

WEM Reform Market Readiness Report No.7

Mar 2023



About this report

- The Market Readiness Report is intended to monitor WEM participant preparedness for the start of new market arrangements in the WEM, in accordance with the [Market Readiness Engagement and Reporting Strategy](#)

Prior to July 2022

Readiness reporting focused on:

- Measuring the extent to which respondents have established and commenced internal readiness work programs
- Identifying the areas where respondents anticipate the most significant effort and challenges.

From July 2022 onward

Readiness reporting now measures progress and status against Specific Readiness Criteria

- The Specific Readiness Criteria allow stakeholders to gauge each respondent's progress in delivering outcomes of relevance to their particular business and facilities
- Different sets of criteria apply to different types of entity; market participant, network operator, system operator and regulatory authority.

- Previous Market Readiness Surveys:
 - Specific: [Survey No. 6](#): Released 30 Nov 2022; Reported 22 Jan 2023; [Survey No. 5](#): Released 30 Sept 2022; Reported 4 Nov 2022; [Survey No. 4](#): Released 31 July 2022, Reported 9 Sept 2022
 - General: [Survey No. 3](#): Released 29 April 2022, Reported 7 June 2022; [Survey No. 2](#): Rel. 31 Jan 2022, Rep. 11 March 2022; [Survey No. 1](#): Rel. 30 June 2021, Rep. 31 July 2021
- Market Readiness Survey No. 7 was released on 30 Jan 2022 and supported by the [Survey User Guide](#) (Version 3).
- Survey invitees were identified as follows.
 - All registered market participants, noting AEMO excluded market participants known to no longer be active.
 - Prospective participants intending to commission new facilities before or shortly after go-live were included.
 - Where a common organisation is affiliated with multiple market participants, a single invitation in respect of that organisation was issued.
- Participation in the survey is voluntary and the results reported here have been aggregated and anonymised, with the exception of those for AEMO, Western Power and the ERA. Some of Synergy's results have also been reported in additional detail, relative to other market participants.
- This Market Readiness Report will be published on AEMO's website.
- For any queries or suggestions related to the report or survey, please contact wa.ets@aemo.com.au.

Key Insights



Survey coverage remains high but skewed

- Survey coverage by energy and capacity remained high this round.
- Large market participants (MPs) remain strongly engaged; smaller participants less so.



New approach required for small participants

- Small MPs and retailers continue to not respond or respond intermittently.
- AEMO to prioritise non-responders based on systemic risk assessment & adjust reporting.
- AEMO will also consider readiness based on system testing activity / outcomes.

1

Overall, **High Risk** MP capabilities remain On Track

- MC-1-MP-02 - RTMS: awaiting re-release to MPT with API manag't (March); release of WEMDE UI publishing solution (mid March) should support acceleration of MP trading system development.
- MC-1-MP-03 - WEMDE (DIs): On Track.
- MC-1-MP-04 - WEMDE (ESS): On Track.

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Some issues with **Moderate Risk** MP capabilities – being addressed

- MC-1-MP-06 - WEMDE (data): AEMO's delayed release to MPT a concern for MPs. Expect to resolve this with mid-March MPT release.
- MC-3-MP-01 - Outages: Similar situation to above (April MPT release). However, functions not req'd in Market Trial until Phase 2 (late May).

- MC-3-MP-02 – PASA: MPs waiting on AEMO. Functionality is non-critical for MPs. AEMO comfortable it can deliver in time for Go-Live.
- MC-4-MP-04 – STEM: MPs waiting on AEMO to release documentation and system to test. AEMO provided change summary end Feb.
- MC-3-MP-04 – GPS: gradually progressing. Completion timeframe won't affect Go-Live timing.



Need WEMDE UI publishing solution urgently

- Critical for development and testing of trading systems and logic.
- AEMO revised release date to mid March due to APIM blocker (now resolved).
- AEMO referring MPs to new API spec and the existing Swagger in the meantime.



Participants seeking faster progress on specifications and procedures

- AEMO's system documentation still a key bottleneck.
- AEMO expecting multiple WEM Procedure releases in March and April.



Test opportunities are a priority

- Rule participants keen for Market Trials but concerned about impact of MPT delays.
- Industry Testing registration has commenced
- AEMO to accommodate divergent participant readiness for Market Trial start.



Western Power highlights dependency on AEMO for Outages documentation

- Western Power continues to highlight outage management as its key dependency on AEMO.
- AEMO to deliver Outages WEMP draft for consultation late March/early April and MPT release early April.



ERA dependent on AEMO for data solutions for monitoring and surveillance functions

- ERA has multiple regulatory functions for which it depends on AEMO for data.
- AEMO expects interim solution in place for go-Live. Compliance Monitoring and Reporting project aims to finalise planning by end March.

How to read this report

New in Survey 6: Aggregated Results for Market Participants

- Individual participant responses have been aggregated to generate high-level summary results for each Market Capability
- Mock sample shown at right
- Aggregation of individual participant responses requires additional calculations

Aggregate "Progress" calculation:

- Substitute the band midpoint for each progress score
- Capacity weight each response, then average

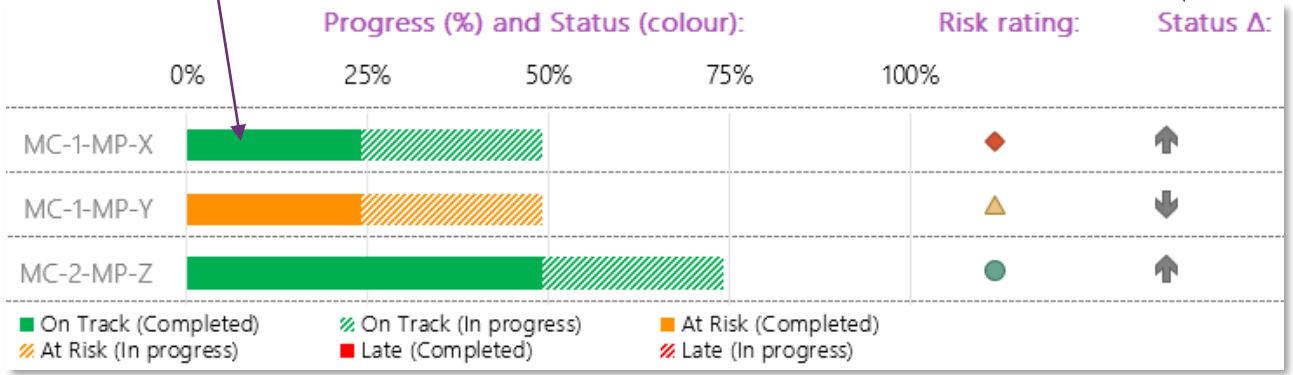
Aggregate "Status" calculation:

- Convert status responses into numeric data: **On Track** (1), **At Risk** (0.5), **Late** (0),
- Capacity weight each response, then average
- Convert numeric result back into Status categories based on bands:
 - On Track: averaged value above 0.8
 - At Risk: averaged value between 0.6 and 0.8
 - Late: averaged value below 0.6

AEMO risk rated each market capability, asking: "What is the intrinsic risk to go-live if participants aren't ready against this market capability?" Reasoning tabulated at end of this report.

Status is compared against previous survey: "Did aggregated status reports result in a change in status category?"

Progress and status of readiness work is reported in same visual form as for AEMO, Western Power and ERA.



Legend

- MC has low intrinsic risk
- ▲ MC has medium intrinsic risk
- ◆ MC has high intrinsic risk
- ➡ Status - no change since prev survey
- ⬇ Status - worse since prev survey
- ⬆ Status - improved since prev survey

Note: Intrinsic risk rating of each MC is independent of the status of that MC. For example, a high-risk MC (red diamond) may have a status of On Track (green progress bars). The latter rating reflects the status of a piece of work, whereas the former indicates the degree to which success or failure in executing that work could affect Go Live.

How to read this report

Results for Market Participants (cont)

New in Survey 6: capacity weighting and reordered MCs

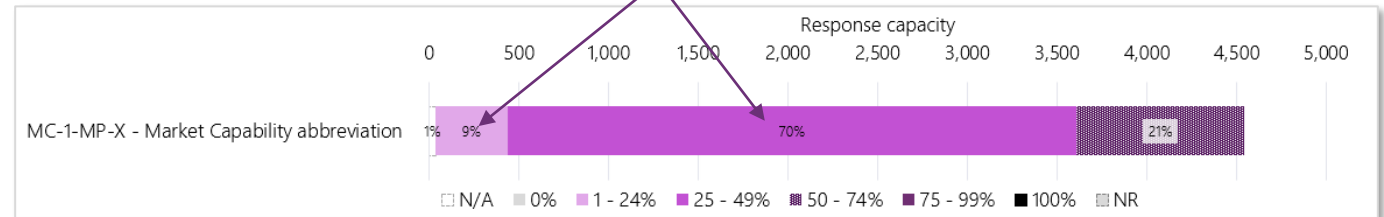
- We continue to report the spread of responses to each market capability.
- “Response capacity” replaces simple response counts

- measured by Capacity Credits awarded to each respondent for 2023-24 RC year
- this was necessary to aggregate the responses
- Charts now arrange market capabilities into high, medium and low risk – replacing Level 1 groupings (SCED, RCM, Sys Planning etc)

Progress Charts

- Possible values:
 - “N/A” – respondent considers market capability not applicable to them
 - Percentage progress of 0%, four equal bands, or 100%
 - “NR” – no response provided to this question
- Measuring the counts of each value among all responses
- Colour scheme shifts away from red as progress approaches 100%

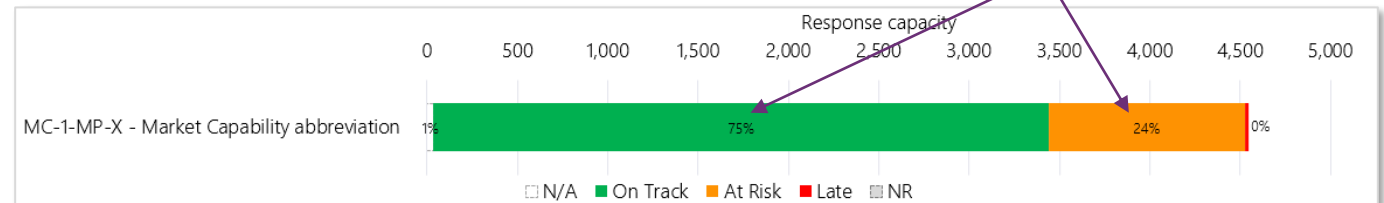
Percentage share of surveyed capacity reporting progress in this band



Status Charts

- Possible values:
 - “N/A” – respondent considers market capability not applicable to them
 - Status of work as “On Track”, “At Risk” or “Late”
 - “NR” – no response provided to this question
- Measuring the counts of each value among all responses

Percentage share of surveyed capacity reporting this status setting

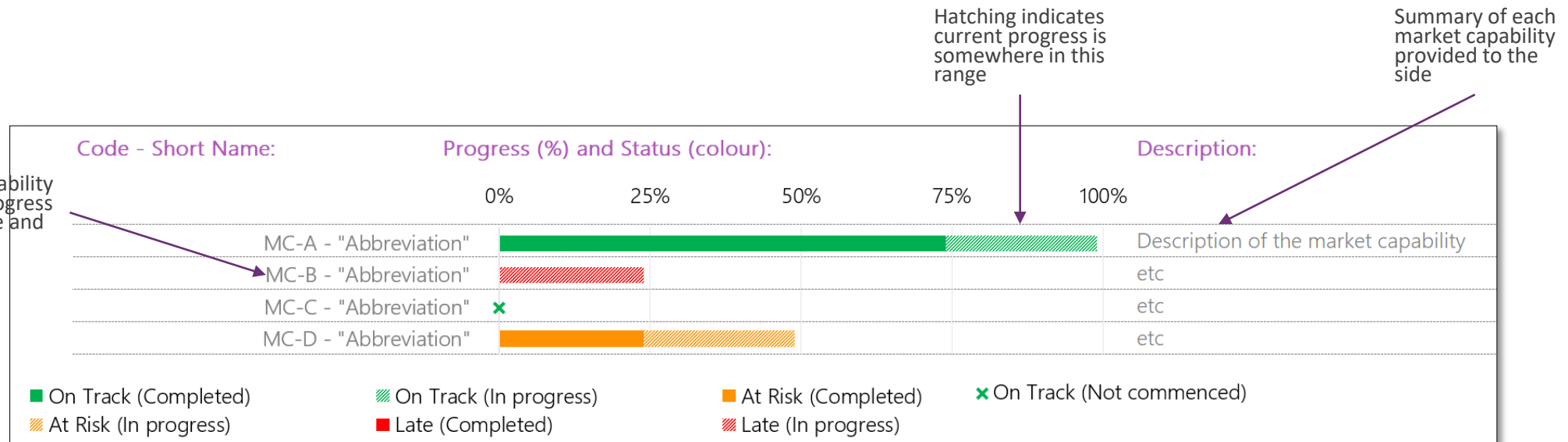


How to read this report (cont.)

Results for Other Reporting Entities (ERA, Western Power, AEMO)

- All results for a given entity presented on a single chart
- Chart scale measures percentage progress of four equal bands, or 100%
- X used to mark projects yet to commence.
- Currently in progress portion of work indicated by hatching
- “N/A” and “NR” options not used.
- Colour reflects status of work as “On Track”, “At Risk” or “Late”

Example Market Capability MC-B is reporting progress in the 0 – 24% range and status of “Late”

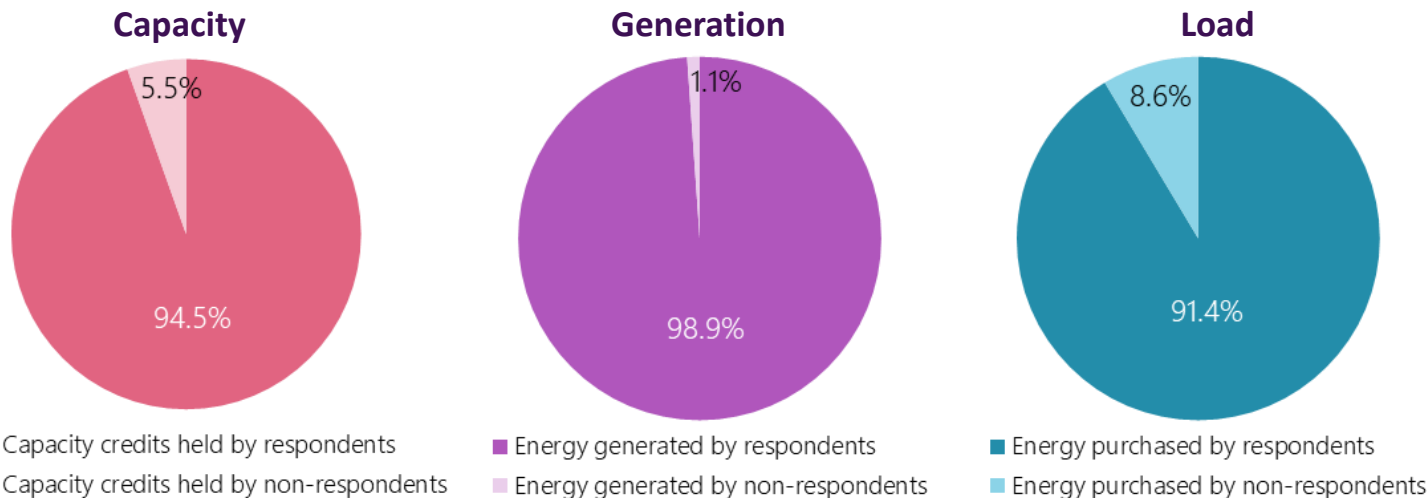


Response rates and coverage



Participation

- 48% of survey invitees responded (compared to 56% from Survey 6)
- Nil first time respondents, two Survey 7 respondents hadn't responded to Survey 6, six respondents to Survey 6 did not respond to Survey 7
- Responses covered most of the energy generated, capacity credits and energy consumed in the market
 - Market Generator coverage by capacity down slightly (94.5% compared to 96.1 % in Survey 6)
 - Market Generator coverage by energy up slightly (98.9% compared to 97.5 % in Survey 6)
 - Market Customer coverage down slightly (91.4% compared to 93% in Survey 6)
- Participation improved
 - Survey participation by number has dipped again (21 responses compared to 25 responses to Survey 6)
 - In some instances, non-respondents will be consistent with intention to NOT participate in the new market and hence not a concern
 - AEMO to implement a different approach to engaging with the smaller participants to ensure high impact readiness tasks are understood.
 - A table of responses since Survey 4 is included at the end of this report for all invited entities

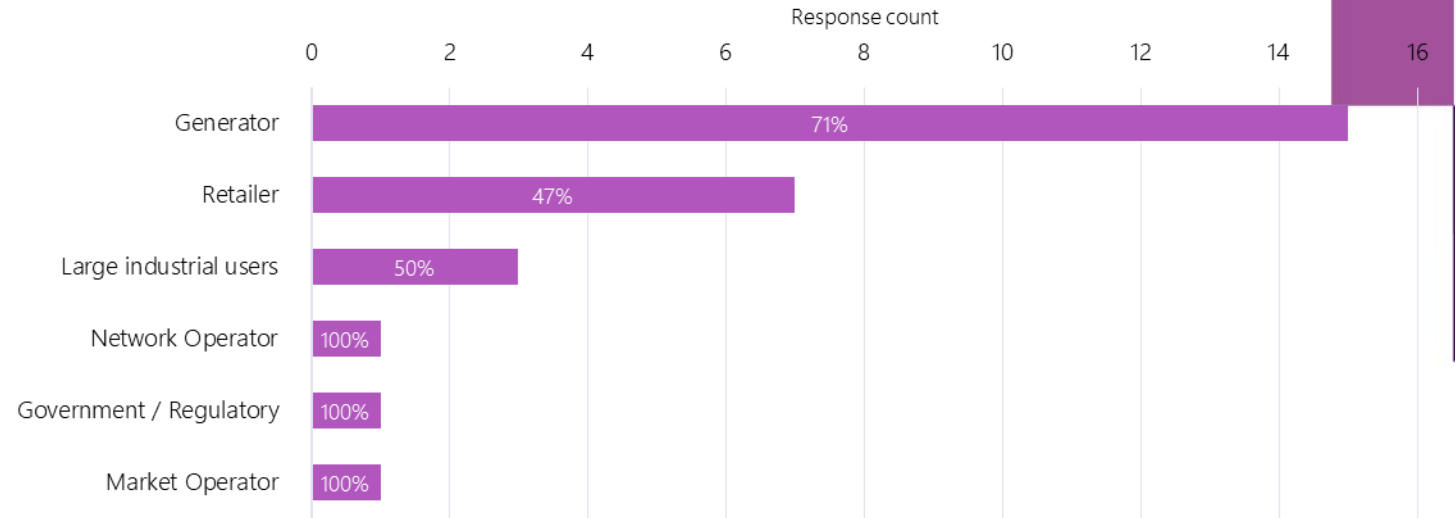


Statistic	Value	Comment
Survey invitations issued	44	Note multiple participantIDs aggregated in one invitation where appropriate (61 participantIDs covered by an invitation)
Completed responses	21 (48%)	Response rate based on completion of unique invitations.
Generation coverage	94% or better	Share of portfolio measured either by energy (10/2021 to 09/2022) or capacity (2023 RC Year)
Consumption coverage	91%	Aggregated consumption metered across all NMLs assigned to Survey respondents as share of total energy supplied (2022).

Respondent types

Market Generators

- 15 of 21 generators polled responded
- 18 facilities assumed operational at Go-Live are not covered by a response:
 - These facilities account for around 5.5% of capacity or 1.1% of energy.
 - All of these facilities are covered by 11 participants (accounting for multi-ID cases), of which 6 account for >98% of the capacity



Market Customers

- 11 of 23 Market Customers polled responded, covering around 93% of traded energy load.
- 7 of 15 retailers responded
- 4 of 6 large industrial users responded (market customers that are not retailers)

Western Power, ERA and AEMO have all responded

Results for Market Participants

Market Participant Readiness

Progress and status against all level 2 market capabilities

Code - Short Name Progress (%) and Status (colour):

	0%	25%	50%	75%	100%	Risk rating:	Progress Δ:	Status Δ:	Description:
MC-1-MP-01 - Constraint Management						●	7%	→	Able to retrieve and assess constraint information
MC-1-MP-02 - RTMS						◆	2%	→	Able to make real time market submissions.
MC-1-MP-03 - WEMDE (dispatch instructions)						◆	0.0%	→	Able to receive, understand and act on dispatch instructions at all facilities.
MC-1-MP-04 - WEMDE (ESS)						◆	0.0%	→	Ready to provide Frequency Co-optimised ESS and /or Non Co-optimised ESS
MC-1-MP-05 - Commercially prepared for SCED.						●	7%	↑	Commercially prepared for SCED.
MC-1-MP-06 - WEMDE (consuming other data)						▲	5%	→	Can consume and act on continuously published market information.
MC-2-MP-01 - RCM - Year 1						●	6%	→	Understand new obligations and submission changes for Year 1 of 2021 and 2022 RCC
MC-2-MP-02 - RCM - Year 2						●	-3%	→	Understand NAQ impacts and process changes for the 2022 Reserve Capacity Cycle
MC-2-MP-03 - RCM - Year 3						●	4%	→	Understand new obligations for Year 3 of 2021 Reserve Capacity Cycle, including settlements
MC-3-MP-01 - Outage Management						▲	5%	↓	Able to submit and update equipment outages
MC-3-MP-02 - PASA (MPs, covering MT & ST)						●	-2%	→	Understand and respond to ST & MT PASA outcomes and provide info
MC-3-MP-03 - Commissioning Test						▲	-3%	↑	Ready to manage facility commissioning testing
MC-3-MP-04 - GPS						●	-3%	→	Compliant with generator performance standards framework
MC-4-MP-01 - Settlements Reform						●	4%	→	Able to complete settlement under new arrangements
MC-4-MP-02 - STEM						●	-7%	→	Able to participate in STEM, following consequential modifications to this market
MC-4-MP-03 - Registration (participant-level)						●	1%	→	Comply with all participant registration requirements
MC-4-MP-04 - Registration (facility-level)						▲	0%	→	Comply with all facility registration requirements
MC-4-MP-05 - Miscellaneous transitional activities						●	4%	↑	Miscellaneous transitional requirements
Synergy Ops Transition						◆	N/A	↑	

■ On Track (Completed) ▨ On Track (In progress) ■ At Risk (Completed) ■ Late (Completed) ▨ At Risk (In progress) ▨ Late (In progress)

● MC has low intrinsic risk ▲ MC has medium intrinsic risk ◆ MC has high intrinsic risk
 → Status - no change since prev survey ↓ Status - worse since prev survey ↑ Status - improved since prev survey

Market Participant Market Capabilities – Items with **high** intrinsic risk

MC-1-MP-02 - RTMS:

Able to make real time market submissions.

- Weighted by facility capacity, most participants (almost 8MW in 10) report RTMS work is less than half completed, this is 8% more than the previous report.
- There is reduction in participants reporting progress in the 1-24% range, it is close to 1% of capacity against 9% reported in last survey.
- A participants with 1-24% progress noted that they are non-scheduled generator and do not trade in real-time in the market, and a couple of participants reporting the progress between 25%-49% noted that they are preparing for testing in March-23.
- More than 90% of capacity is reporting **On Track**, and capacity reporting this item as **At Risk** is reduced to 8% from 25%
- Overall, there has been progress against this item, with some MPs indicating concern around API specification not been published and WEMDE UI.
- One MP has noted WEMDE UI as barrier for this category and they foresee this as a risk for Market Trial Phase 1.

MC-1-MP-03 - WEMDE (Dispatch Instructions):

Able to receive, understand and act on dispatch instructions at facilities.

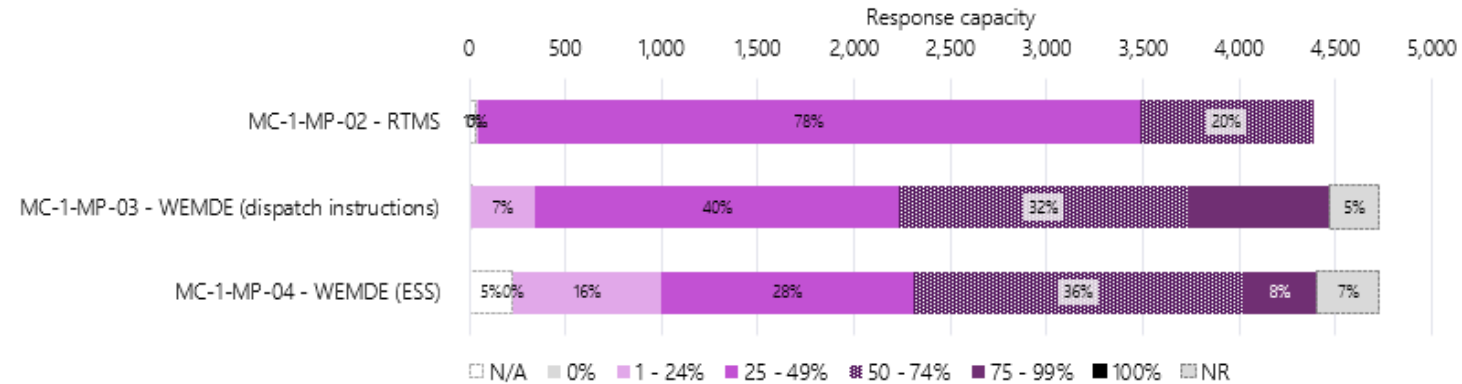
- Almost half of facility capacity is reporting progress of more than 50%; more than 1MW in 10 report progress of 75% to 99% compared to nil in Survey 6. (c)
- 4MW in 10 reporting progress of 25-49% which is unchanged from survey 6.
- Compared to Survey 6, just around 700 MW reported additional progress, that is primarily from 50-74% to 75 to 99%.
- A significant majority of facility capacity (~9MW in 10) reports status of **On Track** while only a small share (<1MW in 10) reports it **At Risk** Compared to Survey 6, **At Risk** reports remained steady.
- Overall, AEMO is comfortable with how this item is tracking, however, we need to see accelerating progress when the corresponding API is released to MPT (scheduled mid March).

MC-1-MP-04 - WEMDE (ESS):

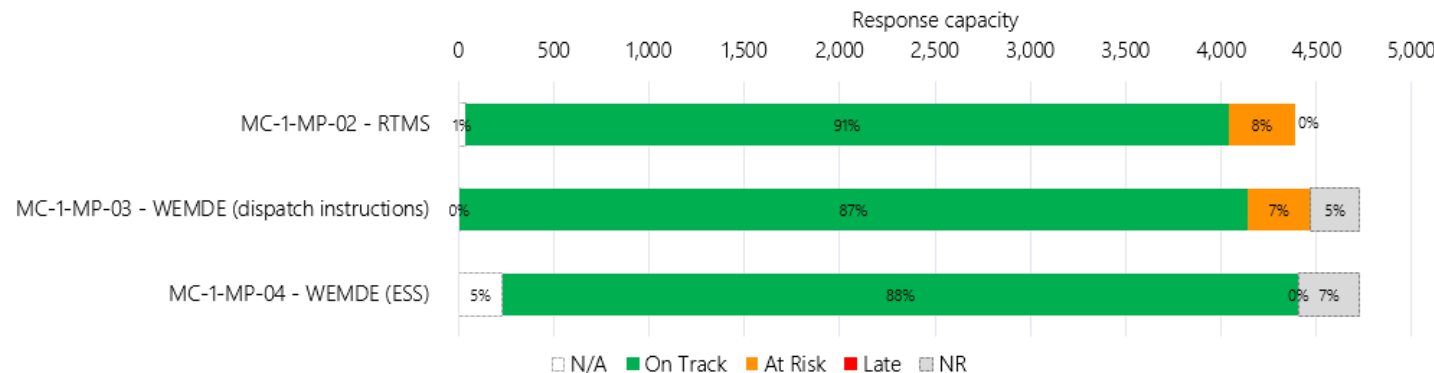
Relevant facilities are ready to provide Frequency Co-optimised ESS and /or Non Co-optimised ESS.

- More than 4MW in 10 of facility capacity is reporting progress 50% or better, with almost 3MW in 10 reporting progress of 25-49%
- Compared to Survey 6, 6% increment in 1%-24%, whereas 7% reduction in 25-49% progress report
- A large majority of facility capacity (~9MW in 10) reports status of **On Track** and a small share (<1MW in 10) reports it **At Risk**.
- One major facility downgraded its progress assessment, but retained a status of **On Track**.
- In light of progress with FCESS accreditation, AEMO is comfortable with how this item is tracking.

High Risk Items: Progress



High Risk Items: Status



Market Participant Market Capabilities – Items with moderate intrinsic risk

MC-1-MP-06 - WEMDE (Consuming other data)

Can consume and act on continuously published market information.

- Most capacity (9MW in 10), reports progress in the 25-49% range with most of the remaining capacity reporting progress of 1-24% range
- Almost 2MW in 10 moved up from 1-24% progress to 25-49% progress compared to Survey 6
- Most capacity (6MW in 10) reports status as **On Track** with almost all the remaining capacity (4MW in 10) reporting status as **At Risk**
- Participants reporting this item as **At Risk** highlight lack of visibility of information coming from WEMDE UI & STEM, and, more broadly, uncertainty of scope of published information
- AEMO is late in releasing the WEMDE UI solution to MPT (now expect this release mid-March). WRIG presentation 23/02 should have improved participant understanding re scope of STEM reports.
- AEMO continues to update system documentation and will refresh indexing to improve discoverability

MC-3-MP-01 - Outage Management:

Able to submit and update equipment outages

- Most capacity (nearly 9.5MW in 10) reports progress in the 25-49%, with remaining reporting 50-74%
- Almost 2 MW in 10 have progressed from 1-24% to 25-49%
- Almost 6MW in 10 reports status as **On Track** while remaining capacity reports status as being **At Risk**.
- **At Risk** responses have increased to around 4MW in 10, compared to around 3MW in 10 last survey due to one respondent switching its rating
- Participants are frustrated by delays in making outage management APIs available in MPT.
- AEMO presented an overview of Outage Management changes at Feb WRIG and aims to complete MPT release in early April.

MC-3-MP-03 - Commissioning Test:

Ready to manage facility commissioning testing.

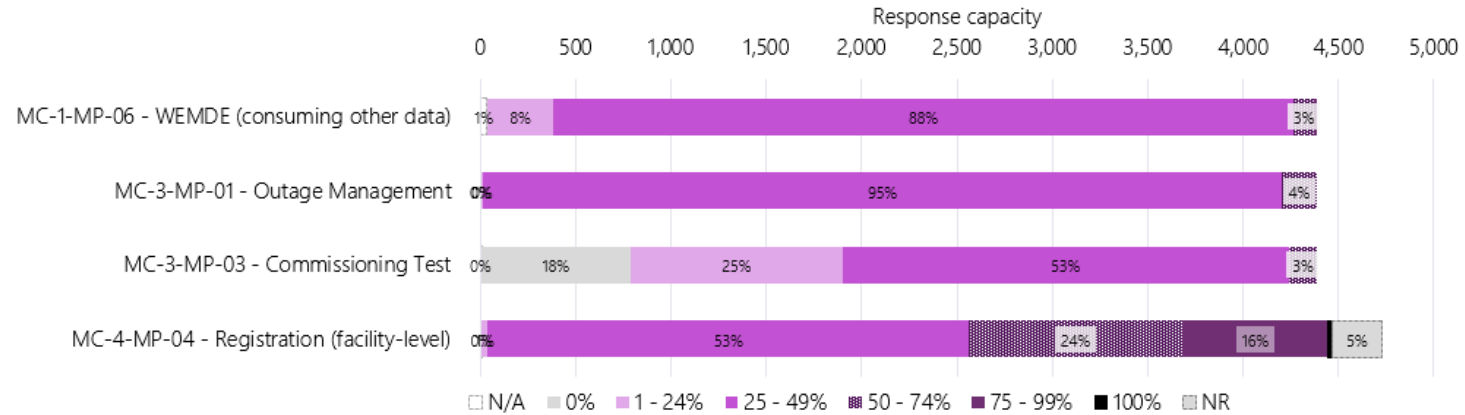
- Little more than half of the capacity reports progress in the 25-49% range and a quarter reports progress between 1% and 24%.
- Most capacity (more than 8MW in 10) reports status as **On Track** with remaining capacity of less than 2MW in 10 reporting status as **At Risk** as
- Reports of **At Risk** reduced from 4MW in 10 in Survey 6, driven by status upgrade to **On Track** by two MPs
- Overall, AEMO is comfortable with how this item is tracking.

MC-4-MP-04 – Registrations (Facility-level)

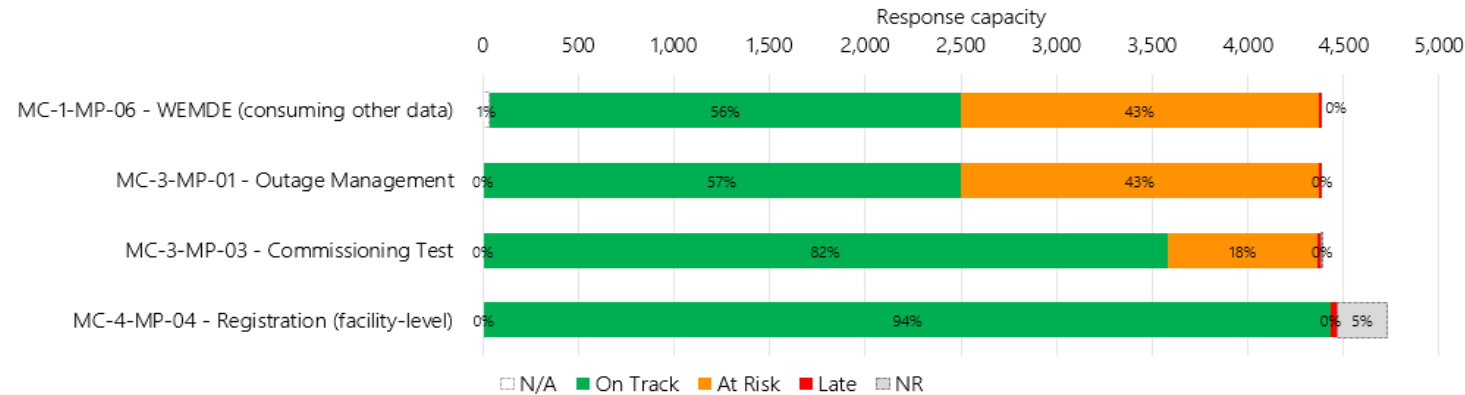
Comply with all facility registration requirements.

- More than half of facility capacity reports progress of 25-50%, while most remaining capacity (4MW in 10) is reporting progress above 50%.
- A significant majority of capacity (about 9.5MW in 10) reports status as **On Track**, while most of the remainder is NR.
- Whereas in Survey 6, the capacity share reported as being **At Risk** was about one in five, in Survey 7 it is reduced to zero.
- Overall, AEMO is comfortable with how this item is tracking.

Mod. Risk Items: Progress



Mod. Risk Items: Status



Market Participant Market Capabilities – Items with low intrinsic risk

MC-1-MP-01 - Constraint Management:

Able to retrieve and assess constraint information to inform trading and investment decisions

- Most capacity is reporting progress with majority in 25-50% range,)% progress is reduced from one in three in last survey to less than two in five.
- **At Risk** status is largely unchanged with a quarter of capacity reporting the same
- Participants responses for this item suggest that there has been a showcase and noted that actual constraints information has not been made available
- AEMO comfortable with how this item is tracking for Go-Live purposes.

MC-1-MP-05 - Commercially prepared for SCED

Participant-specific, but may include revision of contracts, trading practices, financial arrangements.

- Overall, AEMO is encouraged that most capacity is reporting progress with 9.6 MW out of 10 showing 25-50% and rest more than 50%. A quarter reported progress of less than 25% in previous report
- **At Risk** is reduced to about one third of the capacity and it points to delay in getting documentation that is impacting integrated testing.

MC-2-MP-01 - RCM - Year 1:

Understand new obligations and submission changes for Year 1 of 2021 and 2022 Reserve Capacity Cycle

- Almost all facility capacity is reporting **On Track**
- **At Risk** is reduced from one fifth of capacity in previous report to zero in the current report.
- AEMO is comfortable with how MC-2-MP-01 tracking from the perspective of participants being ready for Go-Live.

MC-2-MP-02 - RCM - Year 2:

Understand NAQ impacts and process changes for the 2022 Reserve Capacity Cycle.

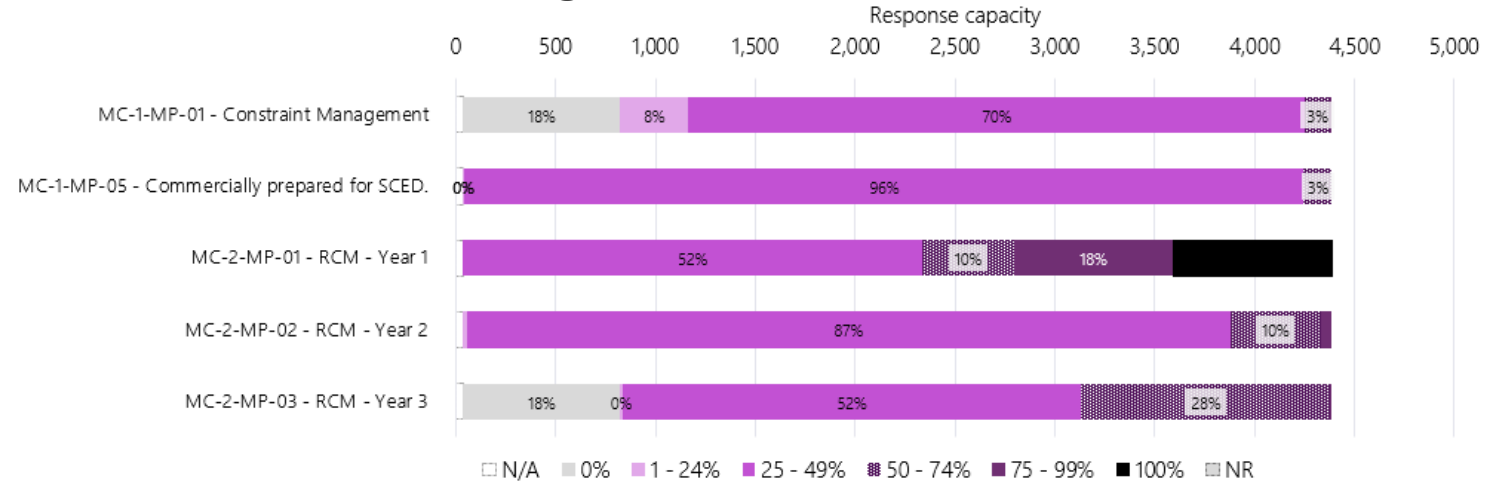
- Nearly one fifth of facility capacity is reporting status **At Risk** in comparison to zero in report 6.
- Most facility capacity (almost 9MW in 10) reporting progress of 25-49%, and almost all remaining reports progress of 50-74%

MC-2-MP-03 - RCM - Year 3:

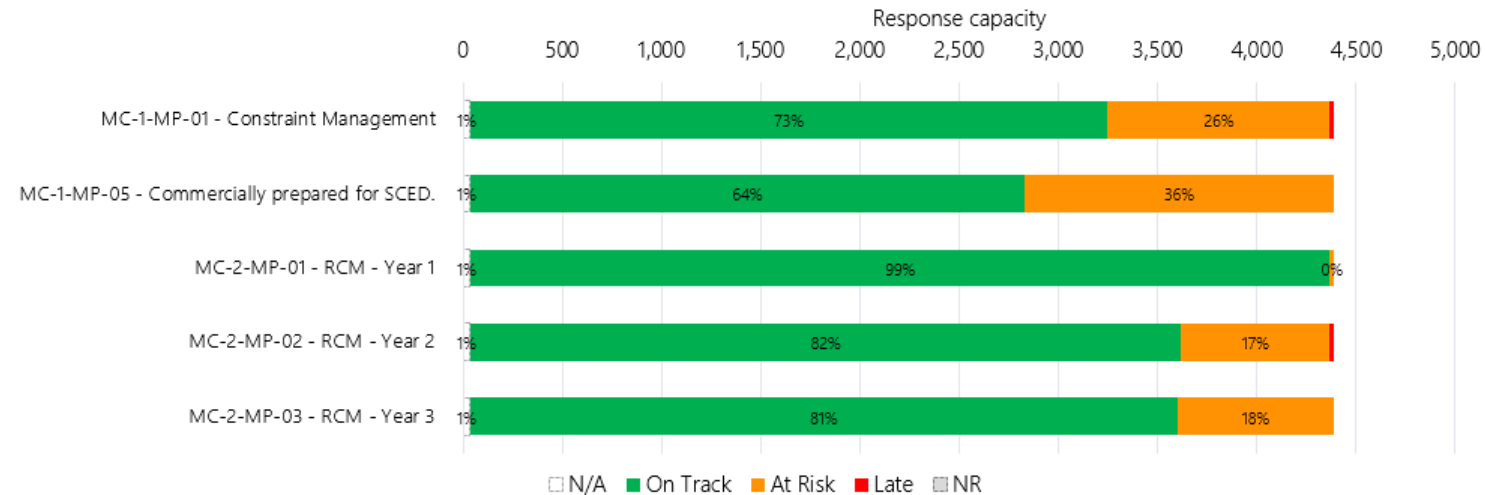
Understand new obligations for Year 3 of 2021 Reserve Capacity Cycle, including settlements.

- More than 8 MW out of 10 reported status as **On Track** for this item, with the balance reporting **At Risk**. Facility capacity reporting **On Track** has increased, in previous survey 7.5 MW in 10 reported the same
- More than half of the capacity reported progress 25-50%, and majority of the remaining capacity reported progress of 50-75% which is higher than preceding survey
- AEMO remains comfortable with how the item is tracking.

Low Risk Items: Progress



Low Risk Items: Status



Market Participant Market Capabilities – Items with low intrinsic risk (cont'd)

MC-3-MP-02 - PASA (MT & ST):

Understand and respond to ST & MT PASA outcomes and comply with information provision requirements.

- Most capacity reporting **On Track** (6.5MW in 10) but a significant minority reports as **At Risk**. Facility capacity reporting **At Risk** is reduced to less than one in five from more than two in five in previous report.
- Progress reported by MPs is similar to last survey. MPs have commented that they require development of procedure but also noted that it is likely to be manual procedure.

MC-3-MP-04 - GPS

Compliant with generator performance standards framework

- Around three quarters of capacity reports this item as **On Track** and the remaining quarter **At Risk** or **Late**.
- AEMO and Western Power continue to progress their GPS workloads. AEMO recognises that all tasks may not complete prior to Go-Live, but this shouldn't jeopardise the transition.

MC-4-MP-01 - Settlements Reform:

Able to complete settlement under new arrangements (including prudentials, CCA, IRGR)

- Like previous report, almost three quarters of all capacity reports this item **On Track** and the remaining quarter **At Risk**.
- While API specifications have been available since September, comments from a participant suggests system will be built once the specifications are complete whereas other noted it will be considered in Q3 2023.
- In this item has increased participants capacity reporting progress more than 25% to three quarter from little more than a half in the last quarter.
- AEMO comfortable with how this item is tracking for Go-Live purposes.

MC-4-MP-02 - STEM:

Able to participate in STEM, following consequential modifications to this market.

- Almost three quarter of capacity reporting **On Track** but remaining quarter reports as **At Risk**,
- More facility capacity is reporting progress of less than 25% in this report in comparison to last one (less than 1MW in 10 in last report, to 3.5 MW in 10)
- Some citing no progress since last survey and highlighted need of more information from AEMO.

MC-4-MP-03 - Registrations:

Comply with all participant registration requirements.

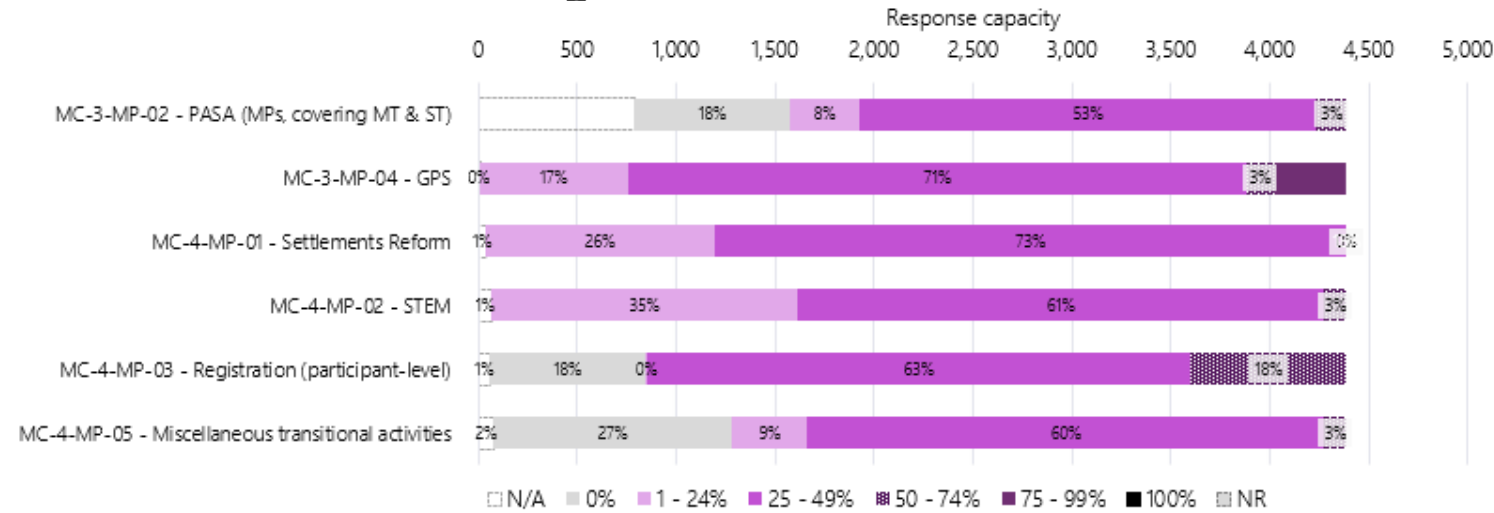
- Most capacity reporting **On Track** (7MW in 10) and rest reporting **At Risk**.
- Facility capacity reporting **At Risk** is increased by 10%.

MC-4-MP-05 - Miscellaneous transitional:

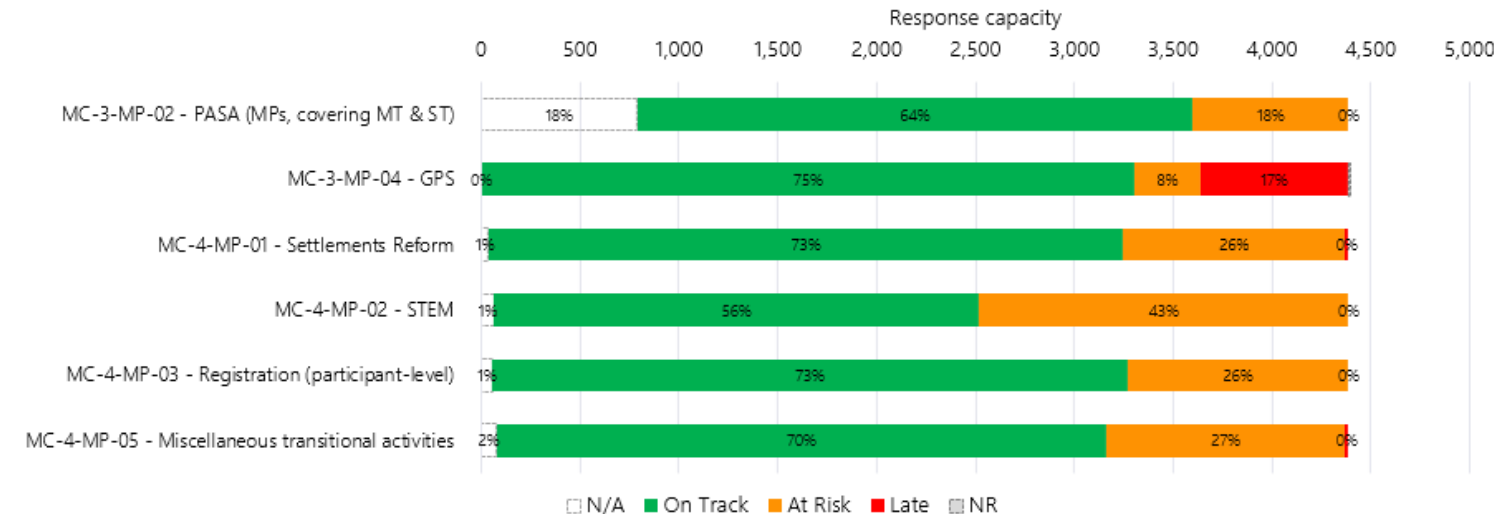
Miscellaneous transitional requirements – a catchall for other miscellaneous readiness requirements not covered by other capabilities.

- One participant requests more information on the plan for cutover and transitioning legacy system whereas other enquired about testing of the dispatch engine prior to new market.
- AEMO has commenced development of a Cutover Plan to be published in April 2023.

Low Risk Items: Progress



Low Risk Items: Status

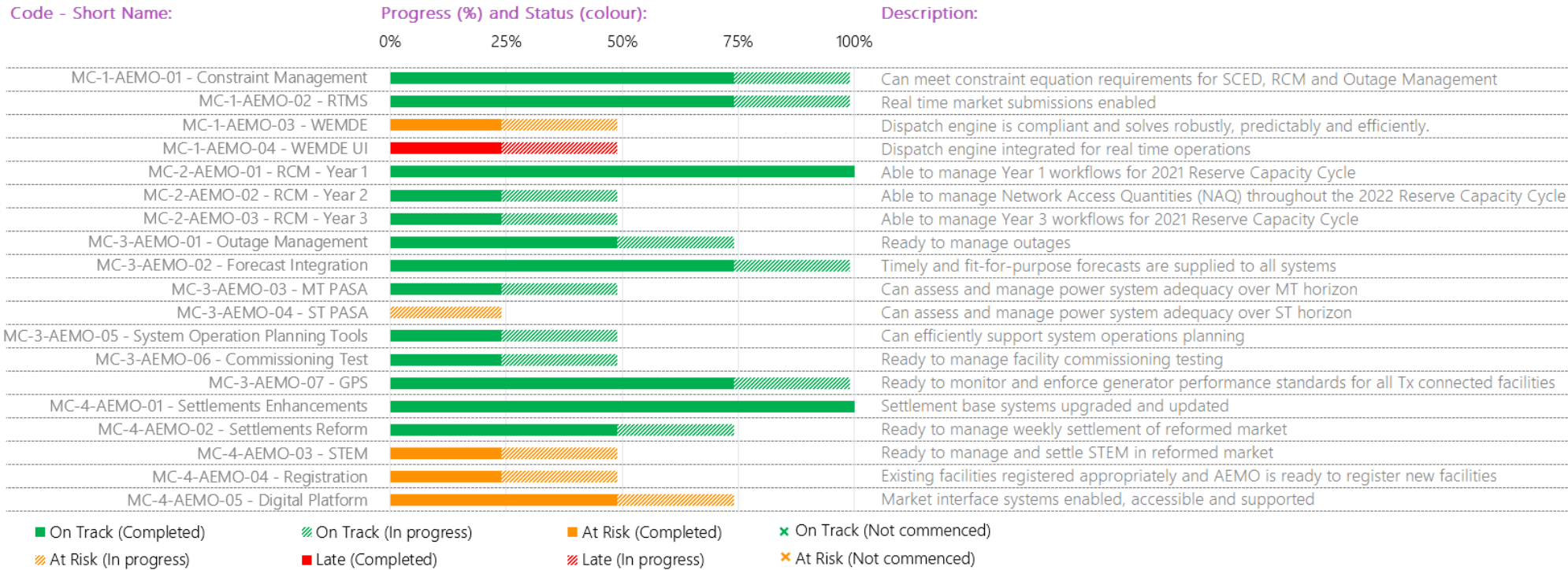


Results for Other Reporting Entities



AEMO's Readiness

Progress and status against all level 2 market capabilities



COMMENTS (cont.)

MC-3-AEMO-03 - MT PASA: Execution phase progressing as planned.

MC-3-AEMO-04 - ST PASA: Project will resume planning phase, having resolved resourcing challenges.

MC-3-AEMO-05 - System Operation Planning Tools: Majority of the project scope was deferred out of WEM Reform. The relevant WEM Procedures will still be delivered and are in hand.

MC-3-AEMO-06 - Commissioning Test: AEMO has reduced the scope and appointed a supplier. Planning Phase is completed and the Execution phase progressing as planned.

MC-3-AEMO-07 - GPS: The project development work is completed. GPS team continue to process GMP submissions and support GPS evaluations.

MC-4-AEMO-01 - Settlements Enhancements: Completed

MC-4-AEMO-02 - Settlements Reform: Bulk of development work is complete. Possible increasing stories due to integration planning between projects resulting in changes to Settlement.

MC-4-AEMO-03 - STEM: Project was initiated behind schedule, however, work is now progressing well and schedule is being recovered.

MC-4-AEMO-04 - Registration: Project execution is behind schedule as implementation uncovered additional complexity. AEMO has added resources to support additional development tasks. Impacts on Market Trial have been mitigated with a manual workaround.

MC-4-AEMO-05 - Digital Platform: AEMO encountered challenges in integrating APIM with its legacy platforms, which but issue was resolved by end of February.

Overall Program commentary provided next page

COMMENTS

MC-1-AEMO-01 - Constraint Management: Some development rework is continuing in conjunction with WEMDE integration. The work to build all remaining constraint equations required for go-live will continue through to Go Live.

MC-1-AEMO-02 - RTMS: Delivery completed and released to Market Participant Test and SIT. Final MPT release on track for early March.

MC-1-AEMO-03 - WEMDE: Project took on additional integration tasks and suffered efficiency penalties to deliver the first Market Trial Release on time. This put the

development of additional functionality behind schedule. Additional resources onboarded to recover the delay.

MC-1-AEMO-04 - WEMDE UI: Project has almost completed delivery of functionality required to support Coordinated Market Trial. To recover time impact due to this focus, Project has reordered remaining scope to allow delivery of functionalities essential for 1 October. Additional scope will be delivered post Go-Live.

MC-2-AEMO-01 - RCM - Year 1: Completed.

MC-2-AEMO-02 - RCM - Year 2: Release 2.1 (NAFF, NCESS, NAQ Upgrade) and Release 2.2 (CMS, CRMCE, RCMLA, PowerBI reports) are completed. Development work on

NAQ Engine is progressing as planned.

MC-2-AEMO-03 - RCM - Year 3: Planning phase and project setup are completed. The execution phase has already started and progressing as planned.

MC-3-AEMO-01 - Outage Management: Market Trial Release 1 to SIT completed. The project team has completed scope review for Market Trial Release 2 to SIT and development commenced.

MC-3-AEMO-02 - Forecast Integration: While project was largely completed in January 2023, some work remains. Market Participant Testing is on track to begin on May.

AEMO's readiness overall

WEM Reform Program Status

- AEMO is confident that it can achieve the 01-Oct-2023 go-live date, noting that it will require additional funds to complete the scope. AEMO has commenced preparation of 'in-period' submission to ERA to seek additional funding.

Key Achievements

- Integrated systems Release 1 (underpins Market Trial Phase 1) cleared System Integration Testing (SIT) and progressed to User Acceptance Testing (UAT) – on track for 3 April commencement.
- Completed development of RCM Phase 2 Release 2.3 (NAQ), testing commenced.
- Industry Testing and Transition Strategy v1 finalised, Market Trial approach presented to participants and registration for industry testing has opened.

Key risks and mitigations

- WEMDE and WEMDE UI projects are delivering complex and critical functionalities. Both projects have extensively reorganised their delivery schedules to facilitate both 1 April Market Trial and 1 Oct Go-Live and have ramped up resourcing to achieve the minimum viable product needed for Go-Live. The adopted sequencing will require some functionality to be delivered post Go-Live.
- The cutover of systems and processes is complex and presents risks to Go-Live. Work on a Cutover Plan to address this risk is now well-progressed. AEMO plans to release a public draft in April 2023.



Western Power's Readiness

Progress and status against all level 2 market capabilities

Code - Short Name:	Progress (%) and Status (colour):					Description:
	0%	25%	50%	75%	100%	
MC-1-NOP-01 - Customer connections	<div style="width: 100%; height: 10px; background-color: green;"></div>					Customer connection policies and contracts are ready for new transmission generator access offers
MC-1-NOP-02 - Limit Advice	<div style="width: 75%; height: 10px; background-color: green;"></div>					Able to provide non-thermal limit advice to AEMO for the development of network constraint equations.
MC-1-NOP-03 - SCADA	<div style="width: 100%; height: 10px; background-color: green;"></div>					SCADA and communications are established to support individual facility bidding etc
MC-1-NOP-04 - GIA	<div style="width: 25%; height: 10px; background-color: green;"></div>					GIA generators are transitioned to SCED.
MC-1-NOP-05 - Operational protocols	<div style="width: 75%; height: 10px; background-color: green;"></div>					Synergy, Western Power and AEMO Control Rooms, activities, coordination and protocols are established.
MC-1-NOP-06 - NCESS	<div style="width: 75%; height: 10px; background-color: green;"></div>					Can undertake NCESS Procurement to resolve network limitation issues.
MC-1-NOP-07 - RoCoF	<div style="width: 25%; height: 10px; background-color: green;"></div>					Can demonstrate Rate of Change of Frequency (RoCoF) ride through capability.
MC-2-NOP-01 - Limit Advice for RCM	<div style="width: 75%; height: 10px; background-color: green;"></div>					Able to provide thermal limit advice to AEMO for Reserve Capacity Cycles (2022 onwards).
MC-3-NOP-01 - Outage Intention Plans	<div style="width: 0%; height: 10px; background-color: red;"></div>					Able to submit an annual Outage Intention Plan to AEMO.
MC-3-NOP-02 - Equipment list	<div style="width: 25%; height: 10px; background-color: green;"></div>					Able to submit the expanded Equipment List (including secondary equipment).
MC-3-NOP-03 - Outage plans	<div style="width: 50%; height: 10px; background-color: orange;"></div>					Able to plan and coordinate network outages with other participants, and submit network outages plans
MC-3-NOP-04 - Commissioning Test	<div style="width: 0%; height: 10px; background-color: red;"></div>					Able to support the assessment of Commissioning Test Plans.
MC-3-NOP-05 - GPS	<div style="width: 75%; height: 10px; background-color: green;"></div>					Existing Transmission connected generator systems are GPS registered.
MC-4-MDA-01 - Weekly meter data	<div style="width: 50%; height: 10px; background-color: green;"></div>					Can provide meter interval data on a weekly basis to enable Weekly Settlement.
MC-4-NOP-01 - Event and performance monitoring	<div style="width: 75%; height: 10px; background-color: green;"></div>					High resolution data provided to AEMO to enable event monitoring and monitoring of generator performance.
MC-4-NOP-02 - ERA review	<div style="width: 0%; height: 10px; background-color: red;"></div>					Able to support the periodic ERA Review and Study of the impact of Network Operator Outages on the market.
MC-4-NOP-03 - Coordinator of Energy review	<div style="width: 0%; height: 10px; background-color: red;"></div>					Able to support the periodic Coordinator of Energy review of the Outage Planning process.

- On Track (Completed)
- ▨ On Track (In progress)
- At Risk (Completed)
- ✘ On Track (Not commenced)
- ▨ At Risk (In progress)
- Late (Completed)
- ▨ Late (In progress)

WP Comments (cont)

MC-3-NOP-01 - Outage Intention Plans: Work has not commenced on the Outage Intention Plan as this is dependant on AEMO to finalise the WEM Procedure Outages for industry consultation (Sep 2022). Western Power is required to submit its inaugural Outage Intention Plan in Mar 2025.

MC-3-NOP-02 - Equipment list: The Equipment List will be shared outside of structured system integration and will instead follow a semi-manual process to share on update. Internal semi-manual processes are now required to be developed support this transaction.

MC-3-NOP-03 - Outage plans: AEMO has provided Western Power with draft API (Technical Specification) to enable Western Power to commence design. Western Power is awaiting further collaboration and industry consultation from AEMO on the WEM Procedure Outages. Solution development has commenced against the draft design and is on track for Market Testing (Jun 2023).

Delays to the WEM Procedure and Technical Specification finalisation will impact project costs (stranded resources).

MC-3-NOP-04 - Commissioning Test: Expected to commence in early 2023 when AEMO release the WEM Procedure Commissioning Test.

MC-3-NOP-05 - GPS: WEM Procedures published (Feb 2021). Generator Performance Standards: Relevant Generator Modification Guideline published (Jul 2022). Generator Performance Standards: Guideline for the Assessment of Technical Requirements final published (Dec 2022). The first generating system has been registered under the new Generator Performance Standards (Jan 2023). Assessment of Existing Transmission Connected Generators GPS assessments continue with engagement from Market Participants and AEMO (Aug 2023).

MC-4-MDA-01 - Weekly meter data: Execution has commenced (Sep 2022) for the work required to provide weekly (contestable) meter data for the settlement of the Non-STEM.

MC-4-NOP-01 - Event and performance monitoring: Manual process implemented (Oct 2021). Automation of data transfer to be deployed (Feb 2023).

MC-4-NOP-02 - ERA review: Internal processes and systems are required to be developed to enable this capability.

MC-4-NOP-03 - Coordinator of Energy review: Internal processes and systems are required to be developed to enable this capability.

Western Power comments

MC-1-NOP-01 - Customer connections: Customer policies and contracts updated and available on Western Power website (Aug 2021).

MC-1-NOP-02 - Limit Advice: WEM Procedure for Developing Limit Advice published (April 2021). Non-thermal Limit Advice for System Normal submitted to AEMO (Jun 2022). Non-thermal Limit Advice for System Abnormal (AEMO Priority Circuits) submitted to AEMO (Oct 2022). Non-thermal Limit Advice for planned outages beyond market start to be submitted to AEMO (Jul 2023). Internal processes and systems and resource structure to be defined and implemented (ahead of Jul 2023).

MC-1-NOP-03 - SCADA: All SCADA and communications have been established for all Market Participants that have requested them. The final request was made to Market Participants to advise Western Power of any remaining SCADA work required to enable an existing Market Participant facility to participate in the new market. (WRIG 9 Feb 2023). New requests are now subject to

Western Power's Customer Project lead times.

MC-1-NOP-04 - GIA: Western Power will need to develop and resource a plan to support AEMO activities to transition GIA generators from the GIA tool to WEMDE (Jul 2023). Development of this plan is dependant on AEMO sharing their Transition and Rollback Plan with Western Power (Jun 2023).

MC-1-NOP-05 - Operational protocols: Synergy, AEMO and Western Power Control Rooms have commenced engagement, AEMO will continue to lead this engagement. AEMO / Western Power Operating Protocol published (Oct 2022). Internal processes and systems specific to the control room will be reviewed for change based on the outcomes of the Operating Protocol update and wider WEM Rules amendments.

MC-1-NOP-06 - NCESS: The NCESS framework has been applied for in progress Network Control Services (NCS) commercial events. Network Opportunity Map 2022 published (Oct 2022). Transmission System Plan 2022 published (Feb 2023). The NOM and TSP include potential non-network solutions that would be procured in

accordance with NCESS. The existing Network Control Services (NCS) process and systems is being revised to align with the NCESS Framework. The revised process will be tested with the (first) next Western Power NCESS Trigger Event. Western Power has commenced discussions with Energy Policy WA on interpretation of Network Operator triggers.

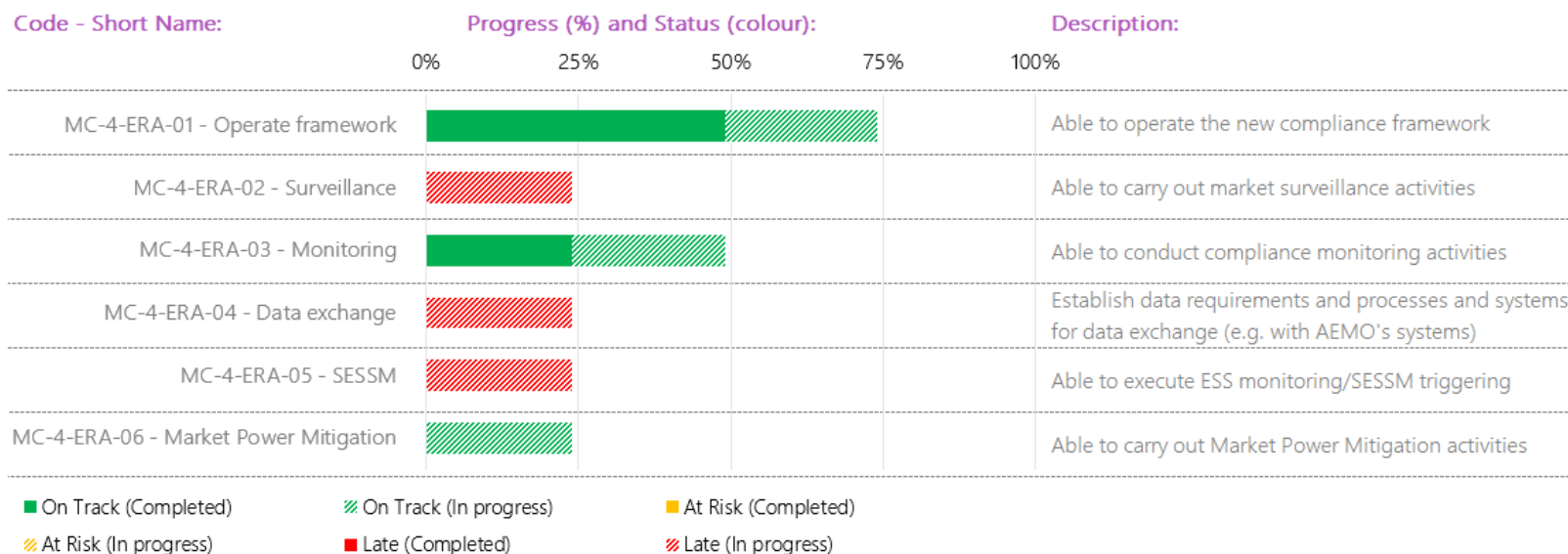
MC-1-NOP-07 - RoCoF: Western Power has commenced initial discussions with AEMO regarding the approach for accreditation of Western Power's RoCoF ride-through (minimum) for the transmission and distribution networks. Further discussions are required to understand the approach required to seek exemption.

MC-2-NOP-01 - Limit Advice for RCM: Thermal Limit Advice to enable the 2022 Reserve Capacity Cycle has been provided to AEMO (Jul 2022). Internal process and system updates are in finalisation and are required to be implemented ahead of Mar 2023, to support the 2023 Reserve Capacity Cycle, and future annual cycles.



Economic Regulation Authority's Readiness

Progress and status against all level 2 market capabilities



ERA Comments (cont)

MC-4-ERA-03 – Monitoring (cont): This work will underpin the ERA's compliance monitoring activities for the new market design. AEMO has recently commenced providing subject matter expertise to assist EPWA and ERA develop the MSDC list. AEMO have yet to confirm the data transfer mechanism.

MC-4-ERA-04 - Data exchange: ERA will need to have data interfaces in place with AEMO's systems. This will be largely dependent on AEMO's intended design for data sharing arrangements with the ERA (and EPWA) for the new market. ERA and EPWA are awaiting confirmation from AEMO on the proposed data transfer mechanism, including potential interim solutions, and the timing for when these solutions can be in place.

MC-4-ERA-05 - SESSM: Project team is currently working through requirements and process for ESS monitoring and in early stages of the development of ESS WEM Procedure. Consultation on the ESS WEM Procedure is planned for Mar-Apr 2023.

MC-4-ERA-06 - Market Power Mitigation: This project is dependent on EPWA's finalisation of the Market Power Mitigation (MPM) rules. The ERA released the draft offer construction guideline for consultation in late Dec 2022. Consultation closed on 10 Feb 2023. The offer construction guideline was based on the draft MPM rules released by EPWA in November 2022. The ERA has also commenced development of the draft trading conduct guideline. The ERA understands that there could be further changes to the MPM rules and so further development of these guidelines will need to consider these changes. The ERA has also commenced planning the implementation of the operational aspects of the new MPM framework.

ERA comments

MC-4-ERA-01 - Operate framework: There is interdependency for this project with the work that EPWA is currently doing in terms of updates to the Regulations and also further changes to the compliance framework to be included in the WEM Rules. The ERA is proceeding with the development of its WEM procedure and related process and system changes based on the information it currently has from EPWA for the most recent changes. The ERA intends to hold a workshop in early 2023 on the WEM procedure and compliance priorities in the new market. Consultation on the procedure is then intended to be held in March 2023 with the WEM procedure finalised by early Q3 2023. However the exact timing for this will be dependent on the finalisation of EPWA's changes to the Regulations and WEM Rules. Associated internal process and system changes will be made concurrently.

MC-4-ERA-02 - Surveillance: EPWA and ERA are continuing work on specifying data requirements for the new Market Surveillance Data Catalogue, with this work on track to being completed by March 2023. This work will underpin the ERA's surveillance activities for the new market design. AEMO has recently commenced providing subject matter expertise to assist EPWA and ERA develop the MSDC list. AEMO have yet to confirm the data transfer mechanism.

MC-4-ERA-03 - Monitoring: There are interdependencies with this project and the work that is being done on the Market Surveillance Data Catalogue (MSDC) list and the list of WEM Rules that AEMO must monitor per clause 2.16.2A(aA). The ERA has prepared its draft focus areas for compliance monitoring in the new market and presented these at an ERA industry forum in November 2022.

Monitoring activities will be broadly split into 3 categories being: Mandatory – areas ERA must monitor because of the WEM Rules; Risk-Based – areas ERA has identified through risk assessment processes; Trend-Based TBC once new market has been operating – based on what ERA is seeing. E.g. outages. These focus areas will be further discussed with stakeholders in the first half of 2023, with the intention that these areas will be formalised and published by the ERA either through its updated compliance strategy or other appropriate mechanism around mid-2023. To enable the ERA to carry out compliance monitoring activities, it will need to have data interfaces in place with AEMO's systems. EPWA and ERA are continuing work on specifying data requirements for the new Market Surveillance Data Catalogue with the view that this work will be completed by March 2023. *[continued next column]*

Key Activities Looking Forward

Key delivery activities for the next 3 months include:

- Complete application development of Outage Management, Settlement, Registration, and Forecast Integration systems
- Continue development of WEMDE, WEMDE UI, Commissioning Test Plans, STEM,
- Commence development of ST PASA systems
- Deliver updated documentation and MPT testing opportunities for RTMS (4th and final release, early March), WEMDE UI (release 1, mid-March), Outage Management (release 2, early April)
- Commence Phase 1 of Market Trial beginning of April
- Progress system integration and integrated testing (complete for second release in time to support Phase 2 Market Trial, week 4 of May)
- Draft and consult on multiple WEM Procedures (refer latest [WEM Procedures Timeline](#))
- Commence business readiness activities including business process changes and training
- Continue development of constraint equations noting dependency on Limit Advice and that AEMO's resource priority reflects a focus on readiness for real-time operations at Go Live

Next steps

- Continue with bi-monthly surveys and reporting cycle using the specific readiness criteria (market capabilities) reported against here.
- Release schedule:

Survey/Report Number	Market Readiness Survey	Market Readiness Report
8	End Mar 2023	End Apr 2023
9	End May 2023	End Jun 2023
10	End Jul 2023	End Aug 2023

Appendices

AEMO's reasoning for risk ratings against Participant Market Capabilities

Risk	Market Capability	Risk rating rationale
High	MC-1-MP-02 - RTMS	A facility cannot participate in the real-time market (RTM) unless the participant can make submissions, which could in turn prevent AEMO from having access to this generating capacity and jeopardise system security.
High	MC-1-MP-03 - WEMDE (dispatch instructions)	If a significant proportion of facilities cannot receive and respond to Dispatch Instructions, this could jeopardise system security.
High	MC-1-MP-04 - WEMDE (ESS)	If a sufficient fleet of facilities are not ready to provide FCESS, WEMDE will be unable to reliably dispatch enough FCESS to maintain system security.
Medium	MC-1-MP-06 - WEMDE (Consuming other data)	The ability to consume market information is important from the perspective of participants that intend to monitor and respond to market conditions - for instance making use of the Look aheads to make trading decisions. AEMO doesn't consider this capability to be essential for the operation of the real-time market, but accepts that it is important commercially and time consuming for participants to build.
Medium	MC-3-MP-01 - Outage Management	A participant that lacks the ability to submit/log planned and forced outages will face compliance challenges and/or impose additional administration burdens on AEMO. However, provided that participants reflect facility availability in their RTM Submissions, WEMDE will continue to be able to solve correctly.
Medium	MC-3-MP-03 - Commissioning Test	Shortly after Go Live, some facilities are expected to need to submit Commissioning Test Plans (CTPs). An inability to use the new systems and processes may raise compliance issues for participants and administrative overheads for AEMO, but risks to system security should be manageable.
Medium	MC-4-MP-04 - Registration (Facility-level)	Facility classification and facility standing data must be accurate and complete given the dependencies of downstream systems on this information, including RTMS and WEMDE. A failure among participants to be ready to use the new system and processes will impose an administrative burden on AEMO, but risks to system security should be manageable.
Low	MC-1-MP-01 - Constraint Management	The information provided via the Congestion Information Resource is not required by participants to support real-time operations. Further, information on invoked constraints will be published via WEMDE UI anyway.
Low	MC-1-MP-05 - Commercially prepared for SCED.	The collective system/market has limited stake in the commercial readiness of individual firms. Rather this is an important area of work from the perspective of individual firms.
Low	MC-2-MP-01 - RCM - Year 1	The Reserve Capacity Mechanism (RCM) doesn't strongly affect the RTM, thus this is similar to MC-1-MP-05.
Low	MC-2-MP-02 - RCM - Year 2	The RCM doesn't strongly affect the RTM, thus this is similar to MC-1-MP-05.
Low	MC-2-MP-03 - RCM - Year 3	The RCM doesn't strongly affect the RTM, thus this is similar to MC-1-MP-05. While participants may face unexpected refunds if they are not aware of their obligations around RTM that arise from RCM, AEMO does not consider this a systemic risk.
Low	MC-3-MP-02 - MT & ST PASA	The ability to consume PASA reports isn't required by participants to support real-time operations. While AEMO needs participants to provide the data necessary to support MT PASA, the risk of non-compliance is considered manageable.
Low	MC-3-MP-04 - GPS	Completing GPS will provide better information that improves planning and operational decision making and thus reduces risks. But the system/market can proceed without realising those benefits immediately (for instance because some generators haven't completed their GPS/GMPs).
Low	MC-4-MP-01 - Settlements Reform	Participants will vary in how sophisticated they wish to be in their systems to verify and reconcile settlement data, but provided they can download an invoice and pay it, the systemic risk posed by some firms not being ready in this area should be low.
Low	MC-4-MP-02 - STEM	Participants that need to participate in STEM face minimal changes to be ready and their participation in STEM is, in any case, optional. Similarly, submitting a bilateral submission should be straight forward. As in the case of settlement, the systemic risks should be low.
Low	MC-4-MP-03 - Registration (Participant-level)	Participant registration information should be straight-forward to update.
Low	MC-4-MP-05 - Miscellaneous transitional activities	At the moment, only one item is identified in this set and this item is considered to have a minimal impact on overall systemic risks (the item: Intermittent Loads, must have submitted all relevant information to support AEMO making a determination on contribution towards Contingency services).

Survey invitees and response record since Survey 4

Note: reporting against specific readiness criteria was introduced with Survey 4



PrimaryPID	Participant Name	All PIDs	Survey 4	Survey 5	Survey 6	Survey 7	Survey 8	Survey 9	Survey 10
WPGENER	Synergy	WPGENER, WPRTL, MUMBIDA	TRUE	TRUE	TRUE	TRUE			
ALINTA	Alinta Sales Pty Ltd	ALINTA, WALKAWAY	TRUE	TRUE	TRUE	TRUE			
GRIFFINP	Bluewaters Power 1 Pty Ltd	GRIFFINP, GRIFFIN2	TRUE	TRUE	TRUE	TRUE			
NEWGEN	NewGen Power Kwinana Pty Ltd	NEWGEN	TRUE	TRUE	TRUE	TRUE			
NGENEERP	NewGen Neerabup Partnership	NGENEERP, NGENNEER	TRUE	TRUE	TRUE	TRUE			
PERTHNRGY	Perth Energy Pty Ltd	PERTHNRGY, WENERGY	FALSE	TRUE	TRUE	TRUE			
MERREDIN	Merredin Energy	MERREDIN	FALSE	FALSE	FALSE	FALSE			
GLDFLPW	Goldfields Power Pty Ltd	GLDFLPW, STHRNCRS	TRUE	FALSE	FALSE	FALSE			
TSLA_MGT	Tesla Corporation Pty Ltd	TSLA_MGT, TSLA_GER, TSLA_HLD, TSLA_KEM, TSLA_NOR,	FALSE	TRUE	TRUE	FALSE			
WARADGE	Bright Energy Investments	WARADGE, ALBGRAS, GRENOUGH, GRNOUGH	TRUE	TRUE	TRUE	TRUE			
TIWEST	Tronox	TIWEST	TRUE	FALSE	TRUE	TRUE			
KWINWTE	Kwinana WTE Project Co Pty Ltd	KWINWTE	TRUE	FALSE	TRUE	TRUE			
ALCOA	Alcoa	ALCOA	TRUE	FALSE	TRUE	FALSE			
ERRRF	East Rockingham RRF Project Co Pty Ltd	ERRRF	FALSE	FALSE	TRUE	FALSE			
PREMPWR	Wesfarmers Kleenheat Gas Pty Ltd	PREMPWR	FALSE	FALSE	FALSE	FALSE			
COLLGAR	Collgar Wind Farm	COLLGAR	FALSE	TRUE	TRUE	TRUE			
EDWFMAN	EDWF Manager Pty Ltd	EDWFMAN	FALSE	TRUE	TRUE	TRUE			
SUNAU22	Merredin Solar Farm Nominee Pty Ltd	SUNAU22	FALSE	FALSE	FALSE	TRUE			
LNDFLLGP	Landfill Gas and Power Pty Ltd	LNDFLLGP	TRUE	TRUE	FALSE	TRUE			
WGRES	Waste Gas Resources Pty Ltd	WGRES	FALSE	FALSE	FALSE	FALSE			
MBARKER	Mt.Barker Power Company Pty Ltd	MBARKER, DCWL, SKYFRM	FALSE	FALSE	FALSE	FALSE			
NSFPTNRS	Northam Solar Project Partnership	NSFPTNRS	TRUE	FALSE	TRUE	FALSE			
MPOWER	Metro Power Company Pty Ltd	MPOWER	TRUE	FALSE	TRUE	TRUE			
CTE	CleanTech Energy	CTE	FALSE	FALSE	FALSE	FALSE			
BLAIRFOX	Blair Fox Pty Ltd AFT The Blair Fox Trust	BLAIRFOX	FALSE	FALSE	FALSE	FALSE			
ADERRTL	A Star Electricity	ASTAR, ADERRTL, ADER	TRUE	FALSE	TRUE	FALSE			
BLUESTAR	Blue Star Energy	BLUESTAR	FALSE	FALSE	FALSE	FALSE			
CMTYELEC	Community Electricity	CMTYELEC	FALSE	FALSE	FALSE	FALSE			
ENERNOC	Enel X Australia Pty Ltd	ENERNOC	FALSE	TRUE	FALSE	FALSE			
JASPELEC	Primary Growth Pty Ltd	JASPELEC	FALSE	FALSE	FALSE	FALSE			
KARARA	Karara Energy	KARARA	TRUE	TRUE	TRUE	TRUE			
SOUTHNGY	Southern Energy	SOUTHNGY	FALSE	FALSE	FALSE	FALSE			
WADDI	Waddi Wind Farm Pty Ltd	WADDI	FALSE	FALSE	FALSE	FALSE			
WATERCP	Water Corporation	WATERCP	FALSE	TRUE	TRUE	TRUE			
SBSOLAR1	Sun Brilliance Cunderdin Solar Farm Pty Ltd	SBSOLAR1	FALSE	FALSE	FALSE	FALSE			
CHANGENG	Change Energy	CHANGENG	FALSE	FALSE	FALSE	FALSE			
CLENERGY	Clear Energy	CLENERGY	FALSE	FALSE	FALSE	FALSE			
NWMNTMN	Newmont Power	NWMNTMN	TRUE	FALSE	FALSE	FALSE			
SIMCOA	Simcoa Operations	SIMCOA	FALSE	FALSE	FALSE	FALSE			
AMENERGY	Amanda Energy Pty Lt	AMENERGY, AMAUST	FALSE	FALSE	FALSE	FALSE			
BYFORD1	Byford Solar Farm 1 Pty Ltd	BYFORD1, BYFORD2, BYFORD3	TRUE	TRUE	TRUE	TRUE			
ERMPower	ERM Power Retail Pty Ltd	ERMPower	TRUE	TRUE	TRUE	TRUE			
EGPA	Moonies Hill Energy	EGPA	FALSE	FALSE	TRUE	FALSE			
PRD_SWIS	PRD SWIS Opts Pty Ltd	PRD_SWIS	FALSE	FALSE	FALSE	FALSE			