



**Energy Transformation
Taskforce**

Outage Planning and Management

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Energy Transformation Taskforce

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1. Purpose

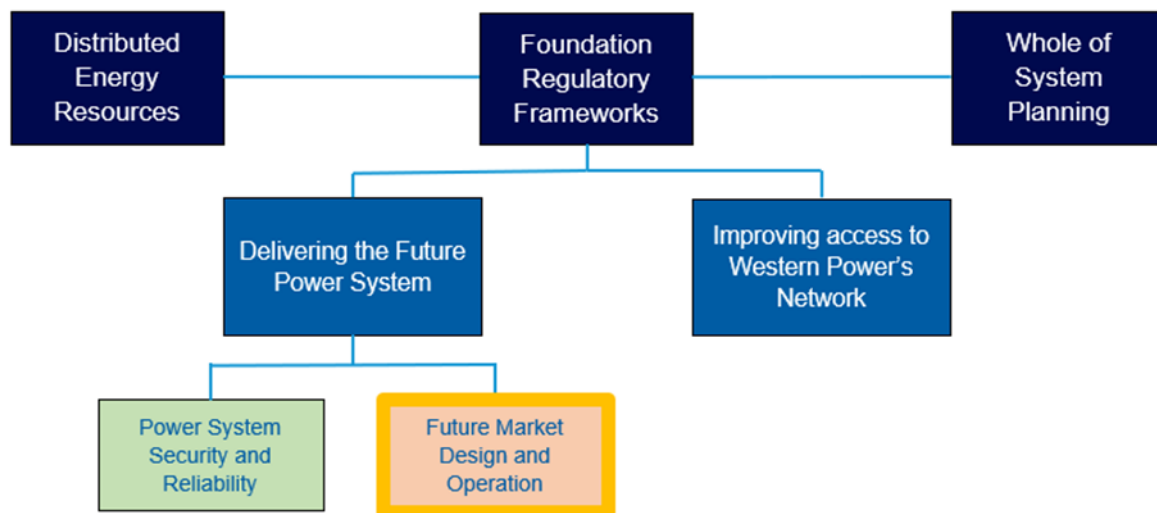
1.1 The Energy Transformation Strategy

This paper forms part of the work to deliver the Energy Transformation Strategy. This is the Western Australian Government's strategy to respond to the energy transformation underway and to plan for the future of our power system. The delivery of the Energy Transformation Strategy is being overseen by the Energy Transformation Taskforce (Taskforce), which was established on 20 May 2019. The Taskforce is being supported by the Energy Transformation Implementation Unit (ETIU), a dedicated unit within Energy Policy WA, a sub-department of the Department of Mines, Industry Regulation, and Safety.

More information on the Energy Transformation Strategy, the Taskforce, and ETIU can be found on the Energy Transformation website at www.wa.gov.au/organisation/energy-policy-wa

This paper is prepared as part of the Future Market Design and Operation project (highlighted in Figure 1) within the Foundation Regulatory Frameworks work stream of the Energy Transformation Strategy.

Figure 1: Energy Transformation Strategy work streams



The Future Market Design and Operation project is undertaking improvements to the design and functioning of the Wholesale Electricity Market (WEM). These include:

- modernising WEM arrangements to implement a security-constrained economic dispatch (SCED) market design that optimises the benefits of the introduction of constrained network access for Western Power's network; and
- implementing a new framework for acquiring and providing essential system services (ESS).

1.2 The purpose of this paper

The purpose of this paper is to set out issues and design decisions relating to outage management and its processes under SCED which are planned to be introduced in the WEM from 1 October 2022.

The design decisions in this paper specifically address scheduling and approval of outages for network, generation, and any other power system equipment that the Australian Energy Market Operator (AEMO) determines must be subject to outage scheduling, and builds on the design decisions outlined in the following Taskforce papers:¹

- The *Information Paper – Energy Scheduling and Dispatch*
- The *Information Paper – Frequency Control Technical Arrangements*

¹ All papers are accessible through the Energy Transformation Strategy section of the Energy Policy WA website at www.energy.wa.gov.au

2. Introduction to outage management

2.1 Background

The outage planning and management framework in the WEM Rules sets out the decision-making processes Rule Participants and AEMO must follow to schedule outages of generation and network equipment in a co-ordinated way, with a view to maintaining sufficient capacity on the system such that energy and ESS requirements can be met.

2.2 Case for change

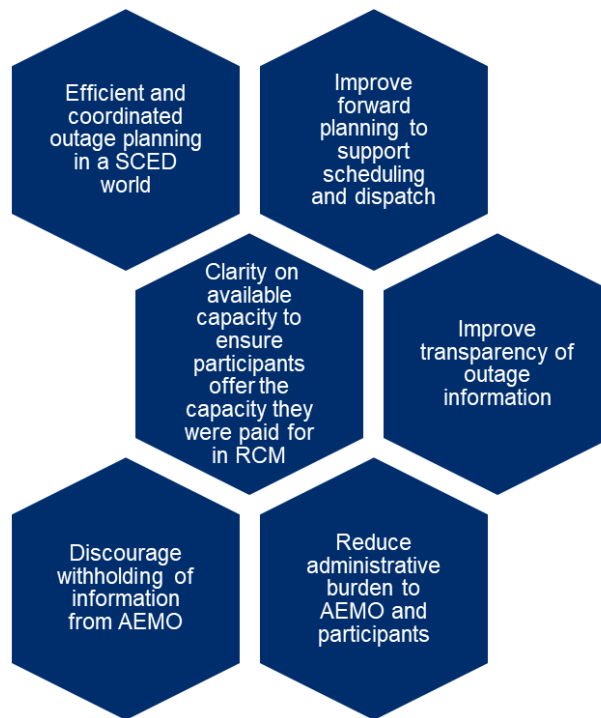
The management of planned and unplanned outages in a constrained network environment is an important component in the secure and reliable operation of the power system. The existing outage management definitions and processes were established in the context of an unconstrained network framework. The move to a constrained access framework where network constraints are intended to bind more frequently requires a holistic review of the outage management framework to ensure it remains fit-for-purpose, provides the necessary information and capability for AEMO to maintain power system security and reliability, is not administratively cumbersome for AEMO and Rule Participants², and provides sufficient transparency and certainty to the market for effective decision-making.

There are six objectives driving changes to the outage management framework (see Figure 2):

- Efficient and co-ordinated outage planning under SCED to ensure that all generation and network outages are centrally co-ordinated by AEMO and information about outage approvals (or rejections) is efficiently communicated to participants
- Early and certain information about forecast outages to assist AEMO in forward-planning to ensure sufficient and relevant capacity is available to support scheduling and dispatch of energy and ESS
- Providing clarity to Market Participants on what is meant by available capacity for the purposes of dispatch
- Improving transparency of information about both generation and network outages to assist the industry with planning and reporting
- Discouraging withholding of information from AEMO by reducing administrative complexity and incentivising participants to provide outage plans early
- Reducing administrative burdens to Rule Participants and AEMO by replacing an onerous two-step approval process to a single-step process.

² In the context of outage management, Rule Participants includes all Market Participants, and Western Power.

Figure 2: Need for change to the outage management framework



2.3 Overview of current arrangements

Generation and network outages need to be carefully assessed and coordinated to ensure:

- sufficient capacity remains available in real time to maintain power system security and reliability;
- sufficient generation capacity is available to meet forecast demand;
- Reserve Capacity obligations are upheld; and
- sufficient ESS are available for projected system conditions and to cater for contingency events.

Good outage planning relieves the burden on real-time operations, improving the overall security, reliability and performance of the power system. Transparency of outage proposals and decisions also help Rule Participants make efficient decisions around the availability of their facilities.

An Outage Plan is a proposal submitted by a Rule Participant for approval by AEMO to schedule the removal from service (or derating) of an item of equipment. An Outage Plan, once submitted, can be revised by a Rule Participant if the Rule Participant wishes to change any details, before it is assessed by AEMO.

The WEM Rules require AEMO to assess risks to system security and reliability when it evaluates each Outage Plan, and on an ongoing basis as part of the Medium Term and Short Term Projected Assessment of System Adequacy studies (MT and ST PASA).³ The risk assessment is performed to criteria defined in the WEM Rules. These criteria relate to the amount of generation and demand

³ MT and ST PASA are studies conducted by AEMO over different time horizons to determine Ancillary Service requirements, outage planning and availability of capacity holding Capacity Credits. The MT PASA planning horizon is three years with the study conducted every month. The ST PASA planning horizon is three weeks with the study conducted every week.

side management capacity, and transmission capacity that would remain in service after an outage is approved, to satisfy system security and reliability requirements.

Under the current WEM Rules, the outage approval is a two-step process where an Outage Plan is first assessed for acceptance, and then re-submitted by the Rule Participant for approval. AEMO must determine if an Outage Plan is acceptable, unacceptable or acceptable under certain circumstances. All accepted Outage Plans are referred to as Scheduled Outages, which confirms AEMO's assessment that the proposal and preparation for the outage is satisfactory under forecast system conditions. The Market Participant or Network Operator must then submit a request for approval for the outage from AEMO, which signals to the market that dates and details of the outage have been finalised and the outage is likely to proceed.

AEMO must record, maintain and publish all Scheduled Outages. Any Outage Plans that are either rejected or accepted by AEMO under certain circumstances must follow a prescribed process.

2.4 Recent rule changes

The Rule Change Panel is progressing two Rule Change Proposals related to outages: RC_2013_15 and RC_2014_03.⁴ These Rule Change Proposals propose to correct problems in the outage management framework that have either been outstanding for a considerable period or have emerged over time due to other changes or developments in the market. The two Rule Change Proposals do not change the fundamental structure of the outage planning process.

The changes proposed to be introduced by these Rule Change Proposals broadly align with the Taskforce's views on outage management. A few differences in design between the current Rule Change Proposals and the Taskforce's decisions on outage management are necessary to reflect the move to SCED. Where there are these differences, the Taskforce notes that the Amending Rules in RC_2013_15 and RC_2014_03 are structured so as to minimise their impact to existing current market systems. This approach serves to minimise the cost of implementing system functionality which will be superseded by new market arrangements planned to be implemented in 2022.

The Rule Change Panel has approved the Amending Rules in RC_2013_15 and these rules will commence on 1 February 2020. It is also anticipated that the Rule Change Panel will approve the Amending Rules in RC_2014_03 and these rules will commence within this year. This Taskforce paper therefore uses those Amending Rules as the foundation and identifies aspects of the outage planning process which will be retained, removed or modified from that design.

⁴ These Rule Change Proposals are available on the ERA website: <http://www.erawa.com.au/rule-change-panel/market-rule-changes>

3. Outage management in the new WEM

The existing outage management framework will remain broadly fit-for-purpose under a SCED market design; however, some changes to the framework are required.

This section discusses twelve features of the WEM outage management design which will be retained 'as-is' or with minor modifications, and three which will be substantially modified.

3.1 Design features to be retained with minor modifications

3.1.1 Centralised outage management

The WEM will retain centralised outage management by AEMO.

Centralised management is key to ensure power system security and reliability. It is necessary to coordinate outages across multiple parties and enable calculation of Reserve Capacity refunds where a Facility holding Reserve Capacity obligations suffers a Forced Outage. Additionally, a centralised transparent process for outage management provides the best opportunity for participants to efficiently manage the availability of their plant.

3.1.2 Definition of 'unavailability'

The current definition of unavailability following the improvements made by rule changes RC_2013_15 and RC_2014_03, will be retained. The improvements made by the rule changes close previous gaps in the framework, and the only further changes needed to support SCED are linkages to new rules related to new ESS parameters.

The definition of unavailability in the WEM Rules means that capacity or capability associated with a Facility will continue to be deemed unavailable for service if the capacity or capability could not be deployed to respond to an instruction or direction consistent with the Facility Equipment Limits, ESS parameters (whether market or non-market), or other limits provided to AEMO in accordance with the relevant Market Procedure.

3.1.3 Availability declarations

The current processes for declaring Facility availability following the improvements made by rule changes RC_2013_15 and RC_2014_03, will be retained. The rule changes have improved these processes to ensure that AEMO is notified about planned outage changes that may impact a Facility's ability to return to service. No further changes are needed to support SCED.

3.1.4 Equipment list

AEMO will continue to be required to develop, maintain and publish an equipment list. Any equipment on the list is subject to outage scheduling and approval by AEMO. In the new WEM, the scope of the equipment list will be expanded to include equipment for which outage must be notified to AEMO, but does not need to be subject to scheduling and approval by AEMO.

Under the current WEM design, Scheduled Generators holding Capacity Credits and Non-Scheduled Generators holding Capacity Credits with a Standing Data nameplate capacity of at least 10 megawatts (MW) must be captured on the equipment list. As such, these facilities are subject to outage scheduling and approval. The current equipment list also includes specific network

equipment; however, it does not allow for the inclusion of secondary equipment (e.g. protection schemes, SCADA/communications equipment, etc), which can have significant power system security implications when on outage. Additionally, it is important for AEMO to know when some equipment is not available, despite it not needing to go through the formal outage scheduling and approval process, in order to include these impacts when assessing other outage requests. Such secondary equipment will be included in the equipment list so that the outages of such equipment can be notified to AEMO.

3.1.5 Self-scheduling outage facilities

The requirement for Market Participants to notify outages to AEMO for generation facilities not on the equipment list will be retained (Self-Scheduling Outage Facility).

Facilities included on the equipment list are subject to outage scheduling and approval. All other facilities not on the equipment list are still required to notify AEMO of intended unavailability (Self-Scheduling Outage Facilities). This feature is consistent with a move to SCED and desirable to retain.

3.1.6 Location of outage process specifications

Currently, the WEM Rules outline the requirement for Rule Participants to submit outage information, as well as the technical details of the related processes.

A Market Procedure on Facility Outages is currently maintained by AEMO. In keeping with the principle of moving prescriptive technical detail to subsidiary documents, the Taskforce has decided to reduce the amount of information prescribed in the WEM Rules. The Market Procedure will be reviewed to ensure the information provided for outage management remains relevant for the systems that will be developed for SCED. This includes any changes to the granularity of outage data, minimum information requirements for Outage Plans, and other supporting information to assess outage requests. The primary requirement for Rule Participants to submit outage information to AEMO for scheduling and approval will be retained in the rules.

3.1.7 Outage Plan submission timelines will be retained

The current timelines for Outage Plan submissions will be retained.

The current framework allows participants to lodge scheduled outage requests up to three years in advance, and down to two days prior to the commencement of the outage. These timeframes remain appropriate under a SCED framework.

3.1.8 Opportunistic maintenance

Requests for outage at short notice (i.e., opportunistic maintenance) will continue to be allowed. Opportunistic maintenance is defined in the WEM Rules as an outage that a participant may seek approval for within two days of the Trading Day⁵, or a minor maintenance for which a participant may seek approval no later than one hour prior to the Trading Interval during which the outage is to be undertaken.

⁵ The timing for such a request is between 10:00 AM on the day prior to the Scheduling Day and 10:00 AM on the Scheduling Day for the Trading Day when the outage is planned to be undertaken.

This concept remains appropriate under a SCED framework. Minor changes will be needed to ensure that the outage assessment considers the availability of Facilities capable of providing ESS.

3.1.9 Inclusion of Demand Side Management capacity in outage management

Demand Side Management (DSM) capacity will be considered in determining available capacity for dispatch when approving outages.

The WEM rules require that in assessing whether an Outage Plan should be scheduled, AEMO must ensure that the capacity associated with the total generation and DSM Facilities remaining in service is greater than the second deviation load forecast. Historically DSM capacity in the WEM has not been used in reserve margin calculations, due to its nature as a last-resort dispatch option. In the new market arrangements, DSM will be allowed to be utilised more effectively in the process of dispatch (for example, through scheduling its consumption and being subject to central market clearing⁶), meaning that outage assessments can include the available DSM capacity when assessing against the load forecast. Additional information required from DSM facilities to support this assessment will be set out in a Market Procedure.

3.1.10 Inclusion of ESS requirements in outage assessment

ESS requirements will continue to be considered in outage assessment.

Assessing whether there is sufficient capacity available to support ESS requirements when approving outage submissions is important in order to ensure power system security and reliability can be maintained. However, the framework needs to be adjusted to cater for the changes in the new ESS framework, including revising the Ready Reserve Standard⁷ and its application to outage planning and other security management processes.

3.1.11 Forecasts used for outage management

The forecast assumptions to be used for outage assessment activities will be specified in a Market Procedure, and may differ across assessment timeframes.

Assessing whether there is sufficient network capacity available when approving outage submissions is important in order to ensure power system security and reliability. However, the current framework lacks flexibility for AEMO to determine the most appropriate forecast to use when making this assessment (i.e. assessment three years in advance will have different forecasting assumptions to an assessment two weeks from the commencement of the outage). AEMO will be required to set out the relevant forecast methodology in a Market Procedure.

⁶ Future potential participation by DSM in central market clearing processes is outlined in the Information Paper: Energy Scheduling and Dispatch.

⁷ The Ready Reserve Standard is a set of principles outlined in the WEM Rules that must be satisfied for outage planning purposes. These principles require that the additional energy available within 15 minutes must be sufficient to cover 30 per cent of the largest generation unit synchronised to the system plus the minimum frequency keeping capacity, and that the additional energy available within four hours must be sufficient to cover 70 per cent of the largest generation unit synchronised to the system less the minimum frequency keeping capacity.

3.1.12 Outage cancellation compensation

Participants will continue to be eligible for financial compensation in case of late outage cancellation or recall, as determined by AEMO in accordance with the current WEM Rules⁸.

The current outage management framework incentivises early Outage Plan submission by allowing compensation if the outage is submitted more than one year in advance but is then subsequently rejected by AEMO within 48 hours of commencement (subject to certain limitations). This principle affords some protection to participants that choose to provide early outage submissions, and continues to be relevant in a SCED environment.

⁸ Under the WEM Rules, a participant is eligible for compensation for only those cancelled outages where details of the relevant Outage Plan were submitted to AEO at least one year in advance of the outage commencement. Further, compensation will only be paid for the additional maintenance costs directly incurred by the participant in the deferment or cancellation of the relevant outage.

3.2 Removal of Consequential Outages

3.2.1 Consequential outages are not needed under SCED

As outlined in the Taskforce's Information paper: *Energy Scheduling and Dispatch*, the new WEM design will retain the obligation for Market Participants with Facilities holding capacity credits to offer at least that much capacity into the Short Term Energy Market (STEM) and real-time energy market. Under the new design, there is no need for Market Participants to structure their offers in the real-time market to account for network constraints as network constraints will be automatically addressed by the new SCED market clearing engine. Each participant can offer its facility's full capability at its local injection point.

Facility offers must indicate the availability status of its capacity in each of three operating states: 'In-service', 'Available', and 'Unavailable'. This changes the information on facility unavailability required from Market Participants when compared with the current framework.

'In-service' capacity is available to respond to Dispatch Instructions. This includes capacity from synchronised facilities, and from unsynchronised facilities which have submitted offers with inflexibility profiles. An in-service facility must ensure that all its capacity that is not 'Unavailable' is offered into the real-time market, subject to its Reserve Capacity obligations.

'Available' capacity is not currently synchronised but would be available for dispatch if it was given notice in accordance with start times in its Standing Data. A facility in this state is required to offer into the real-time market, but its offers will not be included in the market dispatch schedule. Instead, it will appear in pre-dispatch schedules but will not receive Dispatch Instructions. 'Available' capacity would be required to pay Reserve Capacity refunds if it failed to respond to a direction from AEMO, or if it was otherwise determined to be 'Unavailable'.

'Unavailable' capacity is on an outage or otherwise out-of-service. It would not be available for dispatch even if given notice in accordance with start times in its standing data. Where a Facility has Reserve Capacity obligations, 'Unavailable' capacity would be required to pay Reserve Capacity refunds unless on an approved outage.

In summary, the new market design will:

- retain the obligation for facilities holding Capacity Credit obligations to offer at least that much capacity into the STEM and real-time energy market;
- align with the changes introduced in RC_2013_15 whereby facilities holding Capacity Credit obligations are required to offer into the real-time energy market; and
- introduce availability categories in offers to allow participants to signal availability without risking being dispatched with less notice than their minimum start-up time (noting that self-commitment remains a key principle of dispatch).

As a result, there is no longer a need for Market Participants to lodge Consequential Outages in order to manage STEM and energy dispatch obligations. In practice, it would be impractical for participants to estimate the level of unavailability of their facility due to a binding network constraint in a SCED environment where binding constraints are expected to occur much more frequently. As such, there is no specific need to retain the obligation for Market Participants to lodge Consequential Outages to avoid refunds under network constraint situations.

3.2.2 Accounting for network constraints in dispatch compliance monitoring

In the current framework, where a network constraint binds and AEMO has yet to manually constrain the affected participants via its dispatch engine, there is a potential for dispatch non-compliance to occur where a Facility is not operating in accordance with its last issued Dispatch Instruction as a result of a binding network constraint. In a SCED environment with a market clearing engine using constraint equations for dispatch, for the vast majority of cases it is expected that network constraints will no longer be a reason for dispatch non-compliance. The constraint equations will cover the majority of impacts on Facilities from network outages, including constraint equations related to outages that are enabled manually, post-contingently for forced network outages.

Dispatch non-compliance will continue to be managed in accordance with the current processes, whereby the Market Participant provides a reason for the deviation from its dispatch target to AEMO, and AEMO investigates, records and advises the Economic Regulation Authority (ERA). There is no change to the process if the Facility output is **greater** than its Dispatch Instruction.

If Facility output is **less** than the Dispatch Instruction, there is a small chance that the variation is a result of a network constraint which was not accounted for in the dispatch engine at the time the Dispatch Instruction was generated. If the participant's explanation is that the facility departed from dispatch to meet such a network constraint, AEMO must investigate as part of its real-time monitoring functions. If the investigation determines that the non-compliance:

- **is due** to network constraint, then no further information is required from Market Participant; AEMO will record the information, advise the ERA that the facility had a valid reason for being non-compliant, and may adjust its constraint equation library if required to ensure the network constraint will be accounted for in the future; or
- **is not due** to a network constraint, the Market Participant must provide revised information to explain the dispatch non-compliance and may (as currently) be required to lodge a Forced Outage.⁹

Rule Change Proposal RC_2014_03 proposes to introduce some amendments to the process for finalisation of outage details, allowing conversion or removal of Forced Outages even after the participant submission deadline of 15 days after the affected Trading Day. The current timeframe of 15 days to finalise outage details is to be retained; however, if subsequent information comes to light around an impacting network constraint a Forced Outage can be subsequently converted to a Consequential Outage. In the new WEM, while Consequential Outages will no longer exist, the Taskforce considers that Market Participants should be allowed to cancel a previously lodged Forced Outage if new, verified information becomes available showing that the facility had a valid reason for not complying with its dispatch.

3.2.3 Compliance reporting

In a SCED environment where network constraints bind more frequently and dynamically, it may become difficult for the ERA to verify whether restrictions on participant dispatch are driven by network constraints, offer behaviour, or unreported outages. Currently, AEMO is required to provide information to the ERA through the Market Surveillance Data Catalogue, which includes data on participant offers, outages, and substantial variations from expected behaviour. This compliance

⁹ This will be discussed further in a future Taskforce information paper on market monitoring and compliance.

information will need to be bolstered by information on binding constraints to ensure that the ERA has access to all relevant information for the purposes of monitoring dispatch non-compliance.

The Taskforce has determined to:

- Remove the concept of Consequential Outages from the WEM Rules
- Allow participants to cancel a previously lodged Forced Outage where verified new information becomes available showing that a facility had a valid reason for not complying with its Dispatch Instruction
- Extend the Market Surveillance Data Catalogue to include additional information on the drivers of restrictions on facility dispatch

3.3 Outage quantities to be reported as ‘available’ quantities

Market Participants are currently required to submit outage quantities to AEMO that reflect the quantity of ‘Unavailable’ capacity measured on an as-generated basis at 15 degrees Celsius. AEMO converts this value to a sent-out quantity at 41 degrees Celsius and adjusts it for Reserve Capacity obligations. Any remaining capacity subject to Reserve Capacity obligations (generally the Capacity Credits held minus the notified unavailable quantity), must be available to AEMO for dispatch.

RC_2014_03 proposes to change the basis on which participants lodge their outage quantities to avoid the sent-out and temperature conversion currently performed by AEMO, and to simplify downstream settlement calculations. Once the Amending Rules of RC_2014_03 commence, Market Participants will submit unavailable sent-out MW such that the remaining available MW is available for dispatch at any temperature up to and including 41 degrees Celsius. However, AEMO must still convert this unavailable MW quantity into an available MW quantity for use in other downstream processes, and the participant must be aware when submitting outage quantities of the resulting obligations it places on them in terms of bidding available MW into the energy market. This is largely to avoid having to adjust existing market systems.

SCED, Pre-Dispatch and PASA all require knowledge of ‘Available’ capacity for dispatch via offers, as opposed to ‘Unavailable’ capacity. In the new WEM, Market Participants will be required to submit outages in terms of ‘available’ remaining quantity up to and including 41 degrees Celsius. This will minimise the different submission quantities that participants have to use, avoid data mismatches, and help to minimise the need for conversions in the system.¹⁰

The new SCED market will still require Market Participants with Reserve Capacity obligations to offer at least their Capacity Credit quantity (which must be available at any temperature up to and including 41 degrees Celsius) into both the STEM and the real-time energy market. Market Participants may choose to offer a higher MW quantity into STEM and real-time, if their Facility capability at the expected ambient temperature is higher than their Reserve Capacity obligation. Facilities with no Capacity Credit allocation will have no obligation to offer into the real-time market, but will still have the obligation to notify AEMO of outages, by submitting the minimum available quantity up to and including 41 degrees Celsius.

¹⁰ Note that there is an existing process under the current framework to adjust obligations after the fact where actual temperatures were above 41 degrees Celsius, (as Facilities are only accredited up to 41 degrees Celsius). This process will be retained.

The Taskforce has determined to:

- Modify outage quantities to be based on available remaining MW for dispatch, for temperatures of up to and including 41 degrees Celsius
- Align other downstream processes to use these quantities

3.4 Outage planning process

3.4.1 Outage intention plan

In a constrained access environment, network outages will have a more pronounced impact on the levels of network congestion. Good visibility of future network and generator outages is essential to assist participants in effective availability planning for their Facilities, and for producing overall efficient market outcomes.

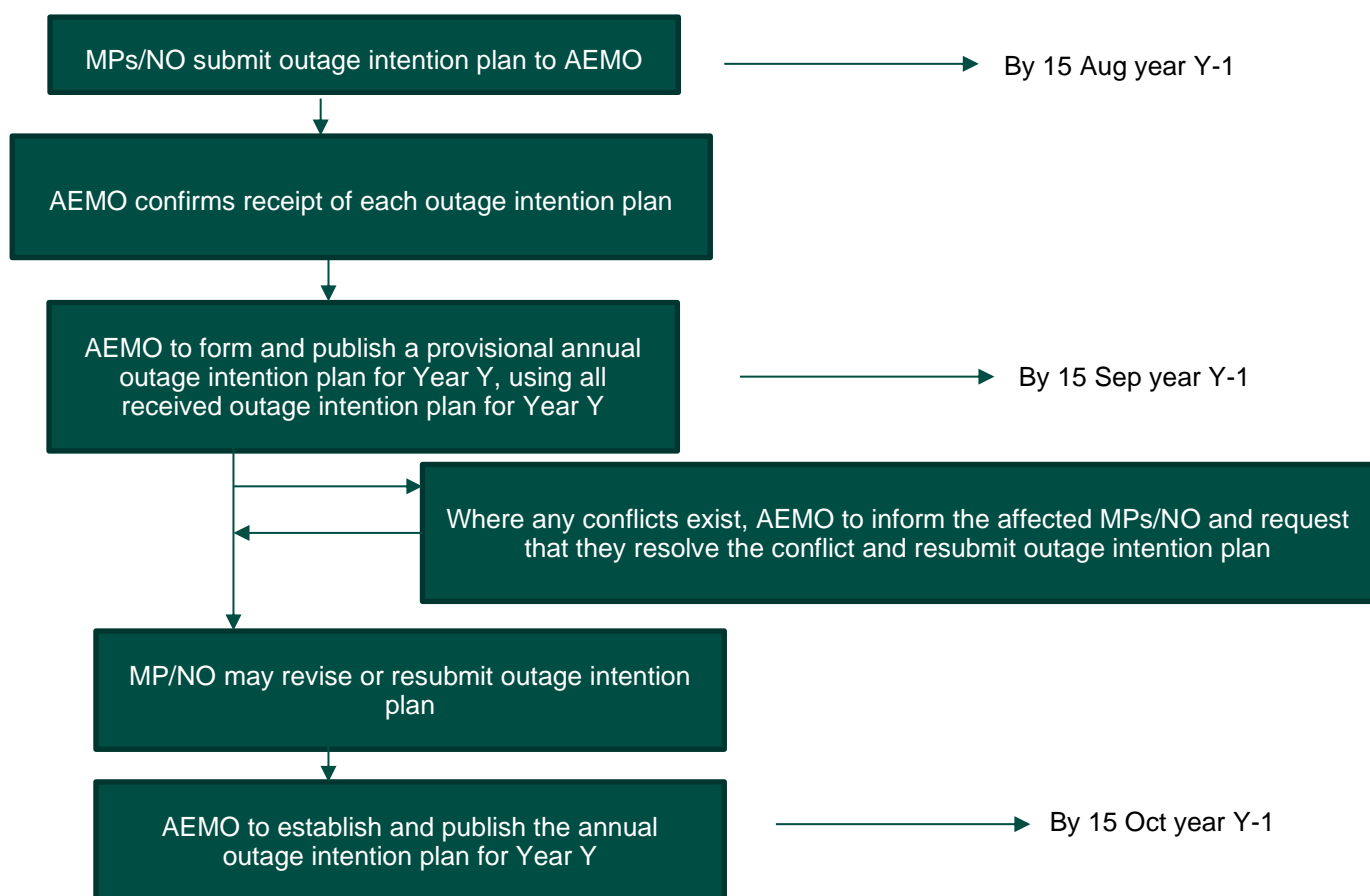
The new WEM will add a new requirement for Market Participants and Network Operators to submit a yearly 'outage intention plan'. This will enable efficient coordination between network and generator outages. Outage intention plans will be published for information and will not be binding on the participant or AEMO, although a participant can still choose to submit an Outage Plan for approval up to three years ahead, as currently allowed for in the WEM Rules.

Outage intention plans will replace the somewhat unclear current PASA framework provisions which allow AEMO to require participants to provide information about their future availability.

For an upcoming calendar year, Market Participants and Network Operators will be required to submit their outage intention plans. AEMO will also be able to re-use other information submitted by Market Participants to prepare the outage intention plan if it deems the information suitable for that purpose.¹¹ AEMO will then form an initial consolidated outage intention plan including details on outages that it considers unacceptable. Participants can use this information to refine their outage forecasts. The revised forecasts will enable AEMO to prepare and publish a consolidated annual outage intention plan that provides information on approved and forecast outages on a facility by facility basis. This document can be continually updated with new information as Outage Plans are submitted for approval. Figure 2 outlines the process for the outage intention plan.

¹¹ For example, as part of the Reserve Capacity certification process.

Figure 2: Outage intention plan



Market Participants and Network Operators must still make a formal outage submission for approval. AEMO will continue to assess outage submissions according to the relevant assessment process.

3.4.2 Single-stage outage planning process

The current outage planning framework is a multi-stage process where the participant must first submit, await acceptance, then request approval and await approval of the outage. This can result in undesirable outcomes such as late outage submissions/approvals, which reduces transparency of outage information and opportunities for efficient scheduling of outages.

The new WEM will adopt a single-stage outage approval process in order to:

- efficiently coordinate network and generator outages in a SCED environment;
- encourage forward planning;
- reduce the administrative burden on participants and AEMO;
- improve transparency and speed of processes and outage-related information;
- provide as much certainty as possible as early as possible to participants and AEMO;
- provide a better forecast for PASA and Pre-Dispatch;

- manage the timing of outages efficiently to reduce impact on market costs;
- support the integrity of RCM by helping to ensure that participants deliver the capacity for which they are paid; and
- discourage the withholding of availability information from AEMO and other Market Participants.

There are two key changes:

1. Remove the second stage of the approval process: Participants will only need to submit their outage once and will not need to wait for the acceptance phase in order to request for the outage to be approved. The intention of this is to encourage early submission and minimise administrative overhead.
2. The addition of an 'At Risk' status: Outages are often affected by other events occurring on the power system, for example Forced Outages of other equipment, revised forecasts or other urgent outage submissions. This can put outages already scheduled at risk. The addition of this status flag will improve transparency to the market when this situation occurs.

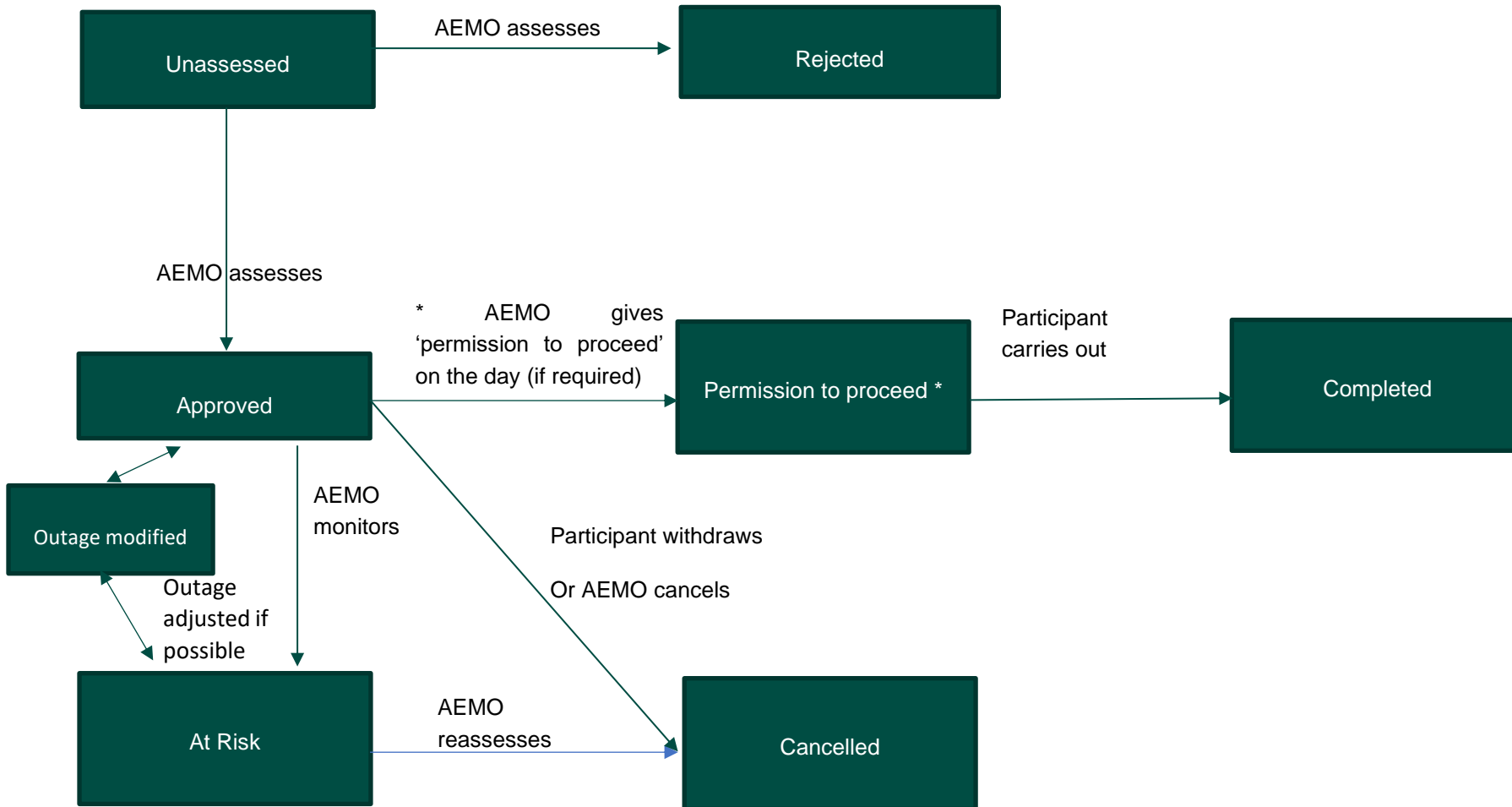
Figure 3 outlines the new process for outage submission and approvals.

The process is as follows:

- When a participant first submits an Outage Plan, the Outage Plan submission will have a status of 'Unassessed', indicating that AEMO is assessing the Outage Plan and will coordinate with the participant if there are any prior conditions to be resolved.
- Following AEMO's assessment the Outage Plan¹² will have a status of either "Approved" or 'Rejected', based on the assessment criteria outlined in the WEM Rules and associated Market Procedure, with AEMO working with the participant to adjust/refine the Outage Plan such that it can be Approved wherever possible (which may include approving with conditions).
- AEMO will continue to reassess the Outage Plan as circumstances change and may change the status to 'At Risk'. Examples of conditions that can result in an outage moving to 'At Risk' status are lack of capacity to provide energy or ESS, revised load or intermittent generation forecasts, and network situations/emergencies, such as a storm. The Outage Plan can also move to 'At Risk' status as a result of new information provided to AEMO by the participant (e.g. where a network outage may not proceed due to field limitations).
- An Outage Plan can move from 'At Risk' to 'Cancelled' if its approval will cause security or reliability issues, or where the Outage Plan cannot be modified to allow it to proceed.
- The outage commences as per its approved start time. In some cases, an additional 'Permission to Proceed' may be required to allow AEMO sufficient time to prepare for the outage (e.g. to apply the necessary constraint equations). The same principles will apply when an outage is completed, and the Facility or equipment is being returned to service. The process and circumstances where this additional step will be required will be described in a Market Procedure.
- Outage details for all facilities are made public soon after submission as well as each time the status is updated.

¹² The existing principle for queueing outages on a 'first-come-first-served' basis for assessment will be retained.

Figure 3: Outage planning process



3.4.3 Outage assessment timeframes

AEMO must use reasonable endeavours to evaluate new and revised Outage Plans (including plans for short notice outages) as soon as reasonably practicable. Currently the WEM Rules do not specify a timeline for AEMO to respond to a request for a proposed Outage Plan, however, the Market Procedure specifies that AEMO must use reasonable endeavours to evaluate an Outage Plan within 10 business days of receipt of a generation Outage Plan and within 20 business days of receipt of a network Outage Plan. These timeframes will be retained. Additionally, AEMO may reject an Outage Plan submitted within six weeks of the commencement of the outage without evaluating the Outage Plan if, in AEMO's opinion, the submitting party has not allowed adequate time for the Outage Plan to be assessed. This power will be retained.

The current submission deadlines for Outage Plans will be retained:

- 10:00 am on Trading Day-2 for scheduled outages; and
- 2.5 hours before the proposed commencement of a short notice outage/opportunistic maintenance.

The new deadlines for AEMO to approve or reject an Outage Plan are:

- 2:00 pm on Trading Day-2 for scheduled outages; and
- 2.5 hours before the proposed commencement of a short notice outage/outage maintenance.

If AEMO has not provided a participant with a decision by the relevant deadline then the Outage Plan will be deemed to be rejected.¹³ This includes where an Outage Plan is still 'At Risk' and has not been moved back to 'Approved'. Figure 4 provides a visual diagram of outage submission and assessment timeframes.

3.4.4 Forced Outage reporting requirements

Currently, the relevant Market Participant or Network Operator must inform AEMO of a Forced Outage as soon as practicable and must provide full and final details of the Forced Outage within 15 calendar days following the Trading Day.

Participants will still be required to notify AEMO as soon as practicable of the occurrence of a Forced Outage. Participants will have a new obligation to provide any relevant information required by AEMO in respect of the Forced Outage to AEMO as soon as practicable and in any event within 24 hours. The information to be provided will be set out in a Market Procedure. All full and final details must still be submitted within 15 calendar days, as is the case under the current framework.

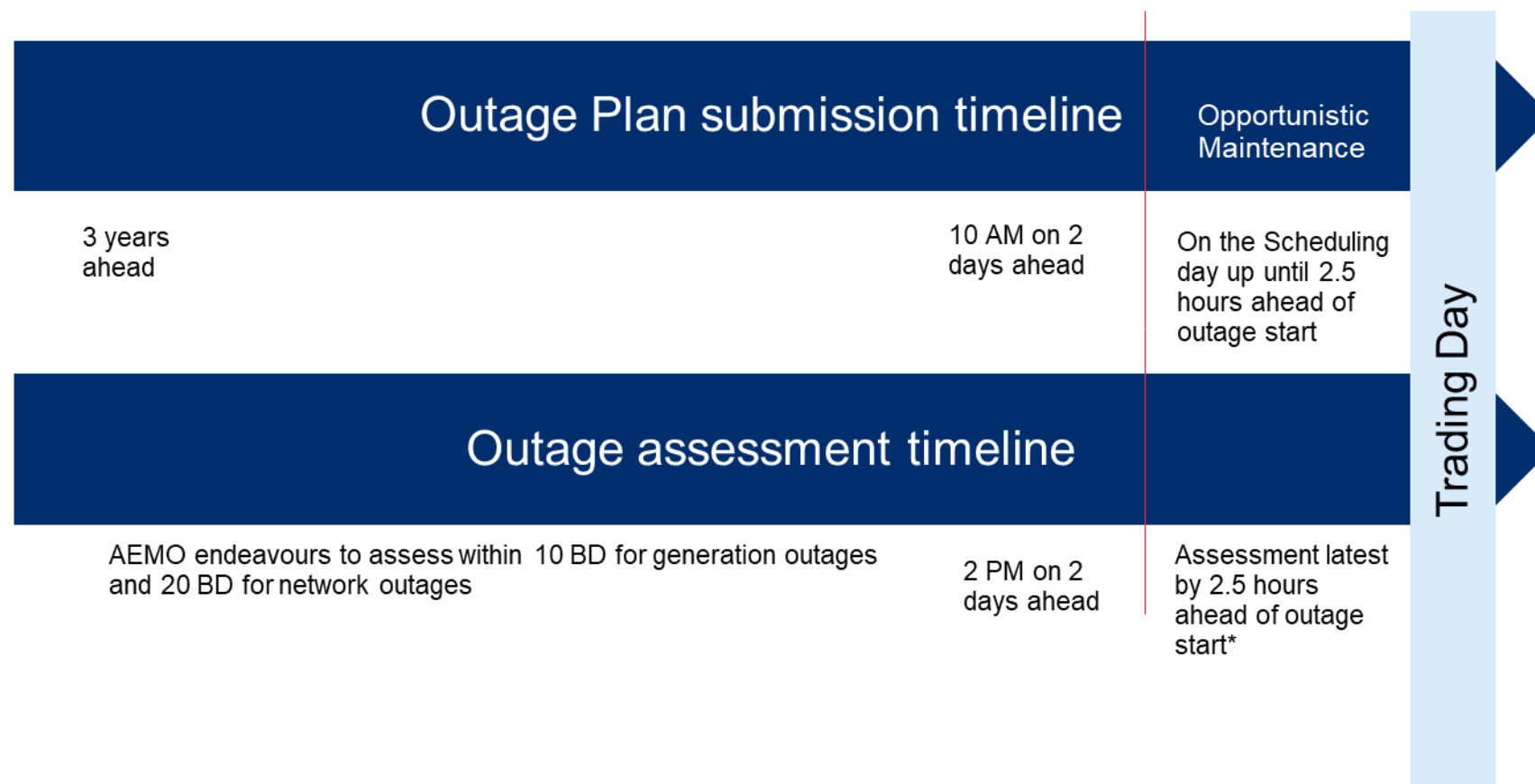
Forced Outage information from both Market Participants and Network Operators will continue to be made public once it is logged in AEMO's outage management systems.

¹³ Note that the assessment of outages over PASA timeframes is subject to change pending a review of the PASA processes

The Taskforce has determined to:

- Require participants to submit a yearly 'outage intention plan'. AEMO will be required to publish a consolidated outage intention plan that provides outage information at the facility and network equipment level.
- Create a single-stage outage planning process, with the addition of an 'At Risk' status.
- Require AEMO to publish each change of status of an Outage Plan.
- Require AEMO to document in a Market Procedure the information requirements of an Outage Plan, the process for commencing and completing an outage, the methodology for assessing whether there would be sufficient ESS capability if an outage were approved, and other relevant matters.
- Retain existing minimum timeframes for AEMO to assess Outage Plans in a Market Procedure.
- Retain the existing capability for AEMO to reject an outage that is submitted with insufficient time to assess.
- Introduce new outage assessment deadlines for AEMO:
 - 2:00 pm on Trading Day-2 for scheduled outages; and
 - 2.5 hours before the proposed commencement of a short notice outage/opportunistic maintenance.
- Require Market Participants to submit certain Forced Outage information as soon as practicable and in any event within 24 hours, in accordance with a Market Procedure.
- Publish Forced Outage information once it is available in AEMO's outage management systems.

Figure 4: Outage submission and assessment timelines



* If a submission for opportunistic maintenance is made just 2.5 hours ahead of the outage, AEMO will likely reject due to lack of time to assess