Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**
Energy Policy WA

TDOWG

Meeting 44

24 August 2022

Working together for a **brighter** energy future.

Agenda

Time	Item	Presenter
9.00am	Agenda/Ground rules	EPWA
9.05am	Transitional Provisions	AEMO/EPWA
9.25am	Miscellaneous changes	EPWA
9.45am	Outage management	AEMO
10.00am	RTM - Submission obligations for Non-Scheduled Facilities	EPWA
10.05am	RTM - Forecasts for Semi-Scheduled and Non-Scheduled Facilities	AEMO
10.10am	RTM - Demand Side Programmes	AEMO
10.30am	Break	
10.45am	RTM – Real Time Market Submissions	EPWA
10.50am	RTM - Publication requirements	EPWA
10.55am	Capacity refund and settlement changes	EPWA
11.05am	Market Information framework	EPWA
11.10am	Standing Data	EPWA
11.15am	Generator Performance Standards and Appendix 12	AEMO/Western Power
11.55am	Next steps	EPWA

Ground rules

- Please place your microphone on mute, unless you are asking a question or making a comment.
- Please keep questions relevant to the agenda item being discussed.
- If there is no break in discussion and you would like to say something, you can ‘raise your hand’ by typing ‘question’ or ‘comment’ in the meeting chat. Questions and comments can also be emailed to energymarkets@dmirs.wa.gov.au after the meeting.
- If you are having connection/bandwidth issues, you may want to disable the incoming and/or outgoing video.

Market Suspension and Transitional Provisions

Dora Guzeleva, EPWA

Clayton James, AEMO

Real-Time Market Suspension

Suspending and Lifting Suspension

Draft clauses for feedback (clause numbers to be determined in final drafting)

[TBD] AEMO may suspend the Real-Time Market in the event:

(a) in event of system shutdown or major supply disruption;

(b) when AEMO has been requested by the Minister, under clause 2.44.1, to suspend the market or operate all or part of the power system in connection with the exercise of emergency power; or

(c) when AEMO determines that it is necessary because it has become impossible to maintain Power System Security in accordance with the provisions of the Rules due to:

i. failure **of its IT** systems**;**

ii. loss **of communications or control systems required to maintain Power System Security; or**

iii. any **other reason as identified in the WEM Procedure.**

[TBD] Where AEMO deems, in its reasonable opinion, it is practicable to resume central dispatch it must:

(a) lift any suspension to the Real-Time Market at commencement of the next practicable Trading Interval, in accordance with the process described in the WEM Procedure; and

(b) resume the determination Market Clearing Prices.

[TBD] AEMO must issue a Market Advisory when suspending or lifting the suspension of the Real-Time Market.

Real-Time Market Suspension

Process and Reporting

Draft clauses for feedback (clause numbers to be determined in final drafting)

[TBD] AEMO must document in a WEM Procedure:

(a) the process by which AEMO will determine to suspend the Real-Time Market;

(b) the reasons for which AEMO may choose to suspend the Real-Time Market;

(c) the processes by which Market Participants may be required to follow during the suspension;

(d) the process by which AEMO will lift the suspension;

Note: the existing requirement for AEMO to investigate any incidents in the operation of Central Dispatch in accordance with clause 3.8.1 would also apply to Real-Time Market Suspension.

Administered pricing (RTM)

Draft clauses for feedback – to be incorporated in the final Tranche 6 draft

The following clauses are only intended to apply if WEMDE or Real-Time Market systems fail at, or close to, new market start. Different administered pricing provisions would apply in other Market Suspension situations (i.e. during a System Black event or emergency operating state).

7.11D.1 If the Real-Time Market is suspended under clause [TBD – when WEMDE :**or Real-Time Market Systems Fail],** and a Market Clearing Prices cannot be determined using the Dispatch Algorithm, AEMO must set the Market Clearing Prices in the following way:

(a) If a Pre-Dispatch Schedule is available, the forecast price in that Pre-Dispatch Schedule must be used to set Market Clearing Prices; and

(b) If a Pre-Dispatch Schedule is not available then, subject to clause 7.11.D2:

i. if the duration of the market suspension is seven Trading Days or shorter, the Market Clearing Price for a Market Service in any given Dispatch interval will be taken to be the Market Clearing Prices in the equivalent Dispatch Interval from the week prior; or

ii. if the duration of the market suspension is longer than seven Trading Days, the Market Clearing Prices for a Market Service in any Trading Interval during the suspension will be taken to be the average Market Clearing Prices in the equivalent intervals in the most recent completed Trading Month.

Administered pricing (ESS)

Draft clauses for feedback – to be incorporated in the final Tranche 6 draft

Clause 7.11D.2 provides guidance for setting Market Clearing Prices if there is a system failure at the commencement of the new market, as there will not be historical prices to draw on for some new FCESS services in this scenario.

7.11D.2 Where prices are not available for certain Market Servicesfor an equivalent interval in the previous Trading Week or Trading Month, then:

(a) the Contingency Raise Market Clearing Price must be set as:

1/12 × Margin(di) × Balancing_Price(di)

Where

Margin is the price as determined by ERA

Balancing_Price = Final Reference Trading Price for the equivalent Dispatch Interval;

(b) the Contingency Lower Price Market Clearing Price must be estimated by AEMO using a method that takes into account the quantum and price set by the Economic Regulation Authority for load rejection reserve; and

(c) the RoCoF Control Service requirements must be set to zero.

Transitional Provisions

Changes for Tranche 6 - Overview

Section 1.55 has been added to provide for general transitional obligations and interpretation, and Section 1.56 has been added to identify specific activities that must be conducted prior to New WEM Commencement:

- Following approval from the Coordinator, AEMO must create and publish a Transition Schedule on the WEM Website that describes:
  - The activities that Participants must do ahead of New WEM Commencement, and the dates and times that they must be done (e.g. provision of information, when to commence submitting Real-Time Market Submissions, etc)
  - The activities that AEMO must do ahead of New WEM Commencement, and the dates and times that they must be done (e.g. publication of Pre-Dispatch Schedules)
- AEMO may, following consultation with Rule Participants and the Coordinator, modify the Transition Schedule
- AEMO may also publish a single settlement cycle timeline covering settlement and adjustment times for both existing and new WEM rules
- Activities in the Transition Schedule are to be conducted in line with the new market rules, unless specifically specified otherwise

Transitional Provisions

Changes for Tranche 6 - Overview

Section 1.57 covers the following provisions relating to key operational matters for transition to New WEM Commencement (1):

- While the Synergy Dispatch Plan may include Dispatch Intervals for Trading Days including and after New WEM Commencement Day, Synergy is not required to comply with the Dispatch Plan for those Dispatch Intervals, and AEMO must take into account expected dispatch quantities for up to three days post New WEM Commencement Day when determining the Synergy Dispatch Plan
- Participants must make reasonable endeavours to ensure that Balancing and LFAS Market submissions under the current rules, and any Ancillary Service contracts, are consistent with Real-Time Market Submissions for the new market
- Participants must ensure their Facilities are ready and able to provide Market Services shown as cleared in the first Dispatch Interval of the Pre-Dispatch Reference Scenario of the New WEM Commencement Day
- AEMO may need to make manual interventions in the Balancing Market to minimise disruption transitioning from the current Balancing Market to the new market. To support this, AEMO is permitted to dispatch Facilities Out of Merit from 4:00 AM on the day before New WEM Commencement Day in order for Facilities to be able to achieve expected dispatch quantities at 8:00 AM on New WEM Commencement Day

Transitional Provisions

Changes for Tranche 6 - Overview

Section 1.57 covers the following provisions relating to key operational matters for transition to New WEM Commencement (2):

- Dispatch Advisories in force prior to New WEM Commencement Day will be deemed to be withdrawn from New WEM Commencement Day, however AEMO must assess whether the conditions will continue and if so, issue a Market Advisory to cover the affected period from New WEM Commencement Day
- AEMO will have the ability to reject applications for new Market Participant registration, or Facility transfer or de-registration, where it determines it will not have time to process them prior to New WEM Commencement Day, and Participants will be required to re-submit their applications post New WEM Commencement Day
- As AEMO will have multiple PASA's published covering intervals from New WEM Commencement Day, AEMO may consider the information in each published PASA in determining risks to Power System Security and Power System Reliability, both pre and post New WEM Commencement Day
- Outage data and submissions that span New WEM Commencement Day will need to be considered both under the current rules and new rules, as such Participants will be required to manage Outage data concurrently. To support this:
    - AEMO will convert Outage data from the current data format to the new data format at a point in time prior to New WEM Commencement Day
    - AEMO will develop and publish an Outage Data Conversion Procedure on the WEM Website, outlining the conversion process that it will follow, and the steps that Participants must take to review and maintain Outage data up to and following New WEM Commencement Day
    - The obligations surrounding Outage Intention Plans will have a delayed commencement of 1 January 2025

Miscellaneous changes

Dora Guzeleva, EPWA

Bronwyn Gunn, EPWA

2.16. Monitoring the Effectiveness of the Market

Changes to clause 2.16.2A, New clause 2.16.2AA, and changes to 2.16.2E and 2.16.2F

- Changes to clause 2.16.2A allow the ERA to provide AEMO a list of WEM Rules that AEMO must monitor for compliance, and a new clause 2.16.2AA provides for AEMO and the ERA to negotiate the types of information included (based on practicality and cost), and the time by which this information is provided.
- The intent of this change is to allow the ERA to request AEMO to monitor compliance with specific WEM Rules where AEMO is the party best placed to do so, and for the list of WEM Rules monitored by AEMO to change over time as the market evolves.
- Transparency will be provided to Market Participants on the types of information being provided through the Market Surveillance Data Catalogue (MSDC), as the WEM Rules being monitored by AEMO will be combined with the rest of the MSDC and published as one list.
- Changes to 2.16.2E and 2.16.2F are consequential to this policy change.

2.13. Compliance Monitoring and Enforcement

Changes to 2.13.6 and 2.13.7

- Clause 2.13.6 is amended to remove the requirement for the ERA to publish the types of market related information provided to it by AEMO, as amendments to clause 2.16.2A require the information that AEMO must routinely provide to the ERA to be included in the Market Surveillance Data Catalogue, which is required to be published on the Coordinator and ERA's websites in accordance with 2.16.2A(b).
- This list should contain all data required by the ERA for monitoring and compliance purposes, and will be updated regularly if new information requirements are identified.
- The second part of 2.13.6, which requires disclosure if the ERA requests additional types of market related data, information or documents in relation to a specific Rule Participant (or group of Rule Participants), has been retained.
- The amendments to 2.13.7(a) and 2.13.7(b) are consequential to changes to 2.16.2A and 2.16.2AA, requiring AEMO to monitor Rule Participants behaviour for compliance with the WEM Rules that the ERA has asked AEMO to monitor. The intent of this policy change is to allow the ERA more flexibility in the WEM Rules that it requests AEMO to monitor over time.
- The amendments to 2.13.7(e) are for clarity.

Break down of the Coordinator's budget

Changes to 2.24.5E

In practice, it has been problematic to separate out the Coordinator's costs relating to its functions under clause 2.2D.1(j) (undertake reviews and consultation as required under these WEM Rules) from its costs relating to the functions listed in clause 2.24.5E(b) (e.g. the functions under clauses 2.2D.1(g) (develop amendments to these WEM Rules and replacements for them) and 2.2D.1(h) (consider and, in consultation with the MAC, progress the evolution and development of the WEM and these WEM Rules)).

Clause 2.24.5E is therefore amended to extend the list in clause 2.24.5E(b) to include the functions described in clause 2.2D.1(j).

2.24.5E For the purposes of clause 2.24.5C(b), the Coordinator need not separately publish the proportion of costs corresponding to the function described in clause 2.2D.1(d) and may consolidate the costs corresponding to the following groups of functions:

(a) the functions described clauses 2.2D.1(a) and 2.2D.1(b); and

(b) the functions described in clauses 2.2D.1(c), ~~and~~ 2.2D.1(f) to 2.2.1D(i) inclusive, and 2.2D.1(j).

2.28. Rule Participants

Reinstating clause 2.28.5

Clause 2.28.5 is amended to reverse the change made in the Tranche 2 & Tranche 3 Amending Rules.

The original clause is restored because the removal of the ability for a Network Operator to be registered in more than one Rule Participant class may adversely affect current Market Participants.

2.28.5. **~~[Blank]~~Subject to clause 2.28.16, a person registered as a Network Operator may be registered as a Rule Participant in another class or other classes.**

3.11B. Procuring Non-Co-optimised Essential System Services

Changes to 3.11B.5

Clauses 3.11B.5 and 3.11B.7 are amended in response to stakeholder concerns that, unless the information in the new clause 3.11B.5 (eA) is provided, the AEMO would not be able to decide whether the proposed facility is capable of being assigned Certified Reserve Capacity and Capacity Credits.

Further, Clause 3.11B.7 is included to enable a proponent to request reimbursement of any Capacity Cost Refunds it must pay as a direct consequence of the enablement or dispatch of the NCESS (e.g. in the event NCESS services provided by storage are enabled outside of the ESR obligation intervals).

3.11B.5. An NCESS Service Specification must, at a minimum, include:

…

(eA) reasonable expectation of the frequency of service utilisation, the expected duration of each utilisation and when the service is expected to be utilised during typical days;

3.11B.7. An NCESS Submission form must, at a minimum, include:

…

(iA) if the facility or equipment would ordinarily be capable of being assigned Certified Reserve Capacity, whether the Market Participant, or service provider, would require any reimbursement of any Capacity Cost Refunds it must pay as a direct consequence of the enablement or dispatch of the NCESS;

4.4.Information to be Included in an Expression of Interest

Changes to clauses 4.4.1 to 4.4.3

Exposure Draft 1 proposed changes to clause 4.4.1(d) to require the inclusion of an Access Proposal/Offer application reference number and date of application in an Expression of Interest where available.

Further changes are proposed to section 4.4 to require proponents to advise if multiple Expressions of Interest under the Reserve Capacity Expression of Interest process relate to the same intended Facility, referred to as EOI Facility Variants.

The proponent must also nominate one EOI Facility Variant for AEMO to formulate Preliminary RCM Constraint Equations and publish the required information under clause 4.2.7.

The changes allow AEMO to manage its activities efficiently and effectively in relation to the Preliminary RCM Constraint Equations without limiting the number of variations a proponent may wish to submit as an Expression of Interest, noting that the submission of an Expression of Interest is a pre-condition for the application of certification of Reserve Capacity under clause 4.8.2.

Determination of Electric Storage Resource Obligation Intervals

Changes to clause 4.11.3A.

Clause 4.11.3A is amended to clarify that AEMO is required to consult with Market Participants when changing but not when occasionally changing, as permitted under Chapter 6, the period during which these Electric Storage Resource Obligation Intervals will apply on the next trading day.

Please note that the proposed change to (a) will be amended to apply only if the AEMO proposes to the Electric Storage Resource Obligation Intervals from the previous ESOO.

Note, that AEMO is not permitted to change the duration of this period as this is prescribed by the WEM Rules as eight trading intervals and cannot be changed without changing the WEM Rules.

4.11.3A. AEMO must:

(a) determine in consultation with Market Participants and, by the date and time specified in clause 4.1.8, publish on the WEM Website (which may be published in the Statement of Opportunities Report) the Trading Intervals in each Trading Day that are classified as Electric Storage Resource Obligation Intervals;

(b) only amend the Trading Intervals classified as Electric Storage Resource Obligation Intervals as permitted under these WEM Rules ~~and in consultation with Market Participants~~

Availability Class assignment

Changes to clause 4.11.4

Clause 4.11.4 is amended to clarify how AEMO is to assign an Availability Class to Certified Reserve Capacity.

4.11.4. Subject to clause 4.11.12, when assigning Certified Reserve Capacity ~~to a Demand Side Programme~~, AEMO must assign an Availability Class to apply to that Certified Reserve Capacity as follows:

(a) Availability Class 1 where either: ~~AEMO reasonably expects the Facility to be available to be dispatched for all Trading Intervals in a Capacity Year, allowing for Outages and any restrictions on the availability specified by the applicant under clause 4.10.1(g); or~~

i. the Facility contains an Intermittent Generating System or Non-Intermittent Generating System; or

ii. AEMO reasonably expects the Facility to be available to be dispatched for all Trading Intervals in a Capacity Year, allowing for Outages and any restrictions on the availability specified by the applicant under clause 4.10.1(g); or

(b) Availability Class 2 otherwise.

4.15. Network Access Quantity

Changes to clauses 4.15.5 and 4.15.16

An issue with clause 4.15.5(c) [(c) ensure the sum of facility dispatch in each scenario equals peak demand] was identified by AEMO after the publication of Exposure Draft 1.

Depending on the relevant Step in Appendix 3, Facilities may be dispatched up to their Certified Reserve Capacity or their Network Access Quantity assigned in the previous Reserve Capacity Cycle.

In the situation where either the total assigned Certified Reserve Capacity or Network Access Quantities is less than the peak demand it will be impossible for AEMO to satisfy clause 4.15.5(c).

For this reason, clause 4.15.5 is further amended to remove clause 4.15.5(c). How AEMO will create facility dispatch scenarios in a shortfall situation will be covered in the Network Access Quantity WEM Procedure.

Clause 4.15.16 is further amended to require AEMO to publish Indicative Network Access Quantities at the same time as it publishes Network Access Quantities.

Definition of GIA Facility

The definition of GIA Facility is amended to ensure that it only captures Facilities that were treated as Constrained Access Facilities for the purpose of certification of Reserve Capacity for one or more Reserve Capacity Cycles.

Current definition: **GIA Facility: A Facility that is, or will be, subject to an Arrangement for Access entered into or amended during the period, commencing 24 June 2017 and ending on the date and time specified in clause 4.1.11 as amended or extended by AEMO under clause 1.36B.6(g) for the 2022 Reserve Capacity Cycle, under which the Facility is not entitled to unconstrained access to the relevant Network for all of its capacity.**

Proposed definition: **GIA Facility: A Facility that was a Constrained Access Facility (as previously defined in the WEM Rules) for the purpose of certification of Reserve Capacity in one or more Reserve Capacity Cycles.**

Appendix 3

Constraint Sets

AEMO may be required to use multiple Constraint Sets within the NAQ Model. Currently, only steps that involve the addition of Network Augmentation Funding Facilities explicitly include a reference to add the "applicable Constraint Set". However, the addition of other Facilities may also require changes to the Constraint Sets used in the NAQ Model.

Appendix 3 is amended to replace the explicit references to adding Constraint Sets in specific steps with a general requirement for AEMO to use the applicable Constraint Set in the NAQ Model for the Facilities assessed in each step of Appendix 3.

AEMO must use the applicable Constraint Set in the Network Access Quantity Model for the Facilities assessed in each step of this Appendix 3.

Outage management

Clayton James, AEMO

Outage Management

Changes for Tranche 6 - Overview

The changes to the Outage Management rules in Tranche 6 Exposure Draft 2 cover the following key areas:

- Clarifications on mandatory data requirements for Planned and Forced Outages
- Inclusions to the data publication clauses to specify minimum publication requirements
- Corrections to Outage Quantity calculations
- Clarifications on some Outage processes (recalls, withdrawals and revisions)
- Improvements in clause structures to aid reading and provide greater clarity on application
- Corrections for minor typographical issues and corrections to defined terms

Outage Management

Changes for Tranche 6 – Mandatory Information Requirements

Changes for Planned Outages:

- An Outage Facility can contain multiple Technology Types, some of which have Reserve Capacity Obligations
- AEMO requires knowledge of what components of the Facility are out of service, but not everything will have a Remaining Available Capacity quantity associated with it (e.g. Network equipment)
- Some Network Outages may also be required to return to service for periods within the Outage window
- The changes to mandatory Outage Plan information for Tranche 6 include:
    - clarification that Outage information on Facility Technology Types is required
    - adjustments to reflect that multiple Remaining Available Capacity quantities may be required (e.g. for energy and ESS, or for multiple Facility Technology Types), but that this may not always be relevant (e.g. for Network Outages), and that the specific quantities for each type of Facility will be detailed in the WEM Procedure
    - the addition of Temporary Return To Service details for Outages that are required to return to service periodically during the Outage window
- Additionally, the definition of Outage Period has been modified as part of Tranche 6 to clarify that an Outage commences at the start of its commencement interval and finishes at the end of its completion interval

Outage Management

Changes for Tranche 6 – Mandatory Information Requirements

Changes for Forced Outages:

- Generally aligned with the revised requirements for Planned Outages, but with allowance for key information differences:
  - A description of the “cause” of the Forced Outage (as opposed to the purpose for Planned Outages)
  - Actual or expected commencement/completion times (as opposed to planned commencement/completion for Planned Outages)
  - No Contingency Plan, Temporary Return To Service details or Availability Declaration required
- Additionally, as Participants are required to notify AEMO as soon as practicable of these details following the Forced Outage occurring, as this would typically be via telephone call to the AEMO control room, Participants will also be required to include in the formal Forced Outage submission the time at which it first notified AEMO.

Outage Management

Changes for Tranche 6 – Mandatory Publication Requirements

Mandatory Data Publication:

- Under the currently gazetted rules AEMO is required to publish Outage information once it arrives or is modified in its Outage system, with the details of the data being published to be described in a WEM Procedure
- Following initial consultation on the Outages WEM Procedure it was noted that some Participants felt it would be best to include a minimum set of data to be published in the WEM Rules, and so this change has been included in Tranche 6
- In addition, sometimes AEMO may need to recall or reject a Planned Outage in operational timeframes. When this occurs, the change to the Outage record would typically occur some time later. Therefore as part of the Tranche 6 changes, where AEMO recalls or rejects an Outage outside of its Outage system, it must record and publish the date and time that the direction was given
- The minimum set of data to be published is summarised on the next slide

Outage Management

Changes for Tranche 6 – Mandatory Publication Requirements

Planned Outages	Forced Outages
Whether the Outage is Opportunistic or not	
The Outage status	
The Outage description	The cause of the Outage
The first submission date/time, commencement interval, completion interval	The commencement and completion times (or expected times where relevant)
The equipment impacted by the Outage (including Facility and Facility Technology Types where relevant)	The equipment impacted by the Outage (including Facility and Facility Technology Types where relevant)
Summary details of the Contingency Plan	
Any Temporary Return To Service times	
Whether the Outage has been Recalled or is At Risk	
The date/time of any revisions and the date/time of any status changes	The date/time of any revisions and the date/time of any status changes
Any Remaining Available Capacity quantities (where relevant)	Any Remaining Available Capacity quantities (where relevant)
The date/time of any recall or rejection decisions if made outside of the Outage system	
	The date/time that AEMO was first notified

Outage Management

Changes for Tranche 6 – Corrections to Outage Quantity Calculations

Corrections to Outage Quantity Calculations:

- The Outage Quantity calculations (3.21.6 – 3.21.8C) have been modified to clarify that they are only applicable to Separately Certified Components that are either Non-Intermittent Generating Systems or Electric Storage Resources
    - Intermittent Generating System outage quantities will be zero due to the fact that they have no Reserve Capacity Obligation Quantities
- Additionally, the core Outage Quantity calculation under 3.21.6 has been modified to clarify:
    - that the Remaining Available Capacity quantities are sent-out values
    - that the Maximum Capacity values (when there is no Outage) are sent-out quantities, with references to the appropriate Standing Data clause
    - that where the Separately Certified Component is an Electric Storage Resource, both the Remaining Available Capacity and Maximum Capacity values refer to the quantity that can be continuously sent-out over the full Electric Storage Resource Obligation Duration – in order to align with the Reserve Capacity Obligation for these types of components

Outage Management

Changes for Tranche 6 – Outage Processes

Outage Recall Directions:

- The currently gazetted rules have some discrepancies in them that make it unclear what a Participant is able to do, or is required to do, when they are subject to an Outage Recall Direction
- The changes in Tranche 6 clarify that:
  - An Outage Recall Direction can only be given by AEMO once the Outage has commenced
  - An Outage that has been recalled is still approved, but the Participant is required to amend the completion date to reflect the time at which the equipment was returned to service

Withdrawn Outages:

- The currently gazetted rules allow for an Outage to be modified once it has been withdrawn by a Participant, but it is unclear what happens to the Outage thereafter
- The changes in Tranche 6 clarify that once an Outage that has been withdrawn can no longer be revised (it is the end of that Outage submission)

Outage Revisions:

- The currently gazetted rules allow for the commencement and completion times for an Outage to be revised while retaining its first submission date/time, which has some implications for prioritisation
  - E.g. a late change in the Outage window may take priority over another Participant that has submitted in good faith after the fact
- While it is reasonable to allow changes to the Outage window prior to it being approved, the changes in Tranche 6 clarify that AEMO will give consideration to other unapproved Outages where an unapproved Outage makes a late change to its commencement/completion time

Real-Time Market – submission obligations for Non-Scheduled Facilities

Jenny Laidlaw, EPWA

Real-Time Market

Submission obligations for Non-Scheduled Facilities

AEMO needs visibility of Non-Scheduled Facility intentions to support production of Market Schedules and provide transparency to the market

Non-Scheduled Facility information increasingly important as the number of Non-Scheduled Facilities increases

Real-Time Market Submissions will be mandatory for Non-Scheduled Facilities

Simplified submission requirements (clauses 7.4.7, 7.4.40)

- **Single Price-Quantity Pair**
  - **Price is energy floor price (if Injecting) or cap price (if Withdrawing)**
  - **Quantity is maximum proposed Injection/Withdrawal assuming no shortage of intermittent fuel**
- **Unconstrained Injection Forecast**
- **Unconstrained Withdrawal Forecast**

Real-Time Market

Submission obligations for Non-Scheduled Facilities

Real-Time Market Submission obligations for Non-Scheduled Facilities less onerous than for Scheduled Facilities and Semi-Scheduled Facilities

- **Separate clauses for Non-Scheduled Facility obligations (7.4.2B, 7.4.37A)**
- **Clause 7.4.2B not a civil penalty provision**
- **Clause 7.4.37A – not required to review or revise submissions except where the Market Participant**
  - **is intending to take controlled action to vary the Injection or Withdrawal of the Non-Scheduled Facility; or**
  - **has revised the information used to develop the submission for the Non-Scheduled Facility**

  for a Dispatch Interval in the Pre-Dispatch Schedule Horizon

Real-Time Market

AEMO processing of Real-Time Market Submissions for Non-Scheduled Facilities

Clause 7.6.12

- **AEMO does not issue Dispatch Instructions to Non-Scheduled Facilities (but can issue directions if necessary)**
- **AEMO uses Real-Time Market Submissions as input to the Dispatch Algorithm**
- **AEMO will treat Non-Scheduled Facilities as Inflexible, meaning the Dispatch Algorithm will always account for their output as forecast**
- **AEMO records Dispatch Forecasts for Non-Scheduled Facilities - published under clause 7.13.1A(f)**

Real-Time Market - forecasts for Semi-Scheduled and Non-Scheduled Facilities

Clayton James, AEMO

Real-Time Market

Forecasts for Semi-Scheduled Facilities and Non-Scheduled Facilities Overview

Background for the changes:

- When determining dispatch quantities using the Dispatch Algorithm, AEMO needs to have an estimate of how much energy is available from Semi-Scheduled Facilities and Non-Scheduled Facilities so that it can adjust the quantities of Scheduled Facilities accordingly
- Under the currently gazetted rules this estimate is obtained by summating the Injection offers for Semi-Scheduled and Non-Scheduled Facilities, i.e. Participants provide this by adjusting their Price-Quantity Pairs
- However, as the Price-Quantity Pairs are also used by the Dispatch Algorithm to determine total “cleared” quantities, and hence drive Dispatch Caps for Facilities, AEMO has identified that this creates the potential for inadvertently restricting the output of a Semi-Scheduled Facility if a Participant under-forecasts what the Facility is capable of Injecting in a Dispatch Interval
- Additionally, forecasts for both Injection and Withdrawal are required to support the processing of the Dispatch Algorithm

Real-Time Market

Forecasts for Semi-Scheduled Facilities and Non-Scheduled Facilities Overview

Changes in Tranche 6:

- To address this the following changes are included in Tranche 6 for Semi-Scheduled Facilities:
  - Semi-Scheduled Facilities no longer need to limit the sum of their Price-Quantity Pairs to their forecast quantity
  - Instead, similar to Scheduled Facilities, the sum of Price-Quantity Pairs should match the Participant's expected available "capacity" for dispatch, not accounting for fuel source availability, but taking into account Outages that have not been rejected and other things in the Participant's control
  - Participants with Semi-Scheduled Facilities must instead include in their Real-Time Market Submissions an "Unconstrained Injection Forecast" and an "Unconstrained Withdrawal Forecast" indicating the expected Injection or Withdrawal of the Facility if it were cleared for Injection or Withdrawal and not constrained by AEMO
- And the following changes are included in Tranche 6 for Non-Scheduled Facilities:
  - Non-Scheduled Facilities need to submit one Price-Quantity Pair (either at the cap or at the floor) and must include an "Unconstrained Injection Forecast" and an "Unconstrained Withdrawal Forecast"
  - A submission for Injection
    - At the price cap indicates no intention to Inject
    - At the price floor indicates an intention to Inject with a forecast Injection of its Unconstrained Injection Forecast
  - A submission for Withdrawal
    - At the price floor indicates no intention to Withdraw
    - At the price cap indicates an intention to Withdraw with a forecast Withdrawal of its Unconstrained Withdrawal Forecast

Real-Time Market

Forecasts for Semi-Scheduled Facilities and Non-Scheduled Facilities Overview

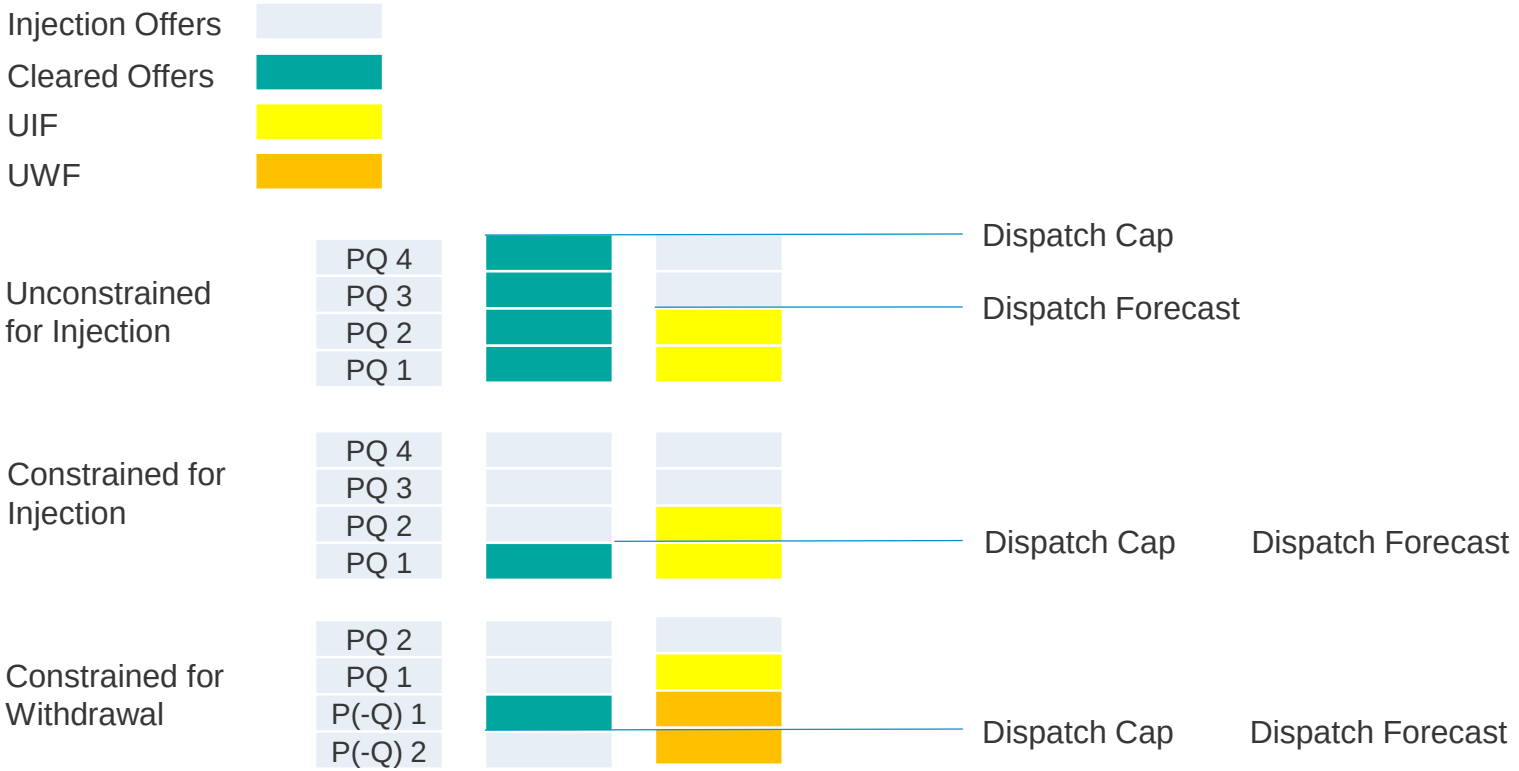
Changes in Tranche 6:

- Dispatch treatment for Semi-Scheduled Facilities (assuming no Network constraints):
  - If a Semi-Scheduled Facility has all Price-Quantity Pairs for Injection cleared, it will have a Dispatch Cap set to its maximum capacity (be unconstrained) but the Dispatch Algorithm will assume it will only be able to Inject the quantity in its Unconstrained Injection Forecast (the Dispatch Forecast for the Facility)
  - If only some of the Semi-Scheduled Facilities Price-Quantity Pairs for Injection Clear, its Dispatch Cap will be set based on cleared quantities, and the Dispatch Algorithm will assume the lesser of the cleared quantity or its Unconstrained Injection Forecast (the Dispatch Forecast for the Facility)
  - Similarly for Withdrawal, with a positive Dispatch Cap meaning Injection limited and a negative Dispatch Cap meaning Withdrawal limited

Real-Time Market

Forecasts for Semi-Scheduled Facilities and Non-Scheduled Facilities Examples

Some simple examples



Real-Time Market – Demand Side Programmes

Clayton James, AEMO

Real-Time Market

Demand Side Programmes Overview

Background for the changes:

- Under the currently gazetted rules, Participants responsible for Demand Side Programmes are required to submit a Withdrawal Profiles indicating a reasonable estimate of expected Withdrawal quantities
- AEMO must convert the Withdrawal Profiles into equivalent Real-Time Market Submissions with a single Price-Quantity Pair for processing within the Dispatch Algorithm, and may request revised Withdrawal Profiles when a Pre-Dispatch Schedule identifies potential dispatch of a Demand Side Programme
- However processing Demand Side Programmes in the Dispatch Algorithm presents some difficult challenges to account for the various limitations on DSP dispatch, including a 2-hour minimum notice period and limitations on available hours for dispatch, maximum hours of curtailment per year, etc.
- Demand Side Programmes being at the price cap also presents challenges for tie-breaking with other Facilities that potentially have capacity but listed as Available rather than In Service
- Finally, dispatch of a Demand Side Programme is quite different to dispatch of other Facilities in that dispatch for a DSP represents a reduction from Relevant Demand, as opposed to a Dispatch Cap
- For these reasons the treatment of Demand Side Programmes has been revised as part of Tranche 6

Real-Time Market

Demand Side Programmes Overview

Summary of the changes (1):

- Participants responsible for Demand Side Programmes will still be required to submit Withdrawal Profiles (now called DSP Withdrawal Profile Submissions) indicating a reasonable estimate of expected Withdrawal quantities
- However AEMO is no longer required to convert the Standing DSP Withdrawal Profiles into equivalent Real-Time Market Submissions, instead identifying potential dispatch of DSPs procedurally through mechanisms such as Low Reserve Conditions
- The DSP Withdrawal Profile must now contain both Unconstrained and Constrained Withdrawal Quantities, where:
    - Unconstrained Withdrawal Quantities represent the Participants reasonable expectation of the collective Withdrawal of the Associated Loads for the DSP prior to any dispatch from AEMO
    - Constrained Withdrawal Quantities represent the Participants reasonable expectation of the how the DSP will reduce its Withdrawal to meet a Dispatch Instruction, and increase again following the completion of the Dispatch Instruction

Real-Time Market

Demand Side Programmes Overview

Summary of the changes (2):

- AEMO may issue Dispatch Instructions to Demand Side Programmes to manage Power System Security and Reliability, but must:
  - not issue Dispatch Instructions to curtail by more than its forecast RCOQ quantity
  - take into account information in the Market Schedules (e.g. where a Low Reserve Condition has been identified)
  - avoid unnecessary Dispatch of DSP's beyond what is required to maintain Power System Security and Reliability
  - take into account where a DSP has an Associated Load that is also part of an Interruptible Load and that Interruptible Load has been cleared to provide a Market Service
  - otherwise only discriminate between DSPs based on response time and availability (e.g. hours available for dispatch)
  - review, and if necessary revise, the Forecast Operational Demand following a Dispatch Instruction to a DSP
- AEMO must also document in a WEM Procedure the process that it will follow in determining that dispatch of Demand Side Programmes are required, and how it will select the Demand Side Programmes for dispatch

Real-Time Market

Demand Side Programmes Overview

Summary of the changes (3):

- AEMO may issue a Market Advisory indicating likely DSP dispatch ahead of time, with the information in the advisory including:
    - the identification of the Demand Side Programmes likely to be dispatched
    - likely commencement interval
    - likely completion interval
- AEMO must issue Dispatch Instructions to DSPs indicating the level of curtailment. Similar to Semi-Scheduled Facilities, there is always an underlying Dispatch Instruction which, when not actively dispatched, indicates that the DSP is unconstrained
- A Dispatch Instruction for a DSP contains:
    - the identification of the Demand Side Programmes being dispatched
    - required commencement interval
    - a level of curtailment, where:
        - A value of zero indicates that the DSP is unconstrained
        - A non-zero value indicates the required reduction below the DSP's Relevant Demand
    - if the curtailment level is non-zero, an estimated time from which the curtailment is no longer required

Real-Time Market

Demand Side Programmes Overview

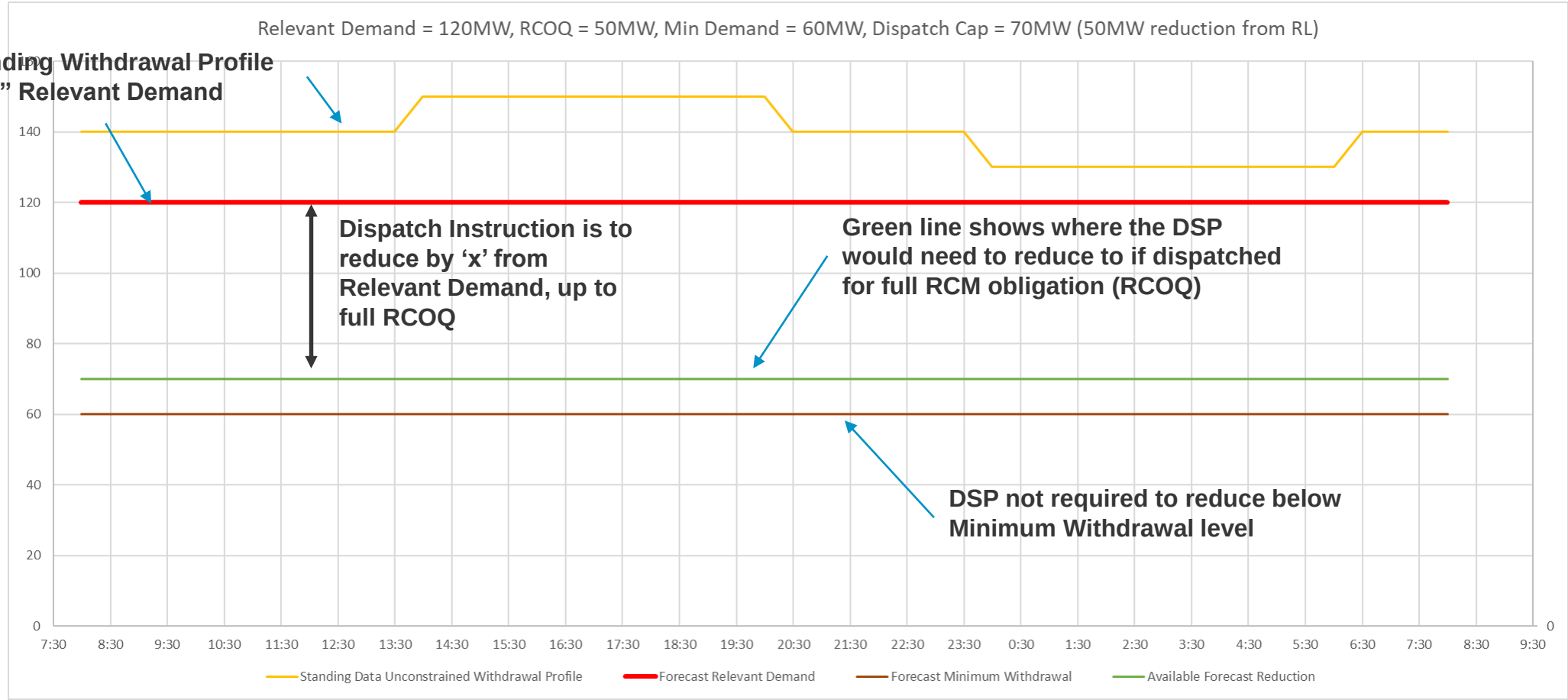
Summary of the changes (4):

- Participants responsible for Demand Side Programmes are required to submit revised DSP Withdrawal Profiles (including both Unconstrained and Constrained Withdrawal Quantities):
  - as soon as practicable after being advised by AEMO of likely dispatch via Market Advisory
  - and at least within 1 hour of being issued a Dispatch Instruction by AEMO
  - using the information in the Market Advisory or Dispatch Instruction, and covering all future Dispatch Intervals in the Trading Day for which dispatch is occurring
- Participants responsible for Demand Side Programmes are also required to submit revised DSP Withdrawal Profiles as soon as practicable when conducting a Reserve Capacity Test:
  - no later than 1 hour before the test is due to commence
  - covering all future Dispatch Intervals in the Trading Day for which the test is occurring
- Participants must use reasonable endeavours to ensure that their DSP Withdrawal Profiles remain accurate while the conditions above remain in place

Real-Time Market

Demand Side Programme Dispatch Example

Example Standing Withdrawal Profile and "forecast" Relevant Demand

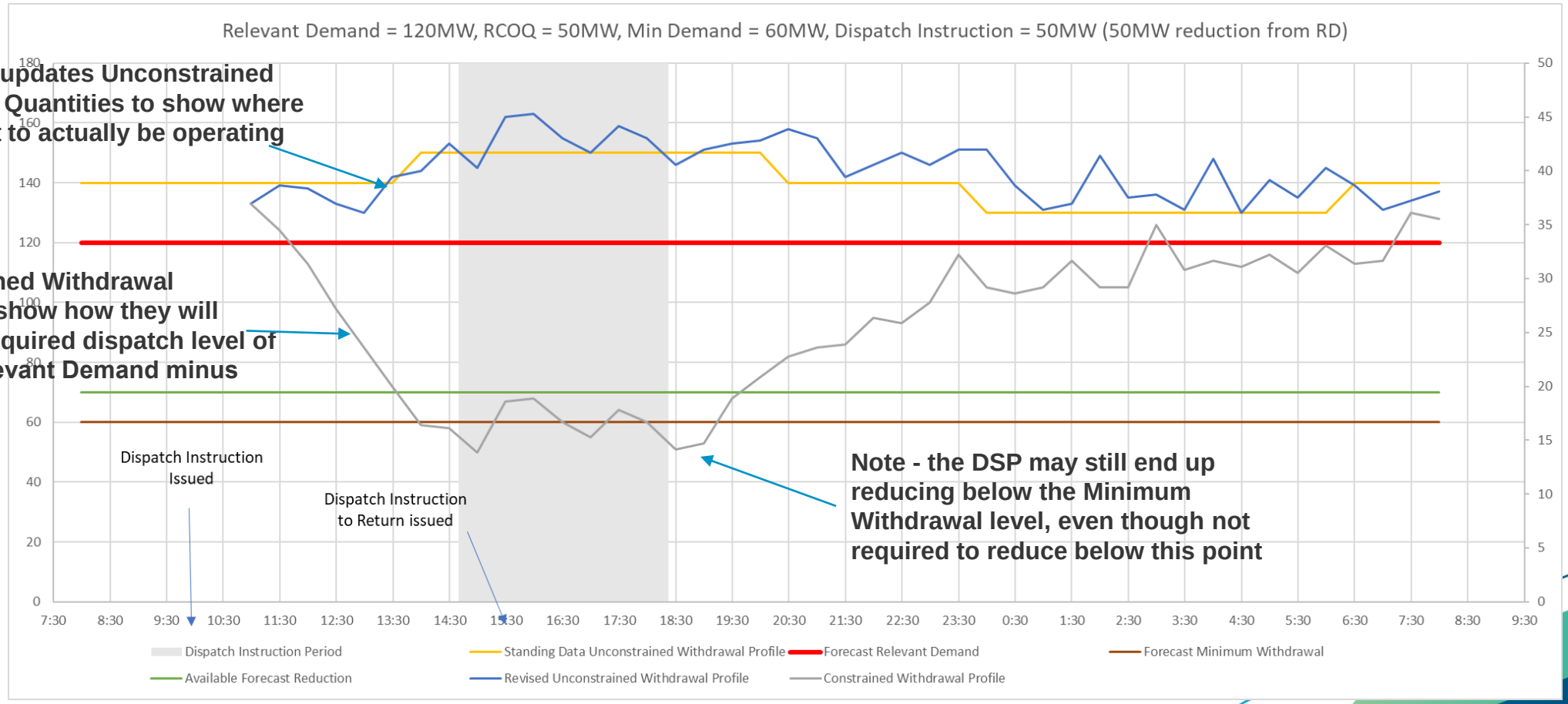


Real-Time Market

Demand Side Programme Dispatch Example – Dispatched for full RCOQ (1)

Participant updates Unconstrained Withdrawal Quantities to show where they expect to actually be operating

And Constrained Withdrawal Quantities to show how they will achieve the required dispatch level of "at least" Relevant Demand minus RCOQ



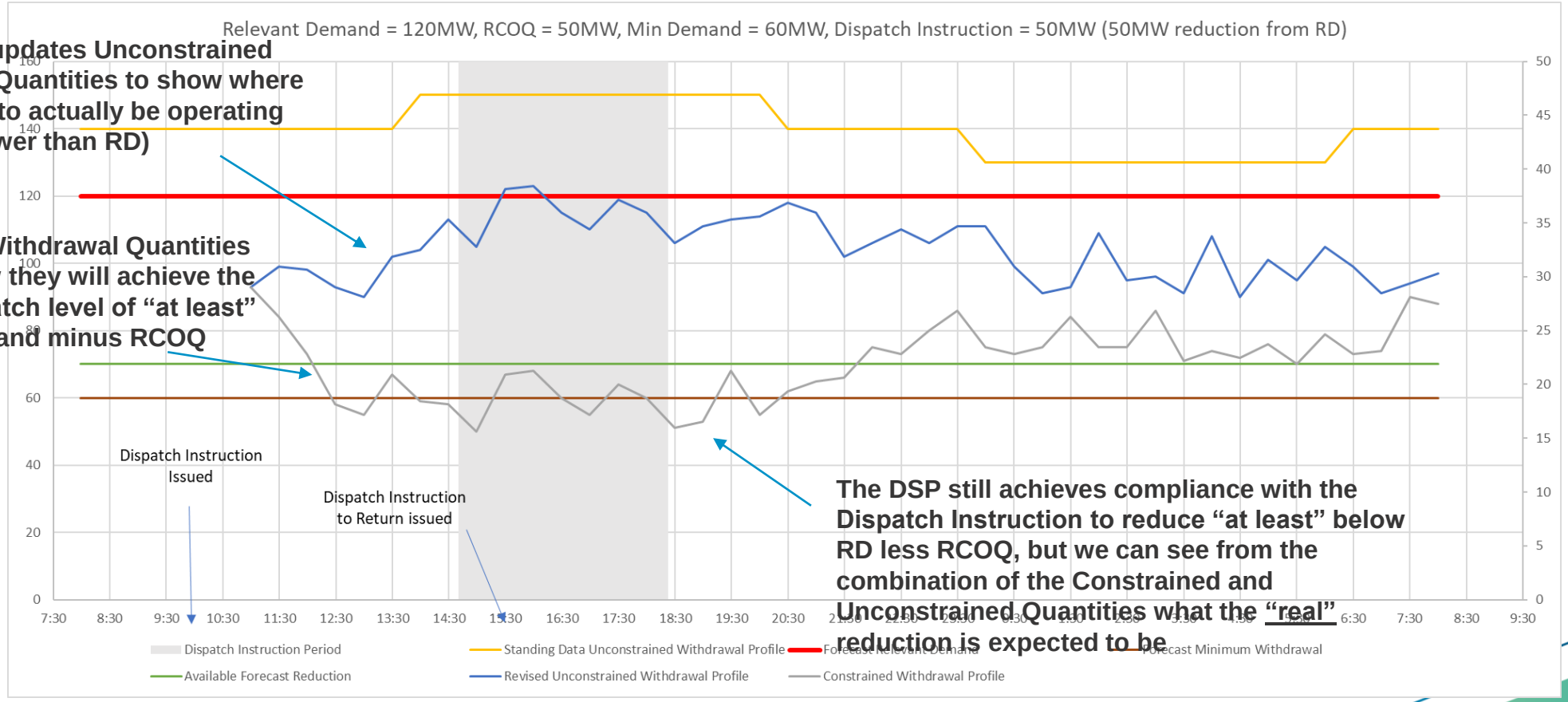
Note - the DSP may still end up reducing below the Minimum Withdrawal level, even though not required to reduce below this point

Real-Time Market

Demand Side Programme Dispatch Example – Dispatched for full RCOQ (2)

Participant updates Unconstrained Withdrawal Quantities to show where they expect to actually be operating (showing lower than RD)

Constrained Withdrawal Quantities still show how they will achieve the required dispatch level of "at least" Relevant Demand minus RCOQ



The DSP still achieves compliance with the Dispatch Instruction to reduce "at least" below RD less RCOQ, but we can see from the combination of the Constrained and Unconstrained Quantities what the "real" reduction is expected to be

Real-Time Market

Demand Side Programme Tranche 6 Changes

Real-Time Market Timetable:

- The Real-Time Market Timetables have modified to include:
  - the timeframes for DSP Withdrawal Profile Submissions (Standing submissions and revisions)
  - the creation and publication of a DSP Pre-Dispatch Schedule and DSP Week-Ahead Schedule, showing estimated Withdrawal reduction quantities based on estimated* Relevant Demand and RCOQ quantities, and the most recent DSP Withdrawal Profiles

** Both Relevant Demand and RCOQ quantities are not finalised until after dispatch timeframes, so can only be estimated by AEMO at the time of publication*

Real-Time Market

Demand Side Programme Tranche 6 Changes

Real-Time Market Submissions:

- Obligations on Demand Side Programmes removed from section 7.4, and a new section 7.4A added specifically for Demand Side Programmes covering:
    - Standing DSP Withdrawal Profile Submissions and revised DSP Withdrawal Profile Submissions, with both DSP Unconstrained Withdrawal Quantities and DSP Constrained Withdrawal Quantities
    - electronic submissions and revision of DSP Withdrawal Profile Submissions and Standing DSP Withdrawal Profile Submissions
    - the requirements to revise DSP Withdrawal Profile Submissions following a Market Advisory or Dispatch Instruction from AEMO
    - the requirements to revise DSP Withdrawal Profile Submissions for a Reserve Capacity Test
    - requirements to make reasonable endeavours to maintain accurate DSP Withdrawal Profile Submissions when the DSP is “active”
    - the format of the DSP Withdrawal Profile Submission and Standing DSP Withdrawal Profile Submission
    - the acknowledgement and validation requirements for AEMO for DSP Withdrawal Profile Submissions and Standing DSP Withdrawal Profile Submissions
    - a requirement for AEMO to document in a WEM Procedure the process for making electronic submissions of DSP Withdrawal Profile Submissions and for acknowledging, validating and accepting DSP Withdrawal Profile Submissions

Real-Time Market

Demand Side Programme Tranche 6 Changes

Dispatch:

- Section 7.6 has been modified to:
  - remove the requirement to use the Dispatch Algorithm in formulating Dispatch Instructions for DSPs
  - allow for Demand Side Programmes to be dispatched by AEMO to maintain Power System Security and Power System Reliability
  - include the principles that AEMO must follow in selecting Demand Side Programmes for dispatch
  - require AEMO to document the processes that it will follow in a WEM Procedure around Demand Side Programme dispatch
  - specify the information that must be recorded in a Dispatch Instruction for a Demand Side Programme
  - clarify the obligation to reduce Withdrawal below the level specified in a Dispatch Instruction where a non-zero quantity has been specified by AEMO
  - clarify the ability to increase Withdrawal above the level specified in that Dispatch Instruction following the issuance of a replacement zero quantity Dispatch Instruction, from the commencement time in that replacement Dispatch Instruction
  - clarify that AEMO must provide sufficient notice when issuing a Dispatch Instruction to a Demand Side Programme, in reference to the relevant Standing Data clause
  - require that following a Dispatch Instruction to a Demand Side Program and a revised DSP Withdrawal Profile submission, AEMO must review and may subsequently revise the Forecast Operational Demand to reflect the changes in Withdrawal for the Demand Side Programme
  - remove Demand Side Programmes from the tie-breaking provisions of the Dispatch Algorithm
- Additionally, Participants responsible for a Demand Side Programme no longer need to provide a DSP Ramp Rate as these are no longer used in the process of dispatch (clause 4.10.1 and Standing Data)

Real-Time Market

Demand Side Programme Tranche 6 Changes

Dispatch Schedules:

- Section 7.8 has been modified to remove references to Demand Side Programmes and Section 7.8A has been added specifically for Demand Side Programmes to cover the creation and publication of the DSP Pre-Dispatch and Week-Ahead Schedules, which include:
    - Unconstrained and Constrained DSP Withdrawal Quantities
    - AEMO's estimates of the Relevant Demand, RCOQ and minimum demand quantities for each Demand Side Programme
    - DSP Forecast Capacity:
        - An estimate of how much the DSP could potentially reduce based on most recent Unconstrained Withdrawal Quantities and estimated Relevant Demand, RCOQ and minimum demand quantities
    - DSP Forecast Reduction:
        - An estimate of how much the DSP is expected to reduce based on most recent Unconstrained and Constrained Withdrawal Quantities

Real-Time Market

Demand Side Programme Tranche 6 Changes

Dispatch Compliance:

- Section 7.10 has been modified to confirm that a Demand Side Programme is not required to comply with its Dispatch Instruction where compliance would endanger the safety of a person, damage equipment or breach an applicable law

Market Advisories:

- Section 7.11 has been modified to include a requirement for AEMO to issue a Market Advisory where it considers the dispatch of Demand Side Programmes is likely as a result of a potential energy shortfall, and to specify mandatory information that must be included in the Market Advisory
    - the identification of the Demand Side Programme(s)
    - the period during which curtailment is likely to be required

Market Pricing:

- Section 7.11B has been modified to remove the obligation for AEMO to set the price to the cap where a Demand Side Programme has been dispatched as a result of an energy shortage

Real-Time Market

Demand Side Programme Tranche 6 Changes

Market Data Publication:

- Section 7.13 has been modified to:
  - revise how AEMO determines the quantity of Demand Side Programme reduction (for the purposes of Ch4 refund calculations)
  - include obligations for AEMO to publish information to Participants regarding dispatch of Demand Side Programs
  - Include obligations for AEMO to publish information for DSP Pre-Dispatch and Week-Ahead Schedules on the WEM Website

Break

Real-Time Market Submissions

Jenny Laidlaw, EPWA

Real-Time Market

Real-Time Market Submissions – clarification of terminology and processing rules

- **Under the proposed changes (section 7.4)**
  - **Real-Time Market Submission (RTMS) is the ‘current’ submission for a Registered Facility, Market Service and Dispatch Interval**
  - **Multiple RTMS in an electronic ‘variation’ submission – accepted or rejected as a whole**
  - **Standing RTMS is a default RTMS for a Registered Facility and Market Service for Dispatch Intervals starting at specified times on Trading Days of a specified type**
  - **Multiple Standing RTMS (plus start Dispatch Interval) in a single electronic submission, but the submissions for a Registered Facility and Market Service in an electronic submission must cover a full Trading Week – electronic submissions accepted or rejected by AEMO as a whole**
  - **RTMS is the most recently accepted variation if available, otherwise the most recently accepted applicable Standing RTMS**

Real-Time Market

Real-Time Market Submissions – provision of reasons (clauses 7.4.26 - 7.4.28)

Clauses 7.4.26 – 7.4.28

- **If a Real-Time Market Submission is**
  - **submitted in the Pre-Dispatch Schedule Horizon; or**
  - **specifies parameters that are different from Standing Data values**
- **Then the Market Participant must**
  - **specify the reason for the revision or the difference; and**
  - **create and maintain a record of the reason**
- **The ERA may request further information on any of the reasons included in a Real-Time Market Submission, including the records maintained by the Market Participant**

Real-Time Market – publication requirements

Jenny Laidlaw, EPWA

Real-Time Market – publication requirements

Publication mechanisms and timeframes

Clauses 7.13.1, 7.13.1A, 7.13.1B, 7.13.1C, 7.13.1G and 7.13.1H

- **“Make available to Market Participants” vs “publish on the WEM Website”**
- **WEM Website proposed to have lower availability (e.g. due to WEM Website maintenance, out of hours support arrangements, data latency issues)**
- **Cost/benefit trade off**
- **For Exposure Draft 2, AEMO is allowed a two Business Day delay for “temporary technical issues”**
- **Propose to consider further during and after the consultation period – stakeholder views welcome**

Clause 7.13.1D Market Participant specific – timeframes as shown, no permitted delays

Clauses 7.13.1E and 7.13.1F (formerly 7.13.1G)

- **Retain same arrangements as for current clause 7.13.1E**

Real-Time Market – publication requirements

Other data provision/publications changes

- **Near Binding Constraint Equations (clauses 7.13.1A(i) and 7.13.1B(e))**
  - **“For a Constraint Equation used in the Central Dispatch Process, where the absolute value of difference between the value of the left hand side and the value of the right hand side of the Constraint Equation is less than 20 times the absolute value of the largest coefficient on the left hand side of the Constraint Equation”**
- **Restrict the provision of Estimated Enablement Losses to Scheduled Facilities and Semi-Scheduled Facilities**
  - **(NOTE: the definition of Estimated Enablement Losses is under review as part of the review of the Market Power Mitigation Strategy)**

Real-Time Market – publication requirements

Other data provision/publications changes

- **Clause 7.13.1E changes**
  - **Clause 7.13.1E(a)(iii) - remove reference to Unadjusted Semi-Scheduled Injection Forecast**
  - **Clause 7.13.1E(b) – restrict provision of maximum daily ambient site temperature to Scheduled Facilities and Semi-Scheduled Facilities, use the method specified in Standing Data**
  - **Clause 7.13.1E(c) – publish additional Real-Time Market Submission details**
  - Inflexible indicator, Unconstrained Injection Forecast, Unconstrained Withdrawal Forecast
  - **Clause 7.13.1E(h) – publish alternative forecast quantities to UIF and UWF determined and used by AEMO in the Central Dispatch Process under clause 7.2.4A**

Capacity refund and settlement changes

Jenny Laidlaw, EPWA

Capacity refund changes

Section 4.26 - Financial Implications of Failure to Satisfy Reserve Capacity Obligations

- **Clauses 4.26.1A and 4.26.1B – ensure Non-Scheduled Facilities incur Facility Reserve Capacity Deficit Refunds if they are in Commercial Operation but have not yet demonstrated they can meet their Required Level**
- **Refine calculations and terminology for Refund Payable Planned Outage Quantities and Refund Exempt Planned Outage Quantities (definitions, clauses 4.26.1C and 4.26.1CA)**
- **Refund Exempt Planned Outage Count – transition from old registration framework**
- **Clarify types of Facilities (including unregistered) or Separately Certified Components to which calculations apply (e.g. clause 4.26.1I – Generation Reserve Capacity Deficit Refund)**
- **Facility Capacity Rebate calculation (clause 4.26.6) – Facility eligibility tests**
- Clause 4.26.6(e)(i)(3) – participant level test uses Generation Capacity Cost Refunds – excludes Demand Side Programmes because refunds capped on a Facility basis
- Clause 4.26.6(e)(ii)(4) – test removed because unnecessary – if Demand Side Programme passes clause 4.26.6(e)(ii)(3) can never fail clause 4.26.6(e)(ii)(4)

Repaid Amount Levies

Section 9.20 – Settlement in Default Situations

9.20.2. If, under Part 5.7B of the Corporations Act or another law relating to insolvency or the protection of creditors or similar matters, AEMO is required to disgorge or repay an amount, or pay an amount equivalent to an amount, paid by a Rule Participant under the WEM Rules:

(a) AEMO may Draw Upon any Credit Support held by AEMO in relation to the Rule Participant for the amount disgorged, repaid or paid ("Repaid Amount"); and

(b) If AEMO is not able to recover all or part of the Repaid Amount by drawing upon Credit support held by AEMO in relation to the Rule Participant, then AEMO must take the Repaid Amount into account when calculating the Default Settlement under 9.20.4.

- **Not clear what 'Default Settlement' is meant**
- **Not clear how AEMO recovers the Repaid Amount**

Repaid Amount Levies

Section 9.20 – Settlement in Default Situations

- Propose similar process to Default Levy process – ‘Repaid Amount Levy’
- Initial levy based on absolute values of MWh generation or consumption over the most recent Trading Week for which Settlement Statements have been issued (clause 9.20.2(b))
- AEMO notifies Market Participants within six Business Days of AEMO being notified of its requirement to provide the Repaid Amount (clause 9.20.2A)
- Market Participants must pay the amount notified by 10:00am on the second Business Day after being notified (clause 9.20.2B)
- Recalculation after the end of the Financial Year, based on MWh over the Financial Year – similar to Default Levy process (clause 9.20.2C)

Reductions of Service Fee Settlement Amounts

Clauses 2.25.3, 9.15.8, 9.15.9 and 9.20.3

Settlement Adjustment Process can reduce Service Fee Settlement Amounts if a reduction in total MWh for the Trading Week

- **No mechanism in the WEM Rules for AEMO to recover an overpayment from the Coordinator or the ERA (not Rule Participants)**
- **Occurs occasionally but very small amounts (<$400 over last eight years, usually <$10)**
- **Propose that AEMO pays the difference "from the fund established under clause 9.18.9" (clauses 9.15.8 and 9.15.9)**
- **AEMO recovers the difference by adjusting the next payments made to the Coordinator and ERA (clause 2.25.3) – usually on the same day**
- **Clause 9.20.3 amended to avoid short payments to Market Participants**

Other settlement changes

- **Clarify the applicable Facilities for settlement calculations**
- **Remove “price-quantity” option for System Restart Service payments (clause 9.10.26)**
- **Minimum RoCoF Control Service cost recovery method (Appendix 2B)**
  - **Only Western Power Networks considered as potential Network Causers**
  - **Clarify distinction between Injection Causers and Offtake Causers**
  - Injection Causers: Scheduled Facilities, Semi-Scheduled Facilities and Non-Scheduled Facilities with an Energy Producing System
  - Offtake Causers: Scheduled Facilities, Semi-Scheduled Facilities and Non-Scheduled Facilities which comprise only Loads and all Non-Dispatchable Loads (including the Notional Wholesale Meter)

Market Information framework

Bronwyn Gunn, EPWA

Market Information Framework

Recap of key elements

- Reduce six classes of confidentiality to two
- Principles based approach to classification
- Information Manager responsible for classification
- Guidance on disclosure of confidential information
- Dispute resolution mechanism
- Treatment of historically provided information

Standing Data

Jenny Laidlaw, EPWA

Standing Data – replacement of Appendix 1

- **Use new registration taxonomy**
- **Rearrange list order:**
- required for Rule Participant registration
- required for Facility registration
- not required for Rule Participant or Facility registration
- **Add items to support new market arrangements (e.g. Facility Technology Types)**
- **Remove obsolete items (e.g. DSP Ramp Rates)**
- **Remove items not maintained using section 2.34 (e.g. Capacity Credits, Standing STEM Submissions)**
- **Clarify meaning of some items (e.g. maximum sent out capacity)**

Standing Data – other changes

- **Consequential updates to clauses that reference Standing Data items (e.g. clauses 2.34.3, 2.34.8, 3.18.3(c), 7.6.15)**
- **Clause 2.34.7(b) – require AEMO to reject changes to Standing Data items that have not gone through a required preliminary approval process (e.g. FCESS Accreditation Parameters)**
- **(Note: Further work planned during consultation period on relationships between Standing Data and related data maintained by other processes, e.g. registration, certification, Intermittent Load parameters)**
- **Clause 2.34.14 – simplify rules around commencement of changes to Standing Data**
- Revised Standing Data that is accepted by AEMO takes effect from 8:00 AM on the later of:
  - the date proposed by the Rule Participant; and
  - the second day after the day on which AEMO accepts the revised Standing Data
- **Include (Interruptible Load) Restoration Profile as a FCESS Accreditation Parameter**

Generator Performance Standards

Presenters

Mike Chapman (Western Power) and Clayton James (AEMO)

Generator Performance Standards

Tranche 6 overview

The changes covered in Tranche 6 Exposure Draft 2 in relation to Generator Performance Standards cover two broad themes:

- Improvements to process through some minor adjustments and additions in Chapter 3A
  - The structure and information requirements for GPS submissions and GMP submissions
  - The processes around identifying and determining Potential and Relevant Generator Modifications
  - Additional guidelines around determining the maximum ambient temperature for different locations in the SWIS
- Improvements for clarity and consistency to the drafting of Appendix 12
  - Introducing consistency in determining the measurement location for Technical Requirements
  - Clarifying how the maximum ambient temperature is determined and applied across the Technical Requirements
  - Clarifying the reference levels for some Technical Requirements
  - Replacing references to old registration framework terms such as Scheduled and Non-Scheduled Generator
  - Fixing typo’s, removing redundant standards, resolving inconsistencies and improving readability of some Technical Requirements

Generator Performance Standards

Changes to Chapter 3A

Guidelines on determining the maximum ambient temperature:

- In Appendix 12, a number of Technical Requirements depend on ability to achieve something up to a maximum specified ambient temperature (more in later slides).
- To provide greater guidance to Market Participants and improve transparency, a new obligation has been included for AEMO, in consultation with Western Power, to publish guidelines on how it determines the maximum ambient temperature for different locations in the SWIS.

Guidelines on information requirements for GPS submissions:

- To support Market Participants in developing consistent GPS submissions that contain sufficient information to determine the standards that can be complied with, the obligation for Western Power to publish guidelines on GPS assessment is being amended to include guidelines on information requirements for GPS submissions.

Generator Performance Standards

Changes to Chapter 3A

Potential and Relevant Generator Modifications:

- The process for determining what constitutes a Relevant Generator Modification first requires Western Power to review “Potential” Relevant Generator Modifications to understand the extent of the modification.
- The changes in Tranche 6 are to clarify that some type of equipment changes may be considered a Relevant Generator Modification (e.g. an entire turbine replacement), and for this to occur it must first be a Proposed Relevant Generator Modification in order to be assessed.
- In addition, recent industry consultation on the Relevant Generator Modification guidelines highlighted a need to provide additional guidance and transparency to Participants on the types of equipment replacements that would generally meet the criteria to become Relevant Generator Modifications, and to provide guidance to participants.
- Therefore additional changes have been included to ensure the Relevant Generator Modification guidelines include the treatment of equipment replacement, and guidance on the process that Participants and Western Power must follow in making this determination.

Generator Performance Standards

Changes to Chapter 3A

Generator Monitoring Plan (GMP) Template:

- The current rules refer to AEMO specifying a Generator Monitoring Plan “Template” in a WEM Procedure, however while there is a standard GMP form for Participants to use, the actual development of GMP’s are heavily dependent on the nature of the Facility, and as such the WEM Procedure contains information on the types of things that must be included in the GMP and considerations that must be made.
- To reflect this, relevant clauses have been amended to refer to Generator Monitoring Plan “Requirements” that AEMO must document in a WEM Procedure for Participants to follow when creating their Generator Monitoring Plans.

Generator Performance Standards

Changes to Appendix 12

Determination of measurement location:

- Many Technical Requirements relate to the measurement of output quantities, e.g. Active/Reactive Power.
- In general Appendix 12 requires these quantities to be measured at the Connection Point unless otherwise specified, however the wording is inconsistent throughout.
- We recognise that, depending on the specific configuration of the Transmission Connected Generating System, it is not always possible or practical to measure some quantities at the Connection Point. Therefore flexibility needs to be retained for AEMO and the Network Operator to agree on an alternative measurement location.
- The changes in Tranche 6 introduce a consistent set of provisions including:
    - a new defined term – **Measurement Location**, which is defined as the Connection Point or other location agreed by AEMO and the Network Operator. This is then subsequently used to support other definitions of output quantities
    - a new Common Requirement for each Technical Requirement specifying that the measurement location is the Connection Point or other location agreed by AEMO and the Network Operator
    - the removal of previous inconsistent wording under specific clauses relating to measurement location

Generator Performance Standards

Changes to Appendix 12

Temperature Dependency:

- Technical Requirement A12.2 requires Participants to specify temperature de-rate data up to a maximum ambient temperature as specified by the Network Operator, however it is not currently clear how this information relates to the remainder of the Technical Requirements.
- The intent of A12.2 is to identify “safe” output ranges that the Transmission Connected Generating System can operate at for temperatures up to and including a maximum temperature, based on the location that it is connected to the SWIS.
- This is not clear in the current wording of A12.2, as such the changes in Tranche 6 for A12.2 include:
    - a new defined term – **Maximum Temperature**, which is defined as the maximum ambient temperature specified by AEMO in consultation with the Network Operator
    - changes to clarify that the Temperature Dependency Data must include a range of temperatures up to and including the Maximum Temperature, and must include a MW figure at the Maximum Temperature which is recorded as the Rated Maximum Active Power (which is used in specifying other Technical Requirements)
    - changes to clarify that MW values specified in the Temperature Dependency Data identify the maximum outputs that the Transmission Connected Generating System is capable of achieving at different temperatures while maintaining Continuous Uninterrupted Operation and compliance with other Technical Requirements (e.g. reactive power requirements, fault current injection requirements, etc).
    - changes to clarify that the Transmission Connected Generating System must not operate above the MW values specified in the Temperature Dependency Data for the specified temperatures
- The changes in Tranche 6 also move the decision for specifying the maximum temperature to AEMO, in consultation with the Network Operator, and require AEMO to publish guidelines on how this temperature is determined (as per earlier slide)

Generator Performance Standards

Changes to Appendix 12

Temperature Dependency:

- Many Technical Requirements that require outputs of certain quantities (e.g. reactive power, fault current) either currently do not specify what temperature range the Technical Requirement is applicable for, or relate to quantities that are non-temperature dependent (e.g. Nameplate Rating).
- Leveraging the changes for A12.2, changes have also been made as part of Tranche 6 to the definitions of Rated Maximum Active Power, Rated Maximum Apparent Power and Maximum Continuous Current in order to clarify temperature dependency in relation to other Technical Requirements.

A summary is shown on the next slide.

Generator Performance Standards

Technical Requirement	Changes/Clarification
Reactive Power (A12.3)	Minimum MVAr requirement based on the MW output at the Maximum Temperature (Rated Maximum Active Power) Requirements apply for all temperatures up to and including the Maximum Temperature
Voltage and Reactive Power Control (A12.4)	Allowable error levels based on MVA outputs at the Maximum Temperature (Rated Maximum Apparent Power) Synchronous Generating Unit excitation requirements based on: • specified MW levels in the Temperature Dependency Data (Ideal Standard) • outputs at standard temperatures as identified in relevant Australian or ISO Standards* (Minimum Standard) Requirements apply for all temperatures up to and including the Maximum Temperature ** Western Power/AEMO to include relevant standards in GPS guidelines*
Active Power Control (A12.5)	Maximum ramp requirements based on MW output at the Maximum Temperature (Rated Maximum Active Power) Requirements apply for all temperatures up to and including the Maximum Temperature
Inertia and Frequency Control (A12.6)	Droop response based on MW quantities specified in the Temperature Dependency Data (up to existing specified levels in Ideal/Minimum Standard) Requirements apply for all temperatures up to and including the Maximum Temperature
Frequency Disturbance Ride Through (A12.7)	Requirements apply at any allowable operating point, independent of temperature (i.e. based on Temperature Dependency Data and Generator Performance Chart)
Voltage Disturbance Ride Through (A12.8)	Requirements apply at any allowable operating point, independent of temperature (i.e. based on Temperature Dependency Data and Generator Performance Chart)
Multiple Disturbance Ride Through (A12.9)	Requirements apply at any allowable operating point, independent of temperature (i.e. based on Temperature Dependency Data and Generator Performance Chart)
Fault Current Injection (A12.9)	Participants to specify thermal limitations for fault current injection to include in GPS Requirements based on outputs at standard temperatures as identified in relevant Australian or ISO Standards** Requirements apply for all temperatures up to the limitations specified by the Participant *** Western Power/AEMO to include relevant standards in GPS guidelines*
Partial Load Rejection (A12.10)	Load rejection MW quantities based on MW output at the Maximum Temperature (Rated Maximum Active Power) Requirements apply for all temperatures up to and including the Maximum Temperature

Generator Performance Standards

Changes to Appendix 12

Removal of Scheduled Generator and Non-Scheduled Generator:

- Some Technical Requirements currently use the defined terms Scheduled Generator and Non-Scheduled Generator.
- In Tranche 6 changes have been made to those Technical Requirements to reflect the technology of the Transmission Connected Generating System rather than the Registration arrangements in order to clarify how the requirement is applied.
- The changes in Tranche 6 include:
    - changes to A12.3 (Reactive Power) to allow for Intermittent Generating Systems to reduce Active Power to meet Reactive Power requirements (with the agreement of the Network Operator)
    - changes to A12.5 (Active Power Control) to clarify:
        - that Non-Intermittent Generating Systems must be able to respond to control setpoints (Ideal)
        - that the Transmission Connected Generating System (as a whole) should meet the dispatch requirements (Ideal)
        - that Non-Intermittent Generating Systems must have a minimum ramp rate (Ideal and Minimum)
        - that Intermittent Generating Systems must have a maximum ramp rate (Ideal and Minimum)

Generator Performance Standards

Changes to Appendix 12

Introduction of Target Setpoint and threshold levels:

- Some Technical Requirements require certain outputs to be based on a specified quantity
- In Tranche 6, a new defined term **Target Setpoint** has been included to provide clarity on where these quantities are specified and used under A12.4 (Voltage/Reactive Power Control) and A12.5 (Active Power Control)
- Some components of A12.9 (Multiple Disturbance Ride Through) specify minimum fault current injection quantities relative to a change in connection point voltage (within a certain voltage range for the Ideal Standard). But the Technical Requirements do not currently include recording the threshold voltage level after which the Transmission Connected Generating System will respond
- The changes in Tranche 6 include capturing the threshold levels after which the Transmission Connected Generating System will respond

Generator Performance Standards

Changes to Appendix 12

Removal of redundant Australian Standards for harmonic voltage distortion:

- A12.12 (Quality of Electricity Generated) currently requires that Generating Systems must not produce harmonic voltage distortion levels greater than:
  - limits specified under AS 1359 / IEC 60034, or
  - the limits allocated by the Network Operator via the procedure described in AS/NZS 61000.
- The version of the Australian/IEC standard in first bullet point is no longer current, however rather than continuing to include a reference to a changing set of levels in Appendix 12 which is normally associated with equipment design rather than power system operation, the reference to these limits has been removed as part of Tranche 6
- This leaves the levels to be specified by the Network Operator, noting that the requirement to use the “procedure” in the relevant Australian Standard remains
- Consistent with historical Technical Rules approach.

Next steps

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Next Steps

- You are invited to provide feedback on the exposure draft before **5:00pm (WST), 14 September 2022** by submitting comments to energymarkets@dmirs.wa.gov.au
- We will consider your comments and, where appropriate, amend the combined Tranche 6 Amending Rules during September
- The Tranche 6 Amending Rules will undergo full legal review in October
- The Tranche 6 Amending Rules will be submitted to the Minister for his approval in November

We're working for Western Australia.