Australian Energy Market Commission

RULE CHANGE

CONSULTATION PAPER

National Electricity Amendment (System Restart Ancillary Services) Rule 2014

Rule Proponents

Australian Energy Market Operator

National Generators Forum, AGL, Alinta Energy, Energy Brix Australia, GDF Suez, Intergen and Origin

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About the AEMC

The Council of Australian Governments (COAG), through its then Ministerial Council on Energy (MCE), established the Australian Energy Market Commission (AEMC) in July 2005. In June 2011, COAG established the Standing Council on Energy and Resources (SCER) to replace the MCE. The AEMC has two main functions. We make and amend the national electricity, gas and energy retail rules, and we conduct independent reviews of the energy markets for the SCER.

Executive Summary

This paper has been prepared by the Australian Energy Market Commission (AEMC or Commission) to facilitate public consultation on two rule change requests submitted by the Australian Energy Market Operator (AEMO) and a group of organisations[1] with interests in the generation sector (referred to here as the "Generators").

The rule change requests both relate to System Restart Ancillary Services (SRAS), which are procured by AEMO from generators to mitigate the impact of a major supply disruption. These services provide the capability to restart the power system when there is a loss of power supply. Given the common subject matter of the two different proposals, the Commission has taken the decision to consolidate them into a single rule change request and therefore consider them together.

Both proposals were triggered by a review of SRAS undertaken by AEMO in 2013 and early 2014. In its draft report of May 2013, AEMO identified a number of options to address concerns it raised regarding increases in the cost of SRAS procurement. Most notably, it proposed procuring SRAS on the basis that any major supply disruption would only apply to part of the National Electricity Market (NEM), rather than to the whole system. Under such circumstances it would be possible to re-energise affected areas from neighbouring parts of the system. This would mean that AEMO would be able to procure a reduced amount of SRAS.

The Generators rule change request, submitted in November 2013, proposes that the National Electricity Rules (NER) should specify that a "major supply disruption" includes NEM-wide or multiple region events. It also seeks to make a number of other changes, mostly relating to the governance and specification of SRAS.

AEMO set out in the final report of its review (published in February 2014) that it considered that the AEMC Reliability Panel should review the System Restart Standard (SRS), which places more detailed requirements on AEMO's procurement of SRAS, to clarify the extent to which SRAS is to minimise the impact of a major supply disruption in various risk scenarios.

In assessing this matter, the Commission will need to consider whether it is appropriate that AEMO's procurement of SRAS is bound by greater prescription regarding the definition of a major supply disruption and, if so, whether it would be more appropriate for this additional guidance to be located in the NER or in the SRS.

AEMO's rule change request, submitted in December 2013, seeks to implement a number of other options identified in its review. These include:

- replacing the NEM-wide recovery of SRAS costs with a regional approach; and
- amending the current competitive tender arrangements for SRAS procurement to include a price arbitration mechanism.

1 The National Generators Forum, AGL, Alinta Energy, Energy Brix, GDF Suez, Intergen and Origin.

Both of these options were previously considered by the Commission in the 2005/06 rule change request that put in place the current arrangements. It will therefore be important to understand what may have changed in the intervening period to justify reconsideration of these issues.

In particular, the introduction of price arbitration would represent a significant change to the existing regulatory arrangements. The Commission will therefore need to test AEMO's view that the SRAS market has failed to replicate competitive outcomes and that this has been the main driver of increased costs.

Increased costs may also be the result of any increase in the quantity of SRAS that has been procured, as well as a signal for new investment. If additional investment is warranted but has not been forthcoming, it will be important to understand whether there are barriers to entry and the extent to which these could be addressed before considering increased market intervention.

This remainder of this paper contains further detail on the consolidated rule change request and the approach the Commission is proposing to take. Stakeholders are encouraged to provide any submissions by 8 May 2014.

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1 Introduction

1.1 The rule change requests

On 11 November 2013, several organisations including the National Generators Forum, AGL, Alinta Energy, Energy Brix Australia, GDF Suez, Intergen and Origin submitted a rule change request to the Australian Energy Market Commission (AEMC or Commission) in relation to the economic basis of, and governance frameworks for, System Restart Ancillary Services (SRAS) (the Generators' request).

On 20 December 2013, the Australian Energy Market Operator (AEMO) also submitted a rule change request in relation to several operational and regulatory aspects of the SRAS frameworks as set out in the National Electricity Rules (the Rules or NER) (the AEMO request).

Further details of the two rule change requests are included in Chapter 3.

1.2 The rule change process

Under section 93 of the National Electricity Law (NEL), the Commission has the ability to consolidate two or more rule requests where it considers it necessary or desirable to do so. As there is significant overlap between AEMO's and the Generators' proposals, the Commission has decided to consolidate the two requests and to consider them as a single rule change request.

On 27 March 2013, the Commission published a notice under section 95 of the NEL setting out its decision to commence the rule change process in relation to the combined rule change request.

Given the complexity and the number of issues covered in this consolidated rule change request, the Commission has also issued a notice under section 107 of the NEL to extend the publication date for the draft determination by 6 weeks. The resulting timetable for the Commission's consideration of this rule change is set out below.

Table 1.1 Key dates for this rule change process

Milestone	Date
Submissions to this consultation paper due	8 May 2014
Publication of draft determination	28 August 2014
Submissions to draft determination due	9 October 2014
Publication of final determination	20 November 2014

1.3 This consultation paper

This consultation paper has been prepared to facilitate public consultation and to seek stakeholder submissions on the consolidated rule change request.

The paper:

- sets out a summary of, and a background to, the AEMO and Generators' rule change requests, including details of previous reviews and processes relevant to the development of the current SRAS frameworks;
- identifies a number of questions and issues to facilitate consultation on this rule change request;
- outlines the process for making submissions; and
- includes the System Restart Standard in an appendix to the document.

2 Background

2.1 System Restart Ancillary Services

System restart ancillary services (SRAS) are procured by AEMO in order to mitigate the impact of a "major supply disruption". SRAS provides the capability to restart the power system from a "black system" condition, where there is a complete loss of power supply in a given area.

SRAS is important as there are significant economic and social costs associated with the total loss of power supply, although the magnitude of these costs may vary between users. SRAS is effectively an insurance product that is procured to minimise these potential costs.

Box 2.1: The consequences of a loss of power supply

Major losses of power supply cause direct economic costs in terms of lost output, and there can be significant additional costs such as those resulting from disruption caused to transportation and communication networks. Public health risks can result, and these are exacerbated by the difficulties faced by emergency services in responding to events. There can also be severe social costs, potentially including a breakdown in law and order.

One of the most prominent major power outages in recent years occurred in North America in 2003, where 50 million people lost power for up to two days. This was estimated to have cost around $6 billion at that time and contributed to 11 deaths.[2]

SRAS is provided by generators which have the capability to start, or remain in service, without electricity being provided from the grid. A number of different technologies may be used to provide SRAS, including:[3]

- generating units that can restart without being connected to the grid, such as hydro or various gas turbine generating units;
- trip to house load schemes, which include large generating units that can disconnect from the grid and continue to supply their own auxiliaries;[4] and
- combination system restart sources, which are large generating units that can be started from a nearby small power station, such as a thermal power station with an adjacent black start gas turbine generating unit.

2 Productivity Commission 2013, *Electricity Network Regulatory Frameworks*, Report No. 62, Canberra, p.13.

3 Australian Energy Market Operator, *System Restart Ancillary Services - Final Report*, AEMO, 12 February 2014, p.7.

Under black system conditions, electricity from an SRAS facility is primarily used to restart other significant generating units, in order to restore a defined load within given voltage and frequency parameters.

SRAS is procured on the basis of the restoration of power to a specific sub-network region. A sub-network region is a part of the network defined by AEMO (in accordance with guidelines determined by the Reliability Panel under clause 8.8.3(aa)(5) of the NER), reflecting factors including the concentration of load and generation as well as the structure of the network.

The current SRAS frameworks are underpinned by a number of requirements in the NER, with further detail then set out in subsequent documents, including the **System Restart Standard** (SRS), administered by the Reliability Panel, and the various **SRAS Guidelines**, administered by AEMO.

2.1.1 NER requirements relating to SRAS

Clause 3.11.4A(a) of the NER contains the **SRAS Objective**, which sets out the high level purpose of SRAS as follows:

> "The objective for *system restart ancillary services* is to minimise the expected economic costs to the *market* in the long term and in the short term, of a *major supply disruption*, taking into account the cost of supplying *system restart ancillary services*, consistent with the *national electricity objective* (**the SRAS objective**)."

The term *major supply disruption* is defined in Chapter 10 of the NER as "the unplanned absence of *voltage* on a part of the *transmission system* affecting one or more *power stations*".

The SRAS objective informs all other aspects of the SRAS frameworks. It must be considered by both AEMO and the Reliability Panel when carrying out their respective roles and developing various documents under the SRAS frameworks.

The NER also establishes the definition of primary and secondary SRAS. AEMO is required to provide a further description of these services, including the technical and availability requirements for each, as per guidance set out by the Reliability Panel in the SRS.

The NER further sets out a high level description of the various SRAS Guidelines that must be developed by AEMO.[5] It also describes the processes to be followed by AEMO when procuring SRAS, including the tendering process.[6]

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4 Auxiliaries refer to machinery that initiates and supports the function of large generating units, such as conveyer belts and coal pulverisers.

5 NER clause 3.11.4A.

6 NER clause 3.11.5(b).

2.1.2 Reliability Panel: System Restart Standard

Clause 8.8.3(a) of the NER requires the Reliability Panel to determine the SRS.[7] Following the SRAS Objective, the SRS sets out the next level of detail regarding the operation of SRAS and provides AEMO with guidance regarding administration of these services. Key aspects of the SRS include:

- **Restoration timeframes**: The SRS requires AEMO to procure SRAS sufficient to:
  - re-supply and energise the auxiliaries of power stations within 1.5 hours of a major supply disruption occurring to provide sufficient capacity to meet 40 per cent of peak demand in that sub-network; and
  - restore generation and transmission such that 40 per cent of peak demand in that sub-network could be supplied within four hours of a major supply disruption occurring.
- **Reliability of services**: The SRS provides detail regarding the reliability standards that must be met by primary and secondary SRAS. Specifically, primary SRAS are defined as those services with a reliability of 90%, while secondary services are defined as those services with a reliability of 60%. Services may be considered in combination to deliver higher levels of reliability. AEMO is responsible for defining the manner in which reliability will be assessed and how services may be combined.
- **Guidelines for the determination of electrical sub-networks**: The SRS defines the matters that AEMO must consider when establishing electrical sub-networks, including the length and strength of transmission corridors between areas and generation centres as well as quantities of generation and load within an area.
- **Guidelines for specifying diversity and strategic location of services**: The SRS defines the matters that AEMO must consider in order to ensure a degree of independence between the various restart services that it procures, including electrical, technological, geographical and fuel diversity in procured SRAS.

The Reliability Panel develops the SRS via a public consultation process. The last such consultation process was completed in 2012 and is discussed in further detail in section 2.2.

2.1.3 AEMO: SRAS Guidelines and procurement

Subject to the NER and the SRS, AEMO is responsible for defining several key parameters of the SRAS frameworks. In particular, AEMO is responsible for defining exactly how much SRAS will be procured in each sub-network region, as well as the number and boundaries of those sub-network regions. AEMO is also responsible for procuring SRAS, which involves negotiating tenders with SRAS providers.

7 The SRS is reproduced as Appendix A of this document.

AEMO's responsibilities are established in the NER, subject to the relevant guidance included in the SRS. These include a requirement to develop the following documents:

- **SRAS Description**: The SRAS Description establishes the technical parameters and characteristics of primary and secondary restart services.
- **SRAS Assessment guidelines**: The SRAS Assessment guidelines establish the framework followed by AEMO for the testing of SRAS.
- **SRAS Quantity guidelines**: The SRAS Quantity guidelines establish the quantity of SRAS that AEMO will procure in each sub-network area and the procedures followed to ensure the strategic diversity of SRAS.
- **SRAS Tender guidelines**: The SRAS Tender guidelines set out the processes that will be followed by AEMO when procuring SRAS.
- **Boundaries of Electrical Sub-Networks** This document sets out the principles and specific factors considered by AEMO in determining each sub-network area as well as setting out the specifics of each sub-network boundary.

AEMO is required to procure SRAS under a competitive tender process, with the most recent tenders being conducted in 2008 and 2012. The NER explicitly prevent matters relating to the price of SRAS from being sent to the Dispute Resolution Adviser for arbitration.[8]

2.1.4 AEMO's power to issue directions

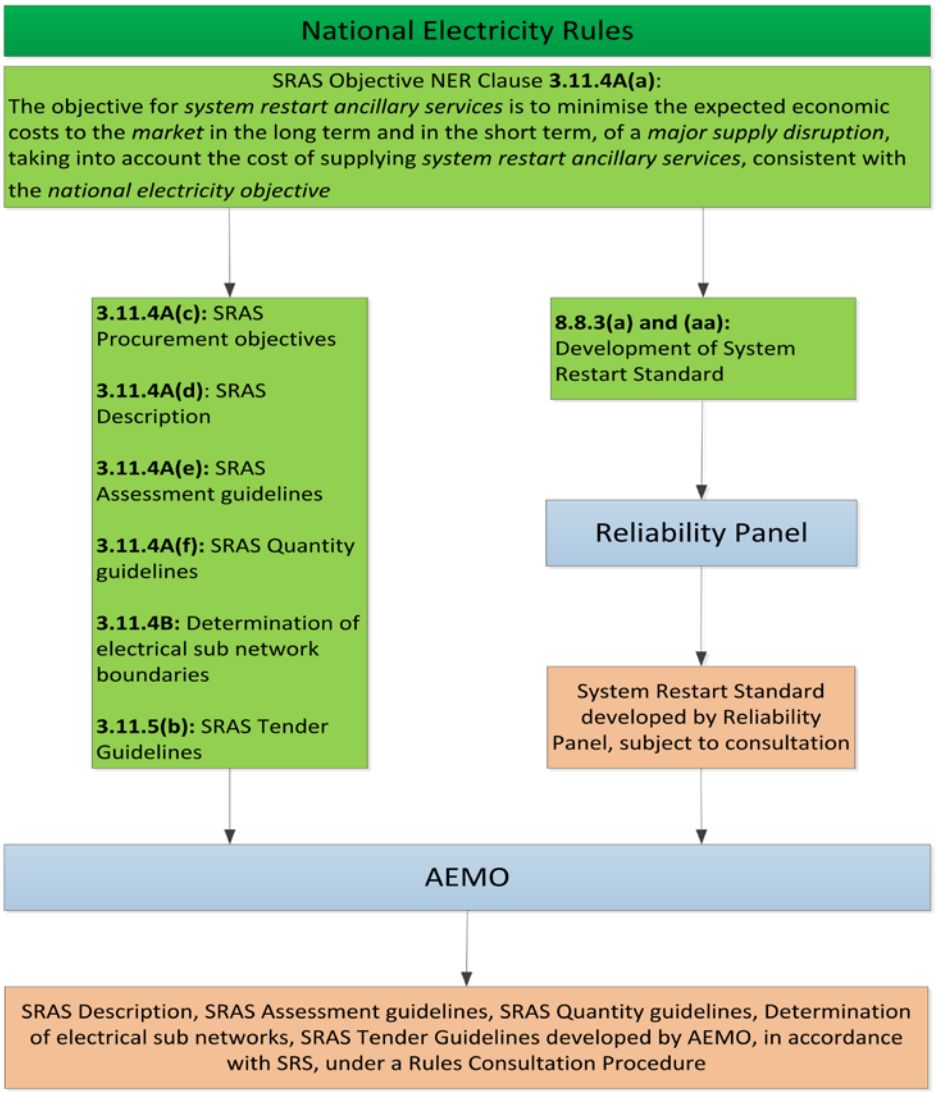
Although not considered directly part of the SRAS frameworks, it should also be noted that AEMO has the power under clause 4.8.9 of the NER to direct a Registered Participant to do any act or thing AEMO is satisfied that it is necessary to do in order to re-establish the power system to a *secure operating state*, a *satisfactory operating state* or a *reliable operating state*. This would include directing a Generator to provide system restart services. If issued a direction by AEMO under clause 4.8.9, a Registered Participant must use its best endeavours to comply with the direction in accordance with the timeframe specified by AEMO.

It is likely that if there was a major supply disruption, the power system would not be in a *secure operating state*, a *satisfactory operating state* or a *reliable operating state*, and AEMO would be able to use its power of direction to secure system restart services.

Under clause 3.15.7, AEMO must pay compensation to *Directed Participants* (which is calculated in accordance with clauses 3.15.7, 3.15.7A or 3.15.7B as the case may be) for any service which the *Directed Participant* was required to provide in order to comply with the direction.

8 A dispute concerning any aspect other than the price of an SRAS agreement or call for offers by AEMO for the acquisition of SRAS must be dealt with in accordance with the Dispute Resolution process in clause 8.2 of the NER. This requires the AER to appoint a person, or persons, to perform the functions of a Dispute Resolution Advisor.

Figure 2.1 Summary of SRAS frameworks



2.2 Relevant rule changes, reviews and other processes

A number of reviews and rule changes have contributed to the development of the current SRAS frameworks. Many of the issues raised in this rule change have been considered in previous processes. Specific aspects of these earlier projects will be discussed in more detail in the relevant chapters; a brief overview of the key issues and recommendations of each review is provided here.

2004 NEMMCO Review of system restart ancillary service arrangements

In July 2004, the National Electricity Market Management Company (NEMMCO, now AEMO), completed a review of SRAS as required under the then National Electricity Code.

In that review, NEMMCO identified a number of difficulties associated with undertaking a detailed cost/benefit analysis to determine the incremental value of additional SRAS, when measured against the cost of lost load.

NEMMCO also made the following recommendations:

- introduction of a System Restart Standard to be administered by the Reliability Panel;
- introduction of the definitions of primary and secondary restart services;
- establishment of the concept of electrical sub-networks with boundaries to be based on the physical characteristics of the power system (rather than jurisdictional boundaries);
- introduction of cost based principles for procurement, including an option for arbitration. In effect, SRAS providers would be required to provide evidence to NEMMCO that their tenders were in line with cost principles established in the Code. NEMMCO would then have the option of sending the tender to arbitration under clause 8.2 of the Code, with the Dispute Resolution Adviser also required to consider these cost principles when determining an arbitrated price; and
- recovery of SRAS costs on a 50/50 basis from market customers and market generators, on a NEM-wide basis.

2005/06 AEMC System restart ancillary service arrangements and pricing under market suspension Rule change

In April 2005, NEMMCO submitted a code change request to the National Electricity Code Administrator. This was then assessed by the AEMC as a rule change request following its establishment in July 2005. The main changes proposed by NEMMCO reflected the key recommendations made in the 2004 review, with some changes to the approach to SRAS cost recovery.

The AEMC published its final determination in 2006, which included the following key changes the NER:

- introduction of the SRS, to be established and reviewed by the Reliability Panel;
- introduction of the definitions of primary and secondary restart services into the NER;
- AEMO to have responsibility for the development of the boundaries of electrical sub-networks, subject to guidelines included in the SRS;
- introduction of a fully competitive tender process for the procurement of SRAS, rejecting NEMMCO's proposal for a cost based approach. This included the explicit removal of the price of SRAS from the matters that could be considered by the Dispute Resolution Adviser; and
- recovery of SRAS costs on a 50/50 basis from market customers and market generators, on a NEM wide basis.

2012 Reliability Panel Final Determination System Restart Standard

In 2012, the Reliability Panel made a final determination regarding the form of the SRS. The key issues considered and recommendations made in this determination defined the form of SRS and included:

- the identification of difficulties associated with defining the economic costs of a major supply disruption through a marginal cost/benefit analysis, and instead the definition of the SRS in accordance with efficiency considerations;
- establishment of restoration timeframes in the SRS as targets to guide AEMO in SRAS procurement, rather than as operational standards; and
- the undertaking of a review of the SRS by the Reliability Panel on a regular basis.

2013/14 AEMO System Restart and Ancillary Services Review

In February 2014, AEMO completed a review of System Restart and Ancillary Services. During this review, AEMO identified a number of options to address concerns it raised regarding increases in the cost of SRAS procurement. Most notably, it proposed procuring SRAS on the basis that any major supply disruption would only apply to part of the NEM, rather than to whole system. Under such circumstances it would be possible to re-energise affected areas from neighbouring parts of the system. This would mean that AEMO would be able to procure a reduced amount of SRAS.

Box 2.2: DNV KEMA independent review

AEMO engaged DNV KEMA to review a number of the findings from its SRAS review. In particular, DNV KEMA was asked to comment on the relative probability of a NEM-wide versus region-wide blackout, and the appropriateness of the proposal to procure SRAS on this basis.[9]

DNV KEMA highlighted that many other international markets, such as those in the UK or US, have more tightly coupled networks than in the NEM.[10] This is important because cascading blackouts usually continue until they reach transmission break points. At these points, the problem area will be isolated from the rest of the system.

The less meshed nature of the system in the NEM means that it is possible to identify a number of such break points, and use these to define sub-networks. On this basis, DNV KEMA found that there is no credible possibility of an event that could cause a NEM-wide blackout and that AEMO's proposal to use region-wide blackouts as the basis for future SRAS requirements is therefore appropriate.[11]

9 DNV KEMA provides services to the utility sector in over 30 countries around the world. See: DNV KEMA, *AEMO responsibilities to procure SRAS*, 30 December 2013, p.14.

10 Ibid. p.68

11 Ibid. pp.73-75.

While AEMO concluded that a region-wide black system event would be the appropriate basis for SRAS procurement, it noted in its final report that there was a divergence of views among AEMO and stakeholders on this issue. Consequently, it recommended that the Reliability Panel should review the SRS to clarify the extent to which SRAS is to minimise the economic impact of a "major supply disruption" in various risk scenarios.[12]

AEMO also recommended:

- Amending the NER to introduce a price arbitration option, similar to that currently in place for Network Support Control Ancillary Services (NSCAS), for SRAS. This would aim to address AEMO's concerns that increases in the cost of SRAS in recent years are reflective of the SRAS market not exhibiting the characteristics of a competitive market.

- Recovering SRAS costs on a regional basis, due to the current NEM-wide smeared recovery resulting in cross subsidies between NEM regions.

- Replacing the definitions of primary and secondary restart services in the NER with a single definition of system restart ancillary services, as these definitions are ineffective and are resulting in some inefficient outcomes.

- Seeking dynamic data from generators and Transmission Network Service Providers (TNSPs) sufficient to allow AEMO to perform dynamic or transient modelling to assess SRAS proposals.

AEMO also noted that it would undertake a consultation to amend the SRAS guidelines and related documents to determine the most effective SRAS to be procured to efficiently meet the present SRS for the 2015 SRAS tender process. On 17 March 2014, AEMO published an Issues Paper consulting on a number of proposed changes.[13]

The suggested amendments include:

- redefining the boundaries of sub-networks by use of natural break points in the NEM system; and

- basing the quantity of SRAS to be procured on the assumption that each sub-network can be restarted using an adjoining sub-network, where this is technically possible.

It is possible that any changes made to the NER through this rule change process - and any subsequent changes to the SRS – may impact AEMO's responsibilities regarding the matters set out in the SRAS Guidelines. This may necessitate further consultation and amendment of these documents in the future.

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12 Australian Energy Market Operator, *System Restart Ancillary Services - Final Report*, AEMO, February 2014, p.4.

13 Australian Energy Market Operator, *SRAS Documents Consultation - Issues Paper*, March 2014.

3 Details of the rule change requests

The AEMC has received two rule change requests which have been consolidated and will be considered as a single rule change request.

These requests are discussed below, as is the AEMC's reasoning for consolidation.

3.1 The Generators' rule change request

In their request, the Generators state they have determined, partly informed by AEMO's SRAS review, that there are a number of deficiencies in the existing SRAS frameworks. In particular, they consider there to be uncertainties that should be removed, as well as a need to improve governance arrangements.

3.1.1 Changes proposed in the Generators' rule change request

The Generators' rule change request is comprised of a number of elements, as follows:[14]

- Amend the NER to specify that the NER term *major supply disruption* be redefined to specify that it includes but is not limited to a NEM-wide or multi-region black system event. This definition is to be included in the NER, with further detail suggested to be included in the SRS.
- Place an explicit requirement on the Reliability Panel to consult with a specified range of stakeholders in addition to AEMO when developing the SRS, including Network Service Providers (NSPs), SRAS providers, participating jurisdictions, Market Customers, Market Generators and other relevant stakeholders.[15]
- Redefine the restoration timeframes in the SRS as explicit operational standards, rather than as target timeframes to be followed by AEMO when procuring SRAS.
- Require AEMO to provide information on restoration capacity of specific SRAS and for each sub-network, including how each electrical sub-network can be energised from an adjacent sub-network. Require AEMO to notify relevant jurisdictions if it has procured SRAS that may not meet the restoration time frame operational target.
- Require the Reliability Panel to approve any changes made by AEMO to the SRAS Assessment guidelines, the SRAS Quantity guidelines, the SRAS Description and the Boundaries of electrical sub-networks document.
- Remove the definition of primary and secondary restart services from the NER.

14 Private Generators' Group and National Generators Forum, *Proposed rule change: System Restart Ancillary Services*, 11 November 2013.

- Require AEMO to:
  - consult with NSPs when procuring SRAS to ensure that the procured service can meet the restoration timeframe operational standard;
  - advise the Reliability Panel if consultation with the relevant NSP has identified any technical issues that may reduce the ability of a procured service to meet the restoration timeframe operational standard;
  - publish a methodology to be used for assessing the capacity of SRAS to meet restoration timeframes under NEM-wide black system conditions and multiple region outages, under multiple scenarios; and
  - prior to the publication of the Annual Market Performance Review, to provide the Reliability Panel with: an overview and relevant analysis regarding any SRAS tests; advice regarding whether different combinations of SRAS could meet the SRAS Objective at lower cost; identification of any issues that may limit the capacity of procured SRAS to meet the SRS; and advice on any other matters AEMO deems appropriate.

The Generators' rule change request includes a proposed rule.[16]

3.1.2 Rationale for the Generators' proposals

In their rule change request the Generators provide a rationale for the rule change. A number of key points raised in the rule change request can be summarised as follows:

- The Generators state that there is a degree of uncertainty in the SRAS frameworks. In particular, this uncertainty relates to the definition of a major supply disruption event, the economic costs associated with that event and the costs of supplying SRAS to mitigate it. A lack of clarity regarding the definition of these terms creates uncertainty for the market generally, and provides insufficient guidance to AEMO to inform its role as SRAS procurer. It also creates the risk that not all costs and benefits are being appropriately considered, potentially resulting in the procurement of inefficient levels of SRAS.
- The Generators consider that the current SRAS frameworks do not effectively delineate and identify clear organisational responsibilities. They argue that this creates an inappropriate allocation of risk between parties. Functional separation is necessary to ensure greater efficiency in regulatory decision making, which will in turn facilitate market confidence in the SRAS frameworks. In particular, the Generators argue that AEMO may face a conflict of interest between its role in managing certain aspects of the SRAS frameworks and its role as SRAS procurer. They also argue that the current SRAS frameworks provide insufficient

15 Clause 8.8.1(a)(1a) of the NER specifies that the Reliability Panel should "on the advice of AEMO, determine the system restart standard".

16 Private Generators' Group and National Generators Forum, *Proposed rule change: System Restart Ancillary Services*, 11 November 2013, pp.12-19.

accountability to the market, particularly regarding AEMO's ability to amend the SRAS Guidelines.

- The Generators argue that the current SRAS frameworks provide insufficient certainty regarding the effectiveness of procured SRAS to restore the power system. In particular, the Generators consider that the current SRS restoration timeframes should be an operational standard, rather than a guide to be used by AEMO in procurement. The Generators consider that this change, accompanied by changes to AEMO's assessment and reporting processes, will provide the market with improved confidence that the SRAS procured will be sufficient to restore the system within the specified timeframes.

3.1.3 Scope

In addition to the proposed changes to the NER, the Generators appear to be advocating the making of a number of alterations to the SRS. This would be outside of the AEMC's rule making powers under the NEL (because any amendment to the SRS is the responsibility of the Reliability Panel).

However, it is not clear whether the Generators' request was for the AEMC to make changes to the SRS directly or whether it should be interpreted as a request to amend NER clause 8.8.3, which sets out the requirements of the SRS. The latter approach would be consistent with the AEMC's rule making powers.

3.2 AEMO's rule change request

AEMO's rule change request is intended to give effect to a number of recommendations made in the draft report of its SRAS Review, published in May 2013.[17]

3.2.1 Changes proposed in AEMO's rule change request

AEMO's rule change request is comprised of the following elements:[18]

- Amend the SRAS procurement processes to allow AEMO to negotiate the price of SRAS and to introduce an option for arbitration by the Dispute Resolution Adviser under NER clause 8.2 if agreement cannot be reached. This arbitration would be available for all aspects of an SRAS tender, including price.

- Amend the SRAS cost recovery processes defined in the NER to specify the recovery of SRAS costs on a regional basis.

- Remove the definition of primary and secondary restart services from the NER.

17 Australian Energy Market Operator, *System Restart Ancillary Services - Draft Report*, AEMO, 10 May 2013.

18 Australian Energy Market Operator, *Rule Change Request - System Restart Ancillary Services (SRAS)*, AEMO, 20 December 2013.

- Amend the NER to make several minor changes, including:
  - clarifying that SRAS is procured by AEMO rather than TNSPs;
  - removal of certain AEMO "discretionary" clauses in the development the SRAS Guidelines or regional benefit factors; and
  - amendment of an apparent reference error relating to the NER clauses that set out AEMO's procurement processes.

AEMO's rule change request includes a proposed rule.[19]

3.2.2 Rationale for AEMO's proposals

In its request AEMO provides its rationale for the rule change. A number of the key points raised can be summarised as follows:

- AEMO notes that SRAS costs have increased in recent tenders. AEMO indicates that it considers that these increases are directly related to insufficient levels of competition in SRAS markets. It suggests that recourse to an arbitration option for disputes in relation to price that arise during the tender process should help AEMO to "ensure SRAS is procured to efficiently meet the SRS at a reasonable cost".[20] In addition, AEMO states that this should also provide SRAS providers with regulatory certainty that they will receive appropriate remuneration for their services.
- Differences exist between the cost of SRAS incurred in each region and the price of SRAS recovered in each region of the NEM. AEMO considers that regional cost recovery would remove cross subsidisation between regions and provide more efficient price signals to Market Generators and Market Customers.
- AEMO considers that there is no longer any rationale for the retention separate definitions of "primary" and "secondary" restart services, and that this may have resulted in some inefficient procurement outcomes. AEMO states that removal of this definition from the NER would provide greater clarity of SRAS requirements for prospective providers. AEMO also considers that this will help to ensure that AEMO would only procure SRAS that delivers a material market benefit by contributing to the restoration of supply if a black system should occur.

19 Ibid. pp.17-22.

20 Ibid. p.14.

Box 3.1: AEMO's System Restart Ancillary Services - Final Report

As discussed in Chapter 2, in February 2014 AEMO published the final report of its SRAS review.

In the final report, AEMO identified that there is some disagreement between different stakeholders regarding the nature and level of risk that SRAS is intended to mitigate. AEMO noted that this particularly relates to the likelihood, extent, and economic impact of a major supply disruption.

Given this, AEMO recommended that the Reliability Panel undertake a review of the SRS, with the intention of providing improved guidance regarding the definition and the economic basis of SRAS.

The Commission notes that AEMO's recommendation for a Reliability Panel review of the SRS would form an alternative solution to the issue of a lack of guidance in the SRAS frameworks, as identified by the Generators. This is discussed in further detail in Chapter 5.

3.3 Consolidation

The Commission has decided to consolidate these rule change requests under section 93 of the NEL. The Commission considers that this is appropriate as:

- the Generators' and AEMO's rule change requests both relate to the same subject matter and also deal with some of the same clauses in the NER. Consolidation will remove the risk of conflicts in the assessment of each request; and
- consolidation will improve the efficiency of assessment of this rule change request in terms of stakeholder engagement and by reducing the AEMC's administrative processes.

4 Assessment Framework

The Commission's assessment of this rule change request must consider whether the proposed rule promotes the National Electricity Objective (NEO) as set out under section 7 of the NEL as follows:

> "The objective of this law is to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system."

In assessing the rule change requests against the NEO, the Commission will consider the likely long term costs and benefits of adopting the rule change request compared to the counterfactual of not making the proposed changes. It will also consider whether the proposed rule satisfies the rule making test in that it will, or is likely to, contribute to the achievement of the NEO.

There are a number of key considerations that will be relevant to the Commission's assessment, including:

- **Reliability:** Reliability of electricity supply underpins national economic activity and investment decisions. However, there is a trade-off between reliable supply, including the risk it will be lost, and the cost of providing it. Changes to the SRAS frameworks should consider this trade-off; however, making such an assessment is not straightforward. We will consider how such trade-offs are implemented in practice, including the regulatory and administrative costs of these arrangements, and whether the associated decision-making is clear and understandable to market participants.

- **Efficient price and investment outcomes:** Price signals are central to driving the efficient use, operation of and investment in electricity services. There is typically a relationship between prices and levels of investment over time, with an efficient outcome occurring where prices reflect costs yet drive sufficient investment to meet consumers' long term needs. We will assess whether changes to the SRAS framework are expected to lead to more efficient price and investment outcomes.

- **Governance arrangements**: In the SRAS frameworks, organisational roles and responsibilities drive operational and regulatory outcomes. Clearly defined governance arrangements avoid conflicts of interest as well as foster confidence in the governance arrangements. Governance arrangements also encompass the opportunity for stakeholders to be consulted and the transparency of the decision-making. This rule change raises a number of issues regarding the appropriate body to oversee SRAS frameworks, opportunities for consultation,

and transparency in decision-making. In assessing this rule change we will consider the extent to which the governance arrangements are expected to lead to efficient procurement arrangements versus the cost of providing them.

Due to the nature of the consolidated rule change request, not all these considerations may be relevant to all aspects of the rule change requests. That is, a subset may relate to some aspects and not others, whereas all may be relevant for other aspects.

The Commission welcomes stakeholder views on the proposed assessment framework, as well as on the specific issues to which it will be applied. These are set out in the next chapter.

5 Issues for Consultation

This chapter discusses the issues raised by the rule change requests, and sets out a number of questions to guide stakeholders in responding to this consultation paper.

5.1 SRAS objective and economic basis

SRAS is procured by AEMO to minimise the expected long and short term economic costs to the market of a major supply disruption, taking into account the cost of supplying SRAS. The economic basis for the procurement of SRAS is therefore determined by the parameters of the major supply disruption event that SRAS is procured to mitigate against, including its economic costs, as well as the costs associated with procuring SRAS.

The Generators' request contends that the SRAS frameworks do not provide sufficient guidance regarding the objective and economic basis of SRAS, particularly in relation to the definition of terms "economic costs of a major supply disruption" and "cost of supplying SRAS". The Generators suggest that this has required AEMO to take an interpretation of the SRAS Objective in order to determine the appropriate quantity of SRAS to procure.

Although not addressed in its rule change request, AEMO concluded in the final report of its SRAS review that the SRS should be reviewed to clarify the extent to which SRAS is to minimise the impact of a "major supply disruption" in various risk scenarios.[21] Consequently, there appears to be a degree of consensus that additional clarity and guidance could usefully be added to the SRAS frameworks.

5.1.1 Clarity and guidance in the SRAS frameworks

A key issue therefore is whether it is possible to change the SRAS frameworks to improve their clarity and the guidance they provide and, if so, how. The frameworks consist of the relevant NER clauses, the SRS (administered by the Reliability Panel) and the SRAS Guidelines (administered by AEMO).

Changes to provide improved guidance may be made to any one of these components of the SRAS frameworks, or to multiple components. Such changes would aim to facilitate improved certainty and confidence in the frameworks, enhancing the efficiency of usage, operational and investment decisions.

It follows that if changes are made to different components of the SRAS frameworks, different organisations may bear specific responsibilities. For example, if it were determined that these changes should occur at the level of the NER, the AEMC may need to undertake detailed economic and technical analysis in order to develop these rules. Alternatively, if it was determined that these changes should occur at the level of

21 Australian Energy Market Operator, *System Restart Ancillary Services - Final Report*, AEMO, February 2014, p.4.

the SRS or SRAS Guidelines, it may fall to the Reliability Panel or AEMO to undertake any analytical work necessary to inform these changes. It is therefore also important to consider the responsibilities and the role of each organisation, as well as how their consultative procedures interact with the rule change process.

Question 1 Clarity and guidance in the SRAS frameworks

1.1 Do the current SRAS frameworks, including the NER, SRS and SRAS Guidelines, provide adequate guidance to the market regarding the objective and economic basis of SRAS?

1.2 If further guidance is required regarding the objective and economic basis of SRAS, what changes should be made to the frameworks?

5.1.2 Potential analytical approaches

The reviews that have contributed to the development of the SRAS frameworks have considered a number of different analytical approaches. These potential approaches include a marginal cost/benefit analysis, which considers the marginal cost of different "major supply disruption" events, measured against the marginal cost of procuring different volumes of SRAS to address the risk of these different events.[22]

An alternative approach was demonstrated by DNV KEMA in its report to inform AEMO's 2013/14 SRAS Review. DNV KEMA considered the probabilities of different events that could cause power system failures and the effect of network topography on the spread of that failure.[23]

There may be strengths and weaknesses associated with different analytical approaches. For example, a theoretical marginal cost/benefit model might be used to determine the optimal volume of SRAS to procure and may more accurately capture the different values of system restart for different participants. However, it may also be difficult to construct such a model or to reach agreement regarding the values of input variables. Similarly, while other approaches may be less complex and easier to implement, they may also be less focussed and less accurate.

Question 2 Potential analytical approaches

2.1 What analytical approaches could be used to inform any required changes to the SRAS frameworks to provide improved guidance regarding the objective and economic basis of SRAS?

2.2 Are there particular strengths or weaknesses associated with any of these potential analytical approaches?

22 For more detail, refer to: Firecone Ventures Pty Ltd, *Review for AEMC of the Proposed NEMMCO Rule for System restart Ancillary Services - Final Report*, Firecone, December 2005, p.6.

23 DNV KEMA, *AEMO responsibilities to procure SRAS*, 30 December 2013.

5.2 SRAS governance arrangements

The Generators' request includes a number of proposed changes to the role of AEMO and the Reliability Panel within the SRAS frameworks.

5.2.1 Allocation of responsibilities

The first governance issue identified in the Generators' request relates to the appropriate allocation of responsibilities between AEMO and the Reliability Panel.

The Generators suggest that AEMO may face some conflicts between its responsibilities as a procurer of SRAS and its role in developing certain aspects of the SRAS frameworks.

The Generators therefore propose that the Reliability Panel should be required to approve changes made by AEMO to the SRAS Guidelines, subsequent to AEMO undertaking its own consultative process. The Generators also state that the Reliability Panel's approval should follow independent analysis and publication of the rationale for approval.

As identified in Chapter 4, clearly defined governance arrangements should facilitate more efficient decision making. However, this must be viewed in the context of the organisations in question, considering levels of expertise and the incentives to which each organisation is subject. It is also necessary to consider the effectiveness of current arrangements, including existing review and consultative processes.

Question 3 Allocation of responsibilities

3.1 Does AEMO face conflicts or difficulties reconciling its role as procurer of SRAS and its role in determining certain aspects of the SRAS frameworks?

3.2 Would there be benefits in additional oversight of AEMO in its development of the various SRAS Guideline documents?

5.2.2 Reliability Panel's processes

In their rule change request, the Generators raise another governance issue relating to the Reliability Panel's consultative processes in determining the SRS.

The Generators state that there is scope to "better utilise the expertise of participating jurisdictions, NSPs and SRAS providers within the current arrangements".[24] By creating an explicit requirement for the Reliability Panel to consult with these stakeholders, the Generators state that the market would be provided with improved certainty that the opinions of all stakeholders have been adequately considered.

24 Private Generators' Group and National Generators Forum, *Proposed rule change: System Restart Ancillary Services*, 11 November 2013.

Consultation with relevant stakeholders is central to the effectiveness of any changes made to the SRAS frameworks. It allows all parties to provide input and facilitates confidence in market frameworks. Existing processes already require the Reliability Panel to publicly consult with a range of stakeholders when amending the SRS, so it is necessary to consider whether a specific requirement to consult with particular stakeholders will provide any additional benefit.

Although not raised by either of the rule change requests, a further related issue recently identified is the Reliability Panel's capacity to review the SRS. In its 2012 review of the SRS, the Reliability Panel highlighted that there is currently no NER requirement for the Reliability Panel to undertake a regular review of the SRS.[25] The Reliability Panel suggested that changes to market arrangements and technology could impact the SRS in the future and that capacity for a periodic review would allow any necessary adjustments to be made.

Question 4 Reliability Panel's process

4.1 Is it necessary to include a specific requirement in the NER for the Reliability Panel to consult with certain stakeholders, or are existing provisions sufficient to ensure adequate consultation?

4.2 Is there merit in requiring a periodic review of the SRS by the Reliability Panel? If so, what might be an appropriate time period for such a review?

5.3 Form and specification of SRAS services

The two rule change requests propose that a number of amendments be made to the ways in which required and offered SRAS services are specified and defined.

5.3.1 Restoration timeframes

The Generators' request states that the current SRAS frameworks provide insufficient certainty to the market regarding the capability of procured SRAS to restore power within the timeframes specified in the SRS.

As identified in Chapter 2, the restoration timeframes in the SRS are currently considered to be guidelines for AEMO to use when procuring SRAS, rather than as an operational standard.[26]

The Generators consider that this creates some uncertainty for participants regarding the ability of procured SRAS to effectively restore the power system. Given this, the generators state that the current SRS restoration timeframes should be made an operational standard; that is, AEMO should treat the restoration timeframes as a "hard target", with procured SRAS definitely able to restore power within these timeframes.

25 AEMC Reliability Panel, *System Restart Standard - Final Determination*, Reliability Panel, p.i.

26 Ibid.

To this end, the Generators propose that AEMO should be required to conduct detailed analysis to assess the capacity of specific SRAS to meet operational restoration timeframes. This is discussed in more detail in Chapter 3.

There are a number of issues to be considered regarding whether the restoration timeframes can be treated as operational standards, including what kind of enforcement mechanisms might be applicable, or which party should bear any associated penalty for non-compliance. It is also necessary to consider the extent of any additional costs faced by AEMO from modelling and reporting requirements.

However, it is also true that for some consumers, the consequences of a failure of the power system may have significant consequences. For example, large industrial users may face major operational and capital costs from a prolonged power failure. Such consumers may therefore place a very high value on increased certainty that SRAS is capable of restoring the power system within a given time frame. Accordingly, any costs and practical challenges associated with making these restoration timeframes into operational standards should be considered in the context of the potential benefits for different users.

It is should also be noted that AEMO advised in the final report of its SRAS review that it intends to undertake dynamic or transient modelling to identify technical issues that may arise in a black start situation.[27] AEMO will be seeking relevant data from generators and TNSPs to undertake this modelling. AEMO considers that this modelling could increase certainty regarding the technical ability of SRAS to perform in a system black condition.

Question 5 Restoration timeframes

5.1 Would there be any benefits associated with making the restoration targets in the SRS operational standards?

5.2 Are there are specific classes of participants who may face significant costs associated with a power failure and who may benefit in having a "firmer" restoration time frame?

5.3 Are there likely to be any cost or implementation issues related to turning the restoration timeframes into operational standards?

5.4 Is AEMO's proposal to undertake transient or dynamic modelling of SRAS a relevant consideration? Would such modelling provide the market with improved certainty regarding the capacity of procured SRAS to restore power?

27 Australian Energy Market Operator, *System Restart Ancillary Services - Final Report*, AEMO, February 2014, p.4.

5.3.2 Definition of primary and secondary restart services

Both AEMO and the Generators propose the removal of the definitions of primary and secondary restart services from the NER. AEMO states that the terms are no longer relevant, provide no useful guidance to the market and have in fact resulted in some unsatisfactory outcomes.

Currently, the NER requires the Reliability Panel to provide guidance as to the reliability levels associated with primary and secondary restart services in the SRS. AEMO is then required to define these services in the SRAS Description. Removal of these definitions from the SRS will still require the Reliability Panel to provide guidance regarding reliability levels associated with SRAS, while AEMO will still be required to develop a definition of reliability in the SRAS Description.

The definitions of primary and secondary services were introduced to provide guidance to AEMO and to the market regarding the types of SRAS that should be procured. This would allow AEMO to be able to compare the services offered by different providers when assessing tenders. If the definitions were to be removed, it may be necessary to consider whether the SRAS frameworks will continue to provide sufficient guidance.

Question 6 Definition of primary and secondary restart services

6.1 Is it appropriate to remove the definition of primary and secondary restart services from the NER?

6.2 What impacts would the removal of these definitions have and would it be necessary to develop some other guidance regarding what forms of restart services should be procured?

5.4 SRAS procurement

As discussed in chapter 2, AEMO procures SRAS through an open tender process.

AEMO reports that SRAS costs have increased significantly in recent years.[28] AEMO considers that this increase has been driven by a lack of competition in SRAS markets, suggesting that "there are high costs and barriers to entry, information asymmetry, and transaction costs required to participate in the SRAS market".[29] In particular, AEMO suggests that SRAS providers are well informed about the SRAS quantities AEMO will seek and that there can be limited options for suitable SRAS in sub-networks,

28 Australian Energy Market Operator, *Rule Change Request - System Restart Ancillary Services (SRAS)*, AEMO, 20 December 2013, p.7.

29 Australian Energy Market Operator, *System Restart and Ancillary Services - Final Report*, AEMO, 12 February 2014, p.14.

providing "an opportunity for SRAS providers to tender prices that are above the long-run marginal cost of providing the service".[30]

AEMO's proposed solution to this issue is the introduction of an option for arbitration in relation to disputes over price by the Dispute Resolution Adviser.[31] Importantly, AEMO is not at this stage proposing a "cost of service" based approach. In effect, AEMO is proposing the extension to SRAS of the arbitration options which currently apply to the procurement of NSCAS.

Box 5.1: Previous consideration of SRAS price arbitration options

A more regulated approach to SRAS procurement was considered in the 2006 *System Restart Ancillary Services and pricing under market suspension* rule change.[32] Prior to that rule change, the process for SRAS procurement was broadly similar to that which currently applies to NSCAS.

In the rule change request, NEMMCO proposed the introduction of a "cost of service" approach. Under this approach, principles would be introduced into the NER that would require SRAS tenderers to offer SRAS at prices which reflected the long run incremental costs of production. NEMMCO would have powers to seek information from tenderers to "prove" these costs and, if unable to reach agreement with the tenderer, to refer the tender to the Dispute Resolution Adviser for arbitration. The Adviser would determine an arbitrated price based on the NER principles of SRAS prices reflecting long run incremental costs.

In its final rule change determination, the AEMC rejected NEMMCO's proposed approach. The AEMC determined that any option for arbitration on the price of SRAS should be removed from the NER and that a full competitive tender process was appropriate. The AEMC noted that while the market for SRAS may be limited, it was not a natural monopoly and tenderers would be unlikely to maintain a large difference between price and costs over the longer term.

The AEMC noted that trade-offs exist between a market based approach and a regulatory approach. While a market based approach might allow some parties to extract prices above long run costs for a given period, the key risk associated with a regulatory approach is that prices are incorrectly determined and set at an artificially low level, which may suppress investment. However, the AEMC also noted that if, in the future, a failure in SRAS markets was demonstrated, it would be open to reconsidering its conclusions.[33]

30 Australian Energy Market Operator, *Rule Change Request - System Restart Ancillary Services (SRAS)*, AEMO, 20 December 2013, p.8.

31 NER clause 8.2 sets out the process for the resolution of disputes between parties. It requires the AER to appoint a person, or persons, to perform the functions of a Dispute Resolution Advisor.

32 Australian Energy Market Commission, *System Restart Ancillary Services and pricing under market suspension - final determination*, AEMC, 20 April 2006.

33 Ibid. pp.31-42

5.4.1 Competition in SRAS markets

To determine whether or not changes should be made to the rules regarding SRAS procurement, it will be necessary to understand the factors influencing levels of competition in SRAS markets.

One particularly important factor is any changes to the volume of SRAS procured by AEMO, which would influence the supply demand balance and therefore price of SRAS. AEMO's rule change request states that "the overall number of SRAS procured has remained constant for 2008 and 2012".[34] However, in the draft report of its SRAS review, AEMO previously reported that "there has been a net increase in the quantity of SRAS procured to meet the standards over the two SRAS contract periods".[35] It is also not clear whether a distinction should be drawn between the number of services procured and the amount in MW. It will be equally important to consider how any future changes in the amount of SRAS procured would interact with prices.

Another key factor is the extent to which barriers to entry are present. Barriers to entry could counteract the effectiveness of price signals in encouraging new investment. This is a concern that AEMO has noted that both it and market participants hold, indicating that many generators considered that AEMO committing to longer-term SRAS contracts and greater lead times prior to SRAS contract commencement could drive greater competition.[36]

In assessing these issues, it will be relevant to consider whether they might be permanent or transient. It may also be necessary to consider whether there are market structure issues in specific sub-networks - or certain regions - that are particularly likely to influence these issues and hence the effectiveness of competition in SRAS markets.

Question 7 Competition in SRAS markets

7.1 Do SRAS markets display characteristics which would imply ineffective or limited levels of competition? Do increases in SRAS costs identified by AEMO reflect such an outcome in SRAS markets?

7.2 To what extent have or would changes to the quantity of SRAS procured influence the price of SRAS?

7.3 Have increases in the price of SRAS driven new entry or new investment in SRAS in recent years? If not, why is this the case?

34 Australian Energy Market Operator, *Rule Change Request - System Restart Ancillary Services (SRAS)*, AEMO, 20 December 2013, p.8.

35 Australian Energy Market Operator, *System Restart and Ancillary Services - Draft Report*, AEMO, 10 May 2013, p.16.

36 Australian Energy Market Operator, *System Restart Ancillary Services - Final Report*, AEMO, February 2014, p.29.

5.4.2 Potential price arbitration in SRAS procurement

To the extent that they are required, it would be important to consider any changes to the SRAS procurement arrangements very carefully and to be assured that they represent the best possible option.

The introduction of price arbitration may itself have a number of consequences for market outcomes. In particular, this may influence the operational and investment decisions of SRAS suppliers. For example, the prospect of price arbitration may influence the decision of existing SRAS providers to enter the tender process, while for potential SRAS investors, perceived downside risk may reduce incentives to invest in SRAS. Alternatively, as suggested by AEMO, investors may consider that regulation provides a degree of certainty and a reduction in risk, which may spur investment.

Given that AEMO is proposing the application of the NSCAS procurement arbitration provisions to SRAS, it may also be relevant to consider outcomes in NSCAS markets, including whether arbitration options have been used in practice and the interaction of these provisions with operational or investment decisions of NSCAS providers.

In its rule change request, AEMO noted that it considers price arbitration to be preferable to a cost of service approach, which it views as unnecessary and which would require a greater change to be made to the current arrangements. AEMO further indicated that it had considered - and rejected - other options, including mandating the provision of SRAS from generators and no procurement. It concluded that AEMO is best placed to procure SRAS.[37]

Question 8 Potential price arbitration in SRAS procurement

8.1 Would price arbitration or regulation effectively address any inefficiencies in the SRAS procurement process? Is the Dispute Resolution Adviser an appropriate body to administer such regulation?

8.2 Would a price arbitration option influence SRAS providers' decisions to enter an SRAS tender? Would it influence their decision to invest in new SRAS facilities?

8.3 Have the arbitration provisions included in the NSCAS procurement processes ever been utilised? Are these processes applicable to SRAS?

8.4 Are there any other alternative solutions that should be considered?

5.5 SRAS cost recovery

Under current arrangements, the costs of SRAS are recovered on a NEM-wide basis. Market Customers and Market Generators in each region pay an equal share of the

37 Australian Energy Market Operator, *Rule Change Request - System Restart Ancillary Services (SRAS)*, AEMO, 20 December 2013, p.8.

total NEM-wide cost of SRAS, pro-rated according to their energy use and generation respectively.

AEMO indicates that these arrangements have resulted in cross subsidisation between different regions, as the price paid by Market Customers and Generators in a region does not always reflect the cost of SRAS procured in that region. In particular, a large majority of the costs incurred in Tasmania have been funded by participants in other regions.[38]

AEMO has proposed that these costs should be recovered on a regional basis. AEMO considers that this will remove cross subsidisation and provide better price signals to Market Customers and Generators in each region. In its final SRAS report, AEMO also highlighted that if SRAS is procured on a regional basis, with no prospect for SRAS in one region providing any benefit to another region, then the rationale for recovering the cost of SRAS on a NEM wide basis diminishes.[39]

Box 5.2: Previous consideration of SRAS cost recovery

As part of the *System Restart Ancillary Services and pricing under market suspension* rule change, NEMMCO made a similar proposal for the recovery of SRAS costs on a regional basis. NEMMCO noted a number of additional benefits associated with moving to cost recovery on a regional basis:

- Different regions may incur different costs in the provision of SRAS, reflecting the specific topology of the network or availability of different generation resources in that region. Regional cost recovery means that those regions which can source more efficient, lower cost SRAS will receive the full benefits of those lower SRAS costs, which may also send limited locational signals. Smeared cost recovery means that other, less efficient regions will share some of those efficiency gains and any locational signals will be weakened.
- Given that market generators pay 50 per cent of the cost of SRAS, regional recovery means that generators (who are the main providers of SRAS) also face some of the costs of the difference between the cost to produce SRAS and the price of SRAS. This may reduce any incentive to attempt to increase the price of SRAS above costs. Under smeared recovery this effect is weakened.

In the 2006 *System Restart Ancillary Services and pricing under market suspension* rule change determination, the Commission decided to retain a NEM-wide smeared approach for SRAS cost recovery, noting the cost and complexities and the relatively weak locational signals associated with a regional approach.

38 Australian Energy Market Operator, *Rule Change Request - System Restart Ancillary Services (SRAS)*, AEMO, 20 December 2013, p.10.

39 Australian Energy Market Operator, *System Restart Ancillary Services - Final Report*, AEMO, February 2014, p.33.

5.5.1 Interaction with sub-network definition

One issue to be considered in assessing this proposed change is the degree of complexity associated with introducing a regional approach to SRAS cost recovery. This is particularly relevant given AEMO's proposal to amend the number of electrical sub-network regions. In particular, AEMO is proposing to create a new sub-network which spans northern NSW and southern Queensland. Under this approach, it would be necessary to apportion and recover SRAS costs from participants in both regions.

AEMO's draft rule contains a mechanism to calculate the "regional benefit factors" to be used in apportioning costs between the two regions. However, in assessing this proposed approach it will be important to fully consider all issues and complexities associated with implementing a regional SRAS cost recovery process.

It will also be necessary to consider the extent to which regional cost recovery might provide price signals and the extent to which such signals might influence participant operational and investment decisions.

Question 9 Recovery of SRAS costs

9.1 Does the current smeared, NEM-wide approach to SRAS cost recovery result in any inefficiencies? Would there be benefits associated with the recovery of SRAS costs on a regional basis?

9.2 Would the establishment of sub-networks that span multiple NEM regions create disproportionate complexity in the implementation of regional SRAS cost recovery?

5.6 Minor and consequential issues

AEMO has also proposed a number of further changes, which it has characterised as "minor and consequential issues". These include:

- a change to the Chapter 10 definition of non-market ancillary services (NMAS) to clarify that SRAS is procured by AEMO rather than TNSPs, and that no NMAS other than NSCAS are procured by TNSPs;
- a change to NER clause 3.11.4A(b) to refer to the SRAS procurement clause 3.11.5 rather than to 3.11.4A; and
- removal of "catch all" provisions allowing AEMO to consider any other matters in NER clauses 3.11.4A(d)(3) and 3.15.6A(c4)(2).

These changes are intended to address some apparent errors in the NER. They are also intended to remove the discretionary capacity of AEMO to consider other relevant matters when developing certain guidelines. AEMO argues that this discretionary capacity is unnecessary as the relevant clauses do not preclude the consideration of other relevant matters.

Question 10 Minor and consequential changes

10.1 Is AEMO's proposed amendment to clarify that SRAS is procured by AEMO rather than TNSPs appropriate?

10.2 Is it necessary to specify that AEMO should consider any other matters in NER clauses 3.11.4A(d)(3) and 3.15.6A(c4)(2)?

6 Lodging a Submission

The Commission has published a notice under section 95 of the NEL for this rule change request inviting written submissions. Submissions are to be lodged online or by mail by 8 May 2014 in accordance with the following requirements.

Where practicable, submissions should be prepared in accordance with the Commission's Guidelines for making written submissions on rule change requests.[40] The Commission publishes all submissions on its website subject to a claim of confidentiality.

All enquiries on this project should be addressed to Andrew Truswell on (02) 8296 7800.

6.1 Lodging a submission electronically

Electronic submissions must be lodged online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code ERC0168. The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated.

Upon receipt of the electronic submission, the Commission will issue a confirmation email. If this confirmation email is not received within 3 business days, it is the submitter's responsibility to ensure the submission has been delivered successfully.

6.2 Lodging a submission by mail

The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated. The submission should be sent by mail to:

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Or by Fax to (02) 8296 7899.

The envelope must be clearly marked with the project reference code: ERC0168.

Except in circumstances where the submission has been received electronically, upon receipt of the hardcopy submission the Commission will issue a confirmation letter.

If this confirmation letter is not received within 3 business days, it is the submitter's responsibility to ensure successful delivery of the submission has occurred.

40 This guideline is available on the Commission's website.

Abbreviations

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
Commission	See AEMC
LRMC	long run marginal cost
NEL	National Electricity Law
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company
NEO	National Electricity Objective
NER	National Electricity Rules
NMAS	Non-Market Ancillary Services
NSCAS	Network Support Control Ancillary Services
NSP	Network Service Provider
Rules	See NER
SRAS	System Restart Ancillary Services
SRMC	short run marginal cost
SRS	System Restart Standard
TNSP	Transmission Network Service Provider

A System Restart Standard

System Restart Standard

1. Introduction

This System Restart Standard (standard) was determined by the Reliability Panel (Panel) in accordance with clauses 8.8.1(a)(1a) and 8.8.3 of the National Electricity Rules (Rules). The purpose of this standard is to provide guidance and set a benchmark to assist the Australian Energy Market Operator (AEMO) in procuring sufficient system restart ancillary services (SRAS) to meet the requirements of the National Electricity Market (NEM). This standard is effective from 1 August 2013.

2. Requirements of the standard

The requirements of the standard are specified under clause 8.8.3(aa) of the Rules, which states that (italicised terms are defined under the Rules):

> "The *system restart standard* must:
>
> 1. be consistent with the *SRAS* objective referred to in clause 3.11.4A(a);
> 2. apply equally across all *regions*, unless the *Reliability Panel* varies the *system restart standard* between *electrical sub-networks* to the extent necessary:
>
> (a) to reflect any technical system limitations or requirements; or
>
> (b) if the benefits of adopting the *system restart standard* would be outweighed by the costs of implementing such a standard;
>
> 3. identify the maximum amount of time within which *system restart ancillary services* are required to restore *supply* to a specified level;
> 4. include guidelines on the required reliability of *primary restart services* and *secondary restart services*;
> 5. include guidelines to be followed by AEMO in determining *electrical sub-networks*, including the determination of the appropriate number of *electrical sub-networks* and the characteristics required within an *electrical sub-network* (such as the amount of generation or *load*, or electrical distance between *generation centres*, within an *electrical sub-network*);
> 6. include guidelines specifying the diversity and strategic locations required of *primary restart services* and *secondary restart services*."

In making its determination of the standard, the Panel detailed the factors considered in its decision in AEMC Reliability Panel 2012, System Restart Standard, Final Determination, 12 April 2012. Consistency of the standard with the SRAS objective is explained in this report and the final decision with respect to the other requirements under clause 8.8.3(aa) are outlined below.

3. Applicability of the standard in electrical sub-networks

This standard shall apply equally across all regions and electrical sub-networks.

4. Restoration timeframe

For each electrical sub-network, AEMO shall procure SRAS sufficient to:

- re-supply and energise the auxiliaries of power stations within 1.5 hours of a major supply disruption occurring to provide sufficient capacity to meet 40 per cent of peak demand in that sub-network; and
- restore generation and transmission such that 40 per cent of peak demand in that sub-network could be supplied within four hours of a major supply disruption occurring.

The restoration timeframe represents the 'target timeframe' to be used by AEMO in the procurement process. It is not a specification of any operational requirement that should be achieved in the event of a black system condition.

5. Reliability of services

Primary restart services shall have a reliability of 90 per cent.

Secondary restart services shall have a reliability of 60 per cent.

Services may be considered in combination to meet a higher level of reliability than the individual service.

AEMO will determine the manner in which reliability will be assessed, and clarify the provisions for combining services, in accordance with the requirements under the Rules.

6. Guidelines for the determination of electrical sub-networks

AEMO shall determine the boundaries for electrical sub-networks without limitation by taking into account the following factors:

- the number and strength of transmission corridors connecting an area to the remainder of the power system;
- the electrical distance (length of transmission lines) between generation centres;
- the quantity of generation in an area, which should be in the order of 1000MW or more; and
- the quantity of load in an area, which should be in the order of 1000MW or more.

7. Guidelines for specifying the diversity and strategic location of services

There shall be diversity in the SRAS procured by AEMO to provide an appropriate level of independence between the services procured. AEMO shall consider diversity of the services by taking into account the following guidelines:

- Electrical - diversity in the electrical characteristics shall be considered particularly with respect to whether there would be a single point of electrical or physical failure;

- Technological - diversity in technologies shall be considered to minimise the reliance of services on a common technological attribute;
- Geographical - diversity in geography shall be considered to minimise the potential impact of geographical events such as natural disasters; and
- Fuel - diversity in the type of fuel utilised by services shall be considered to minimise the reliance on one particular fuel source.