

Our Ref: D19/49569
Contact Officer: Chris Ridings
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Date: 6 September 2019

Mr John Pierce
Chair - Australian Energy Market Commission
PO Box A2449
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Dear Mr Pierce

Request for rule change – system restart ancillary services

The Australian Energy Regulator (**AER**) is pleased to submit the attached rule change proposals to the Australian Energy Market Commission (**AEMC**). Our package of three rule change proposals aims to address issues we identified with the system restart ancillary services (**SRAS**) framework.

On 28 September 2016 South Australia experienced a state-wide blackout, known as a Black System Event. In December 2018 the AER released the Black System Event Compliance Report (**Compliance Report**) which was a review of compliance of various National Electricity Market (**NEM**) participants against the National Electricity Rules (**the Rules**) in the pre-event, system restoration and market suspension periods surrounding the Black System Event.

The Compliance Report highlighted the failure of SRAS to operate as planned, which ultimately delayed restoration of the power system. Our investigation determined that there were several issues with the SRAS framework, ultimately related to a lack of clarity and transparency surrounding the roles and responsibilities of participants in preparing for, and actioning system restart.

We do not consider that these issues contributed to the sequence of events leading to the Black System Event, nor did we find any non-compliance of participants against the Rules. However, we do consider that the failure of SRAS to operate as planned represents a clear shortcoming in achieving the National Electricity Objective (**NEO**), with respect to reliability and security of supply of electricity. Our package of three rule change proposals aim to address the shortcomings we identified, by more clearly defining the roles and responsibilities of participants in the system restart process, while also broadening these to cover both the preparation for, and implementation of, the system restart plan.

In developing this package of rule change proposals, we have been cognisant of the contestable nature of SRAS services and the risk of inefficiencies from too much prescription in the Rules. However, we consider that SRAS is a vital service and as such it is important to enshrine the roles and responsibilities of participants in the Rules so these are clear, considered and resourced appropriately.

If you would like to discuss any aspects of our proposal, please feel free to contact Chris Ridings on 08 8213 3487 or Joanna Gall on 08 8213 3461.

Yours sincerely,



6/9/19

Mark Feather
General Manager, Policy & Performance
Australian Energy Regulator



RULE CHANGE PROPOSAL

SRAS Procedures

Request submission

September 2019

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Name and address of rule change proponent

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AER contact: Chris Ridings, 08 8213 3487

1 Introduction

1.1 Request for rule change

The Australian Energy Regulator (**AER**) requests the Australian Energy Market Commission (**AEMC**) to make changes to Chapter 3 and Chapter 4 of the National Electricity Rules (**NER**).

This package of three rule change proposals is intended to provide greater clarity and transparency about roles and responsibilities of parties involved with responding to a major supply disruption, particularly including System Restart Ancillary Services (**SRAS**). It will also result in more rigorous process approval for each step of the system restart process.

In our view successful delivery of SRAS requires the effective coordination between multiple parties. As such, rigorous processes and a clear understanding of roles and responsibilities are a necessary foundation of the SRAS process. Given the critical nature of SRAS, we consider that changes to the rules are required to strengthen the utilisation of this service.

Firstly, we propose a rule change to more clearly define the overarching obligations on the Australian Energy Market Operator (**AEMO**) and Network Service Providers (**NSPs**) with regards to system restart. This rule change expands both AEMO's power system security responsibilities and NSP involvement in the SRAS process beyond procurement through amendments to Chapter 4.

Secondly, we consider that a key issue surrounding the SRAS framework is a lack of process for ensuring that any testing is compatible with, and sufficiently representative of, the process to be used in response to a major supply disruption. As such, we propose an amendment to clause 3.11.7(d) of the NER to specify that AEMO's SRAS Guideline set out that testing of SRAS is to include a comparison with the arrangements planned to be utilised during a major supply disruption.

Finally, we propose an amendment to clause 4.8.12 to require AEMO and NSPs for each region to jointly prepare written communication protocols to facilitate the exchange of information between all relevant parties both in preparation for, and during a major supply disruption. We also propose that these protocols are binding.

We note that AEMO have submitted a suite of rule change proposals also related to SRAS. We have discussed our respective rule change proposals with AEMO and consider they have a different focus and aim and that any overlap would likely be complimentary.

1.2 Background to the rule change request

We are submitting these three rule change proposals following on from conclusions detailed in our Compliance Report on stages 1, 3 and 4 of the black system event in South Australia on 28 September 2016 (**Black System Event**).¹ This Report was a review of compliance by various National Electricity Market (**NEM**) participants against the obligations set out in the NER regarding the operation of the South Australia region of the NEM in the period surrounding the Black System Event. Specifically, the Compliance Report looked at the pre-event period, system restoration and market suspension. The Compliance Report did not comment on the actual event stage—being the key events that triggered the Black System Event. Similarly, this rule change proposal is focussed only on issues identified as part of the restoration of the power system.

Following a major supply disruption to the power system, generators are required to restart the system. SRAS requires generators that are able to restart themselves independently of the electricity grid. SRAS can then be used to energise and support other generators to restart, which then work in conjunction to gradually restore power to discrete load blocks while maintaining the voltage and frequency of the grid. AEMO is responsible for contracting sufficient SRAS in accordance with the System Restart Standard² for each electrical sub-network of the NEM. The SRAS contract requires the generator to deliver a certain amount of output to a defined point in the network, while maintaining this capability for a certain amount of time in a year.

At the time of the Black System Event, Origin was contracted to provide SRAS in South Australia utilising Quarantine Power Station (**QPS**). Additionally, the South Australian Transmission Network Service Provider (**TNSP**), ElectraNet, was required to develop a System Restart System Switching Program (**SSP**) which would facilitate the switching necessary for QPS to attempt system restart. As part of our investigation, we found that the System Restart SSP was different to the switching process used during annual SRAS testing. ElectraNet's switching arrangement for QPS in its System Restart SSP used a 'hard' start, however the switching arrangement used in QPS's SRAS tests involved a 'soft' start. When system restart was attempted with QPS, the use of a hard start was incompatible with the generator setup and caused the generator to trip, ultimately rendering it unavailable. Origin and AEMO did not know that the System Restart SSP had a different switching arrangement for QPS to that set out in the SRAS test SSP.

Box 1: Description of events leading to QPS being unavailable for SRAS

At 16:32 hrs, AEMO activated the SRAS Agreement with Origin to energise QPS5 and requested that QPS1 come on at minimum load at 16:37 hrs. At 16:46 hrs, ElectraNet closed the final circuit breaker in the sequence connecting QPS1 to QPS5. The circuit breaker tripped open. ElectraNet attempted to reclose the circuit breaker five times unsuccessfully. The stored energy for operating the circuit breaker was depleted on the third attempt, requiring manual intervention to close the circuit breaker. Due to the alternate interconnector path being re-instated, and inclement weather, field crews did not attend the site to reclose the open circuit

¹ AER, *The Black System Event Compliance Report*, December 2018. Full report can be accessed here: <https://www.aer.gov.au/wholesale-markets/compliance-reporting/investigation-report-into-south-australias-2016-state-wide-blackout>

² The System Restart Standard provides the benchmark for the requirements and procurement of SRAS.

breaker until 11:00 hrs on 29 September 2016. Hence the 120 MW of SRAS contracted between AEMO and Origin was not available from QPS5.

The switching sequence used in the System Restart SSP on 28 September 2016 differed from that used during the most recent QPS5 SRAS test on 21 May 2016. Origin scheduled its annual QPS5 SRAS testing for 21 May 2016, and organised ElectraNet to generate the SRAS test SSP for the test. The Origin engineering report submitted to AEMO for approval afterwards shows that the switching sequence used during the test first created a pathway between QPS1 and QPS5 by closing circuit breakers and then started QPS1 gradually. This sequence resulted in a gradual increase in current or a “soft start” of QPS5 ancillary plant. Ultimately this allowed QPS5 to start and begin generating. Origin reported that the relevant protection settings had been in place since 2009 when QPS5 SRAS was first contracted. Origin stated, and ElectraNet confirmed, that the QPS5 SRAS test SSP had not materially changed between those developed in 2009 and those used in May 2016.

We do not consider that the deficiencies outlined here contributed to the black out and acknowledge several rule changes and reviews of AEMO guidelines and procedures have been undertaken since the Black System Event, including AEMO’s new SRAS Guideline³ and pro forma SRAS Agreement.⁴ It is also important to note that while the deficiencies did not affect AEMO’s ability to implement the system restart plan, they did have a material effect on Origin’s inability to deliver SRAS. This ultimately delayed AEMO giving clearance to restart South Australian generators by one hour. Further details of the Black System Event in relation to the system restart can be found in our compliance report.⁵

We consider that the failure of SRAS to be implemented as planned on the day can be narrowed down to three distinct issues:

- 1) A lack of clarity surrounding the roles and responsibilities of parties in the system restart process. While TNSPs play a crucial role in the planning and delivery of SRAS, their obligations in the NER are limited to assisting a prospective SRAS provider in the procurement phase.
- 2) A lack of process for ensuring that the procedures used in SRAS testing are sufficiently representative of the procedures to be used in actual deployment of SRAS. The switching procedure used to attempt system restoration on the day of the Black System Event was different to the procedure used in SRAS testing—and was ultimately incompatible with the SRAS generator.
- 3) Limited scope and clarity of the communication protocols to be used in response to a major supply disruption. ElectraNet and AEMO did not have a shared understanding as to which documents constituted the communication protocols to be used on the day. Furthermore, the communication protocols are limited in scope to the response to a major supply disruption, and do not cover the preparation of such a response.

Our rule change proposals seek to address these three issues that were identified in our compliance report into the Black System Event.

³ See: https://www.aemo.com.au/-/media/Files/Stakeholder_Consultation/Consultations/Electricity_Consultations/2017/SRAS/Final/SRAS-Guideline-2017.pdf.

⁴ See: <https://www.aemo.com.au/-/media/.../SRAS-Agreement-Proforma-2018-Final.pdf>.

⁵ AER, *Compliance Report*, p.108

2 Statement of Issues

2.1 Issue 1: Role of NSPs in system restart

2.1.1 NSP involvement in system restart

As described in our Compliance Report, extensive planning and testing is required to be undertaken years in advance in order for a system restoration to be carried out as efficiently as possible in the event of a major supply disruption.

To support this outcome, the NER mandates a series of preparatory steps to be undertaken. These cover the adequate procurement of SRAS, the development of supporting documents such as the System Restart Plan (which details restoration options), and the development of communication protocols relating to the roles of parties in the implementation of the System Restart Plan.

TNSPs play a critical role in the effective delivery of SRAS given that they are responsible for:

- Providing information and assistance to AEMO and prospective SRAS providers during the procurement stage. The NER require an NSP to negotiate in good faith with prospective SRAS providers in respect to identifying and resolving issues that would prevent the effective delivery of SRAS.⁶
- Participating in annual SRAS testing with AEMO and contracted SRAS providers. SRAS is used to energise a nominated delivery point which forms a connection to a transmission network. Given that testing of SRAS typically requires disconnecting the generating unit from the network in order to simulate black system conditions, the TNSP is required to assist in planning and operations on the day.
- Assisting AEMO in the development of the System Restart Plan. While this role does not include formal approval of the System Restart Plan, it does necessitate the TNSP being involved in the draft process in order to assess its own ability to execute the plan.
- Operationalising the System Restart Plan by:
 - converting each of the system restoration paths into detailed System Switching Programs in readiness for any major supply disruption;
 - in the event of a major supply disruption, assisting AEMO to identify the potential damage to the transmission network and optimal restoration strategies. The TNSP is then responsible for implementing the steps required to restore the power system, and maintain system security.

In our view, the central role of the TNSP through the procurement, verification of capability, and effective delivery of SRAS in the event of a major supply disruption is not reflected in the NER. There is only one explicit obligation imposed on TNSPs regarding SRAS in the NER, clause 3.11.9(i). This requires an NSP to provide

⁶ NER, 3.11.9(i)(2)

information to AEMO required to assess the capability of SRAS to meet the System Restart Standard; to “participate in, or facilitate, testing of” proposed SRAS; and to assist a prospective tenderer of SRAS to identify and resolve issues pertinent to the delivery of SRAS.

This clause does not extend the obligation on an NSP to support the effective delivery of SRAS that is already the subject of an ancillary services agreement, or during a major supply disruption to meet the System Restart Standard. We note that the issue of NSP involvement in black system testing is the subject of a separate rule change proposal initiated by AEMO.

2.1.2 Findings of compliance investigation

Clause 4.3.4(a) in the NER is a broad ranging obligation requiring NSPs to assist and cooperate with AEMO to discharge AEMO’s power system security responsibilities. As part of our investigation into the Black System Event, our compliance review found that ElectraNet took satisfactory steps in cooperating and assisting AEMO, namely:

- translating the higher level restart test procedures into specific switching steps in accordance with the System Restart Plan
- participating in SRAS testing in line with its role as the TNSP
- developing and disseminating the System Restart SSP, and
- following the System Restart Plan on the day of the Black System Event.

While we found that there was no instances of non-compliance with these obligations, we do consider that these obligations were not sufficient to prevent the issues observed. Our investigation and report found that the NER framework does not create a comprehensive, seamless legislative obligation on NSPs which mirrors their involvement in SRAS delivery.

In particular, our investigation found the following evidence for ElectraNet’s narrow interpretation of its role as TNSP with regards to SRAS:

- ElectraNet did not consider that its role, as TNSP, was to consider the impact of the System Restart SSP on QPS’s SRAS capability. It understood that AEMO would be responsible for formally providing the relevant System Restart SSP to Origin given that the SRAS Agreement is between AEMO and Origin. As such it assumed Origin would assess the System Restart SSP and any related impact on their system.
- ElectraNet considered its role was to develop the detailed System Restart SSPs from each of AEMO’s high-level Restoration Options. These are created, reviewed, checked and approved internally, and AEMO and other third parties had no role in the development of the detailed switching programs. These System Restart SSPs were then provided to AEMO for verification and approval. AEMO considered that the TNSPs have the relevant expertise in this area—which is not duplicated by AEMO—and as such it did not perform a detailed review, or approve the SSPs.

AEMO updated its SRAS Guideline in 2017 to set out its expectations as to the role that the TNSPs will play in the procurement and testing of SRAS. These include:

- Providing verification of technical information provided by a prospective SRAS Provider in relation to the provision of a particular SRAS as part of the procurement process.

- We note that while there is an explicit obligation on AEMO to consult with TNSPs per NER clause 3.11.7(b) there is no mirror obligation on how TNSPs are to assist AEMO as part of this process.
- Requiring each party involved in the delivery of SRAS to provide confirmation that there is documented arrangements in place to ensure SRAS can energise the delivery point and to participate in testing.
- Test procedures for SRAS replicate that used following a major supply disruption and where different, the test procedures must identify these differences and specify what additional steps are required to provide the SRAS following a major supply disruption—including evidence that those steps can be successfully performed with no adverse impact on the delivery of SRAS.

We note, however, that AEMO’s SRAS Guidelines are not binding. Prospective and contracted SRAS Providers have a commercial incentive to comply with the Guideline. TNSPs, however, are not counterparties to SRAS agreements.

Furthermore, our investigation highlighted fundamental differences of opinion between AEMO and ElectraNet as to what ElectraNet was obligated to do pursuant to the 2014 SRAS Guideline. AEMO considered that as SRAS testing typically involves disconnection from the network of the generating unit to simulate black system conditions, that the TNSP would necessarily be involved in planning and operations. However, ElectraNet considered that it was only required to develop an SSP to enable the SRAS testing and that other actions—such as developing or endorsing the test procedure—was outside its role as TNSP. This was notwithstanding that the wording of the 2014 SRAS Guideline was, in the AER’s opinion, clear and unambiguous.⁷ These differences of opinion did not ultimately affect ElectraNet’s participation in SRAS testing, however we consider it highlights the potential risk of NSPs not being required to participate in SRAS operations where necessary. This lack of specific knowledge and technical expertise could lead to impediments to system restart not being discovered in advance.

2.1.3 Issues surrounding the SRAS framework

While the provision of SRAS is a commercial service, the NER provide a framework regarding how SRAS is to be procured and requires SRAS Providers to comply with their agreement. A reason why the NER do not place obligations on NSPs may be because it was contemplated that SRAS Providers would enter in to formal arrangements with the NSP to support the SRAS Provider in the successful delivery of SRAS. While these arrangements were not observed in our investigation, we note that the 2017 SRAS Guideline now requires these documented arrangements.

While the amendments to the SRAS Guideline go a material way to addressing the identified issues, we consider that rules which explicitly set out the roles and responsibilities of all relevant parties in delivering SRAS are appropriate, given the critical nature of the SRAS service.

⁷ “Where an SRAS Test is to be conducted in accordance with an *ancillary services agreement*, the test must be conducted in accordance with a procedure provided by the SRAS Provider and approved by AEMO. Where applicable the relevant NSP and the owner of the SRAS Equipment (if not the SRAS Provider) must endorse the test procedure prior to AEMO’s approval.”

AEMO, SRAS Guideline (5 September 2014), p. 11

While some of the services provided by a TNSP benefit the contracted SRAS Provider, we consider that aspects of those services (such as the preparatory steps for operationalising system restoration paths and implementing these in the event of a major supply disruption) are a core part of a TNSP's regulated responsibilities. Seamless provision of all the supporting services a TNSP provides to ensure the successful procurement, testing and delivery of SRAS benefits all energy users, generators, and AEMO, and compartmentalising these services runs the risk that there is not a cohesive approach taken. We consider that the obligations of a NSP should not just apply to "prospective" SRAS Providers—as is currently defined in the NER—but to support the entire system restart process, including the planning of, and testing for, system restart.

Strengthening the applicability of the SRAS process to include procurement, testing, and provision of SRAS to NSPs will ensure that NSPs will prioritise and resource these roles appropriately. It is pertinent to note that currently the relevant SRAS obligations placed on NSPs in the NER are largely carried out by TNSPs. However given the continued uptake of distributed energy resources, it is likely that distribution network services providers (**DNSPs**) will have an increasing role to play in system restart and thus their obligations as NSPs will become more prominent.

Ensuring that the overarching obligations for AEMO are explicitly included in the NER provides further clarity to all participants as to both AEMO's responsibilities and the scope of processes to be considered in preparation for a major supply disruption. In this way the proposed rule change is complimentary to the existing obligation for NSPs to use reasonable endeavours to exercise its rights and obligations to assist AEMO in the proper discharge of its power system security responsibilities as given in clause 4.3.4(a).

2.2 Issue 2: SRAS testing

SRAS are critical services to have in place to best ensure the power system can be restored in line with the System Restart Standard. Major system disruptions are rare events; there have only been two in the twenty year history of the NEM. In order to ensure contracted SRAS providers can deliver these services when called upon, and that there is operational familiarity and preparedness with the steps required by the three central parties (the NSP, the SRAS Provider and AEMO), the NER recognise the need for regular SRAS testing.

The NER mandates that the operational requirements for such testing (such as frequency, testing procedures and documentation requirements) are to be set out in the SRAS Guideline prepared by AEMO. Clause 3.11.7(d) of the NER requires the SRAS Guideline to include information regarding the technical requirements of SRAS, and processes for the procurement of SRAS.

Both AEMO and the AER found that a key contributing factor to QPS being unable to deliver SRAS on the day was the incompatibility of the System Restart SSP with QPS protection settings. ElectraNet was the only party that knew there was a difference but had not realised its significance. In our review, we accepted ElectraNet's assessment that the soft start requirement of QPS may be uncommon, however, we determined that ElectraNet was in the unique position to be able to identify the discrepancy between the System Restart SSP and SRAS test SSP, and raise the issue with AEMO and/or Origin.

AEMO has materially amended the SRAS Guideline to address this situation. The amendments include:

- a requirement for formal approvals by the TNSP and third party equipment owners (which can include DNSPs and other generators) of test procedures that would form part of the evidence of satisfactory completion of the SRAS test requirements, and
- that the test procedure should set out any differences between the SRAS test procedure and the procedure that would be used in a major supply disruption—and the basis for the difference.

We consider that clause 3.11.7(d) should be amended to explicitly require the SRAS Guidelines to mandate that SRAS testing include an element of comparison between test arrangements and those planned to be used in the event of a major supply disruption. While we acknowledge that the arrangements which existed at QPS5 may be somewhat unusual—and have subsequently been built out—we nevertheless consider that processes could be strengthened so that any differences or unusual configurations are identified and addressed in testing and are made known to the relevant participants, including AEMO. We consider that incorporating this obligation expressly in the NER will re-enforce the significance of this aspect of the SRAS Guideline and mitigate the risk of similar incidents reoccurring.

2.3 Issue 3: Communication protocols

A successful system restart relies on the effective coordination between multiple parties. In a traditional restart, AEMO, the TNSP and the SRAS Provider are central to beginning system restoration; other generators, market customers and distributors then play critical roles in assisting AEMO and the TNSP to build the system back to full capability as more parts of the network, load blocks and generation are added.

Effective communication plays a key role in a successful system restoration in order to provide a clear understanding of the individual roles and responsibilities of each of the parties. This includes the drafting, disseminating and/or verification of information which may be critical to system restoration.

Our investigation identified that the lack of clarity surrounding roles and responsibilities—including in relation to the dissemination and verification of information—was the main contributing factor to the failure of QPS5 to deliver SRAS services on the day of the Black System Event. This failure occurred over the preceding years. We note that the communication and coordination during the system restoration itself worked well, with AEMO and South Australian participants working cohesively together to restore power and build the system back to full capability.

Clause 4.8.12(j) sets out the obligations on AEMO and NSPs to develop communication protocols relevant to the roles played by parties in the implementation of the system restart plan. In assessing compliance with 4.8.12(j) with respect to the communication between AEMO and ElectraNet in response to the Black System Event, we found that:

- ElectraNet did not have a shared understanding with AEMO as to what constituted the 4.8.12(j) communication protocols. While both parties maintained communication during the System Restoration period, there was no single specific written document detailing intended communication between parties, nor did ElectraNet assess that the NER required such a document.
- AEMO identified the protocols to be a combination of:
 - “normal communication as defined in SO_OP_3715: Power System Security Guidelines”, and

- “specific communication responsibilities and protocols during system restart are defined in the System Restart Overview”.

The SO_OP_3715: Power System Security Guidelines sets out the roles and responsibilities of AEMO and other participants in relation to power system security issues, but contains no communication protocols specifically to facilitate the exchange of information related to the implementation of the System Restart Plan. The System Restart Overview sets out the respective responsibilities of participants relating to the activation of a System Restart Plan. These cover high level responsibilities during a black system event and the steps that AEMO must undertake to effectively communicate with participants.

Ultimately our investigation found no contravention. However we determined the wording of 4.8.12(j) was wanting in a number of areas:

- There is no obligation that the protocols be in writing. While there is an advantage of flexibility with non-written communication protocols, this comes at the price of certainty and clarity.
- The purpose of the communication protocols is to facilitate the exchange of all relevant information regarding the roles of participants during the implementation of the System Restart Plan. We found this to be too narrow. We consider it should also encompass the exchange of information in the preparation of the System Restart Plan. For SRAS to be effective, participants need to understand their roles ahead of time, including what information they have to provide to AEMO and NSPs and, in turn, what AEMO and NSPs have to provide participants.
- The protocols are only limited to AEMO and NSPs—any other parties necessary to system restart may have crucial information that is not shared in a timely and efficient manner.
- The protocols are not binding—AEMO and NSPs are not obligated to follow them, unless contained in other binding documents (such as the Power System Security Guidelines).

When considering the intent and application of clause 4.8.12(j), we had regard to the history of the clause. The requirement for communication protocols was introduced into the NER following a proposal by NEMMCO. In its proposal, NEMMCO submitted:

As NSPs will be undertaking physical switching in response to NEMMCO instructions it is vital that likely responses to, and impact of, possible switching combinations is well understood.⁸

We consider that improvements to the communication protocols would assist all participants involved in a system restart. Any such changes should fully reflect participants’ obligations and align with our other findings and recommendations that a NSP should be required to facilitate ongoing SRAS testing.

3 How the proposals address the issues

⁸ NEMMCO, Review of system restart ancillary service arrangements—Final Report Volume 1 (Recommended Arrangements) 8 July 2004, p. 47. <https://www.aemc.gov.au/sites/default/files/content/87e0ca46-7959-42d9-bac6-954f0ed9d554/NEMMCO-Final-Report-Vol-1.pdf>.

3.1 Proposed rules

This draft is based on version 124 of the National Electricity Rules. Proposed additions are shown underlined and deletions in ~~strikeout~~ format.

3.1.1 Role of NSPs in system restart

4.3.1 Responsibility of AEMO for power system security

The *AEMO power system security responsibilities* are:

.....

- (p) to procure adequate *system restart ancillary services* in accordance with clause 3.11.9 to enable *AEMO* to co-ordinate a response to a *major supply disruption*;
- (pa) to coordinate the provision of *emergency frequency control schemes* by *Network Service Providers* and to determine the settings and intended sequence of response by those schemes;
- (paa) to manage and coordinate any activities reasonably required to prepare for and implement an effective response to a *major supply disruption*. Such activities include, but are not limited to:
 - (1) overseeing the testing of *system restart ancillary services* or any other equipment or process *AEMO* reasonably requires to be tested;
 - (2) managing and coordinating the effective restoration of *supply*, including the deployment of *system restart ancillary services*.

....

4.3.4 Network Service Providers

- (a) Each *Network Service Provider* must use reasonable endeavours to exercise its rights and obligations in relation to its *networks* so as to co-operate with and assist *AEMO* in the proper discharge of the *AEMO power system security responsibilities*.
- (a1) Each *Network Service Provider* must:
 - use reasonable endeavours to assist *AEMO* in the procurement of *system restart ancillary services*.
 - use reasonable endeavours to facilitate and participate in the testing of *system restart ancillary services* in accordance with the *SRAS Guideline*;
 - and
 - take all reasonable steps to facilitate the effective deployment of *system restart ancillary services*.

.....

3.1.2 SRAS testing

3.11.7 Guidelines and objectives for acquisition of system restart ancillary services by AEMO

(d) The *SRAS Guideline* must include:

...

(4) a process for determining the number and location of *system restart ancillary services* required to be procured for each *electrical sub-network* consistent with the *system restart standard*;

(4a) a process for comparing the arrangements used in the testing of *system restart ancillary services* with those planned to be used in the deployment of *system restart ancillary services* following a *major supply disruption*;

...

3.1.3 Communication protocols

4.8.12 System restart plan and local black system procedures

...

(j) *AEMO* and *Network Service Providers* must jointly develop written communication protocols to facilitate the exchange of all information relevant to the roles played by *AEMO*, *Network Service Providers*, *Generators* and *Customers* in the implementation of the *system restart plan*.

(k) The written communication protocols prepared under clause 4.8.12(j) must:

(1) specify the categories of information required to, and the timing and process by which this information will, be exchanged between:

(i) *AEMO* and *Network Service Providers*, *SRAS Providers*, *Generators* and *Customers*, and other *Registered Participants* as relevant, in order for *AEMO* to prepare and implement the *system restart plan* and for *AEMO* and the relevant parties to give effect to the *system restart plan*;

(ii) *Transmission Network Service Providers* and *Distribution Network Service Providers* and *Customers* connected to the *Transmission Network Service Provider's transmission network* regarding the nature of connection point and *load characteristics*;

(iii) *Network Service Providers* and *Generators* regarding connection point characteristics and the nature of switching that may need to be conducted during the process of system restoration;

- (iv) Distribution Network Service Providers and parties connected to the Distribution Network Service Provider's distribution network regarding the nature of connection point and load characteristics.
- (2) where the communication protocols prepared under clause 4.8.12(i) are constituted of a number of documents, be clearly identifiable as the communication protocols to be utilised during the restoration of the power system after a major supply disruption,
- (3) where the communication protocols incorporate procedures or protocols in other documents, the document must be clearly identified and referenced and the circumstances under which those procedures or protocols are to be used in a major supply disruption must be clearly identified;
- (4) require that revisions or updates of the protocols are jointly developed and are documented.
- (l) AEMO and Network Service Providers must take all reasonable steps to comply with the written communication protocols developed pursuant to clause 4.8.12(j).
- (m) Any person involved in system restart must comply with a reasonable request for information made by AEMO or a Network Service Provider pursuant to the written communication protocols prepared pursuant to clause 4.8.12(j).

3.2 How the proposed rule addresses the issues

3.2.1 Role of NSPs in system restart

Issue	Proposal
NSP role in supporting system restart following a major supply disruption limited to supporting a prospective SRAS provider.	<p>Clause 4.3.4(a1) provides obligations on NSPs to use reasonable endeavours to assist AEMO in the preparatory steps required to ensure SRAS is capable of delivering as required.</p> <p>This obligation covers both the preparation of SRAS as well as delivery on the day.</p>
Lack of clarity surrounding roles and responsibilities in response to a major supply disruption.	Clause 4.3.1(paa) more clearly defines AEMO's role, and clause 4.3.4(a1) defines the NSPs role, in both the preparation and on the day activities in response to a major supply disruption.

Clause 4.3.1(paa) is intended to define AEMO's role and responsibilities in planning for, and carrying out activities in response to, a major supply disruption beyond the

procurement of SRAS (as already enshrined in clause 4.3.1(p)). Sub-clauses 1 and 2 are included to highlight what we consider to be key steps that need to be carried out to ensure an efficient response to a major supply disruption, while acknowledging AEMO’s discretion in determining any additional steps that are required.

Clause 4.3.4(a1) recognises the crucial role that NSPs play in preparing and carrying out the system restart plan. While NSPs have broad obligations to assist AEMO set out in the NER (and subordinate documents) we consider that clause 4.3.4(a1) is necessary to set a clear standard as to what is expected of NSPs with regard to system restart, in particular using their expertise to assist AEMO where required. This clause therefore extends the responsibility of NSPs beyond assisting a prospective SRAS provider to assisting in all stages of system restart where required.

3.2.2 SRAS testing

Issue	Proposal
No formalised process for identifying and assessing the impacts of any discrepancies between the procedure to be used in the testing of SRAS and the procedure to be used in the deployment of SRAS in response to a major supply disruption.	Mandating a formalised process for comparing testing procedures with deployment procedures will ensure that any discrepancies will not pose a barrier for SRAS deployment in response to a major supply disruption.

While we acknowledge that the updated SRAS Guideline contains provisions for comparing the procedures used in testing with those used in response to a major supply disruption, we consider that any misalignment between the two represents a significant barrier to the restoration of the power system and thus an impediment to achieving the NEO. Enshrining this obligation in the NER highlights the importance of this step being considered in the planning for a response to a major supply disruption.

3.2.3 Communication protocols

Issue	Proposal
The lack of requirement for communication protocols to be written decreases transparency and clarity.	Clause 4.8.12(j) now mandates that all communication protocols will be in written form. This increases the clarity of communication between all relevant parties.
Communication protocols are only defined between AEMO and NSPs leading to a lack of transparency regarding the dissemination of relevant information to the necessary parties, as highlighted by the misunderstanding between AEMO and ElectraNet as to the role of Origin in	4.8.12(k) increases the clarity surrounding the type and timing of information to be disclosed between all relevant parties. 4.8.12(l) ensures that AEMO and NSPs are bound by the communication protocols (where reasonable to do so) to

assessing the SSP.	<p>ensure the timely and efficient dissemination of all relevant information.</p> <p>4.8.12(m) ensures that AEMO and NSPs have access to any relevant information required to assist in system restoration.</p>
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While we acknowledge the advantage of flexibility with non-written protocols, we consider that this reduces the certainty and clarity for all participants involved in delivering SRAS. Clause 4.8.12(j) mandates that all communication protocols must be written which allows for the thorough review of communication protocols (if required) while providing certainty as to the information that needs to be exchanged.

Clause 4.8.12(k) is intended to ensure that all relevant parties are clear on the protocols that need to be followed in preparation for, and in response to, a major supply disruption. While our investigation found that these protocols did exist, in practice these were spread across various documents which lead to a lack of shared understanding between AEMO and ElectraNet as to what was contained in the protocols.

In drafting our proposed rules, we considered that it was the ultimate responsibility of both AEMO and the NSPs to facilitate the exchange of all information relevant to the system restart. Therefore while other participants are not considered in the development of the communication protocols, 4.8.12(m) ensures that there is an element binding them to the exchange of all relevant information as specified in the communication protocols.

We acknowledge that increasing the scope of these protocols may in practice move them beyond simply communication and consideration could be given to re-framing them as information sharing and responsibilities protocols. Additionally, these expanded obligations will likely involve confidential information, and the protocols will need to consider how such information is exchanged.

We consider that, should the AEMC progress this rule change proposal, consideration be given to making these rule changes civil penalty provisions.

4 How the proposal contributes to the National Electricity Objective

The National Electricity Objective (**NEO**) 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:

- price, quality, safety and reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system.”

The rule changes will contribute to the achievement of the NEO by reinforcing provisions that ensure reliability of the electricity system.

Our investigation into the Black System Event revealed a number of issues relating to clarity around roles and responsibilities to enable system restoration. In particular, the lack of communication and procedures for checking the System Restart SSP resulted in QPS being unable to deliver SRAS, which ultimately delayed AEMO giving clearance to restart South Australian generators by one hour.

Formal clarification of roles and responsibilities, along with more stringent written communication protocols, will aid participants in undertaking the system restart process without confusion or delays. We consider this will, in turn, minimise the length of time—and the associated costs—that energy customers are without supply.

5 Expected benefits and costs associated with the proposed rule

5.1 Role of NSPs in system restart

A key benefit arising from enshrining these obligations in the NER is that all parties involved with system restart will be clear on their roles and responsibilities and can prioritise and resource their operations appropriately.

The rule change provides a single, clear point of reference as to the roles and responsibilities of AEMO and NSPs which will mitigate against future risks of misunderstandings which could then delay the provision of SRAS and timely system restoration.

Our investigation into the Black System Event found that a key missed opportunity for the adequate preparation of SRAS was ElectraNet assisting AEMO and Origin in understanding the impact of the System Restart SSP on QPS's ability to deliver SRAS. This rule change clarifies the standard of involvement required by all parties involved in system restart, while also providing a clear standard against which to test compliance should that be required.

This rule change should not constitute a significant change in the operations of NSPs or AEMO with regards to SRAS—rather it formalises the current practices and processes into enforceable obligations—and as such it is not anticipated that it will have a material impact on costs. Likewise, the rule change does not represent any reduction in flexibility of operations, but instead ensures that any responsibilities required for system restart are clear and binding.

5.2 SRAS testing

The benefit of this rule change will be that a process for comparing the test procedures with those used in actual deployment will be mandated in the NER, providing a clear standard for understanding any gap between testing and deployment procedures.

Given the updated SRAS Guideline, this rule change should not constitute a change in the operations of AEMO with regards to SRAS. However, enshrining these obligations into the NER will ensure that any discrepancies (between the System Restart SSP and SRAS test SSP) or unusual configurations are identified and addressed in testing and are made known to the relevant participants including AEMO. As such we consider there to be little to no additional costs associated with this rule change.

5.3 Communication protocols

This rule change will improve the clarity around responsibilities for communication while also requiring the use of written communication protocols which clearly set out the timing of and manner in which information will be exchanged between parties, both in preparation for, and during, a major supply disruption.

Our Compliance Report found that there was not a shared understanding between AEMO and ElectraNet as to what constituted the 4.8.12(j) communication protocols. This rule change increases the clarity of information exchange by ensuring the communication protocols are written, while also mandating that any documents constituting the communication protocols are clearly identified as such.

We also consider it beneficial to broaden the scope of the communication protocols to include all parties involved in the system restart process to ensure that AEMO has access to any relevant information when preparing for, and coordinating a response to, a major supply disruption. It will also ensure that NSPs have information they need in order to convert the system restart plan into actionable procedures which are consistent with the capabilities of plant connected to their network.

It is anticipated that this rule change will involve an initial period of activity to implement the new communication protocols which will then be incorporated into BAU processes. As such it is not expected that this rule change will result in any significant costs.

6 Stakeholder engagement

Following the conclusion of our investigation into the Black System Event, the AER sought feedback from AEMO on the nature of the rule changes considered in this proposal. AEMO considered that its revisions to the SRAS Guideline appropriately covered the observed issues and thus did not require mandating these matters as rule requirements.

During the preliminary drafting stage of this rule change proposal, we sought further feedback from AEMO regarding the content of the rule changes being considered. AEMO staff indicated support in principle for the proposed rule changes while noting that a high level of prescription in the Rules can often lead to inefficient outcomes. We have endeavoured to accommodate AEMO's feedback by proposing a set of high level obligations which provide flexibility in how those obligations are met in practice.

AEMO staff also raised concerns that our rule change proposal for the SRAS Guideline in clause 3.11.7(d) may be too specific and of limited value. In their opinion any rule change in this regard should set out requirements designed to identify unknown, variable, or interdependent parameters to improve the prospects of successful restart in a range of potential black system conditions. In this regard, we acknowledge the recent rule change proposal submitted by AEMO regarding extended testing of restart pathways. However, we note that our proposal has been framed in light of the findings from our Compliance Report, which specifically observed the disparity between the switching procedures used in testing to those planned to be used in the deployment of SRAS to be a material issue.