming summer).

#### (b) Eligible Reserve

In determining whether to respond to this Request for Expressions of Interest, Recipients need to be aware of the types of *reserve* that AEMO may be prepared to purchase.

#### Load reduction

This usually involves the interruption of, or reduction in, the consumption of electricity by a *load*. The *load* to be interrupted or reduced need not be located in the same *region* as the *region* in respect of which *reserve* is sought by AEMO, but must usually take its *supply* from the *region* experiencing the *reserve* shortfall.

It is also possible that the reduced *load* is available because *generation* that is not *connected* to the *national grid* is used to supply electricity to the *load*.

If registered as a Scheduled load, Recipients should indicate this in their expression of interest (EOI).

Load reduction specifications sought by AEMO are as follows:

1. Available weekday (excluding public holidays) with:
  - 10 minute notification; or
  - 1 hour notification
2. Available 24 hours a day, 7 days a week with:
  - 10 minute notification; or
  - 1 hour notification

Reserve minimum is 10MW.

AEMO will consider responses with the above reserve specifications more favourably than those that do not meet these specifications but reserves the right to accept them or otherwise at its discretion.

### **Generation increase**

This usually involves the *generation* of electricity from a *generating unit*. Generating units need not be located in the same regions as the region for which reserve is sought by AEMO, but must have a *connection point* located in the *region* for which *reserve* is sought. If the proposed *generating unit* does not have a connection point in the region being sought, please contact us to discuss whether it could be suitable to provide *reserve*.

Subject to the eligibility criteria below, it may involve the *generation* of electricity by a *scheduled generating unit* or *non-scheduled generating unit*.

Recipients should indicate whether the relevant generating unit is a scheduled generating unit or a non-scheduled generating unit in their EOI.

Reserve specifications sought by AEMO are as follows:

1. available weekday (excluding public holidays) or
2. available 24 hours a day, 7 days a week

Reserve minimum is 10MW.

AEMO will consider responses with the above reserve specifications more favourably than those that do not meet these specifications but AEMO reserves the right to accept them or otherwise at its discretion.

### **(c) Ineligible Reserve**

The following are ineligible for consideration as reserve:

- Reserve that is being provided by *scheduled generating units* or *scheduled loads* for which dispatch offers or dispatch bids have been submitted or are considered by AEMO to be likely to be submitted or be otherwise available for dispatch in the trading intervals to which the reserve contract relates.<sup>1</sup>
- Reserve that is required or might be required or available to be provided under any other agreement or arrangement, including any electricity supply agreement or arrangement, any demand side management agreement or arrangement or any other similar agreement or arrangement for trading intervals to which the reserve contract with AEMO relates.<sup>2</sup>

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<sup>1</sup> See Rule 3.20.3(h)

<sup>2</sup> See Rule 3.20.3(j)

**EOIS ARE INVITED** for the provision of the Reserve in the nature of additional generation or load reduction to support electricity reliability in Victoria. More particulars of AEMO's requirements are contained in **Section D**.

### A.3 Glossary

In this document, capitalised words or phrases have the meanings set out below.

A word or phrase defined in the NER has the same meaning when used in this document.

<b>Addendum</b>	Any document issued after the date of this RFEOI and labelled as an "Addendum" to this RFEOI; collectively known as "Addenda".
<b>AEMO</b>	Australian Energy Market Operator Limited ABN 94 072 010 327. References to AEMO include, where the context requires, AEMO's employees, officers, contractors, consultants, advisers and other persons authorised to act for AEMO.
<b>AEMO Contact Details</b>	<a href="mailto:rert@aemo.com.au">rert@aemo.com.au</a>
<b>Closing Date</b>	The date specified on the cover of this RFEOI.
<b>Expression of Interest or EOI</b>	The expression of interest submitted by a Recipient to provide reserve
<b>EOI Form</b>	The document contained in <b>Section E</b>
<b>NER</b>	National Electricity Rules.
<b>Recipient</b>	Any person in receipt of this Request for Expressions of Interest
<b>Reserve</b>	The services and deliverables described in <b>Section D1</b> .
<b>Request for Expressions of Interest or RFEOI</b>	This document, including any schedules, attachments and appendices
<b>Statement of Compliance</b>	The schedule in <b>Section E</b> by that title.
<b>weekday</b>	A day that is not a Saturday or Sunday or observed as a public holiday in the <i>region</i> in which the <i>reserve</i> is located.

## **SECTION B ABOUT THIS RFEOI**

### **B.1 Intellectual Property**

Unless otherwise indicated, AEMO owns any intellectual property rights in this RFEOI. Recipients are permitted to use and copy this document for the sole purpose of preparing and submitting an EOI.

### **B.2 No Warranty**

Except to the extent required by law:

- AEMO makes no warranties or representations on the accuracy, adequacy or completeness of the RFEIO or any other information provided to a Recipient; and
- AEMO is not liable in any way for any loss or damage of whatever kind (whether foreseeable or not) however arising (including by reason of negligence), incurred by any person in connection with this RFEOI or any other information provided to a Recipient.

### **B.3 Queries and Communications with AEMO**

If Recipients find any discrepancy, error, or have any doubt as to the meaning or completeness of this RFEOI, or require clarification on any aspect of it, they should notify AEMO in writing via the AEMO Contact Details, not less than 7 days before the Closing Date. AEMO may issue an Addendum to all Recipients clarifying the discrepancy, error, doubt, or query (as the case may be) and may extend the Closing Date if AEMO considers it appropriate in all the circumstances.

No representation or explanation to Recipients in relation to this RFEOI is taken to be included in the RFEOI unless it is contained in an Addendum.

All communications by Recipients to AEMO about matters connected with this RFEOI must be made to the AEMO Project Manager unless otherwise authorised by the AEMO Project Manager.

### **B.4 Conditions of Submitting an EOI**

Recipients wishing to submit an EOI must comply with Section C. Recipients must ensure that their employees, contractors, agents and consultants involved in the preparation or submission of an EOI are aware of, and comply with, all requirements applicable to Recipients.

### **B.5 Discontinuing the RFEOI process**

AEMO may, in its absolute discretion, discontinue this RFEOI process, including the evaluation of EOIs, at any time. Without limitation, this may include circumstances where AEMO determines, in accordance with the NER and RERT guidelines, to commence an ITT for long notice RERT.

## **SECTION C      EOI REQUIREMENTS AND EVALUATION**

### **C.1 Submitting an EOI**

EOIs must meet the following requirements:

- All applicable sections of the EOI Form must be completed, including all relevant schedules.
- The EOI must be dated and signed (in the case of a body corporate, by a duly authorised officer).
- All supporting documentation evidencing the matters specified in Schedule 4 to the EOI Form must be included with the EOI.
- If a Recipient cannot comply with any element of the EOI Form or schedules, the Recipient must specify in the Statement of Compliance the nature of, and reasons for, the non-compliance.
- Two electronic copies of each EOI must be submitted. One must be in pdf format and be a copy of a hard copy completed, signed and initialled as required above; the second must be in Microsoft Word format (any spreadsheets must be in Microsoft Excel format) and must be submitted to the following email address by 4:00 pm EST on the Closing Date:

[ert@aemo.com.au](mailto:ert@aemo.com.au)

- Additional documentation may be submitted with an EOI if, in the Recipient's opinion, it is necessary for a proper understanding of its EOI.

AEMO may, in its absolute discretion, evaluate and accept EOIs that do not meet the lodgement requirements in this **Section C.1**, but is not obliged to do so under any circumstances.

### **C.2 Information provided to AEMO**

By submitting an EOI, a Recipient is taken to have:

- Carefully examined and satisfied itself of the requirements of this RFEOI;
- made all reasonable enquiries, investigation and assessment of available information relevant to the risks, contingencies and other circumstances relating to the Reserve; and
- satisfied itself as to the correctness and sufficiency of its EOI.

### **C.3 Confidentiality**

EOIs will be treated as confidential and will not be disclosed outside AEMO except:

- as reasonably required for the purpose of assessing the proposed Reserve;
- required by law, or in the course of legal proceedings;
- to persons nominated by participating jurisdictions for the purpose of AEMO consulting with participating jurisdictions and agreeing cost-sharing arrangements between regions (if applicable) as required under the National Electricity Rules;
- requested by any regulatory or other government authority having jurisdiction over AEMO, or its activities; or
- to AEMO's external advisers, consultants or insurers,

in which case the Recipient is deemed to have consented to this disclosure by providing the EOI.

### **C.4 No Anti-Competitive Conduct**

Recipients must not:

- discuss this RFEOI with any other provider or potential provider of Reserve; or
- engage in any conduct that is designed to, or might have the effect of, lessening competition in the supply to AEMO of the Reserve.

Recipients who wish to engage in legitimate teaming or sub-contracting discussions with persons who might deliver the Reserve must obtain AEMO's prior approval to do so.

### **C.5 No Improper Assistance or Inducements**

Recipients must not seek or accept the assistance of employees, contractors or consultants of AEMO in the preparation of their EOIs and must not make any offers or engage in any activities that are likely to be perceived as, or may have the effect of, influencing the outcomes of the RFEOI process. Recipients must at all times comply with all applicable laws in relation to the offering of unlawful inducements in connection with their EOIs.

### **C.6 No Reimbursement for Costs of EOI**

No Recipient is entitled to be reimbursed for any expense or loss incurred in the preparation and submission of its EOI or for any costs incurred in attending meetings with AEMO during the EOI evaluation process.

### **C.7 No Publicity**

Recipients must not make any public or media announcement about this RFEOI or the outcome of this RFEOI without AEMO's prior written permission.

### **C.8 Disqualification**

AEMO may, in its absolute discretion, immediately disqualify a Recipient from further participation in the RFEOI process if AEMO believes that Recipient has contravened a requirement of Section B or Section C.

### **C.9 EOI Evaluation**

AEMO will evaluate the EOIs, taking into account the following criteria:

- the nature and location of the Reserve;
- the expected reliability and availability of the proposed *reserve*;
- compliance with the Procedure for the Exercise of RERT, the *RERT Principles*, *RERT Guidelines* and the Rules; and
- any other factors AEMO considers to be relevant.

The following are ineligible for consideration as Reserve:

- Reserve that is being provided by scheduled generating units or scheduled loads for which dispatch offers or dispatch bids have been submitted or are considered by AEMO to be likely to be submitted or be otherwise available for dispatch in the trading intervals to which the reserve contract relates.
- Reserve that is required or might be required or available to be provided under any other agreement or arrangement, including any electricity supply agreement or arrangement, any demand side management agreement or arrangement or any other similar agreement or arrangement in the trading intervals to which the reserve contract relates.

AEMO may, in its absolute discretion, accept none, any, or any combination of EOIs.

AEMO may, in its absolute discretion, consider non-conforming EOIs provided that any departure from the requirements of this RFEOI is identified and fully described in the Statement of Compliance.

### **C.10 Clarification**

If AEMO considers that an EOI is unclear, it may seek clarification or further information from Recipients at any time during the evaluation process. Recipients may be asked to



attend meetings with AEMO at a time and place to be notified by the AEMO Project Manager to review and discuss any such matters.

AEMO has no obligation to seek clarification of any EOI, and may disregard any information that it considers to be unclear.

#### **C.11 No Obligation to Debrief**

AEMO is under no obligation to debrief any Recipient as to AEMO's evaluation of EOIs, or give any reason for the acceptance of or non-acceptance of any EOI.

## **SECTION D      REQUIREMENTS FOR RESERVE**

### **D.1 Description of the Reserve**

The Reserve can be provided in three ways:

- Through the availability of additional generation (either by using existing plant, or by installing new plant);
- Through load reduction; or
- A combination of additional generation and load reduction.

AEMO has prepared this RFEOI in anticipation that the Service will be provided during weekdays. However, if a Recipient is capable of providing the Service during weekends and public holidays, please note that in your EOI and we can discuss the details with you further including the manner that this will be reflected in payment calculations and other terms of any agreement.

The technical characteristics of the Reserve are detailed in **SCHEDULE 2**.

### **D.2 Regulatory Issues**

Recipients are expected to be familiar with the details of the electricity regulatory framework and the operations of the National Electricity Market. AEMO wishes to draw Recipients' attention to the following issues:

- Depending on the solution proposed, Recipients might need to hold, or be in the process of acquiring, a generation or retail licence in a relevant jurisdiction (such as the Essential Services Commission of Victoria).
- Recipients may also need to become registered participants under the NER.
- If Recipients are proposing to install additional plant as part of their EOI, they will need to consult with appropriate network service providers to arrange connection of their plant to the network. Further details of the network connection process are available in Chapter 5 of the NER and AEMO's website.

### **D.3 Approvals**

AEMO expects Recipients to be familiar with any planning and environmental approvals required, especially if they are proposing to install new plant to provide the Reserve and are fully responsible to address any such issues.

### **D.4 Payment Structure**

Recipients are expected to provide indicative pricing separately for each type of Reserve proposed. AEMO may contemplate paying an Availability Charge over the term of any proposed contract, which would be subject to adjustment for unavailability and non-delivery. Recipients are requested to specify a target Availability Charge.

#### **(a) Availability Charge**

An Availability Charge applies where significant overheads are incurred in making the Reserve available. It must be priced as a lump sum amount (\$) for the duration of the agreement. However, it will be payable on a weekly basis in arrears for each day when the Reserve is available to AEMO, regardless of whether AEMO has dispatched or activated it. When evaluating, AEMO may treat responses with a relatively lesser proportion of costs allocated to the Availability Charge more favourably, all else being equal.

The amount and the payment of the Availability Charge can be affected in 3 ways:

#### **1. Testing**

The provider would need to complete a test of the reserve, at the providers cost, to confirm that the tendered amount of reserve can be provided. If the test yields an outcome where the available capacity of the reserve is less than the initial contracted reserve, AEMO may reduce the contracted reserve amount to the amount tested and on

a pro rata basis, reduce the Availability Charge, or if the amount is too low, terminate the contract.

For example, where the reserve initially contracted is 10MW, but the highest performing test result yields a reserve of 9MW, the contracted reserve amount will be 9MW and the Availability Charge will be 90% of the initially proposed amount.

## **2. Advice that reserve is unavailable**

The provider will be required to advise AEMO on the availability of the reserve on an ongoing basis using the AEMO web portal.

If the amount advised by the provider is less than 100% of the contracted amount the reserve will be considered unavailable.

## **3. Non-delivery of reserve**

If AEMO issues an instruction to activate or dispatch the reserve for a weekday and the amount of reserve activated or dispatched is 80%, or less, of the amount instructed, the reserve will be considered unavailable and the Availability Charge will not be payable and where paid, may be required to be repaid. A bank guarantee may be required to cover this repayment amount.

If the provider fails to activate or dispatch the reserve to at least 80% of the amount instructed on any weekday, AEMO may terminate the reserve contract without charge.

For details on the proposed unavailability rebates scheme, please refer to Items 6 and 9 of the Medium-Notice Reserve – Scheduled Reserve (Generation Increase) of the pro-forma RERT Panel Agreement released with the Request for Expression of Interest for the RERT Panel for Short Notice and Medium Notice RERT for New South Wales (including Australian Capital Territory), Queensland, South Australia, Tasmania and Victoria at:

[https://www.aemo.com.au/-/media/Files/Electricity/NEM/Emergency\\_Management/RERT/2019/20190809-RERT-Panel-Agreement-for-EOI.pdf](https://www.aemo.com.au/-/media/Files/Electricity/NEM/Emergency_Management/RERT/2019/20190809-RERT-Panel-Agreement-for-EOI.pdf)

### **(b) Pre-Activation Charge**

A pre-activation charge applies where significant additional operating costs are incurred in making Reserve comprised of unscheduled reserve available for activation. It will apply to unscheduled reserve that can be activated quickly if pre-activated. It must be priced as a rate in dollars per “pre-activation instruction”. It will be paid only if AEMO issues a “pre-activation instruction” in accordance with the proposed reserve contract to alert a provider to be ready to respond to a possible activation instruction, regardless of whether the unscheduled reserve is activated.

A re-issue of the “pre-activation instruction” to revise an earlier advice shall not be regarded as a new “instruction” under the proposed reserve contract (and, therefore, will not incur an additional charge).

The pre-activation charge is not payable in the event of non-delivery of the Reserve. Recipients are requested to specify a target Pre-Activation Charge.

### **(c) Usage Charge**

The usage charge applies to Reserve where significant operating costs are incurred by a provider when the Reserve is delivered in response to a dispatch or activation instruction. It must be priced as a rate in dollars per MWh of energy:

- for generation, this is calculated as the increase in energy provided; and
- for load reduction, this is calculated as the reduction in energy usage by the relevant load.

A provider will only be paid for the Reserve delivered up to the limit of the amount of Reserve sought in the dispatch or activation instruction and only between the times specified in the relevant dispatch or activation instruction..

For load reduction, the Usage Charge will be calculated against baselines and baseline adjustments in paragraph (e) below. It is possible that the relevant load might be off-line and seemingly not available as Reserve. Recipients should state in their EOI whether their load is “flat” or “variable” and if variable, should provide information indicating the nature and extent of the variability.

The Usage Charge is only payable if an activation or dispatch instruction is issued to the provider.

Recipients are requested to specify a target Usage Charge.

**(d) Early Termination Charge**

The early termination charge applies only where AEMO unilaterally opts to terminate a reserve contract prematurely for convenience and will decline *pro-rata* as the term of the agreement progresses towards its end. One termination price will apply for each reserve contract. Recipients are requested to specify a target early termination charge or termination charge methodology.

**(e) Baselines for Demand Response:**

In the case of demand response, baseline calculations will be used to determine the quantity of reserve activated.

When a demand response event occurs the response calculated for the usage 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 draws on approaches developed under AEMO’s Demand Response Mechanism (**DRM**) proposals in 2013<sup>3</sup>, which was based on methods used internationally and assessed for application within a NEM context.

In order to ensure that the baseline is appropriate when measured against actual consumption, AEMO may compare the providers’ baseline under the baseline formulation herein against the last 60 non-event days metered history and if they vary from each other by a value greater than or equal to 20% Relative Root Mean Squared Error (RRMSE), AEMO may adjust the variables used to determine the baselines applicable to ones that AEMO reasonably determines better reflect the provider’s typical demand.

An explanation of the baseline calculations is included in Schedule 6.

## **D.5 Security**

AEMO may require a bank guarantee to be provided to secure AEMO’s right to be repaid Availability Charges and preactivation charges where the reserve was not available or is deemed to have not been available.

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<sup>3</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)

## SECTION E EOI FORM

EOI for Long Notice RERT

To: Australian Energy Market Operator Ltd  
Level 22, 530 Collins Street  
MELBOURNE VIC 3000

From:

Recipient (full company name):		
ABN:		
Address:		
Website:		
Contact Person:	Name:	
	Title:	
	Telephone No:	
	E-mail:	

### 1. Expression of Interest

The Recipient hereby submits an Expression of Interest to provide the Reserve described in Schedule 2 to AEMO:

- in accordance with the requirements of the RFEOI, subject only to any variations specified in the Statement of Compliance in **Schedule 1**; and
- at the price or prices specified or determined in accordance with **Schedule 3**.

### 2. Agency/Joint EOI

The Recipient is/is not<sup>4</sup> acting as agent or trustee for another person, or lodging a EOI jointly with other persons.

(If the EOI is acting as an agent or trustee, full details must be provided in this section.)

### 3. Supporting Information

The Recipient provides in Schedule 4 details of its capability to provide the Reserve, as required by AEMO to support this EOI.

### 4. Addenda to RFEOI (include only if Addenda received)

In the preparation of its EOI, the Recipient acknowledges having received the following Addenda to the RFEOI:

Addendum No.	Dated
Addendum No.	Dated
Addendum No.	Dated

<sup>4</sup> Delete as appropriate.



## SCHEDULE 1 STATEMENT OF COMPLIANCE

*[Delete whichever is not applicable]*

[Name of Recipient] confirms that this EOI conforms in every respect with the RFEOI.

OR

[Name of Recipient] confirms that this EOI conforms in every respect with the RFEOI **other than** in the following respects:

- 
-

## SCHEDULE 2 DESCRIPTION OF RESERVE

For each of the Reserves the Recipient is proposing, if it is:

- *Scheduled reserve – generation increase*, complete S2.1;
- *Scheduled reserve – load reduction*, complete S2.2;
- *Unscheduled reserve – generation increase*, complete S2.3;
- *Unscheduled reserve – load reduction*, complete S2.4.

### S2.1 Scheduled Reserve

For each of the Reserves the Recipient is proposing, if it is to be provided by a *scheduled generating unit*, the following information must be supplied:

#### (a) Details of Scheduled Generating Unit

Copy and paste this table as many times as necessary for each *scheduled generating unit*.

<b>Description of <i>scheduled generating unit</i></b>	<b>Name or identification number:</b> Insert details in Excel spreadsheet	
	<b>Power Station:</b> Insert details in Excel spreadsheet	
<b>Classification of <i>scheduled generating unit</i></b>	<input type="checkbox"/> <i>Market generating unit</i> <input type="checkbox"/> <i>Non-market generating unit</i> Insert details in Excel spreadsheet	
<b>Connection Point</b>		
<b>Local Network Service Provider</b>		
<b>Is the Recipient the <i>Registered Participant</i> in respect of the <i>scheduled generating unit</i>?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Does the Recipient own the <i>scheduled generating unit</i>?</b>  If not, on what basis is the <i>scheduled generating unit</i> being made available to the Recipient for offer to AEMO as Reserve? Provide relevant evidence, <sup>5</sup> including a copy of any contract by which the <i>scheduled generating unit</i> is being made available for the provision of Reserve.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Firm Capacity</b> , ie the <i>generating</i> capacity available from the <i>scheduled generating unit</i> .	Insert details in Excel spreadsheet	

<sup>5</sup> Please label any attachment clearly with the item number to which it refers.



<b>Market Capacity</b> , ie the <i>generating</i> capacity available from the <i>scheduled generating unit</i> subject to: <ul style="list-style-type: none"> <li>• <i>dispatch offers</i>; or</li> <li>• any other agreement or arrangements where <i>generating</i> capacity is made available, including any electricity supply agreement or arrangement or any other similar agreement or arrangement.</li> </ul>		Insert details in Excel spreadsheet
<b>Reserve</b> , ie the Firm Capacity minus Market Capacity Provide details of the method by which the <i>scheduled generating unit</i> will be utilised for the delivery of <i>reserve</i> . <sup>5</sup>		Insert details in Excel spreadsheet
<b>Minimum Operating Level</b> , ie the minimum <i>loading level</i> at which the <i>scheduled generating unit</i> can operate continuously.		Insert details in Excel spreadsheet
<b>Enablement Lead Time</b> , ie the maximum period required by the <i>scheduled generating unit</i> to <i>synchronise</i> and increase <i>generation</i> until the level of <i>generation</i> becomes equal to the greater of the Minimum Operating Level for Slow Start Plant (see below), the <i>scheduled generating unit</i> can be in a position to <i>synchronise</i> and increase <i>generation</i> for Fast Start Plant, or be in a position to increase output above the Market Capacity		Insert details in Excel spreadsheet
<b>Disablement Lead Time</b> , ie the maximum period required to reduce the <i>generation</i> output of the <i>scheduled generating unit</i> to the Market Capacity or <i>desynchronise</i> it.		Insert details in Excel spreadsheet
<b>Type of Scheduled Generating Unit</b> , ie “Fast Start Plant”, which means that the <i>scheduled generating unit</i> can <i>synchronise</i> and increase its <i>loading level</i> to the <i>firm capacity</i> within 30 minutes, or “Slow Start Plant”, which is any other <i>scheduled generating unit</i> .		<input type="checkbox"/> Fast Start Plant <input type="checkbox"/> <b>Slow Start Plant</b> Insert details in Excel spreadsheet
<b>Power Output Range</b>		<b>MW</b>
<b>Method of Control</b> , ie can the <i>scheduled generating unit</i> be switched to operate on AGC or under manual control?		<input type="checkbox"/> AGC <input type="checkbox"/> <b>Manual Control</b> Insert details in Excel spreadsheet
<b>Minimum rate of change of power output</b>	<b>While operating on AGC:</b>	Insert details in Excel spreadsheet
	<i>While operating on manual control:</i>	Insert details in Excel spreadsheet
<b>Maximum rate of change of power output</b>	<b>While operating on AGC:</b>	Insert details in Excel spreadsheet
	<b>While on operating manual control:</b>	Insert details in Excel spreadsheet

<b>Minimum run-time</b> , ie the minimum period the <i>scheduled generating unit</i> must <i>generate</i> .	Insert details in Excel spreadsheet
<b>Minimum off-time</b> , ie the minimum period between the last time the <i>scheduled generating unit</i> was <i>generating</i> and the time at which the <i>scheduled generating unit</i> can re-commence <i>generating</i> .	Insert details in Excel spreadsheet
<b>Maximum run time</b> , ie the maximum period the <i>scheduled generating unit</i> can <i>generate</i> .	Insert details in Excel spreadsheet

## (b) Constraints

<b>Is the <i>dispatch</i> of the Reserve dependent on any third party, or the <i>dispatch</i> or <i>activation</i> of any other reserve?</b> If so, identify that third party and provide details of the type of constraint. <sup>6</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is the Recipient required to receive any approval from any Local, State or Federal Government body or Authority (e.g. Essential Services Commission, Environment Protection Authority, etc.) in order to make the Reserve available?</b> If so, please provide details. <sup>6</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is there any potential environmental, health, or safety risk (e.g. community risk/cost) to any party as a result of <i>dispatching</i> the Reserve?</b> If so, please provide details. <sup>7</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Are there any other known or potential constraints on the <i>dispatch</i> of the Reserve?</b> If so, please provide details. <sup>7</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Indicate which constraints might be interrelated.<sup>7</sup></b>	

## (c) Minimum Technical Requirements

<b>Can the Reserve be <i>dispatched</i> by instructions to a single point of contact with operational responsibility?</b> If not, please provide details of how the Reserve <i>dispatch</i> instructions need to be delivered by AEMO. <sup>7</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>dispatched</i> as a block of not less than 10MW?</b> If not, please detail the minimum size of the blocks in which it can be <i>dispatched</i> . <sup>7</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>dispatched</i> continuously for at least 1 hour?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No

<sup>6</sup> Please label any attachment clearly with the item number to which it refers.

<sup>7</sup> Please label any attachment clearly with the item number to which it refers.

If not, please explain why and detail the minimum time during which the Reserve can be <i>dispatched</i> continuously. <sup>7</sup>	
Is there any maximum <i>dispatch</i> duration and if so, why?	

#### (d) Performance Criteria

Copy and paste this table as many times as necessary for each *scheduled generating unit*.

<p><b>Can the <i>scheduled generating unit</i> synchronise and increase generation until the level of generation becomes equal to the Minimum Operating Level for Slow Start Plant<sup>8</sup>, be in a position to synchronise and increase generation for Fast Start Plant<sup>8</sup> or be in a position to increase output above the Market Capacity within the proposed Enablement Lead Time<sup>8</sup> at all times?</b></p> <p>If not, when will it be unable to do so and why?<sup>9</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>Can the <i>scheduled generating unit</i> reduce its generation output to the Market Capacity or <i>desynchronise</i> it within the proposed Disablement Lead Time<sup>8</sup> at all times?</b></p> <p>If not, when will it be unable to do so and why?<sup>9</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>Upon receiving an instruction to <i>dispatch</i>, can the <i>scheduled generating unit</i> generate at the required rate of change, which is to be not less than the relevant rate of change of power output?<sup>8</sup></b></p> <p>If not, when will it be unable to do so and why?<sup>9</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

#### (e) Reserve Availability

<p><b>Is the Reserve established and available now?</b></p> <p>If not when will it be established and available?<sup>9</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>Is the Reserve available at all times between 1 November 2019 to 31 March 2020</b></p> <p>If not, please identify when it is, or might, not be available and why.<sup>9</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

#### (f) Reserve Reliability

Copy and paste this table as many times as necessary for each *scheduled generating unit*.

<sup>8</sup> As specified in the table in item 4.1.

<sup>9</sup> Please label any attachment clearly with the item number to which it refers.

<p><b>Has the <i>scheduled generating unit</i> undergone the following test in the last 3 months?</b></p> <p>Testing might be required as a condition of contract but if the <i>scheduled generating unit</i> which will provide the Reserve has recently been satisfactorily tested, AEMO may allow those results to be used in full or partial discharge of the tests obligations.</p> <p>Operation of the <i>scheduled generating unit</i> at the Firm Capacity<sup>10</sup> for not less than 1 hour, where:</p> <ul style="list-style-type: none"> <li>• The <i>scheduled generating unit</i> operated in a constant and stable manner;</li> <li>• The <i>scheduled generating unit</i> increased <i>generation</i> until the level of <i>generation</i> became equal to the greater of the Minimum Operating Level<sup>10</sup> and the Market Capacity<sup>10</sup> within the proposed Enablement Lead Time<sup>10</sup>;</li> <li>• The <i>scheduled generating unit</i> reduced its <i>generation</i> output to the Market Capacity<sup>10</sup> or <i>desynchronised</i> it within the proposed Disablement Lead Time<sup>10</sup>; and</li> <li>• All automatic <i>control systems</i>, for example, the <i>excitation control system</i> and <i>governor system</i>, operated in their automatic regulating mode.</li> </ul> <p>Time-stamped trend display printouts of the performance of the <i>scheduled generating unit</i> must be provided to AEMO as evidence of the completion of this test.<sup>11</sup></p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No
<p><b>Can the Recipient provide any other evidence of the proven reliability of the Reserve?<sup>11</sup></b></p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No
<p><b>Is the Recipient able to submit the <i>scheduled generating unit</i> to testing by [insert]?</b></p> <p><b>If not, why not?</b></p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No

#### (g) Measurement of Reserve

Copy and paste this table as many times as necessary for each *scheduled generating unit*.

<p><b>Provide details of the <i>metering</i> equipment the Recipient proposes to use to measure the offered Reserve.<sup>11</sup></b></p>	
<p><b>Where is the <i>metering</i> equipment installed?</b></p> <p>If not installed yet, provide:</p> <ul style="list-style-type: none"> <li>• the date by which the <i>metering</i> equipment will be functional; and</li> <li>• the proposed location of the <i>metering</i> equipment.</li> </ul>	

<sup>10</sup> As specified in the table in item 4.1.

<sup>11</sup> Please label any attachment clearly with the item number to which it refers.

<p><b>Is the <i>metering</i> equipment a type 1, 2, 3 or 4 <i>metering installation</i><sup>12</sup> or Vic AMI meter?</b></p> <p>“Vic AMI meter” means a smart meter installed in Victoria as part of the Victorian Government’s Advanced Metering Infrastructure (AMI) Program</p>	<p><input type="checkbox"/> Type 1</p> <p><input type="checkbox"/> Type 2</p> <p><input type="checkbox"/> Type 3</p> <p><input type="checkbox"/> Type 4</p> <p><input type="checkbox"/> Vic AMI meter</p>
<p><b>Does the <i>meter</i> cover the entire range of the <i>scheduled generating unit’s capacity</i>?</b></p> <p>If not, give details as to the calculation procedure or methodology (with examples) to be used to calculate the quantity of Reserve <i>dispatched</i> for each <i>trading interval</i> that the Reserve is to be <i>dispatched</i>.<sup>11</sup></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>

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<sup>12</sup> See Schedule 7.2 of Chapter 7 of the NER

## S2.2 Scheduled Reserve – Load Reduction

For each of the Reserves the Recipient is in a position to offer, if it is to be provided by a reduction in *load*, the following information must be supplied:

### (a) Activation by Blocks<sup>13</sup>

AEMO requires that the Reserve that is made up of a number of reductions in *load*, which might be across one or more locations, be offered as a “Block” of at least 10MW are preferred but AEMO will consider smaller blocks at its discretion. The *load* that makes up each Block must be situated in the same *region*.

The size of the Block being offered is:	.....MW
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Copy and paste all of the following items and complete for each Block.

### (b) Common Characteristics of Block

The Block must contain the following common characteristics:

<b>Enablement Lead Time</b> , ie, the time required for the Block to be prepared for <i>dispatch</i>	Insert details in Excel spreadsheet
<b>Disablement Lead Time</b> , ie the time required for the Block cease providing Reserve and to recommence taking supply of electricity from the <i>network</i> .	Insert details in Excel spreadsheet
<b>Maximum continuous operation</b> , ie the maximum time the Block can be <i>dispatched</i> continuously	Insert details in Excel spreadsheet
<b>Minimum continuous operation</b> , ie the minimum time the Block can be <i>dispatched</i> continuously	Insert details in Excel spreadsheet
<b>Minimum time between <i>dispatches</i></b>	Insert details in Excel spreadsheet
<b>Which hours of the day is the Block available for <i>dispatch</i>?</b>	Insert details in Excel spreadsheet
<b>Which days of the week is the Block available for <i>dispatch</i>?</b>	Insert details in Excel

<sup>13</sup> Copy this schedule as many times as is necessary so that each schedule contains the data related to one block only.

	spredshee t
<b>Maximum number of consecutive days in a week that the Block is available for <i>dispatch</i></b>	Insert details in Excel spredshee t
<b>Maximum number of days per week that the Block is available for <i>dispatch</i></b>	Insert details in Excel spredshee t
<b>Maximum number of <i>dispatches</i> over the period 01 November 2019 to 31 March 2020</b>	

(c) **Details of Load Reduction**

(Insert details in Excel spreadsheet)

The *Recipient* must provide details of all the *NMIs* which, as at the *commencement date* or at any time during the *term*, are related to equipment, plant or processes owned, contracted or controlled by the *Reserve Provider* including *NMI*'s which are not related to the provision of *reserve*.

The *Recipient* must also provide details of any battery supporting the *reserve*.



**(d) Ownership**

For each *load* reduction, please identify the *load* by the number used in the table in **item (c)** above including NMI, and confirm whether the Recipient owns or controls the facility being used to provide the Reserve. Please label any attachment clearly with the item number to which it refers.

**(e) Constraints**

<b>Is the <i>dispatch</i> of the Reserve dependent on any third party?</b> If so, who that third party is and provide details of the type of constraint. <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is the Recipient required to receive any approval from any Local, State or Federal Government body or Authority (e.g. Essential Services Commission, Environment Protection Authority, etc.) in order to make the Reserve available?</b> If so, please provide details. <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is there any potential environmental, health, or safety risk (e.g. community risk/cost) to any party as a result of <i>activating</i> the Reserve?</b> If so, please provide details. <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Are there any other known or potential constraints on the <i>dispatch</i> of the Reserve?</b> If so, please provide details. <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(f) Minimum Technical Requirements**

<b>Can the Reserve be <i>dispatched</i> by instructions to a single point of contact with operational responsibility?</b> If not, please provide details of how the Reserve <i>dispatch</i> instructions need to be delivered by AEMO. <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>dispatched</i> as a block of not less than 10MW?</b> If not, please detail the minimum size of the blocks in which it can be <i>dispatched</i> . <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>dispatched</i> continuously for at least 1 hour?</b> If not, please explain why and detail the minimum time during which the Reserve can be <i>dispatched</i> continuously. <sup>14</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is there any maximum <i>dispatch</i> duration and if so, why?</b>	

**(g) Performance Criteria**

<b>Can the Block be prepared for <i>dispatch</i> within the proposed Enablement Lead Time<sup>15</sup> at all times?</b> If not, when will it be unable to be so prepared and why? <sup>16</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
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<sup>14</sup> Please label any attachment clearly with the item number to which it refers.

<sup>15</sup> As specified in the table in item 5.2.

<sup>16</sup> Please label any attachment clearly with the item number to which it refers.

<p><b>Can the Block cease providing Reserve and to recommence taking supply of electricity from the <i>network</i> within the proposed Disablement Lead Time<sup>15</sup> at all times?</b></p> <p>If not, when will it be unable to do so and why?<sup>16</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>Will <i>dispatch</i> of the Reserve lead to any consequent increase in the rate at which electricity is taken from the <i>network</i> by any other equipment or process owned by a consumer whose <i>load</i> is included in the Block?</b></p> <p>If yes, has this effect been deducted from the offered Reserve? Please provide evidence if it has.<sup>16</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(h) Reserve Availability**

<p><b>Is the Reserve established and available now?</b></p> <p>If not when will it be established and available?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>Is the Reserve available at all times between 1 November 2019 to 31 March 2020?</b></p> <p>If not, please identify when it is, or might, not be available and why.<sup>17</sup></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(i) Not used**

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**(j) Measurement of Reserve**

<p><b>Provide details of the <i>metering</i> equipment the Recipient proposes to use to measure the Reserve.<sup>17</sup></b></p>	
<p><b>Where is the <i>metering</i> equipment installed?</b></p> <p>If not installed yet, provide:</p> <ul style="list-style-type: none"> <li>the date by which the <i>metering</i> equipment will be functional; and</li> <li>the proposed location of the <i>metering</i> equipment.</li> </ul>	
<p><b>Is any of the <i>metering</i> equipment to be used a type 1, 2 3 or 4 <i>metering installation</i><sup>18</sup> or Vic AMI meter?</b></p> <p>If yes, please specify the <i>load</i> reduction to which the <i>metering installation</i> applies.<sup>17</sup></p> <p>“Vic AMI meter” means a smart meter installed in Victoria as part of the Victorian Government's Advanced Metering Infrastructure (AMI) Program</p>	<input type="checkbox"/> Type 1 <input type="checkbox"/> Type 2 <input type="checkbox"/> Type 3 <input type="checkbox"/> Type 4 <input type="checkbox"/> Vic AMI meter

<sup>17</sup> Please label any attachment clearly with the item number to which it refers.

<sup>18</sup> See Schedule 7.2 of Chapter 7 of the NER.

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**(k) Testing**

<p>The Recipient must complete a test of the enablement, dispatch and disablement of the reserve under instruction from AEMO to AEMO's reasonable satisfaction by [insert].</p> <p>This test requires the Reserve Provider to perform the following actions in sequence (failure to perform these actions in sequence will constitute a failure to complete this test satisfactorily):</p> <ul style="list-style-type: none"><li>• enable the reserve within the enablement lead time;</li><li>• provide load reduction at a level in accordance with dispatch instructions issued by AEMO; and</li><li>• disable under instructions from AEMO within the disablement lead time.</li></ul> <p><b>Is the Recipient able to submit the <i>scheduled generating unit</i> to testing by [insert]?</b></p> <p><b>If not, why not?</b></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
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### S2.3 Unscheduled Reserve – Generation Increase

For each of the Reserves the Recipient is in a position to offer, if it is to be provided by a *non-scheduled generating unit*, the following information must be supplied:

#### (a) Details of Non-scheduled Generating Unit

Copy and paste this table as many times as necessary for each *non-scheduled generating unit*.

<b>Description of <i>non-scheduled generating unit</i></b>	<b>Name or identification number:</b> Insert details in Excel spreadsheet
	<b>Power Station:</b> Insert details in Excel spreadsheet
<b>Classification of <i>non-scheduled generating unit</i></b>	<input type="checkbox"/> <i>Market generating unit</i> <input type="checkbox"/> <i>Non-market generating unit</i> Insert details in Excel spreadsheet
<b>Connection Point</b>	Insert details in Excel spreadsheet
<b>Local Network Service Provider</b>	
<b>Is the Recipient the <i>Registered Participant</i> in respect of the <i>non-scheduled generating unit</i>?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Does the Recipient own the <i>non-scheduled generating unit</i>?</b>  If not, on what basis is the <i>non-scheduled generating unit</i> being made available to the Recipient for offer to AEMO as Reserve? Provide relevant evidence, including a copy of any contract by which the <i>non-scheduled generating unit</i> is being made available for the provision of Reserve. <sup>19</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Firm Capacity</b> , ie the <i>generating capacity</i> available from the <i>non-scheduled generating unit</i> .	Insert details in Excel spreadsheet
<b>Market Capacity</b> , ie the <i>generating capacity</i> available from the <i>non-scheduled generating unit</i> subject to any power sales or similar agreement or arrangement, or in any other way likely to be available to the market?  If yes, please provide details in the Excel spreadsheet. <sup>19</sup>	<input type="checkbox"/> Yes (if Yes, insert details in Excel spreadsheet)  <input type="checkbox"/> No
<b>Reserve</b> , ie Firm Capacity minus Market Capacity Provide details of the method by which the additional capacity is being obtained for delivery as <i>reserve</i> .	Insert details in Excel spreadsheet
<b>Pre-Activation Lead Time</b> , ie the maximum period required by the <i>non-scheduled generating unit</i> to be prepared for <i>activation</i> .	Insert details in Excel spreadsheet

<sup>19</sup> Please label any attachment clearly with the item number to which it refers.

<b>Activation Lead Time</b> , ie the maximum period required by the <i>non-scheduled generating unit</i> to <i>activate</i> in response to an <i>activation</i> instruction. This will involve <i>synchronising</i> the <i>non-scheduled generating unit</i> where required, and increasing its output to its Firm Capacity.	Insert details in Excel spreadsheet
<b>De-Activation Lead Time</b> , ie the maximum period required to reduce the <i>generation</i> output of the <i>non-scheduled generating unit</i> to the Market Capacity or <i>desynchronise</i> it.	Insert details in Excel spreadsheet
<b>Power Output Range</b>	<b>MW</b>
<b>Method of Control</b> , ie can the <i>non-scheduled generating unit</i> be switched to operate on AGC or under manual control?	<input type="checkbox"/> AGC <input type="checkbox"/> <b>Manual Control</b> Insert details in Excel spreadsheet
<b>Minimum run-time</b> , ie the minimum period of time the <i>non-scheduled generating unit</i> must <i>generate</i>	Insert details in Excel spreadsheet
<b>Minimum off-time</b> , ie the minimum period of time between the last time the <i>non-scheduled generating unit</i> was <i>generating</i> and the time at which the <i>non-scheduled generating unit</i> can re-commence <i>generating</i>	Insert details in Excel spreadsheet
<b>Maximum run time</b> , ie the maximum period the <i>non-scheduled generating unit</i> can <i>generate</i> .	Insert details in Excel spreadsheet

**(b) Constraints**

<b>Is the <i>activation</i> of the Reserve dependent on any third party, or the <i>activation</i> of any other <i>reserve</i>?</b> If so, identify that third party and provide details of the type of constraint. <sup>20</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is the Recipient required to receive any approval from any Local, State or Federal Government body or Authority (e.g. Essential Services Commission, Environment Protection Authority, etc.) in order to make the Reserve available?</b> If so, please provide details. <sup>20</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is there any potential environmental, health, or safety risk (e.g. community risk/cost) to any party as a result of <i>activating</i> the Reserve?</b> If so, please provide details. <sup>20</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Are there any other known or potential constraints on the <i>activation</i> of the Reserve?</b> If so, please provide details. <sup>20</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Indicate which constraints might be interrelated.</b>	

<sup>20</sup> Please label any attachment clearly with the item number to which it refers.

**(c) Minimum Technical Requirements**

<b>Can the Reserve be <i>activated</i> by instructions to a single point of contact with operational responsibility?</b> If not, please provide details of how the Reserve <i>activation</i> instructions need to be delivered by AEMO. <sup>20</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>activated</i> as a block of not less than 10MW?</b> If not, please detail the minimum size of the blocks in which it can be <i>activated</i> . <sup>21</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>activated</i> continuously for at least 1 hour?</b> If not, please explain why and detail the minimum time during which the Reserve can be <i>activated</i> continuously. <sup>21</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(d) Performance Criteria**

Copy and paste this table as many times as necessary for each *non-scheduled generating unit*.

<b>Can the <i>non-scheduled generating unit</i> be prepared for activation within the proposed Pre-Activation Lead Time<sup>22</sup> at all times?</b> If not, when will it be unable to do so and why? <sup>21</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the <i>non-scheduled generating unit</i> be <i>activated</i> within the Activation Lead Time<sup>22</sup> at all times?</b> If not, when will it be unable to do so and why? <sup>23</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the <i>non-scheduled generating unit</i> reduce its <i>generation</i> output to the Market Capacity or <i>desynchronise</i> it within the proposed De-Activation Lead Time<sup>24</sup>?</b> If not, when will it be unable to do so and why? <sup>23</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(e) Reserve Availability**

<b>Is the Reserve established and available now?</b> If not when will it be established and available? <sup>23</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is the Reserve available at all times between 1 November 2019 to 31 March 2020?</b> If not, please identify when it is, or might, not be available and why. <sup>23</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(f) Reserve Reliability**

Copy and paste this table as many times as necessary for each *non-scheduled generating unit*.

<sup>21</sup> Please label any attachment clearly with the item number to which it refers.

<sup>22</sup> As specified in the table in item 6.1.

<sup>23</sup> Please label any attachment clearly with the item number to which it refers.

<sup>24</sup> As specified in the table in item 6.1.

<p><b>Has the <i>non-scheduled generating unit</i> undergone the following test in the last 3 months?</b></p> <p>Testing might be required as a condition of contract but if the <i>non-scheduled generating unit</i> which will provide the Reserve has recently been satisfactorily tested, AEMO may allow those results to be used in full or partial discharge of the tests obligations.</p>	
<p><b>Can the Recipient provide any other evidence of the proven reliability of the Reserve?<sup>23</sup></b></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b>Is the Recipient able to submit the scheduled generating unit to testing by [insert date]?</b></p> <p><b>If not, why not?</b></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

(g) Not used

## S2.4 Unscheduled Reserve – Load Reduction

For each of the Reserves the Recipient is in a position to offer, if it is to be provided by a reduction in *load*, the following information must be supplied:

### (a) Activation by Blocks<sup>25</sup>

AEMO requires that the Reserve that is made up of a number of reductions in *load*, which might be across one or more locations, be offered as a “Block” of at least 10MW are preferred but AEMO will consider smaller blocks at its discretion. The *load* that makes up each Block must be situated in the same *region*.

The size of the Block being offered is:	.....MW
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Copy and paste all of the following items and complete for each Block.

### (b) Common Characteristics of Block

The Block must contain the following common characteristics:

<b>Pre-activation lead time</b> , ie, the time to prepare the Block for <i>activation</i>	Insert details in Excel spreadsheet
<b>Activation lead time</b> , ie, the period between the issue of an <i>activation</i> instruction and the time at which the Block commences <i>activation</i>	Insert details in Excel spreadsheet
<b>De-activation lead time</b> , ie, the period between the issue of an <i>activation</i> instruction and the time at which the Block ceases to be <i>activated</i> and commences to take supply of electricity	Insert details in Excel spreadsheet
<b>Maximum continuous operation</b> , ie the maximum time the Block can be <i>activated</i> continuously	Insert details in Excel spreadsheet
<b>Minimum continuous operation</b> , ie the minimum time the Block can be <i>activated</i> continuously	Insert details in Excel spreadsheet
<b>Minimum time between <i>activations</i></b>	Insert details in Excel spreadsheet

<sup>25</sup> Copy this schedule as many times as is necessary so that each schedule contains the data related to one block only.



<b>Which hours of the day is the Block available for <i>activation</i>?</b>	Insert details in Excel spreadsheet
<b>Which days of the week is the Block available for <i>activation</i>?</b>	Insert details in Excel spreadsheet
<b>Maximum number of consecutive days in a week that the Block is available for <i>activation</i></b>	Insert details in Excel spreadsheet
<b>Maximum number of days per week that the Block is available for <i>activation</i></b>	Insert details in Excel spreadsheet
<b>Maximum number of activations over the period 1 November 2019 to 31 March 2020 that the Block is available for <i>activation</i></b>	

**(c) Details of Load Reduction**

**(Insert details in Excel spreadsheet)**

The *Recipient* must provide details of all the *NMIs* which, as at the *commencement date* or at any time during the *term*, are related to equipment, plant or processes owned, contracted or controlled by the *Reserve Provider* including *NMI*'s which are not related to the provision of *reserve*.

The *Recipient* must also provide details of any battery supporting the *reserve*.

**(d) Ownership**

For each *load* reduction, please identify the *load* by the number used in the table in **item (c)** above including NMI, and confirm whether the Recipient owns or controls the facility being used to provide the Reserve. Where the Recipient does not own the relevant facility, provide evidence, including a copy of any contract by which the Reserve is being made available for provision to AEMO as Reserve. Please label any attachment clearly with the item number to which it refers.

**(e) Constraints**

<b>Is the <i>activation</i> of the Reserve dependent on any third party?</b> If so, who that third party is and provide details of the type of constraint. <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is the Recipient required to receive any approval from any Local, State or Federal Government body or Authority (e.g. Essential Services Commission, Environment Protection Authority, etc.) in order to make the Reserve available?</b> If so, please provide details. <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is there any potential environmental, health, or safety risk (e.g. community risk/cost) to any party as a result of <i>activating</i> the Reserve?</b> If so, please provide details. <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Are there any other known or potential constraints on the <i>activation</i> of the Reserve?</b> If so, please provide details. <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(f) Minimum Technical Requirements**

<b>Can the Reserve be <i>activated</i> by instructions to a single point of contact with operational responsibility?</b> If not, please provide details of how the Reserve <i>activation</i> instructions need to be delivered by AEMO. <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>activated</i> as a block of not less than 10MW?</b> If not, please detail the minimum size of the blocks in which it can be <i>activated</i> ? <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Reserve be <i>activated</i> continuously for at least 1 hour?</b> If not, please explain why and detail the minimum time during which the Reserve can be <i>activated</i> continuously. <sup>26</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is there any maximum <i>dispatch</i> duration and if so, why?</b>	

**(g) Performance Criteria**

<b>Can the Block be prepared for <i>activation</i> within the proposed Pre-Activation Lead Time<sup>27</sup> at all times?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
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<sup>26</sup> Please label any attachment clearly with the item number to which it refers.

<sup>27</sup> As specified in the table in item 7.2.

If not, when will it be unable to be so prepared and why? <sup>28</sup>	
<b>Can the Block be <i>activated</i> within the proposed Activation Lead Time<sup>27</sup> at all times?</b> If not, when will it be unable to do so and why? <sup>28</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Block cease providing Reserve and to recommence taking supply of electricity from the <i>network</i> within the proposed De-Activation Lead Time<sup>27</sup> at all times?</b> If not, when will it be unable to do so and why? <sup>28</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Will <i>activation</i> of the Reserve lead to any consequent increase in the rate at which electricity is taken from the <i>network</i> by any other equipment or process owned by a consumer whose <i>load</i> is included in the Block?</b> If yes, has this effect been deducted from the offered Reserve? Please provide evidence if it has. <sup>29</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(h) Reserve Availability**

<b>Is the Reserve established and available now?</b> If not when will it be established and available? <sup>29</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Is the Reserve available at all times between 1 November 2019 to 31 March 2020?</b> If not, please identify when it is, or might, not be available and why. <sup>29</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No

**(i) Reserve Reliability**

<i>Does the provision of Reserve rely on standby generation/battery?</i>  <b><i>If yes, provide test certificates or other evidence of satisfactory starts of each standby generating unit, indicating that the prime mover and energisation of the alternator of each standby generating unit were started recently without fail and the standby generating unit generated electricity for at least 1 hour or in the case of a battery, that it was successfully discharged and the duration.</i></b>  Any evidence provided must indicate that each standby generating unit/battery was tested within 30 days of the date of provision of the evidence. <sup>29</sup>  If there is no evidence of testing is able to be provided, clearly state that this is the case and the reason why.	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Can the Recipient provide any other evidence of the proven reliability of the Reserve?</b> (The evidence must not be more than 3 months old). <sup>29</sup> Testing might be required as a condition of contract but if the facility that will provide the Reserve has recently been satisfactorily tested, AEMO may allow those results to be used in full or partial discharge of the tests obligations.	

<sup>28</sup> Please label any attachment clearly with the item number to which it refers.

<sup>29</sup> Please label any attachment clearly with the item number to which it refers.

**(j) Not used****(k) Testing**

<p>The <i>Recipient</i> must complete a test of the <i>pre-activation</i>, <i>activation</i> and <i>de-activation</i> of the <i>reserve</i> under instruction from <i>AEMO</i> to <i>AEMO</i>'s reasonable satisfaction by [insert].</p> <p>This test requires the <i>Reserve Provider</i> to perform the following actions in sequence (failure to perform these actions in sequence will constitute a failure to complete this test satisfactorily):</p> <ul style="list-style-type: none"><li>• <i>re-activate</i> the <i>reserve</i> within the <i>pre-activation lead time</i>;</li><li>• provide <i>load reduction</i> at a level in accordance with <i>activation instructions</i> issued by <i>AEMO</i>; and</li><li>• <i>de-activate</i> under <i>instructions</i> from <i>AEMO</i> within the <i>de-activation lead time</i>.</li></ul> <p><b>Is the Recipient able to submit the <i>scheduled generating unit</i> to testing by [insert]?</b></p> <p><b>If not, why not?</b></p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
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## **SCHEDULE 3      PRICING**

### **s3.1    Charges**

Insert details in Excel spreadsheet for the following charges

- Target Availability Charges \$/MW
- Target Pre-activation Charges (\$/pre-activation instruction)
- Target Usage Charges (\$/MWh)
- Target Early Termination Charges or calculation methodology

**SCHEDULE 4      SUPPORTING INFORMATION**

In support of its EOI, the Recipient must provide the following information:

**S4.1      Credibility of Option**

The Recipient provides evidence that the Reserve it is proposing are credible, including:

- if applicable, details of how the Recipient proposes to overcome any contracting, connection application, planning and environmental and any other challenges; and
- any other relevant information that supports the Reserve.

**SCHEDULE 5      NOT USED**



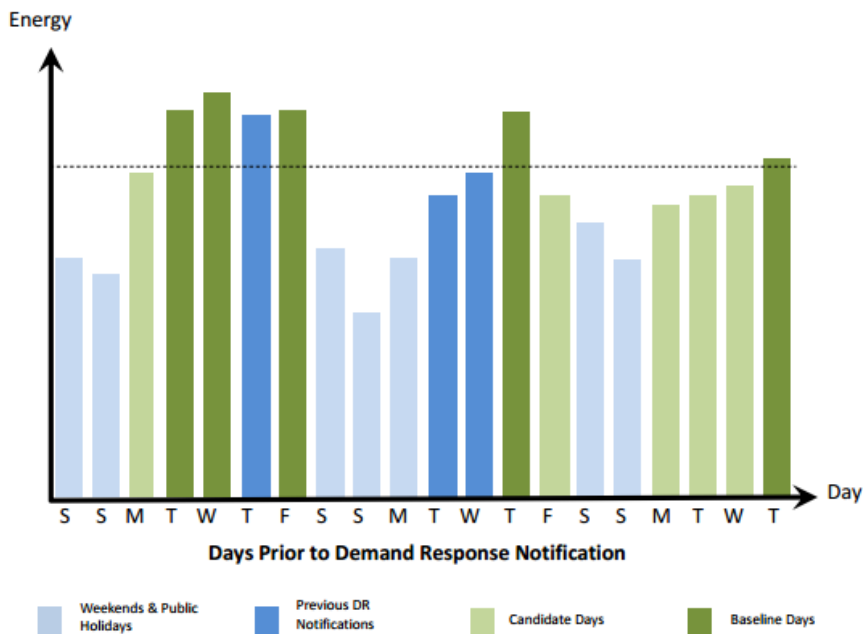
## SCHEDULE 6 BASELINE CALCULATIONS

### 1. Baseline and delivered Demand Response

When a demand response event occurs the response calculated for payment of the usage charge 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.

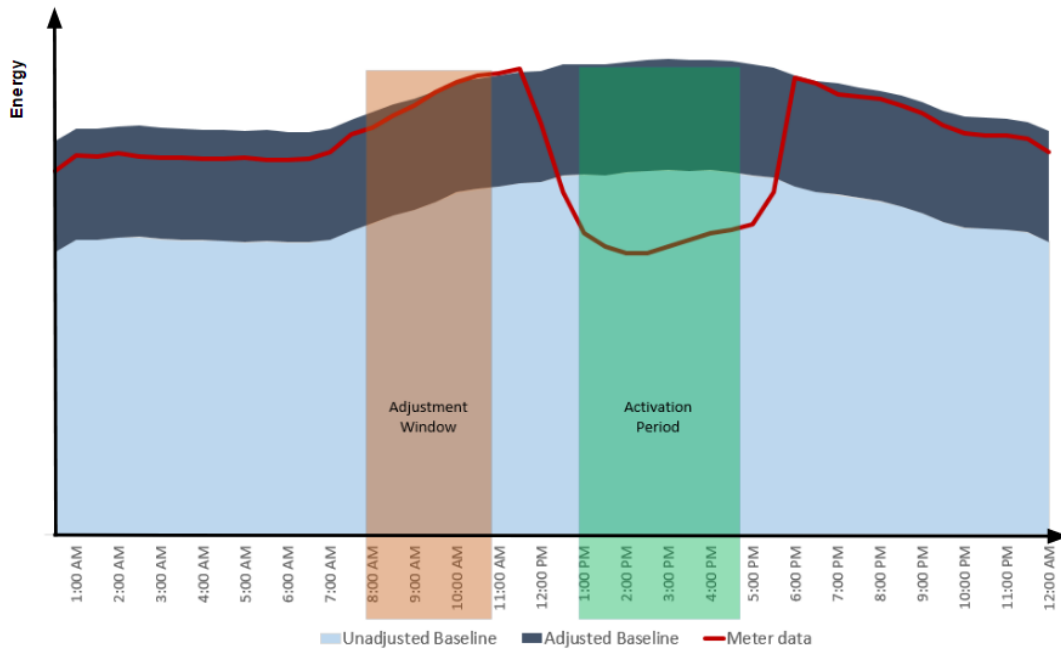
The following diagrams illustrate the core concepts and items used to generate a dynamic profile baseline. Please note that these diagrams are for illustration purposes only and do not accurately reflect the baseline for this activity. Key items include:

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



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 is used to determine an additive adjustment (which may be negative). This is added to the unadjusted baseline energy to give the 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	<p>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.</p> <p>baseline energy = unadjusted baseline energy + additive adjustment</p>
baseline window	<p>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.</p> <p>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.</p>
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	<p>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.</p> <p>The most recent 10 qualifying days within the baseline window. If less than 10 qualifying days exist but 5 or more qualifying days exist then use the number of qualifying days available. If less than 5 qualifying days are available then select those event days with the greatest metered energy during the trading interval corresponding to the current day demand response trading interval to make up the number of selected days to 5. Thus if there were only 3 qualifying days available then 2 event days would be selected to produce 5 days. The days with the greatest metered energy are used as these are less likely to be days in which demand response occurred during that particular trading interval and are therefore less likely to lower the baseline energy.</p>
symmetric additive adjustment	<p>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.</p> <p>This is calculated as the average actual adjustment window energy – average baseline adjustment window energy. This may be positive or negative. The adjustment will be subject to a cap of 20% of the Reserve amount in the positive direction only.</p>
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

### Relative Root Mean Squared Error (RRMSE)

AEMO may measure the accuracy of the unadjusted baseline by determining the unadjusted baseline's relative root mean squared error (RRMSE) by comparing the Reserve Provider's unadjusted baseline against the [60] days not being Activated Days immediately preceding the weekday on which reserve was activated and for which the calculation is being made and if they vary from each other by a value greater than or equal to [20%], AEMO may adjust the variables which are used to determine the unadjusted baseline to ones which AEMO

determines, acting reasonably, more accurately reflects the Reserve Provider's typical demand.

#### 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

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

If the adjustment factor is a positive amount, the adjustment factor is limited to an amount equivalent to 20% of the amount of the *reserve*.

#### 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 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 a 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 the trading interval ending 1330 hours for a NMI. In order to calculate the baseline energy, 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 Activated Day	9	10 Activated Day	11	12	13
14	15	16 Activated Day	17	18	19	20
21	22 Activated Day	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 three hours 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. This example does not show the impact of the additive adjustment cap.