Non Market Ancillary Services (NMAS) report 2021-22

September 2022

An annual report for the National Electricity Market

Important notice

Purpose

The purpose of this publication is to provide information about the:

- Quantities and costs of system restart ancillary services (SRAS) and network support and control ancillary services (NSCAS) acquired by AEMO in the National Electricity Market (NEM) for the financial year 2021-22.
- Acquisition of SRAS to meet the system restart standard for each electrical sub-network in the NEM, and system restart test activities if conducted.

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Version control

Version	Release date	Changes
1	7 Oct 2022	Approved by AEMO Group Manager Systems Capability

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Abbreviations

Abbreviation	Expanded name
AEMO	Australian Energy Market Operator
NEM	National Electricity Market
MBAS	Market Benefits Ancillary Services
MT PASA	Medium Term Projected Assessment of System Adequacy
NMAS	Non-Market Ancillary Services
NSCAS	Network Support and Control Ancillary Services
NER or Rules	National Electricity Rules
RBAS	Reliability and Security Ancillary Services
SRAS	System Restart Ancillary Services
SRS	System Restart Standard
TNSP	Transmission Network Service Provider

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Tables

1 Introduction

Ancillary services support the management of power system security in the National Electricity Market (NEM).

AEMO acquires both market and non-market ancillary services under the National Electricity Rules (NER):

- Market ancillary services are acquired through central dispatch and the prices are determined using the dispatch algorithm.
- Non-market ancillary services (NMAS) are acquired under bilateral contracts. There are two types of NMAS that AEMO may acquire in its capacity as market and system operator:
  - System Restart Ancillary Services (SRAS), and
  - Network Support and Control Ancillary Services (NSCAS).

The remainder of this report provides information about the NMAS acquired by AEMO for the 2021-22 financial year (2021-22), and an SRAS procurement undertaken during 2021-22.

1.1 System Restart Ancillary Services (SRAS)

SRAS can help restore electricity supply following a large-scale blackout of part or all of the power system. The Reliability Panel[1] is responsible for determining the system restart standard (SRS), which specifies the level of supply restoration for which AEMO is to procure system restart services.

AEMO must use its reasonable endeavours to acquire sufficient SRAS for each defined electrical sub-network to meet the requirements of the SRS.

For the SRAS in place during 2021-22, the relevant version of the SRS is the SRS that was determined in January 2021[2] and was applicable for SRAS acquired from 28 January 2021.

For historical data in this report up to and including the 2020-21 financial year – provided for comparative purposes – the relevant versions of the SRS are:

- the SRS that was determined in August 2013[3] and remained in effect until 30 June 2018, and
- the SRS that was determined in December 2016[4] and was effective from 1 July 2018 until 30 June 2021.

[1] The Reliability Panel is established under the National Electricity Law by the Australian Energy Market Commission (AEMC), and comprises representatives from the AEMC, AEMO, registered participants, and consumers. The Panel's responsibilities are specified in section 38 of the National Electricity Law and clause 8.8.1 of the NER.

[2] Available at https://www.aemc.gov.au/sites/default/files/2021-08/SRS%20Review%20-%20System%20Restart%20Standard%20-%20FOR%20PUBLICATION_0_0.pdf.

[3] Available at https://www.aemc.gov.au/sites/default/files/content//System-Restart-Standard-Reliability-Panel.PDF.

[4] Available at https://www.aemc.gov.au/sites/default/files/2018-08/REL0057%20-%20Review%20of%20the%20System%20Restart%20Standard%20-%20Final%20Standard.pdf.

1.2 Network Support and Control Ancillary Services (NSCAS)

NSCAS may be procured by Transmission Network Service Providers (TNSPs) to maintain power system security and reliability, and to maintain or increase the power transfer capability of the transmission network to maximise net economic benefits[5]. Such TNSP-procured NSCAS is not the subject of this report.

AEMO, in its role as Market Operator, can also procure NSCAS as a last resort to prevent an adverse impact on power system security and reliability. NSCAS procured by AEMO as Market Operator is reported in Section 3 of this report.

1.3 Non-market ancillary services (NMAS) reporting

AEMO is required, under clauses 3.11.10 and 3.13.5 of the NER, to report annually on specified matters relating to SRAS and NSCAS respectively.

This report includes:

- The number of SRAS acquired per NEM region and electrical sub-network in 2021-22 and for 2022-23.
- The total actual annual cost for provision of SRAS in 2021-22, broken down to charges for availability, testing and usage, for each electrical sub-network and each NEM region.
- The total estimated annual cost for provision of SRAS in 2022-23, broken down to charges for availability, testing, and usage, for each electrical sub-network and each NEM region.
- Whether SRAS were acquired to a level that meets the SRS for each electrical sub-network.
- The process followed by AEMO in 2021-22 to seek one alternative SRAS to commence 1 July 2022
- Whether any system restart test activities were undertaken.
- The quantities and types of NSCAS covered under existing ancillary services agreements.
- The actual costs and quantities of each facility contracted to provide NSCAS under ancillary services agreements.

For more recent actual (weekly) cost data for NMAS, see the AEMO website[6].

[5] For more information, see http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Ancillary-services/Network-support-and-control-ancillary-services-procedures-and-guidelines.

[6] See the Ancillary Services (AS) Payments Summary file at http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Data/Ancillary-Services/Ancillary-Services-Payments-and-Recovery.

2 System restart ancillary services

2.1 SRAS Procurement

There were 11 contracted SRAS in place during the 2021-22 year, shown in Table 1 by region and electrical sub-network.

Table 1 Number of SRAS acquired per region and electrical sub-network – July 2021 to current

Region	Electrical sub-network	Number of SRAS
Queensland	Queensland	3
New South Wales	New South Wales	2
Victoria	Victoria	2
South Australia	South Australia	2
Tasmania	Tasmania	2
Total		**11**

2.1.1 Meeting the SRS for the period 2021-22

For the 2021-22 year, there was sufficient contracted SRAS to meet the SRS for all electrical sub-networks.

For completeness, AEMO notes that the actual availability of all but one SRAS was above the requirement established by the terms of the relevant contract[7]. In 2021-22 one SRAS acquired for South Australia did not achieve its contracted availability requirement over the year.

2.1.2 The process for acquiring SRAS

Reporting year 2021-22

AEMO did not acquire any additional SRAS for the year 2021-22. The SRAS services procured in 2020-21 remained in place for 2021-22 without augmentation or curtailment.

Years 2022-24

During the 2021-22 year, AEMO undertook a procurement process to acquire one SRAS for Queensland:

- In July 2021 a new suite of SRAS contracts commenced with starting dates of either 1 July or 31 July 2021. All these contracts, except one, will expire on 30 June 2024.
- One contract in Queensland had a duration of eleven months to expire on 30 June 2022.

[7] SRAS are procured to meet a minimum availability, which in turn contribute to meeting the required aggregate reliability for each electrical sub-network as specified by the SRS

- Due to an SRS requirements only a limited set providers had the restart capability, and characteristics to provide the required SRAS[8].
- AEMO issued a Request for Offer from this set of potential SRAS providers in Queensland, including the provider under the one-year agreement.
- Following assessment, AEMO elected to extend the contract of the current provider to expire in June 2024 (in line with other SRAS contracts).

2.2 Costs of SRAS

2.2.1 General

The annual cost of SRAS is based on an aggregation of three types of payments to contracted providers:

1. Availability – $ per 30-minute interval.
   - The availability cost may vary, as it is paid only when the service is available. For example, it is not paid when plant used by the SRAS is out of service, or when the SRAS fails a test under the contract. For cost estimation purposes, however, AEMO takes a conservative approach, assuming the plant has full availability for the whole year.
2. Testing – fixed amount per successful test.
   - The testing charge, per test, is fixed in SRAS contracts. There are currently two separate requirements for SRAS tests, which means that there may be more than one test per SRAS per year:
     - Post-maintenance test[9]: within 20 business days after a period of maintenance.
     - Short-notice test[10]: at a date and time nominated by AEMO with no less than five business days' notice.
3. Usage – fixed amount.
   - Paid only if the service is used in the event of a black event.

2.2.2 2021-22 SRAS costs

Table 2 shows a comparison of the estimated and actual costs for 2021-22.

The difference between the estimated and actual SRAS costs for 2020-21 is attributable to the following:

- Availability costs were slightly higher in Qld due to the amended price terms under the contract extension referred to in section 2.1.2 which took effect from April 2022. This meant the costs for the period April to June 2022 were slightly higher than previously estimated.
- Testing costs were less than expected, as outage programs were amended during the year; some planned outages were cancelled, other forced outages were added.

[8] See SRS item 5, 2nd bullet point: 'for the Queensland electrical sub-network AEMO shall procure SRAS north of Bundaberg, sufficient to also independently restart, without drawing power from the power system, at least 825 MW of generation capacity north of Bundaberg within four hours of a major supply disruption with an aggregate reliability of at least 80 per cent'. https://www.aemc.gov.au/sites/default/files/2021-08/SRS%20Review%20-%20System%20Restart%20Standard%20-%20FOR%20PUBLICATION_0_0.pdf

[9] For more detail see 4.3.2 (b) (i) in the SRAS Guideline, available at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/ancillary_services/sras/sras-guideline-2021.pdf?la=en.

[10] For more detail see 4.3.2 (b) (ii) of the SRAS Guideline.

- No usage payments were made.

Table 2 Comparison of 2021-22 estimated and actual SRAS costs

Sub-network	Number of SRAS	Estimated availability ($)	Actual availability ($)	Estimated testing ($)	Actual testing ($)	Estimated usage ($)	Actual usage ($)	Estimated total ($)	Actual total ($)
QLD	3	2,232,474	2,257,732	1,203,500	722,100	44,925	0	3,480,899	2,979,832
NSW	2	10,844,107	10,844,112	294,500	294,500	17,500	0	11,156,107	11,138,612
VIC	2	7,351,718	7,351,718	207,000	164,500	30,500	0	7,589,218	7,516,218
SA	2	3,575,482	3,521,238	251,000	151,000	20,060	0	3,846,542	3,672,238
TAS	2	5,851,330	5,851,330	852,908	739,681	1,000	0	6,705,238	6,591,011
Total	11	29,855,110	29,826,130	2,808,908	2,071,781	113,985	0	32,778,003	31,897,911

2.2.3 2022-23 estimates

Table 3 shows an estimated cost breakdown for the forthcoming year 2022-23.

Table 3 Estimated SRAS costs for 2022-23

Sub-network	Number of SRAS	Estimated availability ($)	Estimated testing ($)	Estimated usage ($)	Total estimated ($)
QLD	3	2,201,213	1,011,797	44,925	3,257,935
NSW	2	11,415,156	309,487	17,500	11,742,143
VIC	2	7,732,802	262,197	30,500	8,025,500
SA	2	4,350,391	263,774	20,060	4,634,225
TAS	2	6,149,170	475,957	1,000	6,626,126
Total	11	31,848,732	2,323,212	113,985	34,285,929

For the availability cost, the forecast assumed 100% availability for each service. This will likely result in a slight over estimation of costs for each service, as some SRAS sources will have SRAS outages of some duration during a year.

For the testing cost, the forecast assumed 12 short notice tests[11] and six post-maintenance tests. The post-maintenance test count was based on a combination of outage forecasts provided as part of the tender process, and the Medium-Term Projected Assessment of System Adequacy (MT PASA).

For the usage cost, the forecast assumed an event once every 20 years, therefore a cost probability of 5% has been applied, based on contracted usage charges.

2.2.4 Historical comparison of SRAS cost

Table 4 shows an historical comparison of SRAS costs over recent years.

The cost difference between the 2015-18 to 2018-21 periods is due to:

- A new SRS effective from 1 July 2018.

[11] One for each of the 11 SRAS, plus one for an SRAS that includes a back-up power station, which also requires a test.

- A new set of contracts, effective from 1 July 2018, with a different commercial outcome.

The cost difference between the 2018-21 period and the 2021-22 year is due to:

- A change in the structure of SRAS regions, effective from 1 July 2021.
- A new set of contracts, effective from 1 July 2021, with a different commercial outcome.

Table 4 Comparison of SRAS costs from 2013-14 through to estimated costs for 2021-22

Sub-network	Actual 2015-16 ($)	Actual 2016-17 ($)	Actual 2017-18 ($)	Actual 2018-19 ($)	Actual 2019-20 ($)	Actual 2020-21 ($)	Actual 2021-22 ($)	Estimate 2022-23 ($)
QLD							2,979,832	3,257,935
QLD North	3,054,940	3,240,209	3,330,788	1,328,421	1,369,942	1,397,532	Qld regions merged	
QLD South	888,240	898,008	917,106	5,106,349	4,566,122	5,222,151		
NSW	7,303,799	6,894,906	6,353,899	10,511,180	10,589,575	10,786,405	11,138,612	11,742,143
VIC	5,320,851	5,392,461	5,509,010	6,944,780	7,125,455	7,230,430	7,516,218	8,025,500
SA	2,173,957	1,589,134	1,764,049	5,772,405	5,923,901	$6,061,588	3,672,238	4,634,225
TAS	3,336,148	3,370,867	3,442,597	6,029,789	6,235,475	6,243,855	6,591,011	6,626,126
Totals	22,077,936	21,385, 585	21,317,449	35,692,923	35,810,471	36,941,962	31,897,911	34,285,929

2.3 System restart testing

In 2020, the NER were amended[12] to include a framework for testing of system restart paths in certain circumstances, beyond the regular testing of SRAS energisation to their contracted delivery points on the network. The NER require AEMO to report annually on any system restart tests that were conducted or planned in any electrical sub-network.

No system restart tests were planned or conducted in 2021-22 under the new NER framework.

[12] National Electricity (System restart services, standards and testing) Rule 2020 No. 6, available at https://www.aemc.gov.au/rule-changes/system-restart-services-standards-and-testing.

3 Network support and control ancillary services (NSCAS)

3.1 Types, quantity, and cost of NSCAS

AEMO's NSCAS Description[13] specifies two categories of NSCAS:

1. Reliability and Security Ancillary Service (RSAS); and
2. Market Benefit Ancillary Service (MBAS).

In its 'last resort' procurement role, AEMO can only acquire NSCAS in the reliability and security category.

AEMO did not acquire any NSCAS for the financial year 2021-22.

[13] Available at https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/ncas/2020-nscas-description-and-quantity-procedure.pdf?la=en.