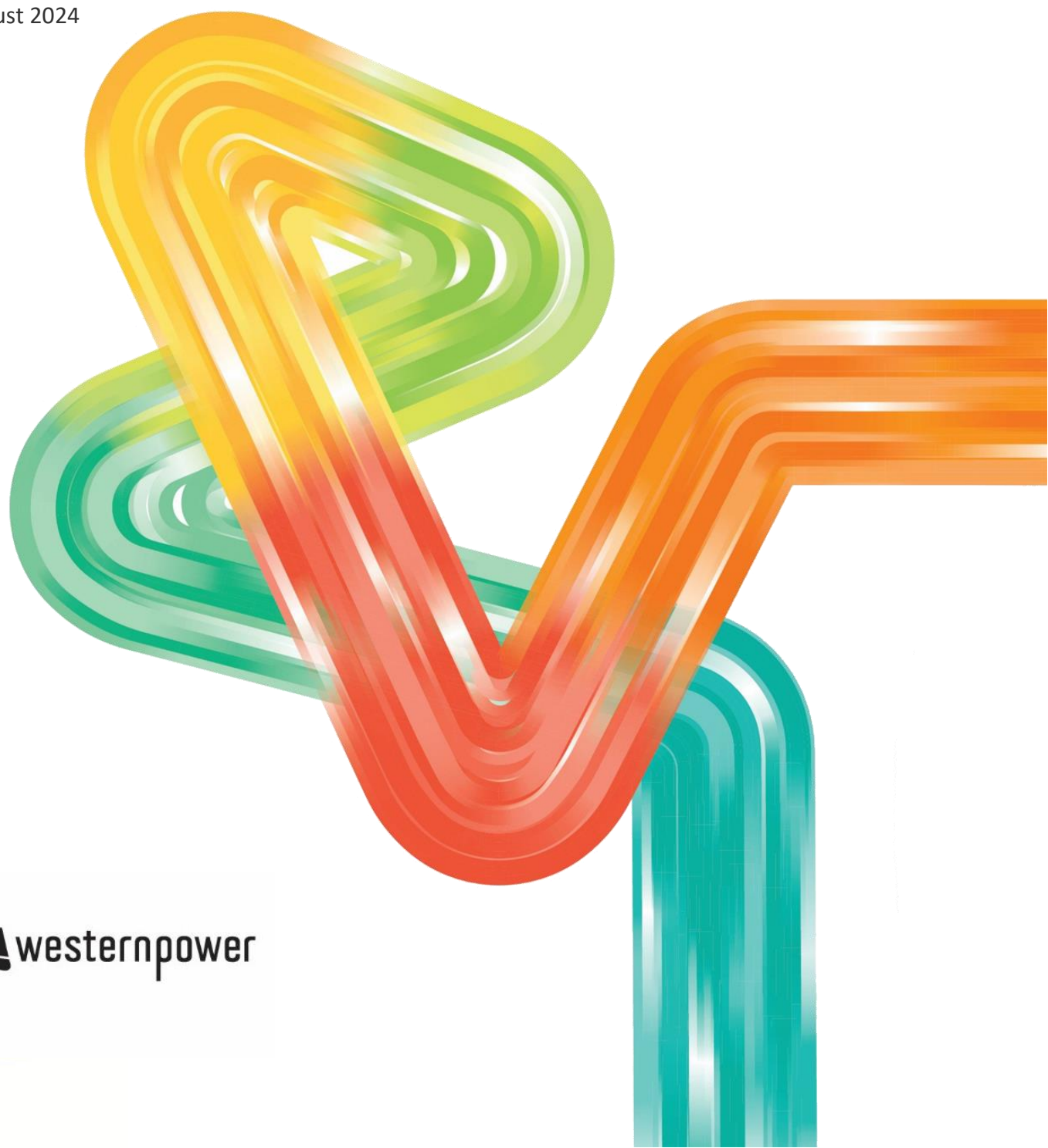


# Non-Co-optimised Essential System Services Trigger Submission

Network Support Services for Perth metropolitan area  
Submission to the Coordinator of Energy

Public

26 August 2024



## NCESS assessment template

| Organisation: Western Power   | Date: 26 August 2024 |
|---|----------------------|
| <p><b>Summary of proposal:</b></p> <p>Western Power is seeking Network Support Services (NSS) to resolve capacity constraints on five (5) distribution feeders. The proposed feeders were selected based on Western Power’s assessment of the underlying need, technical requirement, and the likelihood of a viable non-network solution.</p> <p>The proposed procurement seeks services to meet the identified need. It will also inform the development of Western Power’s internal Non-Co-optimised Essential System Services (NCESS) process for the procurement of NSS, and support Energy Policy WA (EPWA) with any amendments, if necessary, to the NCESS framework to facilitate the ongoing and efficient procurement of NSS through the framework. These activities form part of the DER Roadmap core actions (Action 24c) and will enable the foundational virtual power plant (VPP) service provision of NSS by 2025.</p> <p>The proposed NCESS procurement process reinforces Western Power’s commitment to the use of non-network services, and to developing its Distribution System Operator (DSO) capability. It will also help strengthen the process through which services will be provided as part of Western Power’s business-as-usual planning and operation. Western Power expects that procurement activities of this nature will also expand in alignment with its internal capability and process development, including network visibility, the application and monitoring of Dynamic Operating Envelopes and the digital management of non-network contracts.</p> <p>Western Power has worked with AEMO to maximise value stacking opportunities for potential service providers, including alignment of service to the Hot Season period (from 1 December to 1 April) and alignment to AEMO’s Reserve Capacity Mechanism and Supplementary Capacity tender process to the extent practicable.</p> <p>Please refer to section 1.1 of this submission for further information.</p> |                      |
| <p><b>Trigger for assessment:</b></p> <p>Western Power has identified suitable locations on the distribution network where capacity shortfall may be addressed through orchestrated DER and demand side management solutions as an alternative option to major augmentation or new network facilities investment. Please refer to section 1.2 of this submission for further information.</p>   |                      |
| <p><b>Formal assessment:</b></p> <p>Subject to the Coordinator of Energy’s determination, Western Power will seek expressions of interest from potential NCESS providers to determine the most cost-effective option to improve the network capacity in five distribution network locations. Western Power will consider both orchestrated DER and demand side management solutions. Please refer to sections 1.5, 1.6 and 1.7 of this submission for further information.</p>  |                      |
| <p><b>Consultation:</b></p> <p>Western Power has consulted with EPWA and AEMO as required by clause 3.2.1 of the NCESS Guideline. Outcomes from this engagement have been included in this submission. Please refer to section 1.8 of this submission for further information.</p>  |                      |
| <p><b>Services required:</b></p> <p>Subject to the Coordinator of Energy’s determination, Western Power will seek to procure NSS at up to five Perth metropolitan locations within Western Power’s distribution network. The proposed services are required during the 2025-26, 2026-27 and 2027-28 summer periods (from 1 December to 1 April). The contract term would commence on 1 December 2025 with a three-year duration. The timing of commencement of the proposed services will be refined through this NCESS process, including through input from potential service providers. Please refer to section 1.4 of this submission for further information.</p>  |                      |
| <p><b>Attachments:</b></p> <p>Not included.</p>   |                      |

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# 1. Network Support Services

## 1.1 Proposal

A NSS, procured through the NCESS process, is a contracted service provided by a generator, retailer, or DER aggregator to the network operator/DSO (Western Power) to help manage or solve localised network constraints.

A NSS could alleviate distribution level peak electricity demand or reverse power flow and/or local voltage issues identified by the DSO at a cost that is less than traditional augmentation such as investment in larger transformers, more 'poles and wires' or otherwise expanding capacity.

The past two years has seen delivery of several DER Roadmap achievements and milestones. Significant among them was the completion of the roll out of the end to-end VPP pilot, Project Symphony, and the maturation of the DER Orchestration Roles and Responsibilities. There is now clarity on the technical and regulatory requirements needed to enable DER integration and full market participation.

This NCESS process will enable VPPs or large use customers to provide network benefits for electricity consumers, the broader market, and assist in meeting WA's emissions reduction goals.

## 1.2 Trigger

Clause 3.11A.2 of the Wholesale Electricity Market (WEM) Rules requires Western Power to make this submission to request the Coordinator of Energy to determine whether to trigger an NCESS procurement process in accordance with section 3.11B of the WEM Rules.

The trigger submission must include sufficient information and analysis to allow the Coordinator of Energy to consider the following factors outlined in clause 3.11A.7 of the WEM Rules:

- (a) the extent to which an NCESS will address the issue;
- (b) the extent to which an NCESS will minimise costs in the WEM;
- (c) the relative merits between procuring an NCESS or augmenting the network;
- (d) whether it is suspected that there is a potential exercise of market power;
- (e) whether the procurement of an NCESS is consistent with the Wholesale Market Objectives; and
- (f) whether procurement of an NCESS will be in the long-term interests of consumers.

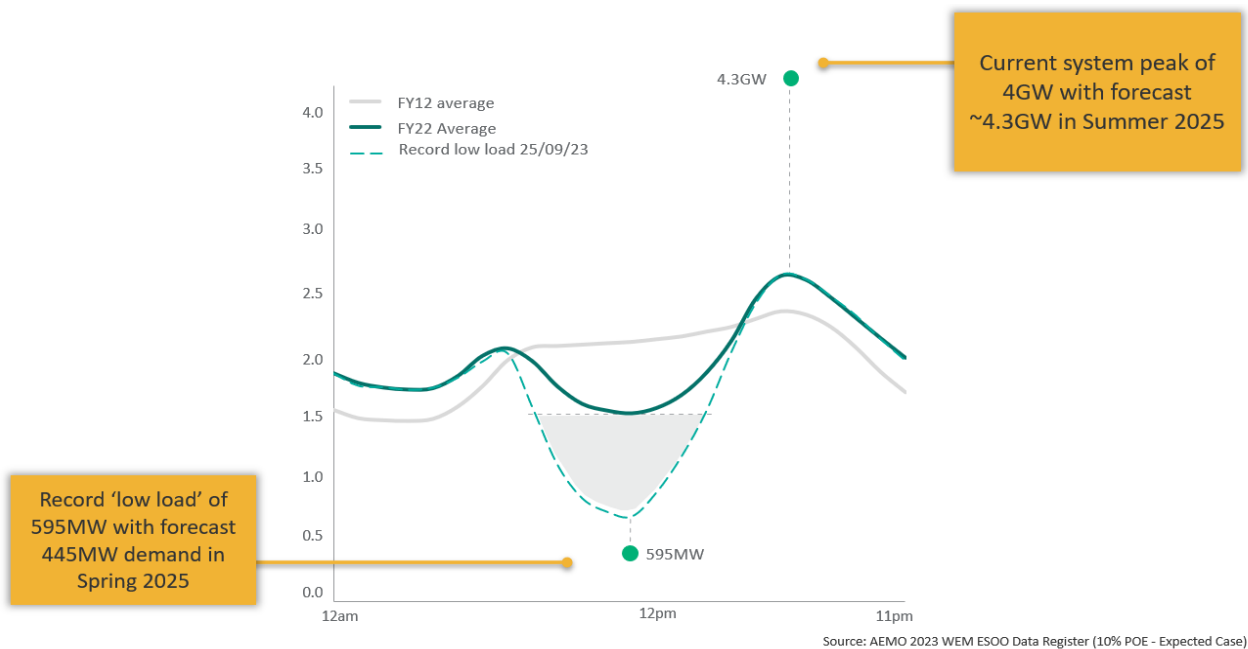
Western Power considers it likely that the proposed NCESS procurement will enable service providers to deliver services that benefit the wider Wholesale Electricity Market. This trigger submission summarises Western Power's assessment of the need for additional non-network services to be located in five metropolitan locations as an alternative option to major augmentation or new network facilities investment.

## 1.3 Background

Western Power maintains its transmission and distribution networks to ensure reliable supply to the community over the near-term summer peaks. Many distribution feeders are now expected to exceed the planning limits<sup>1</sup> set in line with the established planning rules, elevating the risk of customer outage due to capacity constraints above an acceptable level. This expected overloading is a direct result of a rapid increase in peak demand across the SWIS that is set to continue over the planning horizon to FY2033.

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<sup>1</sup> The planning limit is set at 80% to reserve sufficient capacity to manage planned and unplanned contingency events. In the event of a feeder fault, it is assumed that up to four other feeders are able to backfeed the load from the faulty feeder.



Failure to address high levels of utilisation will lead to the increased risk of customer outages as well as non-compliance with the current Technical Rules under the Access Code. Following the 2021-22 summer heatwave, Western Power has accelerated its short-term capital investment on the distribution network to manage feeder overutilisation and maintain supply reliability.

Western Power is required to seek the most prudent and efficient solution to resolve any network risks or constraints. As a result, Western Power is assessing a range of non-network and network options, including whether these options can meet the scale and timing of identified capacity shortfalls.

Western Power also recognises the medium to longer term need to support the emerging NSS market in a way that enables the vision of unlocking DER capability and value in the South West Interconnected Network (SWIN) through Western Power's role as the DSO.

The importance of unlocking DER capabilities in mitigating the network capacity risk has been reinforced as a high priority as for Western Power these capabilities may:

- offer more cost-effective alternate solutions
- buy time for longer lead network investment, lowering network outage risks, and
- complement network investments, reducing their scale and cost.

Western Power seeks to provide the market with opportunities for NSS to support gradual market development in delivering viable non-network solutions. At this stage, Western Power is seeking NSS for five (5) distribution feeder constraints, which were selected based on Western Power's assessment of the underlying need, technical requirements and the likelihood of a viable non-network solution.

This NCESS procurement process is in line with Western Power's commitment to the DER Roadmap with the objective to help build and strengthen the way in which services will be provided as part of Western Power's business-as-usual planning and operation. DER Roadmap Action item 24c states that by the end of 2025 Western Power will have developed its internal NCESS process for the procurement of NSS delivered by aggregated DER with consideration of standardising the services.

Western Power expects that procurement activities of this nature will grow in alignment with Western Power's internal capability and process development, including network visibility, the application and monitoring of Dynamic Operating Envelopes and the digital management of non-network NCESS contracts as Western Power build its DSO capability.

## 1.4 Services required

Western Power seeks to procure, in the event that the Coordinator of Energy decides to trigger an NCESS procurement process, NSS at up to five Perth metropolitan locations within Western Power's distribution network. The required service is the capability to decrease Withdrawal at each connection point at times of high demand on the network.

The proposed services are required during the 2025-26, 2026-27 and 2027-28 summer periods (from 1 December to 1 April). The contract term would commence on 1 December 2025 with a three-year duration. Western Power will seek to gain industry feedback through the expressions of interest step on any benefits associated with a different contract duration or a change to the commencement date.

The quantity of service will be set at the forecasted shortfalls of network capacity for the 2025-26, 2026-27 and 2027-28 summer periods, as listed in Table .

**Table 1.1: Active power requirements**

| Distribution feeder | Location    | 2025/26        | 2026/27        | 2027/28        |
|---------------------|-------------|----------------|----------------|----------------|
| RO515               | Rockingham  | 0.9 MW         | 1.0 MW         | 1.2 MW         |
| H514                | Bassendean  | 1.2 MW         | 1.4 MW         | 1.5 MW         |
| MO337F              | Inglewood   | 0.55 MW        | 0.65 MW        | 0.75 MW        |
| NB519               | North Beach | 1.2 MW         | 1.4 MW         | 1.5 MW         |
| NB520               | North Beach | 1.0 MW         | 1.0 MW         | 1.0 MW         |
| <b>TOTAL</b>        |             | <b>4.85 MW</b> | <b>5.45 MW</b> | <b>5.95 MW</b> |

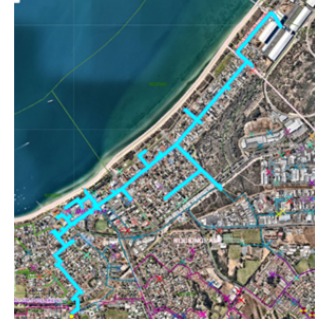
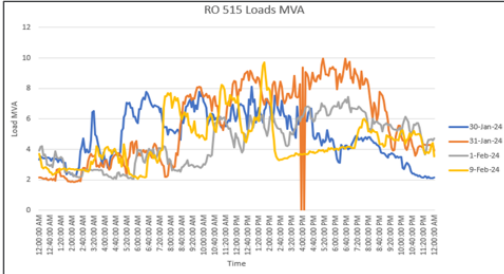
The proposed service will be activated between the hours of 4:30PM and 8:30PM AWST. Each service will need to be available for any day during the activation window, with NSS being called on as a priority to any other services contracted. Western Power will seek visibility of any other contracted services as part of the expressions of interest step. The contracted service will be called upon no more than 20 times each summer period with a minimum duration of one (1) hour. Multiple providers for a single service will be considered.

If the Coordinator of Energy decides to trigger an NCESS procurement process, the draft NCESS Service Specification, released alongside a call for expressions of interest, would outline the full requirements for these services.

## 1.5 Analysis

### 1.5.1 Service requirement RO515 Rockingham

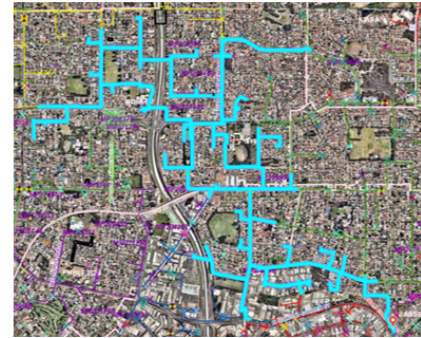
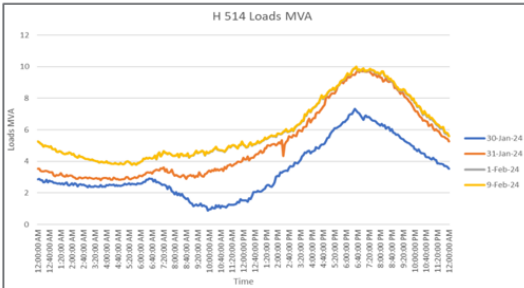
## NCESS 2024 | Capacity NCESS – RO515



| Firm Service for Feeder RO515 | 25/26   | 26/27   | 27/28   |
|-------------------------------|---|---|---|
| NSS Active Power              | 0.9 MW  | 1.0 MW  | 1.2 MW  |
| NSS Energy                    | 0.5 MWh   | 1.0 MWh                                       | 1.0 MWh                                       |
| Availability Period           | 1 December – 1 April  | 1 December – 1 April                          | 1 December – 1 April                          |
| Activation Window             | 4:30pm – 8:30pm   | 4:30pm – 8:30pm                               | 4:30pm – 8:30pm                               |
| Activation Duration           | 2hrs  | 2hrs  | 2hrs  |
| Number of NSS Calls           | up to 20 calls within the availability period                                   | up to 20 calls within the availability period | up to 20 calls within the availability period |
| Location                      | NMIs within RO515 feeder  |   |   |
| Operational Notice Period     | >24 hrs   |   |   |
| Pricing                       | Availability fee (\$ per Contract)<br>Energy Fee (\$ per MWh)<br>Service Levels |   |   |
| Performance                   | Non -Performance discount/penalty to availability fee                           |   |   |
| Verification of Service       | Market Participant to provide DER telemetry data for all events                 |   |   |

### 1.5.2 Service requirement H514 Bassendean

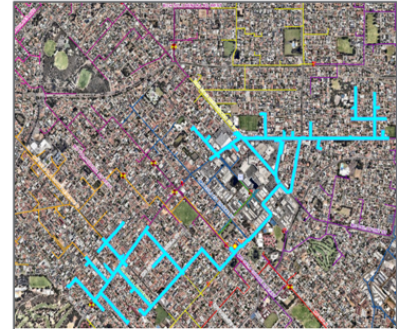
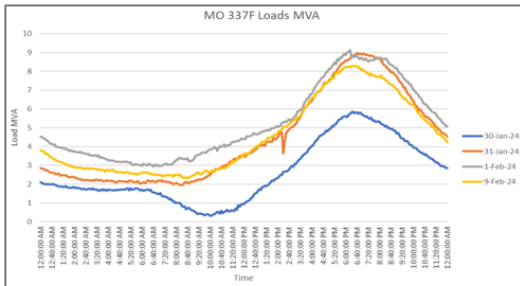
## NCESS 2024 | Capacity NCESS – H514



| Firm Service for Feeder H514 | 25/26   | 26/27   | 27/28   |
|------------------------------|---|---|---|
| NSS Active Power             | 1.2 MW  | 1.4 MW  | 1.5 MW  |
| NSS Energy                   | 2.4 MWh   | 2.7 MWh                                       | 3.1 MWh                                       |
| Availability Period          | 1 December – 1 April  | 1 December – 1 April                          | 1 December – 1 April                          |
| Activation Window            | 4:30pm – 8:30pm   | 4:30pm – 8:30pm                               | 4:30pm – 8:30pm                               |
| Activation Duration          | 2hrs  | 2hrs  | 2hrs  |
| Number of NSS Calls          | up to 20 calls within the availability period                                   | up to 20 calls within the availability period | up to 20 calls within the availability period |
| Location                     | NMIs within H514 feeder   |   |   |
| Operational Notice Period    | >24 hrs   |   |   |
| Pricing                      | Availability fee (\$ per Contract)<br>Energy Fee (\$ per MWh)<br>Service Levels |   |   |
| Performance                  | Non -Performance discount/penalty to availability fee                           |   |   |
| Verification of Service      | Market Participant to provide DER telemetry data for all events                 |   |   |

1.5.3 Service requirement MO337F Inglewood

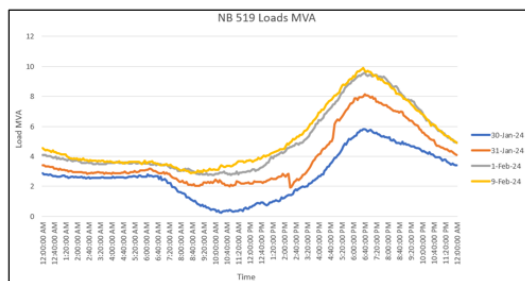
NCESS 2024 | Capacity NCESS – MO337F



| Firm Service for Feeder MO337F | 25/26   | 26/27   | 27/28   |
|--------------------------------|---|---|---|
| NSS Active Power               | 0.55 MW   | 0.65 MW                                       | 0.75 MW                                       |
| NSS Energy                     | 1.4 MWh   | 1.8 MWh                                       | 2.2 MWh                                       |
| Availability Period            | 1 December – 1 April  | 1 December – 1 April                          | 1 December – 1 April                          |
| Activation Window              | 4:30pm – 8:30pm   | 4:30pm – 8:30pm                               | 4:30pm – 8:30pm                               |
| Activation Duration            | 2hrs  | 2hrs  | 2hrs  |
| Number of NSS Calls            | up to 20 calls within the availability period                   | up to 20 calls within the availability period | up to 20 calls within the availability period |
| Location                       | NMIs within MO337 feeder  |   |   |
| Operational Notice Period      | >24 hrs   |   |   |
| Pricing                        | Availability fee (\$ per Contract)                              |   |   |
|                                | Energy Fee (\$ per MWh)   |   |   |
| Performance                    | Service Levels  |   |   |
|                                | Non -Performance discount/penalty to availability fee           |   |   |
| Verification of Service        | Market Participant to provide DER telemetry data for all events |   |   |

1.5.4 Service requirement NB519 North Beach

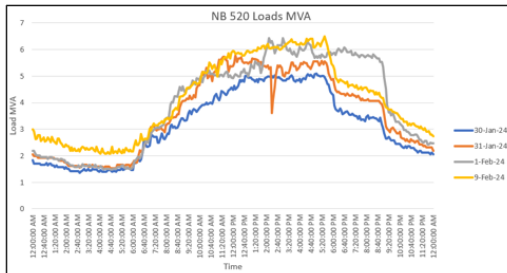
NCESS 2024 | Capacity NCESS – NB519



| Firm Service for Feeder NB519 | 25/26   | 26/27   | 27/28   |
|-------------------------------|---|---|---|
| NSS Active Power              | 1.2 MW  | 1.4 MW  | 1.5 MW  |
| NSS Energy                    | 2.4 MWh   | 3.2 MWh                                       | 3.6 MWh                                       |
| Availability Period           | 1 December – 1 April  | 1 December – 1 April                          | 1 December – 1 April                          |
| Activation Window             | 4:30pm – 8:30pm   | 4:30pm – 8:30pm                               | 4:30pm – 8:30pm                               |
| Activation Duration           | 2hrs  | 2hrs  | 2hrs  |
| Number of NSS Calls           | up to 20 calls within the availability period                   | up to 20 calls within the availability period | up to 20 calls within the availability period |
| Location                      | NMIs within NB519 feeder  |   |   |
| Operational Notice Period     | >24 hrs   |   |   |
| Pricing                       | Availability fee (\$ per Contract)                              |   |   |
|                               | Energy Fee (\$ per MWh)   |   |   |
| Performance                   | Service Levels  |   |   |
|                               | Non -Performance discount/penalty to availability fee           |   |   |
| Verification of Service       | Market Participant to provide DER telemetry data for all events |   |   |

### 1.5.5 Service requirement NB520 North Beach

## NCESS 2024 | Capacity NCESS – NB520



| Firm Service for Feeder NB520 | 25/26   | 26/27   | 27/28   |
|-------------------------------|---|---|---|
| NSS Active Power              | 1.0 MW  | 1.0 MW  | 1.0 MW  |
| NSS Energy                    | 1.5 MWh   | 1.5 MWh                                       | 1.5 MWh                                       |
| Availability Period           | 1 December – 1 April  | 1 December – 1 April                          | 1 December – 1 April                          |
| Activation Window             | 4:30pm – 8:30pm   | 4:30pm – 8:30pm                               | 4:30pm – 8:30pm                               |
| Activation Duration           | 2hrs  | 2hrs  | 2hrs  |
| Number of NSS Calls           | up to 20 calls within the availability period                           | up to 20 calls within the availability period | up to 20 calls within the availability period |
| Location                      | NMIs within NB520 feeder  |   |   |
| Operational Notice Period     | >24 hrs   |   |   |
| Pricing                       | Availability fee (\$ per Contract)<br>Energy Fee (\$ per MWh)           |   |   |
| Performance                   | Service Levels<br>Non -Performance discount/penalty to availability fee |   |   |
| Verification of Service       | Market Participant to provide DER telemetry data for all events         |   |   |

### 1.6 Merits of a non-network solution versus network build

Western Power considers a non-network solution in the five locations identified may be the most suitable and cost-effective option to address the proposed capacity expansion improvements in the short to medium term, specifically:

- a non-network solution that aggregates behind the meter DER to create capacity.
- a non-network solution from a large use customer by reducing behind the meter load.

Western Power's financial analysis of a non-network solution versus a network build is set out in further detail at Schedule 1 which is to be redacted in any publication of this submission.

### 1.7 Other Factors for Consideration

This section presents relevant analysis to enable the Coordinator to consider the extent to which an NCESS will meet factors under clauses 3.11A.7(c) – (f) of the WEM Rules:

- the relative merits between procuring an NCESS or augmenting the network;
- the outcome of any investigation of behaviour that reduces the effectiveness of the market, including behaviour related to market power;
- whether the procurement of an NCESS is consistent with the Wholesale Market Objectives; and
- whether procurement of an NCESS will be in the long-term interests of consumers.

#### 1.7.1 Considerations under 3.11A.7(c)

The relative merits between procuring appropriate market services and relevant network augmentation options are considered in section 1.6 and Schedule 1 of this submission.

### **1.7.2 Considerations under 3.11A.7(d)**

Western Power is not aware of any market power aspects relating to the identified trigger.

### **1.7.3 Considerations under 3.11A.7(e)**

Western Power considers that the mitigation of the issue identified in this submission is consistent with the Wholesale Market Objectives, specifically:

- a service specification can be developed such that the services can be delivered by a range of technologies, meeting the Wholesale Market Objective in clauses 1.2.1(c).
- the competitive NCESS procurement process will ensure the cost of the service is as efficient as possible, meeting the Wholesale Market Objectives in clauses 1.2.1(a), (b) and (d).

### **1.7.4 Considerations under 3.11A.7(f)**

Western Power considers that the mitigation of the issue identified in this submission is in the long-term interest of consumers as the service will ensure reliable and secure supply as required by the minimum reliability standards.

## **1.8 Consultation**

Western Power has consulted with EPWA and AEMO as required by section 3.2 of the NCESS Guideline (published in accordance with clause 3.11A.2A of the WEM Rules) and met the requirements of clause 3.11A.2(f) of the WEM Rules. This submission reflects the consultation outcomes.

**2. Schedule 1 – Redacted**