NEM Readiness Guide

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AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601
Tel: 1300 585 165

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1 Introduction

The AER has published the National Electricity Market (**NEM**) Readiness Guide (**the guide**) to outline to electricity market participants including loads, network service providers and wholesale demand response participants, but with a focus on Scheduled Generators, our expectations regarding compliance with a number of critical obligations under the National Electricity Rules (**Electricity Rules**).[1] The guide updates and replaces the AER's Summer Readiness Compliance Bulletin which had its genesis in assisting participants with operational challenges in summer. This guide recognises the criticality of participants maintaining a focus on compliance with their obligations all year round so they are prepared for, and can respond to, challenges as they arise. Participants should consider this guide as an important reminder of key obligations under the Electricity Rules. The AER separately provides guidance for Semi-Scheduled Generators in the Semi-Scheduled Generator Compliance Bulletin.[2]

The NEM is currently in transition. The generation mix is continuing to change, with an emergence of new technologies and demand response options, and the retirement of some traditional generation types. At the same time, new markets are being introduced and the Electricity Rules are being adapted to keep pace with new and changing requirements around the security and reliability of the power system. It is important for the industry as a whole to be cognisant of this transition and to act to ensure that any associated risks are managed.

What constitutes a risk to power system security is evolving over time and it is essential for participants to take a dynamic approach to assessing such risks. Participants should not view risks as occurring only under a fixed set of circumstances (for example, during peak periods as a result of supply-demand imbalances) and monitor only for those circumstances. Increasingly there have been threats to power system security at other times, such as during shoulder seasons and in periods of low operational demand due to high solar PV penetration, and for other reasons, such as fuel availability issues. Accordingly, the AER expects participants to take an adaptable approach to assessing and managing risk, taking into account numerous factors.

In June 2022, the NEM faced considerable challenges that led to periods of administered wholesale pricing and the first NEM-wide market suspension. This guide sets out examples of what the AER considers to be good practice, as informed by our review of that and other recent market events, as well as other general observations of the NEM. We strongly encourage participants to adopt the suggested approaches and incorporate them into their staff training. Participants should review their practices in light of this information and update them as appropriate. We have also created a corresponding checklist to assist participants with their compliance.[3]

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[1] This information is provided for guidance only and is not an exhaustive list that guarantees compliance. Market Participants will need to make a commercial decision about how best to operate, guided by private legal advice, where appropriate.

[2] Available on the AER's website.

[3] Available on the AER's website.

A key message of this guide is that it is essential for participants to provide high quality and timely information to AEMO to ensure it can maintain a secure and reliable power system. This includes the submission of availability information and energy limits through AEMO's Projected Assessment of System Adequacy (**PASA**) process. The provision of high quality information allows AEMO to identify and respond to any issues that arise, in the most effective way and at the least cost to consumers. An early identification of risks to supply allows AEMO to seek a market response, rather than intervening through the Reliability and Emergency Reserve Trader (**RERT**), issuing directions to generators, or more disruptive actions such as load shedding.[4]

Where AEMO determines that market intervention is required through issuing a direction or Electricity Rules 4.8.9 instruction, participants must use reasonable endeavours to comply with the direction or instruction unless to do so would, in the participant's reasonable opinion, be a hazard to public safety, or materially risk damaging equipment or contravene any other law.[5] Further, participants must not by act or omission cause or significantly contribute to the circumstances causing a direction to be issued, without reasonable cause.[6]

Participants should also ensure that any potential risks to power system security are communicated to AEMO in a timely manner. This is particularly critical to AEMO's ability to manage the power system during market events. In this regard, we provide detailed information in section 8 of the guide to assist participants' compliance with clause 4.8.1 of the Electricity Rules. It is also essential that participants regularly test their systems and equipment to ensure they are capable of performing as intended, particularly at times of heightened risks.

The Electricity Rules contain a number of obligations relating to the provision of information to AEMO, and how any changes should be advised. These obligations apply over varying time horizons – from real time to ten years in advance. The ongoing, overarching obligation to ensure all information is up to date is set out in Electricity Rules clause 3.13.2(h), which relevantly requires Scheduled Generators and Market Participants to notify AEMO of any changes to submitted information within the times prescribed in the timetable published by AEMO.[7] As the trading period approaches, there will be greater forecast certainty as to the likely market conditions, plant capabilities and other relevant factors, and under this clause, participants should provide updated data to AEMO.

It is the responsibility of participants to understand all of their obligations under the Electricity Rules, many of which can attract civil penalties.[8] For conduct from 29 January 2021 onwards, a new three-tiered civil penalty regime with stronger penalty amounts applies. Most of the obligations discussed in this guide are tier 1 civil penalties, for which the AER is able to seek

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[4] AEMO may issue a direction or instruction pursuant to Electricity Law section 116 and Electricity Rules clause 4.8.9.

[5] See Electricity Rules clauses 4.8.9(c).

[6] See Electricity Rules clause 4.8.9(c2).

[7] Available on AEMO's website.

[8] Under sections 59 and 74 of the Electricity Law, if the AER has reason to believe that a civil penalty provision has been breached, we have the power to issue an infringement notice or institute civil proceedings. For conduct from 29 January 2021 onwards, new civil penalty amounts apply, see section 2AB of the Electricity Law.

penalties of up to $10 million (or more for large companies).[9] We expect participants to have robust systems, processes and personnel in place to support compliance with their obligations and to self-report any identified non-compliance to the AER in a timely manner.[10] Where a Registered Participant has contracted a third party to undertake some or all of its operations, the responsibility for compliance remains with the Registered Participant. While the primary responsibility for compliance remains with the participant, third parties could also be subject to civil penalties where they are knowingly concerned in, or a party to, a breach of a civil penalty provision.[11] It is critical that the Registered Participant clearly sets out the roles of all parties involved to achieve compliance with its obligations, clear communication protocols between the parties and has strong practices and procedures to monitor and ensure that obligations are met.

We note that AEMO has published various binding operational procedures and documents that Registered Participants are required to observe to comply with their obligations under the National Electricity Law (**Electricity Law**) and Electricity Rules.[12] Awareness of the content of an obligation involves reviewing and understanding all relevant AEMO procedures and documents.

Participants often contact the AER seeking clarification of relevant Electricity Rules obligations. While the AER does not provide legal advice, we encourage such communication, and encourage participants to communicate with AEMO to clarify any aspects of meeting their obligations from an operational point of view when either the Rules or circumstances are unclear. These requests, along with our ongoing monitoring and compliance work, will assist us to determine whether further AER guidance may be appropriate or to inform our policy position on particular issues.

This guide does not have legal force. The AER cannot provide a definitive interpretation of the relevant legislation because that is the role of the Courts. The AER will approach each potential compliance and enforcement matter on a case-by-case basis, taking into account all relevant circumstances, and by applying the factors set out in our Compliance and Enforcement Policy.[13] Compliance with this guide cannot provide a guarantee against enforcement action by the AER. Participants may also be subject to action by private parties. Participants should consider seeking independent legal advice on these matters.

[9] More information regarding the penalty tier system can be found on the AER's website.

[10] We encourage participants to inform the AER of non-compliance using the AER's wholesale self-reporting template, available on the AER's website.

[11] National Electricity Law, section 68.

[12] See, for example, Electricity Rules clause 4.10.2(b).

[13] Available on the AER's website.

2 Projected Assessment of System Adequacy (PASA)

The PASA is the principal method of indicating to AEMO and Market Participants a forecast of the overall balance of supply and demand for electricity in the NEM.[14] AEMO prepares PASA over two timeframes:

- medium term PASA (**MT PASA**) covers up to 36 months from the Sunday after the day of publication with a daily resolution (clause 3.7.2); and
- short term PASA (**ST PASA**) covers six trading days from the end of the trading day covered by the most recent pre-dispatch schedule with a half-hourly resolution (clause 3.7.3).

MT PASA assesses the adequacy of expected electricity supply to meet demand across the two-year horizon through regularly identifying and quantifying any projected failure to meet the reliability standard. AEMO uses ST PASA results to identify lack of reserve (**LOR**) conditions to inform its decisions about whether market intervention is required to maintain a reliable and secure electricity system. AEMO will seek a market response from participants as a priority where possible, rather than intervening through its safety net mechanisms such as the RERT, issuing directions, or more disruptive actions such as load shedding.

Electricity Rules clause 3.7.2(d) requires a Scheduled Generator or Market Participant to submit the following MT PASA inputs:

- *PASA availability* of each *scheduled generating unit*, *scheduled load* or *scheduled network service* for each *day* taking into account the ambient weather conditions forecast at the time of the 10% probability of exceedance *peak load* (as described in AEMO's MT PASA process description):
    - for a 36 month period in respect of each *scheduled generating unit*; and
    - for a 24 month period in respect of each *scheduled load* or *scheduled network service*; and
- weekly *energy constraints* applying to each *scheduled generating unit* or *scheduled load* for a 24 month period.

Relevantly, Electricity Rules clause 3.7.3(e) requires a Scheduled Generator or Market Participant to submit the following ST PASA inputs:

- *available capacity* of each *scheduled generating unit*, *wholesale demand response unit, scheduled load* or *scheduled network service* for each *30-minute period* under expected *market conditions*;

[14] New MT PASA and ST PASA rules will come into effect from 9 October 2023 and 31 July 2025, respectively. We encourage participants to familiarise themselves with the upcoming changes and to prepare for their introduction accordingly, including by monitoring and participating in any relevant AEMO consultations, as relevant.

- *PASA availability* of each *scheduled generating unit*, *wholesale demand response unit, scheduled load* or *scheduled network service* for each *30-minute period*;
- projected daily *wholesale demand response* availability for *wholesale demand response units* that are *wholesale demand response constrained*; and
- projected *daily energy availability* for *energy constrained scheduled generating units* and *energy constrained scheduled loads*.

The values submitted to AEMO across both PASA timeframes must represent the participant's current intentions and best estimates. Because participants submit these inputs up to 36 months ahead of time for MT PASA and six days ahead of time for ST PASA, the AER expects participants to promptly update their submissions to AEMO following any changes to plant capabilities or other relevant information, to ensure that submitted values remain consistent with their current intentions and best estimates. This includes where AEMO identifies LOR conditions over the MT or ST PASA timeframe and issues an LOR notice. Participants should consider whether the LOR notice affects their operational incentives or decisions around scheduled maintenance, and update PASA submissions accordingly.

We are aware that many participants conduct daily and weekly team meetings across different areas of the business to discuss weather forecasts, plant availability, and other relevant factors. This forward planning promotes a common understanding of how the plant capability may be affected by the forecast market conditions and whether the PASA offers submitted to AEMO should be revised in response. We consider this to be good practice and recommend that such communications should be common practice for all businesses. Further, where there are third-party contractors performing operational and bidding roles for the Registered Participant, it is crucial for the Registered Participant to set up processes to ensure each party has the relevant information required to perform and meet the relevant obligations under the Electricity Rules.

AEMO uses the available capacity and daily energy availability submitted by participants in ST PASA to calculate regional reserve values. This process also takes into account 50% probability of exceedance (**POE**) demand forecasts, LOR threshold levels, and network constraints representing the system including planned network outages. AEMO's main use for the PASA availability input in the ST PASA timeframe is to assist it to identify capacity that could be made available by a Scheduled Generator in excess of that offered in the market to assist it to determine which units are, or could be, available for direction. AEMO does not use PASA availability in reserve calculations in the ST PASA timeframe.

The ST PASA timeframe starts from the end of the trading day covered by the most recent pre-dispatch schedule, which means there is no overlap between this timeframe and the pre-dispatch timeframe. However, the AER's view of good practice is that participants should continue to update ST PASA inputs during the pre-dispatch period to reflect any relevant changes to these inputs. This will ensure that AEMO has the best information to inform its decisions about market intervention. This approach may also meet other Electricity Rules obligations, such as the requirement for Scheduled Generators to notify AEMO plant changes under clause 4.9.9, as discussed below.

As noted above, Demand Response Service Providers are required to submit available capacity inputs to AEMO for the purposes of ST PASA. Under clause 3.8.2A(b), a Demand Response Service Provider must ensure that:

- the *available capacity* it provides to *AEMO* for a *wholesale response demand unit* that is not aggregated is equal to or less than the *maximum responsive component* of the *wholesale demand response unit*; and
- the *available capacity* it provides to *AEMO* for aggregated *wholesale response demand units* is equal to or less than the aggregate *maximum responsive component* of the aggregated *wholesale demand response units*.

In accordance with the AER's Wholesale Demand Response Participation Guidelines, Demand Response Service Providers must retain, and promptly make available to the AER upon request, records and information to demonstrate the basis for the relevant available capacity submissions, to establish compliance with clause 3.8.2A(b).[15] These guidelines (and the related determination) also set out the AER's expectations around factors Demand Response Service Providers must consider when submitting available capacity, such as whether the relevant Wholesale Demand Response Units are baseline non-compliant, or will be, or are likely to be, spot price exposed.

The compliance messaging in this guide focuses on PASA inputs in the short term, however we also provide guidance relating to the submission of energy limits in the medium term, recognising that energy limits may impact participant submissions across both timeframes.

Each of the three types of PASA inputs is discussed further below.

2.1 Clause 3.7.3(e)(1) – Available capacity

Available capacity is submitted for ST PASA only. It represents the capacity that the participant determines would be available for dispatch in each 30-minute interval over the ST PASA timeframe.

Clause 3.7.3(e)(1) states that the available capacity value should be provided "under expected market conditions". In 2010, the Australian Energy Market Commission (**AEMC**) conducted a rule change for amendments to PASA-related rules.[16] With reference to available capacity provided under this clause, the AEMC's final determination stated *"the term "under expected market conditions" gives sufficient guidance to participants to take weather conditions into account when calculating availability."* This has informed the AER's view of good practice that ambient weather conditions are a relevant factor in the determination of available capacity values.

Ambient weather conditions include factors such as air temperature, humidity, wind direction and speed, dust storms and equipment that can improve the maximum output capabilities during high ambient temperatures, such as evaporative cooling or fogging.

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15 Available on the AER's website.

16 The rule change documentation is available on the AEMC's website.

When considering weather forecasts, we recommend the use of localised weather forecasts rather than forecasts for the major regional load centre, where possible, as they should provide a more accurate representation of the likely conditions at the power station.

There are other factors that will be influential in determining a generator's available capacity, such as current fuel quality and the historical performance of a generator in similar conditions. Participants should have systems and processes in place to allow an informed view of their assets and provide an accurate and reliable estimate of their capability under the expected market conditions, and to update them as appropriate.

Participants should give consideration ahead of time to how market conditions will change across the day and submit available capacity values with a corresponding profile. This sculpted profile would show the greatest degradation of plant capability during periods where ambient conditions are expected to be the most adverse. Submitting values as described may reduce intraday rebidding due to changes in ambient conditions.

2.2 Clause 3.7.3(e)(2) – PASA availability

Our view is that PASA availability is an indication of a generating unit's physical capability, that is, what could physically be made available given 24 hours' notice. We note that this does not mean what *would* be available for dispatch, but what capacity *could* reasonably be made available on 24 hours' notice.

AEMO compares PASA availability to available capacity to identify additional generating unit capacity which is, or may be, available for direction.

We understand that a common approach taken by participants to determining the value of PASA availability for the ST PASA process is to use available capacity as the basis of the PASA availability value and add any additional capability that can be made available on 24 hours' notice.

As required by clause 3.7.3(e), ST PASA availability values are based on current intentions and best estimates. We consider that the participant's submission under clause 3.7.3(e)(2) should represent what it anticipates will be physically available given the information at hand when the submission is made (regardless of cost). If that information changes, the participant should update the PASA availability submission.

We also consider that a Scheduled Generator or Market Participant should include capacity in ST PASA availability if it has a reasonable expectation that it could source fuel (and transport, if applicable) on 24 hours' notice. For example, amendments to the conditions of a participant's current fuel supply contracts (e.g. gas take-off rates) may be possible on 24 hours' notice. We understand from participants that where a direction from AEMO is issued (or even contemplated), short term fuel contracts can become more accessible. If there is a reasonable expectation that the fuel could be secured if the participant was under direction from AEMO, then the capacity should be included in ST PASA availability. Any risks to attaining this fuel can be communicated to AEMO through the rebid reason field or by direct contact with AEMO's control room.

However, we recognise that there are situations where there is no possibility or reasonable expectation that fuel will be available in 24 hours (for example, some hydro generators which

have no access to additional water). In those instances, the capacity which would require that fuel for operation should not be included in ST PASA availability submissions because the fuel supply is not reasonably expected to be replenished or become available on 24 hours' notice.

This approach differs in the MT PASA timeframe because there is a weekly energy constraint which applies to the daily PASA availability input. PASA availability in the medium term represents physical capability that can be made available on 24 hours' notice, subject to ambient weather conditions forecast at the 10% POE peak load (as described in AEMO's MT PASA process description), and any fuel limitations would be captured by the weekly energy limits.[17] If participants do not consider their individual situation will be accurately reflected within this framework, they should clarify their MT PASA availability submission with AEMO to allow AEMO to consider alternative methods of representation.

2.3 Clauses 3.7.2(d)(2) and 3.7.3(e)(4) – Weekly energy constraints and daily energy availability for energy constrained plant

Where a Scheduled Generator or Market Participant is energy constrained (such that it has fuel to run, but not at maximum capacity across the entire trading day), clause 3.7.3(e)(4) requires the relevant Scheduled Generator or Market Participant to convey this to AEMO through ST PASA daily energy limit submissions. The ST PASA process prioritises the allocation of fuel-constrained plant to periods of low surplus reserve.

Similarly, clause 3.7.2(d)(2) requires weekly energy constraints to be submitted for MT PASA. We expect participants to be mindful of applicable energy limits across the ST and MT PASA timeframes and communicate them to AEMO through these processes.

During recent market events, challenges with fuel availability and quality impacted some participants' ability to operate. We remind participants that although fuel limitations have historically been considered most relevant to hydro generators, this is a technology-neutral obligation, and is relevant for other types of generator fuel sources (such as coal, fuel oil and gas) and should be submitted as applicable.

We expect participants to take a number of factors into account when determining their daily or weekly energy limited availability. These factors are specific to generator type but may include transportation, on-site storage, refuel rates, coal quality and gas pipeline linepack.

The submission of energy limits is critical to AEMO's identification of LOR conditions across both PASA time horizons, and actions to respond to those conditions. As the fuel availability situation is constantly evolving, it is critical that participants monitor their fuel availability and update PASA energy limit submissions to reflect any changes, to ensure PASA forecasts are made using the most accurate information.

[17] AEMO's MT PASA process description is available on AEMO's website.

We encourage participants to consider the following guidance on how to submit energy limits to AEMO:

- Ensure consistency of submissions in ST PASA and MT PASA, recognising that these timeframes are linked. Any energy limits which apply at the end of the ST PASA timeframe will also apply at the start of the MT PASA timeframe and submissions to the two processes should reflect this.
- If fuel is limited or not available (e.g. due to spot market gas shortages, or coal supply/quality issues), consider:
    - the time period that the limit will likely apply for and reflect the limit in your submissions over that whole period. It is not sufficient to submit the limit for the next day or two, it should be submitted across the whole period where the limits are likely to continue; and
    - how fuel will become available again. That is, will the fuel supply be fully replenished immediately (a step change), or will it return gradually. Submissions should accurately reflect this.
- Submit energy limits that represent a probability-weighted most likely view of fuel availability, rather than an optimistic view as this alerts AEMO to potential risks. Where the view changes and the energy limit submitted is no longer the most likely view, submit updated inputs to AEMO.
- For MT PASA, submit sustainable weekly limits that reflect the long-term capability of the plant, not a limit for the week considered in isolation.
- Provide AEMO with qualitative information relevant to energy limit submissions. This can be done using the rebid reason field or, if the situation cannot be accurately reflected that way, by contacting AEMO.

We note that the MT PASA timeframe is critical to AEMO's early detection of LOR conditions. We expect participants to apply the same level of rigour to determining, submitting and updating MT PASA inputs as is applied to ST PASA inputs.

A submission of zero for the ST PASA daily energy limit means that the generating unit is fully constrained by fuel (i.e. has no fuel).[18] If no value is submitted (i.e. a null entry), ST PASA interprets this as the generation unit is not constrained by fuel. Similarly, for MT PASA, a zero submission for the weekly energy constraint under clause 3.7.2(d)(2) means that the generating unit is fully constrained. We encourage participants to review their processes to ensure they are consistent with this approach.

As for other ST and MT PASA inputs, the daily energy availability is based on current intentions and best estimates. Accordingly, we expect participants to base any submissions on what they would reasonably expect to occur given the current information and past experience, rather than a worst-case scenario. For example, a gas generator should take planned transport outages into account when determining its daily energy availability, but it

[18] Note this approach changed with the introduction of 5-minute settlement. We encourage participants to update their systems and processes accordingly.

should not assume that there will be a pipeline issue affecting gas delivery, unless there is information to suggest this is the case.

We also expect participants to be mindful of any environmental requirements that affect the operation of their plant when determining daily energy availability values.

3 Informing AEMO of self-commitment and self-decommitment decisions

Clauses 3.8.17, 3.8.18, 4.9.6 and 4.9.7 outline how and when a Scheduled Generator should inform AEMO of its intentions for self-commitment and self-decommitment of a scheduled generating unit. Under clauses 3.8.17 and 3.8.18, a Scheduled Generator with a nameplate rating of 30 MW or more must advise AEMO of its intentions to self-commit and synchronise or self-decommit and de-synchronise through PASA and pre-dispatch by submitting an amended available capacity profile. The generator must notify AEMO of any changes to self-commitment and self-decommitment decisions without delay.

Clauses 4.9.6(a)(1) and 4.9.7(a) further outline that for self-commitment and self-decommitment, the Scheduled Generator must confirm with AEMO the expected synchronising/de-synchronising time with at least one hour's notice, and update this advice five minutes before synchronising/de-synchronising, unless otherwise agreed with AEMO. In addition, for self-decommitment, clause 4.9.7(b) states that the Scheduled Generator must not de-commit a generating unit unless it has confirmed with AEMO a number of details relating to that de-commitment.

It is essential that Scheduled Generators provide (at least) the required one hour notice of self-commitment and self-decommitment to AEMO to ensure that AEMO can maintain system security.[19] This assists AEMO to meet its system strength and power system security requirements which relate to the minimum number of synchronous generating units that must be online in each region at all times. Providing AEMO with the required notice, particularly for self-decommitment, avoids situations where AEMO must direct other generators to synchronise at short notice to meet these requirements.

[19] Under Electricity Rules clause 3.8.18(b), 2 days' notice is required for planned self-decommitment of slow start generating units.

4 Compliance with dispatch as per pre-dispatch schedule and the latest generation dispatch offer

Clause 3.8.20(g) relevantly requires each Scheduled Generator, Demand Response Service Provider, Scheduled Network Service Provider and Market Customer (which has classified scheduled load) and Market Participant (which has classified an ancillary service generating unit or load) to ensure that it is able to dispatch the relevant plant as required under the pre-dispatch schedule and, if necessary, to change the inputs via rebidding.

Clause 4.9.8(b) requires a Scheduled Generator to ensure that each of its scheduled generating units is at all times able to comply with the latest generation dispatch offer under Chapter 3 in respect of that generating unit. Equivalent obligations apply to Scheduled Network Service Providers and Demand Response Service Providers under clauses 4.9.8(b1) and (f), respectively.

We have previously outlined our expectations regarding compliance with clause 4.9.8(b) through investigation reports published following enforcement action and through our Compliance Bulletin No. 1.[20] The expectations set out below are provided in addition to that previous commentary as they focus on compliance during times of extreme market conditions.

It is important that participants with responsibilities under these obligations have a practice of continually monitoring current output or plant capabilities and comparing that to the pre-dispatch schedule and the relevant dispatch targets from AEMO. Where the current capabilities are unlikely to meet the pre-dispatch schedule or target, the participant should inform AEMO of this through rebids and, if appropriate, also by contacting AEMO's control room directly. We also suggest monitoring actual ambient temperatures and comparing them to the forecasts upon which offers were based, to determine whether offers for the remainder of the day should be updated.

We consider the use of both manual monitoring practices and automated real-time systems to monitor compliance with this obligation to be good practice. For example, an automatic system to compare a unit's actual output to its current dispatch target, and activate an alarm if output is not in accordance with target. The alarm should prompt the duty trader or plant operator to investigate further and, if necessary, to submit a rebid to AEMO. This may be an effective way of achieving compliance with this obligation.

During extreme weather conditions, when the plant may be more likely to derate, participants should ensure communications between operations and trading staff are clear and frequent. We understand that during these times the output capability of generators may not change in a linear or predictable manner in response to changes in ambient conditions, or the generator's ability to operate at full capacity for extended periods may be diminished. Because of these issues, it is increasingly important for plant operators to monitor real-time generator output against targets and communicate any changes in capability due to ambient

[20] Available on the AER's website.

conditions to traders. Traders should then provide updated information to AEMO about current plant capabilities.

5 Offers, bids and rebids must not be false or misleading

Generators may at times submit an amended offer (called a 'rebid') to ensure they receive an appropriate dispatch level prior to changing their energy output. Clause 3.8.22(c) requires every rebid to be accompanied by a brief, verifiable and specific reason to AEMO, as well as the time when the generator became aware of the reason for the rebid.

Additionally, clause 3.8.22A(d) requires a relevant generator to make a rebid as soon as practicable after becoming aware of the change in material conditions and circumstances on the basis of which it decides to vary its dispatch offer or dispatch bid.

Where generators submit a rebid less than 30 minutes before the commencement of the trading interval to which the offer relates, it is considered to be a late rebid. Relevantly, clause 3.8.22(ca) provides that a Scheduled Generator or Market Participant must make a contemporaneous record for a rebid made in the late rebidding period. Where a late rebid is submitted, participants should ensure the record keeping of contemporaneous records is completed in a timely manner. From time-to-time, the AER may require additional information such as contemporaneous records to substantiate and verify the reason for a rebid. We expect that the quality of such records is maintained and not amended after the fact.

Clause 3.8.22A(d) requires a Scheduled Generator or Market Participant to rebid as soon as practicable after it becomes aware of the change in material conditions and circumstances on the basis of which it decides to vary the bid or offer. As such, the AER expects participants to make a rebid as soon as they become aware of any such change and avoid delaying their rebids until immediately prior to dispatch.

Clause 3.8.22A(a) requires that participants must not make a dispatch offer, dispatch bid or rebid that is false, misleading or likely to mislead. Further, clause 3.8.22A(b) provides that an offer/bid or rebid is taken to be false or misleading if the party making it does not have a genuine intention to honour, or does not have a reasonable basis for making, the representations contained within the offer.

Further, under clause 3.8.8(b), it is the generator's responsibility to check that the data contained in its generation dispatch offer or market ancillary service offer, as received and to be used by AEMO in the central dispatch process, is correct.

The AER monitors the offers, bids and rebids for submissions which do not meet the relevant Electricity Rules requirements. When participants fail to meet these requirements, the quality of information available to relevant participants and AEMO is reduced, which in turn reduces market efficiency and AEMO's ability to manage power system security. Poor quality information also affects the AER's ability to monitor and enforce compliance with the Electricity Rules.

The AER expects participants to be aware of, and monitor, operational and commercial factors that affect their offers, bids and rebids. Participants should have systems, processes and personnel in place to monitor the accuracy of offers, bids and rebids and update these with AEMO if they are no longer accurate. We also expect participants to ensure that they maintain relevant records such as rebid reasons and contemporaneous records in accordance with the relevant Electricity Rules requirements. Where generators have

automated systems in place to actively monitor and submit offers, bids and rebids, there must also be relevant personnel available to actively monitor and act on any changes or errors identified in these systems.

Participants should familiarise themselves with the AER's Rebidding and Technical Parameters Guideline,[21] which details our expectations for bidding and rebidding technical parameters and the level of information and specificity in the rebid reasons. Relevantly, the Guideline provides that, where the technical parameters are rebid, the reason provided should relate directly to the technical characteristics that have altered since the initial offer.

[21] Available on the AER's website.

6 Compliance with market ancillary service offers

For providers of ancillary services, clause 4.9.8(d) requires a Market Participant which has classified a generating unit or load as an ancillary service generating unit or an ancillary service load, as the case may be, to ensure that the ancillary service generating unit or ancillary service load is at all times able to comply with the latest market ancillary service offer for the relevant trading interval. Clause 4.9.8(d) applies to all market ancillary service offers.

Clause 3.8.7A prescribes the requirements that apply to all market ancillary offers, including the content to be included in contingency FCAS offers and rebids. In particular:

- Clause 3.8.7A(k) requires an Ancillary Service Provider that submits a market ancillary service offer to ensure that the ancillary service generating unit or ancillary service load, as the case may be, is at all times capable of responding in the manner contemplated by the Market Ancillary Service Specification (**MASS**).[22]
- Clause 3.8.7A(l) requires the values in a market ancillary service offer to represent the technical characteristics of the ancillary service generating unit or ancillary service load.[23] Furthermore, clause 3.8.7A(m) requires rebids of the values in a market ancillary service offer to represent technical characteristics at the time of dispatch.

We also note that clauses 2.2.6 and 2.3.5 set out requirements for Market Generators and Demand Response Service Providers/Market Customers that intend to participate in FCAS markets. Under these clauses, AEMO may impose such terms and conditions as AEMO considers necessary to ensure that the provisions of the Electricity Rules applying to market ancillary services can be met.[24] Participants must comply with any such terms and conditions imposed by AEMO.[25]

There are currently two types of FCAS: contingency and regulation.[26] Contingency FCAS is procured to manage frequency recovery and return the frequency back within the normal operating frequency band (50 +/- 0.15 Hz), following a contingency event affecting the power system (such as the loss of a generator, load or network element). These services are delivered automatically by enabled providers that have bid into the NEM to deliver contingency FCAS in response to any frequency deviation outside the normal operating frequency band that may occur. It is important that contingency FCAS is delivered when required as it forms a key part of the safety net measures to ensure AEMO can meet and maintain power system security.

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[22] The MASS is available on AEMO's website.

[23] The values are set out in clause 3.8.7A(j) of the Electricity Rules and are the response breakpoint, upper and lower enablement limits, and response capability.

[24] Electricity Rules, clauses 2.2.6(f) and 2.3.5(f).

[25] Electricity Rules, clauses 2.2.6(g)(1) and 2.3.5(g)(1).

[26] The term "market ancillary services" refers to the services identified in clause 3.11.2(a) of the Electricity Rules: regulation raise and lower, fast raise and lower, slow raise and lower, and delayed raise and lower. The fast, slow and delayed services are referred to as "contingency FCAS". In October 2023, when the Fast Frequency Response Market Ancillary Service Rule commences operation, the "market ancillary services" definition will be extended to include two new market ancillary services: very fast raise and lower. The very fast raise and lower services will be types of "contingency FCAS" and will be procured to manage major frequency deviations.

While this section primarily focuses on contingency FCAS, many of the themes are applicable to other frequency control services. Participants should ensure they have robust systems, processes and personnel in place to support compliance with regulation FCAS offers and dispatch instructions at all times.

At a high level, the AER expects participants to take the following approach to achieving compliance with the contingency FCAS obligations:

- Have a clear understanding and maintain visibility at all times of their plant's contingency FCAS capabilities, including any plant settings which impact on capabilities. In particular, participants should have systems, processes and personnel in place to monitor relevant plant settings and ensure high quality communication between traders and plant operators to ensure offers reflect actual capabilities at all times. We are aware that some participants have a process in place whereby operational and trading staff receive automated alerts if there is a plant setting change. We consider this to be good practice and encourage such alerts to be put in place where possible.
- Be aware of the types of plant changes that may impact on the delivery of contingency FCAS, and review FCAS capabilities after significant plant changes including via testing and/or monitoring. Participants should ensure they have in place sound change management processes for any significant or non-routine plant changes that may affect contingency FCAS performance. It is important to note that plant changes are broader than mechanical changes to physical plant and include software and firmware upgrades to control systems or applicable settings. Each plant can have unique settings; it is good practice to confirm the details of settings and modes with the original equipment manufacturer where possible.
- Regularly assess the actual frequency response of plant that AEMO has enabled to provide contingency FCAS whenever the system frequency deviates from the normal operating frequency band, or otherwise specified in the MASS. Regular performance monitoring is an essential part of a participant's compliance systems. We consider this level of monitoring is appropriate given that participants receive payments for being on standby to provide contingency FCAS but are relatively infrequently required to actually respond to frequency deviations. We remind participants that AEMO has created an "FCAS Verification Tool" and associated user guide, which is available to assist participants.[27]
- Have systems and processes in place to ensure compliance with contingency FCAS obligations when engaging contractors or business partners. Furthermore, participants should carry out due diligence when appointing contractors to ensure they have appropriate expertise to implement functions (including plant changes and maintenance) that may impact on contingency FCAS capabilities. While we acknowledge that in some cases a contractor or third party may be best placed to perform the necessary technical assessments, it is good practice for participants to independently monitor and/or verify performance against the MASS.

[27] Available on AEMO's website.

- Familiarise themselves with, and ensure they observe, the requirements of the MASS and any conditions and technical parameters agreed in their individual generator performance standards (**GPS**). The MASS is a binding technical document that sets out performance parameters and requirements which must be satisfied:
    - in order for a service to qualify as the relevant market ancillary service; and
    - when a participant provides the relevant kind of market ancillary service.

Further guidance on GPS compliance is provided in Section 12 below.

We note that, under clause 3.11.2(i), AEMO may from time to time require a Registered Participant which provides a market ancillary service to demonstrate the relevant plant's capability to provide the market ancillary service to the satisfaction of AEMO according to standard test procedures. A Registered Participant must promptly comply with a request by AEMO under this clause. This obligation highlights the importance of having systems, processes and personnel in place to support compliance with contingency FCAS offers and dispatch instructions *at all times*.

For more information, participants should familiarise themselves with the AER's Contingency FCAS compliance bulletin[28] which outlines our expectations regarding compliance with a number of critical obligations relating to contingency FCAS, including those outlined in this section.

[28] Available on the AER's website.

7 Market ancillary services

Clause 3.11.2(f) requires a Market Participant which has classified a generating unit as an ancillary service generating unit or a load as an ancillary service load to install and maintain, in accordance with standards developed by AEMO, monitoring equipment to monitor and record the response of the relevant unit or load to changes in the frequency of the power system. AEMO's MASS sets out the relevant standards. Under clause 3.11.2(h), AEMO may request a report on how the relevant facility responded to a particular change in the frequency of the power system, and the Market Participant must provide this report promptly, and no more than 20 business days after AEMO's request.

Market Participants must have functioning data systems in place to ensure they capture relevant ancillary service data and are able to provide this data to AEMO on request. We encourage all providers of these services to audit their data systems on a regular basis to confirm that they capture the required data and would facilitate the provision of this data to AEMO if requested. The MASS specifies that Market Participants are to retain recordings for at least 12 calendar months from the Frequency Disturbance Time.[29] Market Participants should also ensure that the data system's storage capacity is adequate to capture the required information, and increase this if it is insufficient.

As mentioned above in the guidance for clauses 3.8.7A and 4.9.8(d), Market Participants should have testing and compliance programs to support their ability to comply with their market ancillary services offers. While clauses 3.11.2(f) and 3.11.2(h) are not civil penalty provisions, the AER considers it important that this information is available to AEMO for its analysis and planning.

[29] As defined in the MASS.

8 Advising AEMO of threats to the secure operation of the power system or equipment

This obligation requires a Registered Participant to promptly advise AEMO or a relevant System Operator at the time that the Registered Participant becomes aware, of *any circumstance* which *could* be expected to adversely affect the secure operation of the power system or any equipment owned or under the control of the Registered Participant or a Network Service Provider [emphasis added]. Importantly, this obligation requires participants to notify AEMO of potential risks before the risks eventuate, and not just after they eventuate. There are additional requirements on System Operators and NSPs in clauses 4.3.3(e) and 4.3.4(a) regarding communicating power system security to AEMO.

The term “System Operator” is defined as “[a] person whom AEMO has engaged as its agent, or appointed as its delegate, under clause 4.3.3 to carry out some or all of AEMO’s rights, functions and obligations under Chapter 4 of the Rules and who is registered by AEMO as a System Operator under Chapter 2”. AEMO has signed a delegation instrument with the Transmission Network Service Provider (**TNSP**) for each region under this clause, thereby delegating some of its rights, functions and obligations to these participants.[30] As a result, Distribution Network Service Providers (**DNSPs**) will communicate with TNSPs, as the relevant System Operators, in relation to power system security issues in accordance with agreed communication protocols.

We note that clause 4.8.1 applies to all Registered Participants, which includes all classes of generators, as well as Network Service Providers, Demand Response Service Providers and (market) Customers. Compliance with this obligation at all times is critical to the secure operation of the market, as it ensures that AEMO can respond to any threats to system security in a timely and appropriate manner.

We provide guidance on various aspects of clause 4.8.1 below.

8.1 Information to be communicated to AEMO under clause 4.8.1

There is a wide range of potential risks to power system security, and the issue of what constitutes a risk to power system security is evolving. At times, low demand has emerged as a risk, requiring AEMO intervention to maintain the network in a secure operating state at times when there is both high asynchronous generation and low demand. It is critical that participants are adaptable to evolving risks, and not focusing too narrowly on easily quantifiable or identifiable risks.

Registered Participants are best placed to observe and understand local conditions at their own plant or assets, and how those conditions may affect their operation. If a participant’s plant has historically reacted a certain way under certain circumstances, and those

[30] Available on AEMO’s website.

circumstances arise, the participant should reasonably expect that the plant would react in a similar fashion again, and contact AEMO to communicate that risk.

While a participant may consider that an event may have only a limited impact on power system security, when combined with other events there may be a greater impact. AEMO has visibility of the whole power system, including information about other events that may have occurred, and will be best placed to assess the impact of the event. For this reason, participants should communicate all events promptly.

We understand that most participants contact AEMO's control room to discuss threats to their equipment or to power system security. While the list of these types of threats is not exhaustive, we understand that participants commonly notify AEMO in relation to the following circumstances:

- unplanned outages (including plant trips) and planned outages;
- external environmental conditions, including extreme weather events. Knowledge of forecast conditions may be obtained through engagement with state emergency service agencies and the Bureau of Meteorology. We remind Registered Participants that any communications with these agencies should be relayed to AEMO if the relevant information indicates a risk to power system security or the proper functioning of equipment;
- other circumstances that could result in equipment owned or under the control of a participant not operating at full capacity or as expected, for example:
    - high ambient temperatures;
    - routine plant tests or high-risk maintenance work that may cause disturbances;
    - supply issues, including potential fuel shortages; and
    - plant settings that may affect how plant reacts to power system events.
- circumstances that have put plant on a single point of failure (e.g. where secondary protection or control systems have failed), or where there is a plant issue which puts a unit at a higher risk of trip.
    - We have observed that during extreme weather events, some generators will rebid to reduce the available capacity of their units in efforts to protect them from an identified risk of trip. Reducing generator availability can be an effective way for generators to manage such risk. However, generators should also contact AEMO to notify it of the risk at the earliest possible time. This will assist AEMO to carry out any required contingency planning to respond to the possibility of the risk being realised.

We note that AEMO is monitoring the entire power system and may not review the information participants submit immediately. Where conditions in the market are tight, or the issue a participant is informing AEMO of is time sensitive, it would be sensible to verbally inform AEMO's control room operators. Maintaining direct contact allows AEMO to obtain any further details it needs immediately. We consider that, when in doubt about whether a circumstance falls under the ambit of clause 4.8.1, it is good practice to contact AEMO.

8.2 Systems and processes for remaining informed

We recommend Registered Participants (including all generators, NSPs, Demand Response Service Providers and (market) customers) ensure they have in place up-to-date procedures and communication protocols to identify and communicate plant or equipment issues that have occurred or are likely to occur. This includes:

- 24/7 control or monitoring of Supervisory Control and Data Acquisition (**SCADA**) data to maintain awareness of the state of security of the power system and/or functioning of their equipment;
- alarms and alerts to inform internal operational and trading staff of issues needing attention; and
- regular discussion between internal operational and trading staff.
- alarm/alert prioritisation processes that assist operational and trading staff to focus on plant issues needing the most immediate attention and assist operational staff in determining the state of equipment under their control. These processes are likely to be most effective where alarms are easily distinguishable to operational and trading staff and their managers (e.g. through sounds, priority rankings, highlighted text, recurring notifications and/or text messages). Conversely, where alarms are only displayed in a scrolling queue on a screen, it may be very difficult for operational and trading staff to see and respond to critical alarms and identify risks to the wider power system;
- internal communication protocols that cover communication of plant or equipment issues with all relevant internal stakeholders. This includes, but is not limited to, communication between operational and trading staff; and
- joint communication protocols between generators and network service providers (**NSPs**) for communicating risks and potential actions to one another during power system emergencies or periods of heightened risk to power system security.

All procedures and protocols should include detailed considerations or steps to be taken by each party to address known risks to the plant or equipment. In relation to joint communication protocols between generators and NSPs, this may include the steps required to safely disconnect plant or equipment from the power system.

We consider it is good practice for participants to continually monitor local conditions in the context of market information and to consider the implications these may have on their plant, given other factors they are aware of. We also suggest that participants analyse how their plant has reacted to an event in the past and use this as a lead indicator as to how it may react in the future.

Training for operators and traders should be flexible enough that it allows them to adapt to new and emerging risks within the power system, and be able to communicate effectively any information in relation to these risks/threats to AEMO. The AER expects participants to have robust systems and processes in place to ensure appropriate training is provided for staff and to regularly review their training programs to identify potential gaps or

improvements. This training should be designed to foster a culture of compliance and ensure that staff are aware of, and understand, relevant Electricity Rules obligations and guidance from the AER and AEMO. It is essential that new staff are adequately trained prior to assuming responsibility for operations, and current staff are provided with regular refresher training, including where new obligations are introduced or new AER/AEMO guidance is released. We have included a number of tasks relating to training programs in the checklist which we highly encourage participants to adopt.

Where a Registered Participant has contracted a third party to undertake some or all of its operations, the responsibility for compliance remains with the Registered Participant. In relation to clause 4.8.1, the AER expects all participants to maintain a holistic awareness and understanding of risks, incorporating historical plant performance, and communicate these risks to AEMO where relevant.

8.3 Power System Security Guidelines and other operating procedures and documents

AEMO's Power System Security Guidelines (**PSSG**) provide important guidance on what information AEMO requires when considering whether to reclassify risks to the power system as credible.[31] We recommend that participants use the PSSG as an input to their internal procedures and guidelines for assessing risks to power system security and communicating with AEMO.

As noted above, we expect that participants will observe all documents and guidelines published by AEMO pursuant to the Electricity Law and Rules, including the PSSG. We also note that the following AEMO operating procedures, documents and notices may be useful in informing participants' determination of what information to provide to AEMO around risks to power system security or its equipment:

- the Regional Power System Operating Procedures (relevant to Network Service Providers), which document the operational responsibilities and operating boundaries between AEMO, TNSPs and DNSPs for the purpose of managing power system security in a particular region;[32]
- power system emergency management procedures, including the Power System Emergency Management Plan and Victorian Energy Emergency Communication Protocol;[33]
- AEMO's Outage Assessment document, which provides more detail about AEMO's process for assessing and responding to planned and unplanned outages;[34]

[31] Available on AEMO's website.

[32] These documents are not publicly available.

[33] Ibid.

[34] Available on AEMO's website.

- the Power System Data Communication Standard, which sets out the standards with which Network Service Providers, Generators and Customers must comply when transmitting data to and from AEMO;[35] and
- market notices, including LOR and abnormal conditions notices – reviewing and responding to these notices as appropriate is an essential part of monitoring market developments.[36]

8.4 Clause 4.8.1 and other obligations

We note that information provided pursuant to other obligations may also be relevant to achieving compliance with clause 4.8.1. For example, the provision of ST PASA submissions under clause 3.7.3 or amending dispatch bids or offers under clause 3.8.22. However, we do not consider it sufficient for a participant to rely solely on processes relating to other obligations when determining what information it should provide to AEMO under clause 4.8.1. Clause 4.8.1 is a distinct obligation that covers any threats to the secure operation of the power system or relevant equipment.

[35] Available on AEMO's website.

[36] Available on AEMO's website.

9 Plant and availability changes

Clause 4.9.9 requires a Scheduled Generator to notify AEMO without delay of any event which has changed, or is likely to change, the operational availability of any of its scheduled generating units, whether synchronised or not, as soon as it becomes aware of the event.

Clauses 4.9.9A, 4.9.9B, 4.9.9C, 4.9.9D and 4.9.9E contain equivalent requirements for other participants in relation to their scheduled network services, market ancillary services, inertia support activities, inertia network services, system strength services and wholesale demand response units, as relevant.

Clause 4.9.9C and 4.9.9D came into effect on 1 July 2018 following a review into power system strength. These obligations recognise the importance of inertia and system strength services in maintaining power system stability, particularly with the changing generation mix providing more non-synchronous generation which has led the power system to have less inertia and be weaker than was the case with the traditional prevalence of synchronous generation.

Each of these clauses places a positive obligation on the relevant participant to notify AEMO of changes to plant or availability. While we understand that AEMO's control room may contact participants seeking additional real time plant, wholesale demand response unit or service availability information, participants should not rely on such contact as a means of meeting the requirements of these clauses. The AER expects participants to have robust systems, processes and personnel in place to ensure compliance with this obligation, particularly during market events.

Where the event has implications (realised or potential) for the availability of a generating unit, wholesale demand response unit or service on an ongoing basis, such as a long-term outage of a unit or impairment of network equipment, the participant should discuss this with AEMO. This will achieve a common understanding of the issue and how any subsequent events may further affect the availability of the unit or service.

We provide further guidance relating specifically to clause 4.9.9 below.

9.1 Clause 4.9.9 – Scheduled generator plant availability changes

In relation to clause 4.9.9, updating the operational availability of plant that is not synchronised is important as this plant may still be dispatchable, or able to be directed to generate and it is therefore important for AEMO to be informed of changes to its operational availability.

The factors which will impact the operational availability of a generator will be different for each generator type. We expect participants to be cognisant of the factors that affect the operational availability of their individual plant and have systems in place to monitor those factors to ensure that any changes in operational availability are identified and notified to AEMO in a timely manner. In addition to manual monitoring practices, this may include having automated systems to actively monitor influential factors such as fuel availability and ambient conditions and alert the relevant staff to any changes.

Our view is that good practice would involve taking different approaches to notifying AEMO depending on whether the event has already changed the operational availability of a generating unit, or whether there is a future likelihood that the operational availability will change. We consider that this approach may also achieve compliance with other obligations, such as clauses 3.7.3(e), 4.8.1 and 4.9.8.

- If the event has already changed the operational availability of the scheduled generating unit, a Scheduled Generator should submit rebids to AEMO updating its offers, ST PASA, MT PASA or fuel constraint parameters (if appropriate) to reflect the revised capability of the unit.
- We consider that updating ST PASA inputs during the pre-dispatch period in response to changes in operational availability may be a way to achieve compliance with clause 4.9.9 (and 3.13.2(h)). Doing so will convey the most accurate unit capabilities over the current day to AEMO and allow AEMO to perform its intraday reserve calculations with current plant capabilities.
- If the event is likely to change the operational availability of the scheduled generating unit in the future, for example if the event has increased the risk of a unit trip, the Scheduled Generator should inform AEMO's control room immediately. However, there should be no update to generator availability information through updates to offers or PASA parameters at that time, as there has not been a realised change in the unit's capability.

10 Personnel to receive and immediately act upon dispatch instructions

This obligation relevantly requires a Scheduled Generator, with respect to its generating units that have an availability offer of greater than 0 MW (whether synchronised or not), to ensure that appropriate personnel are available at all times to receive, and immediately act upon, dispatch instructions issued by AEMO. Similar obligations are imposed on Market Customers that have submitted dispatch bids for scheduled loads and Market Participants that have submitted market ancillary services offers, noting the obligation is with respect to appropriate personnel or electronic facilities.[37]

We note that the obligation applies 'at all times' and we expect generators to have sufficient resources available to control and direct generating units to meet dispatch instructions. This is particularly important during a system security event, which can occur at any time, requiring increased communication with AEMO. While generation assets may be operated by third parties under contract, this obligation falls on the Registered Participant for the asset and it is the responsibility of the Registered Participant to ensure that its agreements with such third parties support compliance with it.

We understand that personnel may be responsible for controlling numerous generation units at any time. Businesses need to assess whether additional equipment or staff are required to effectively manage the fleet during extreme market events where there may be an increased number of simultaneous changes or a need for increased monitoring. We consider it good practice for generators to have contingency plans in place, whereby additional personnel may be called upon at short notice to assist with operations during market events. Similarly, when preparing for future market events (for example, as notified by AEMO's market notices), participants should include a consideration of whether additional personnel will be required and plan accordingly, in advance of the market event occurring, rather than waiting until the event occurs.

There should also be effective communication between various personnel (for example, between plant operators and trading staff) so that the roles and responsibilities for operating equipment in response to AEMO's dispatch instructions are clear. Furthermore, while not required under the Electricity Rules, the AER considers that all calls between traders and AEMO's control room should be recorded as good practice.

[37] Clauses 4.9.3(b) and 4.9.3A(c) respectively. Similar obligations are imposed on Scheduled Network Service Providers under clause 4.9.2A(b), Demand Response Service Providers under 4.9.2B(d) and Non-Market Ancillary Service (**NMAS**) providers under clause 4.9.3A(d).

11 Power system voice/data operational communication facilities

Clause 4.11.3 requires a Network Service Provider, System Operator, Distribution System Operator, Generator or Market Participant to advise AEMO of each nominated person for the purposes of giving or receiving operational communications in relation to each of its facilities. The details to be provided for each nominated person include title, two telephone numbers, a facsimile number and an email address.

This clause builds in sufficient redundancy to ensure that AEMO is able to contact the relevant person, even when there may be a fault with one of the nominated contact methods. It also outlines how communications systems must be maintained and timeframes within which identified telephone system faults must be repaired.

For the purposes of this clause, an operational communication is a communication concerning the arrangements for, and actual operation of, the power system in accordance with the Electricity Rules. This includes an AEMO direction or instruction issued under clause 4.8.9, including to maintain or re-establish the security or reliability of the power system. Section 116 of the Electricity Law outlines a range of actions which AEMO may authorise, such as to call equipment into service or to shut down or vary operation, or to do “any other act or thing necessary to be done to maintain power system security or for reasons of public safety”.

Given the broad range of actions the persons nominated to AEMO under this clause may be called upon to take, it is crucial that those persons have the technical capability to give and receive these communications in relation to the facility. It would not be sufficient for contact details to be provided for a person who would not be able to carry out the action which AEMO is requesting. That is, the assigned person should not be a corporate or administrative representative of the business, but rather an operational staff member with technical operating capabilities.

It is also essential that AEMO is able to contact the relevant person at any time without delay, if required, and the person should also be able to ensure the timeliness of an operational response to AEMO’s requests. This is not confined to within business hours, rather it applies at all times of the day and all days of the week.

We also remind participants to ensure that contact information provided to AEMO is kept up to date. To achieve this, we consider it good practice for participants to have a process in place whereby the contact details provided to AEMO are reviewed at regular intervals (for example, quarterly) to ensure they remain current. Where there are updates, these should be provided to AEMO promptly. This is especially relevant for newly registered participants who, under this clause, may have provided contact details for a third party who was involved in the commissioning of the generation asset, but is no longer involved once the plant is operational. In this case, contact details for the facility operators should be provided once the commissioning is complete.

12 Compliance with generator performance standards

Registered Participants are required to implement and maintain effective compliance programs for their plant in accordance with clause 4.15 of the Electricity Rules. Compliance with the GPS is fundamental to AEMO's ability to safely and reliably operate the power system. Non-compliance with certain performance standards may materially increase the risk of major power system incidents.

Clause 4.15(f) requires Registered Participants to immediately notify AEMO of any breaches or likely breaches of a performance standard. This is done by completing and submitting to AEMO a *Notice of Non-compliance with Registered Performance Standards*.[38] This immediate notification allows AEMO to assess the implications of the non-compliance on the power system and, where necessary, take actions to ensure power system security can be maintained.

The AER published an Information Bulletin in 2013 to promote the GPS compliance framework.[39] We proactively monitor Registered Participants' compliance quality assurance systems by conducting audits of their compliance practices. The AEMC's Reliability Panel reviews the template for generator compliance programs from time to time. We expect Registered Participants to follow the progress of these reviews and update their compliance programs in accordance with any changes to the template.

Non-compliance against the registered GPS can occur during the commissioning phase of the plant, model validation simulation/tests, GPS compliance monitoring process and due to the defects of the plant over time. As a matter of good practice, the AER expects participants to rectify any GPS related non-compliance in a timely manner and in accordance with the rectification period notified by AEMO. We also liaise closely with AEMO to ensure that the GPS non-compliances are managed efficiently and resolved as soon as practicable.

During extreme weather events or times of high demand, when the power system is running near or at full capacity, any reductions in the performance levels of generators, especially if coincident with a network event, can lead to cascading failures in the power system. Participants must ensure compliance arrangements are fully effective at all times. We encourage generators to regularly review their compliance with generator performance standards under clause 4.15. This may involve updating the relevant compliance programs and documentation to ensure they are up to date.

We also recommend that Registered Participants review their testing requirements and, where possible, prioritise testing ahead of peak periods to avoid inflexible outages due to plant issues during those times. Registered Participants should also evaluate the effectiveness of their testing processes and procedures on an ongoing basis and update them when any potential improvements are identified.

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[38] Available on AEMO's website.

[39] Available on the AER's website.