

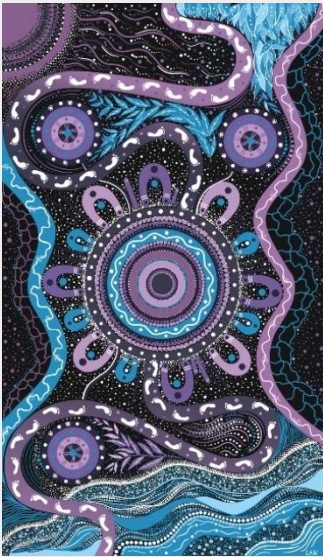
Draft Implementation Assessment for Digital Lifecycle FY26 – RTMS Improvements

September 2025

Ref: IA-2025#05

Preliminary assessment of the changes, impacts and risks to implement a new initiative that will start addressing emerging issues and ongoing risks associated with the Real-Time Market Submission system.





We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first [Reconciliation Action Plan](#) in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation - a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

AEMO has prepared this document to provide preliminary information about the implementation of the RTMS Enhancements initiative.

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Version control

Version	Release date	Changes
1	15/09/2025	N/A



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1 At a glance

Problem / challenge	AEMO’s Real-Time Market Submission (RTMS) system faces fast data growth causing slower database queries and increasing timeouts. With most stored data rarely needed, continued growth will push storage into costlier tiers and could require significant system upgrades.
Proposed solution	In a first stage of work to address this issue, AEMO proposes to cease storing submission data older than 180 days in the RTMS database. The data will continue to be stored in AEMO’s Enterprise Data Platform (EDP). This change will help manage performance and costs for the RTMS system. Where Market Participants require submission data older than 180 days, AEMO proposes to introduce an email request process.
Timing	Estimated release date, March 2026
Estimated cost	Not available. AEMO will include this in a Final IA to be published shortly after consultation on this Draft IA is completed.
Impact on market participants	<p><u>Market Participants:</u></p> <ul style="list-style-type: none">• Performance of the RTMS system will be maintained and risks to service availability will be considerably reduced.• Submission data older than 180 days will not be available to query through an Application Programming Interface (API) or the Wholesale Electricity Market System – Market Participant Interface (WEMS MPI), though will be available by means of an email request.• Minor documentation updates. <p><u>Other Stakeholders:</u></p> <ul style="list-style-type: none">• No impacts identified.

2 Introduction

This section explains:

- The background to the initiative that is the subject of this IA.
- The purpose of this IA.
- Key dates for the IA publication/consultation process .
- How stakeholders can respond to the material set out in this IA.

2.1 Background

The Real-Time Market Submission (RTMS) system was introduced as part of the WEM Reform Program. It allows Market Participants to bid into Energy and Frequency Control Essential Systems Services (FCESS) markets – critical inputs into the calculation of co-optimised supply solutions. The system collects a significant quantity of data which will lead to rising operating costs and gradually degrading system performance. AEMO plans to address these issues in stages, starting with offloading “older data”¹ from the RTMS database to reduce storage volume.

2.2 Purpose

This IA provides a non-binding view on how AEMO proposes to approach the first of several improvements to the RTMS system to address emerging issues and mitigate ongoing risks.

It outlines the proposed system, process and operational changes, and the indicative timeline likely to be required to implement the changes. This IA also provides AEMO’s indicative assessment of what these changes may mean for other Rule Participants in the WEM.

Accordingly, in publishing this Draft IA, AEMO intends to inform affected participants in developing their own implementation timelines and impact assessments and provide AEMO with feedback on our proposed implementation approach.

2.3 Providing feedback

We value participants’ input and invite feedback on our proposed implementation approach. We are particularly seeking feedback on matters set out in Table 1. Please note the key dates set out in Table 2.

¹ “Older data” in this IA means data older than the “data age threshold” (see section titled *Defining the “data age threshold”*). The meaning of data age is explained in Appendix A2.



Table 1 Specific feedback sought, by chapter

Chapter of this IA	Suggested feedback topics
Overview	<ul style="list-style-type: none"> Do you agree with AEMO’s characterisation of the hierarchy of requirements for the RTMS market interface? Do you consider that AEMO has misunderstood or overlooked important use cases for older RTMS data that would suggest high-frequency access to this data is required? Do you consider that AEMO’s proposal to set the data age threshold at 180 days is appropriate? If not, what would be a better setting from your perspective and why? What alternative options would you suggest to better achieve the goal of safeguarding the operational reliability and sustainability of the RTMS system?
System Impacts	<ul style="list-style-type: none"> Do you agree with the impacts and impact ratings AEMO has identified regarding changes to AEMO’s systems? What changes, deletions or additions would you propose and why?
Impacts on Published Documentation	<ul style="list-style-type: none"> Do you agree with the impacts and impact ratings AEMO has identified regarding changes to procedures? What changes, deletions or additions would you propose and why?
External Impacts	<ul style="list-style-type: none"> What is your experience of the performance of the RTMS system? Do you agree with the impacts and impact ratings AEMO has identified for Rule Participants besides AEMO? What changes, deletions or additions would you propose and why?
Implementation	<ul style="list-style-type: none"> Have the key implementation risks been adequately captured? If no, what’s missing or incorrect?

Comments should be sent via email to majorprojects@aemo.com.au.

Table 2 Indicative timings for the IA publication/consultation process

Step	Due date
AEMO Draft IA distributed to Major Projects Working Group (MPWG) members	15/09/2025
AEMO provide MPWG with Briefing on Draft IA	19/09/2025
Deadline for MPWG feedback on Draft IA	03/10/2025
AEMO Final IA published	24/10/2025

3 Overview

This section explains the rationale for the initiative, describing both the underlying problem to be addressed and the response(s) that AEMO has put forward.

3.1 The Problem / Opportunity

3.1.1 Background

The WEM Reform Program implemented a Security Constrained Economic Dispatch (SCED) Market, in which supply solutions are co-optimised to find the most cost-effective approach to satisfying energy and security needs. The Real-Time Market Submission (RTMS) system was introduced as part of this change and allows Market Participants to bid into energy and FCESS markets in very granular ways. For participants, establishing interfaces with the RTMS system was one of the most critical changes associated with the start of the new market on 1 October 2023. For these reasons, the RTMS system had to be released earlier than other new components, which constrained how RTMS was designed, developed and optimised.

Key outcomes arising from this context include the following.

1. The RTMS system lacks a data lifecycle policy, specifically a policy consistent with the hierarchy of requirements for the RTMS market interface summarised in the callout box (inset right).
2. The application logic of the RTMS system does not optimise the data that it writes to the database. As a result, considerable quantities of redundant data are currently being stored to the RTMS database.

Hierarchy of requirements (RTMS market interface)

AEMO notes the following key requirements for the RTMS system in terms of the market interface that it must provide. These requirements are shown in descending order of priority (AEMO's perspective).

First and foremost, AEMO must ensure that:

- Market Participants can reliably submit bids, access their prospective consolidated submissions and make rapid adjustments; and
- the RTMS system reliably makes these consolidated submissions available to WEMDE to be considered in dispatch solutions.

Secondly, AEMO must ensure Market Participants have ready access to recent submission data to support frequent ex post analysis – for instance to review incidents or to inform short-term operational optimisation.

Finally, AEMO must ensure that Market Participants have adequate access to the full history of their submission data, as may be needed from time-to-time to support less common analysis, such as occasional strategic reviews.

3.1.2 Current issues and increasing risks

The volume of data stored in the RTMS system's operational database increases at a rate of approximately 1% per week. As data volumes grow, issues with the RTMS system are now emerging, while broader risks are gradually increasing.

- Growth in the RTMS database is increasing the time required to complete a query on the RTMS database. This will be experienced by Market Participants as longer response times for RTMS queries (i.e. increased latency). At best this will be a source of irritation. At worst, it may have financial consequences for a Market Participant facing a narrow time window to make, confirm and adjust their submissions ahead of gate closure.
- Longer query processing times are also driving more frequent timeouts – queries from Market Participants and AEMO staff that cannot be fulfilled within the system-permitted time. Users experience these timeouts as error messages in API responses or on the MPI screen. To address this, AEMO must manually perform database maintenance tasks on a near weekly basis. These measures will become progressively less effective, or more disruptive, as the underlying volume increases.
- The data volume is approaching a capacity threshold above which a new pricing tier will be triggered, increasing AEMO’s operating costs by up to \$10,000 per month. AEMO estimates that it will reach this pricing tier in around six months. If AEMO does nothing to address the data growth, the volume will exceed the capacity of the top service tier available and a new system architecture would be required to allow the system to continue to operate. AEMO estimates that it will reach this limit in around 16 months.

3.1.3 Data age versus utilisation

The RTMS database currently retains all RTMS data since the system was first made available in Production for Market Participants to submit their bids into the new SCED market – shortly before the 1 October 2023 go live. For the purposes of this IA, AEMO defines the age of all RTMS data in terms of the number of Trading Days that have elapsed since the Trading Day of the Primary Dispatch Interval (PDI) to which a given submission relates.²

Analysis of API data requests made of the RTMS system leads us to focus on usage patterns for the ‘consolidated’ endpoint alone – this being the only endpoint for which AEMO believes Market Participants are in practice seeking to obtain RTMS data older than 7 days. While we do see many calls for very old data in the case of the ‘submission’ endpoint, AEMO has been able to attribute all of these calls to a single Market Participant that appears to be using the calls as a “health check” rather than for the purposes of obtaining specific historic data. See Appendix A3 for more detail on our analysis.

AEMO’s analysis of the queries made to the ‘consolidated’ endpoint show the vast majority of data requests relate to data that are less than 7 days old (99.975%). Considering the 0.025% of queries for data older than 7 days, we see a similar age-related skew. Calls to the ‘consolidated’ endpoint for data older than 180 days account for only 0.009% of all calls (~1 call per day).

Conversely, the data covering the most recent 180 days constitutes around 25% of all the data stored in the RTMS database – a share that’s continually declining. This implies that the current approach to storing RTMS

² Note that this definition means that a submission only starts to age after the PDI to which it relates has passed. A more thorough explanation of how AEMO defines submission data age is provided in Appendix A2.

data sees 75% of its data storage workload being notionally attributable to 0.009% of requests. This finding is strongly suggestive of an opportunity to manage the resources of the RTMS system more efficiently.

3.2 Response

3.2.1 A staged approach

AEMO proposes to make changes to the RTMS system to address the issues / risks noted above and to do so in stages. The first stage aims to reduce the volume of data stored in the RTMS database in the short-term, by purging older data from the RTMS database and relying on the Enterprise Data Platform (EDP) to store this older data. The second stage will see AEMO update the application code to optimise database access patterns and reduce redundant data. Depending on the observed performance of the application after the first two upgrades are implemented, AEMO may consider further optimisations. The remainder of this IA will focus only on the first stage of work.

3.2.2 Stage 1

The first stage of work to safeguard the RTMS system will see AEMO develop and implement a lifecycle data policy to manage storage growth. Once implemented, this lifecycle data policy will see RTMS data retained in the RTMS database until it reaches a specified age, at which point it will be purged from that database (see heading *Defining the "data age threshold"*). This will place a loose ceiling on the total storage capacity required for the RTMS database. RTMS data is already copied daily to the EDP, meaning that any older data purged from the RTMS database would still be retained by AEMO. New arrangements will need to be put in place to provide Market Participants with continued access to this older RTMS data.

The cost of solely using the EDP to store older RTMS data over the long term will be considerably lower than continuing to store these data in both the RTMS database and the EDP, in addition to reducing the data storage burden on the RTMS database to mitigate the growing operational risks noted earlier.

3.2.3 Approach to provide external access to older data

Currently, the services that allow Market Participants to query the RTMS data (i.e. the externally accessible RTMS API and RTMS tab in WEMS MPI) are linked only to the RTMS database. Purging the older data from the RTMS database, therefore, will remove the ability for users of those services to query those data through the existing API and WEMS MPI services. AEMO receives very few API queries for older RTMS data (see earlier discussion under 'Data age versus utilisation'). Moreover, AEMO will ensure that Market Participants retain access to older data by other means.

AEMO considered the following two options as suitable ways to continue to provide Market Participants with access to older RTMS data (Appendix A4.1 provides further detail on these options).

- **Option 1: Email request**

Market Participants could request older RTMS data by emailing their request to the RTM Monitoring team. AEMO would then manually compile the data and return it to the requestor.

- **Option 2: Dedicated API for older data**

AEMO could build a dedicated API that calls the EDP to retrieve older data.

Option 1 is currently AEMO's preferred option. The findings from our review of API call behaviour suggest the upper limit for the average number of emailed data requests that the RTM Monitoring team would have to manage manually would be around one per day. AEMO considers it likely that the actual request volumes would be lower than this level, anticipating that Market Participants will rationalise and consolidate requests for older data.

At present, AEMO does not favour Option 2, primarily on the grounds that the cost to implement Option 2 is likely to exceed the additional value that it provides. Option 2 will see participants get older RTMS data around a day or two more quickly than under Option 1. AEMO reasons that the type of analysis that drives a need for older data usually won't be so urgent that this time difference would be especially significant.

AEMO encourages Market Participant feedback regarding the comparative costs and benefits of either option.

3.2.4 Defining the "data age threshold"

A critical specification for the proposed response will be the "data age threshold", beyond which data are to be purged from the RTMS database³. AEMO proposes to set this data age threshold at 180 days. Our analysis suggests that a data age threshold of 180 days would:

- significantly reduce the incidence of timeouts and the broader risk of interruptions to service.
- avoid significant increases in AEMO's IT operating costs and avoid or delay the need for a new system architecture.
- impose a small cost on:
 - AEMO to manage emailed data requests and
 - Market Participants who may, from time to time, need to make an email request for RTMS data older than 180 days instead of retrieving it via API or MPI.

Further detail on the benefits and costs of setting the data age threshold at 180 days is provided in Appendix A4.2. AEMO encourages Market Participant feedback regarding the comparative costs and benefits of this aspect of the proposed approach.

³ See Appendix A2 for more detail on how AEMO defines the age of RTMS data.



3.2.5 Subsequent stages of work

AEMO will consider the timing and more detailed design of the next stage(s) of improving the RTMS system in one or more subsequent IAs.

3.3 Energy System and Market Rules considerations

Not applicable.

The changes described in the IA to improve the RTMS system are initiated by AEMO to better manage existing obligations and to reduce operational risks. They are not driven by changes to the Electricity System and Market (ESM) Rules.



4 System Impacts

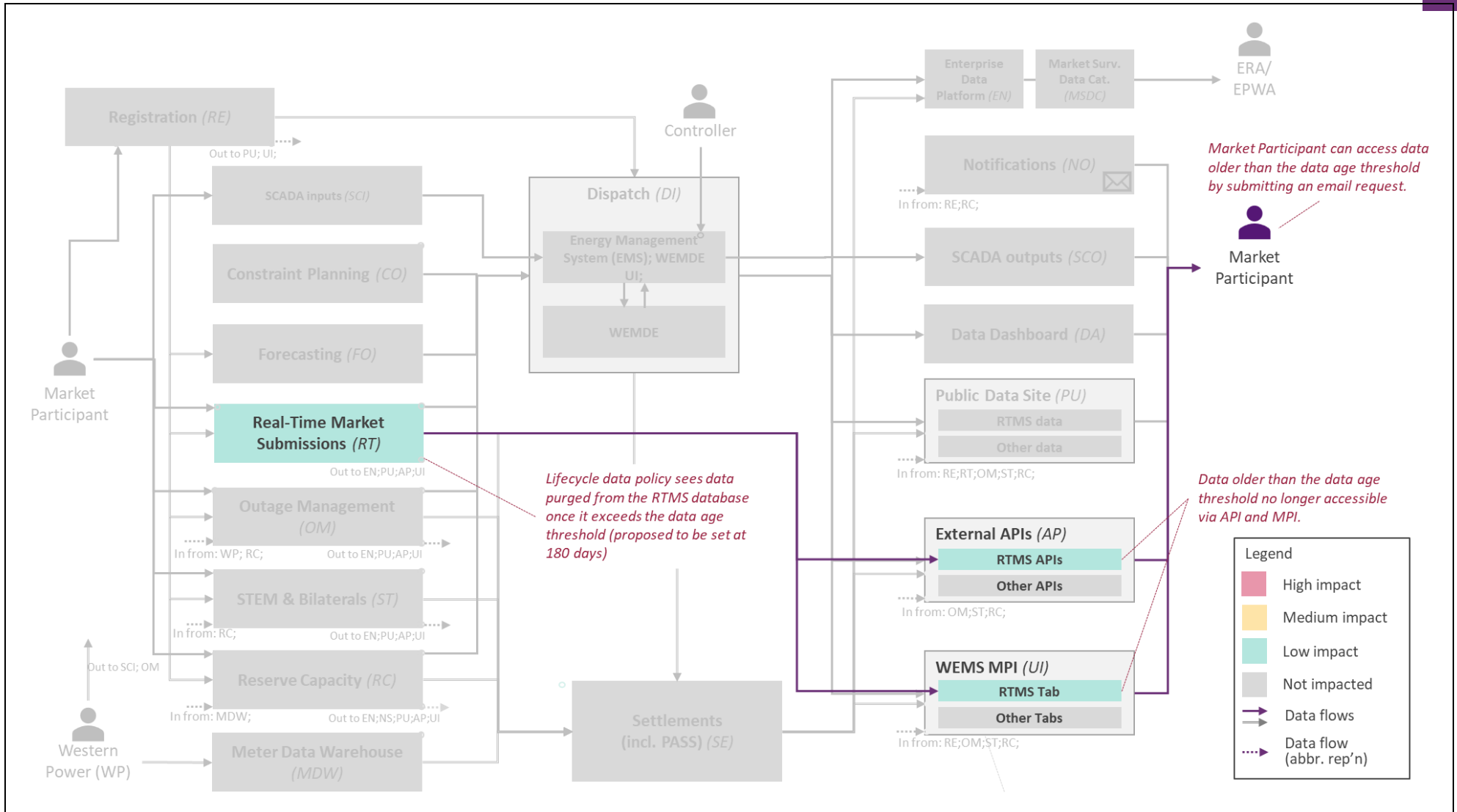
This section provides a high-level summary of the system changes that the response(s) put forward will require. It focusses on system elements that are participant-facing and presents a simplified depiction of AEMO's internal system architecture for that reason.

4.1 RTMS system changes

4.1.1 System Impact Illustration

The high-level system impacts are illustrated in Figure 1, over page.

Figure 1 Overview of impacts to AEMO systems



4.1.2 System Impact Summary

System impacts are summarised in the table below.

Table 3 System impacts

System / Component	Impact rating	Summary of impacts
External APIs	Low	<ul style="list-style-type: none"> For data <=data age threshold (180 days?): No change to functionality. Performance of all GET and POST operations maintained or improved relative to today. For data > data age threshold (180 days?): API retrieval not available. AEMO proposes that it would manually fulfil requests submitted by email to AEMO.
WEMS MPI	Low	<ul style="list-style-type: none"> Same implications for RTMS-related functionality, performance and data access as for External APIs.
RTMS	Low	<ul style="list-style-type: none"> No change to functionality. Implementation of lifecycle data policy sees all data older than the data age threshold purged from the RTMS operational database.
Enterprise Data Platform (EDP)	Low to Nil	<ul style="list-style-type: none"> For data > data age threshold (180 days): Under proposed option <ul style="list-style-type: none"> – To fulfil emailed data requests, RTM Monitoring team would establish standardised retrieval queries and robust sharing protocols. – System impact of additional queries assessed as immaterial.

5 Impacts on Published Documentation

This section lists those published artefacts that AEMO will need to update or create as a result of the response(s) put forward and describes the basic nature of the new or modified information to be covered.

AEMO has identified that minor amendments will be required to two pieces of existing published documentation, as detailed in Table 4.

Table 4: Summary of published documents affected by RTMS Enhancements initiative

Document Name	Complexity of changes	Changes or Content	External briefings or consultation proposed?
Developer Portal RTMS API Landing Page (Existing)	Low	Update to reflect the data availability scope	Yes. Briefing to the Industry Testing Forum (ITF). Approximately 1 month prior to release date (see Implementation section below)
WEMS MPI User Guide: Real-time Market Submissions (RTMS) (Existing)	Low	Update to reflect the data availability scope	Yes. Briefing to the WA Reform Implementation Group or ITF. Approximately 1 month prior to release date (see Implementation section below)



6 External Impacts

This section sets out AEMO’s assessment of the specific impacts on Market Participants, Western Power, Energy Policy WA and the ERA.

Note: AEMO cannot predict the exact scale or nature of responses required for each external stakeholder. Therefore, this IA does not identify what specific changes stakeholders may need to make. We recommend each stakeholder performs its own assessment based on the information in this IA and any additional information provided in advance of each release.

6.1 Indicative impacts on external stakeholders

The following table summarises AEMO’s preliminary assessment of the impacts on external stakeholders associated with the proposed enhancements to the RTMS system.

Table 5 Indicative impacts on other Rule Participants and related regulatory entities

Function or Capability	New/Existing	Entity type	Impact rating	Related AEMO functions (WEM)	Remarks
Making a real-time market submission (API: POST operations; WEMS MPI: JSON upload)	Existing	Market Participant	Nil	Real-Time Market Monitoring	No new functionality. Non-functional performance unchanged.
Querying submissions, submission status, consolidated submission etc (up to data age threshold – proposed as 180 days)	Existing	Market Participant	Nil	Real-Time Market Monitoring	No new functionality. Non-functional performance unchanged.
Querying submissions, submission status, consolidated submission etc (beyond data age threshold – proposed as 180 days))	Existing	Market Participant	Low	Real-Time Market Monitoring	AEMO is proposing to remove RTMS submission data older than the data age threshold from the RTMS database. Consequently, it would also cease to be available through APIs or the WEMS MPI.

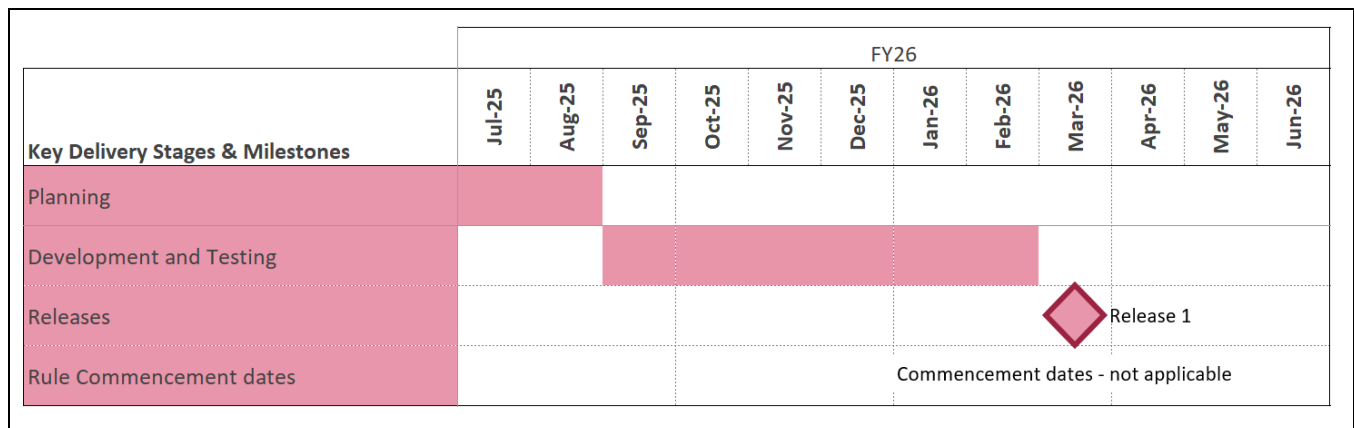
7 Implementation

This section provides a high-level summary of the timeline and cost to implement the initiative and sets out the main implementation risks.

7.1 Indicative implementation timeline

The figure below sets out an indicative implementation pathway for the changes described in this IA to implement the changes to deliver the first stage of improvements to the RTMS system described in Section 3.2.2. The estimated date for Release 1 is around March 2026.

Figure 2 Indicative delivery timeline



The above timeline reflects AEMO’s resourcing constraints as understood at the time of writing. Actual release dates may be affected by resource contention and the ongoing prioritisation of initiatives.

7.2 Indicative implementation cost – AEMO

AEMO is currently developing its initial assessment of the cost to implement this change and will include this in a Final IA to be published shortly after consultation on this Draft IA is completed.

AEMO will report the current approved implementation budget (including contingency) for the project established to implement the changes described in this IA, as part of its reporting on the [WEM Implementation Roadmap](#). As implementation of the changes detailed in this IA has already commenced, the reader is referred to the following project included on the Roadmap: P35171 WA Digital Lifecycle FY26 – RTMS Enhancements.



7.3 Implementation Risks

Risks identified by AEMO through this IA arising from the implementation of a lifecycle data policy for the RTMS system are outlined in the following table.

Table 6 Initial assessment of implementation risks

Identified risk	Current rating	Mitigation strategies	Residual rating
<p>Overlooked or underappreciated participant impacts</p> <p>If AEMO has overlooked or underestimated the impacts for participants of deprecating API / MPI access to older RTMS data, the proposed solution may be unsuitable.</p>	Low	<ul style="list-style-type: none"> Consult with Market Participants on the proposed settings to understand implications for their operations. Reconsider approach in light of participant feedback. 	Low

A1. Glossary

This document uses many terms that have meanings defined in the Electricity System and Market Rules (ESM Rules). The ESM Rules meanings are adopted unless otherwise specified.

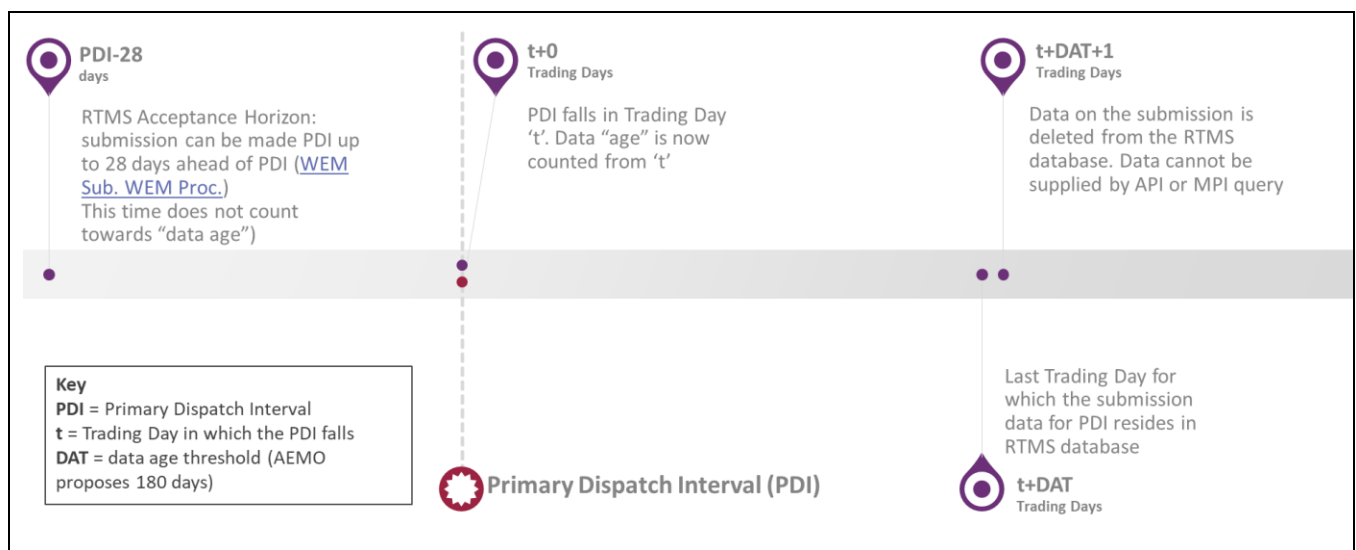
Table 7 Glossary of terms and acronyms used in this IA

Term	Definition
AEMO	Australian Energy Market Operator: The entity responsible for operating the Wholesale Electricity Market and managing power system security in the SWIS. (ESM Rules, Clause 2.1A)
API	Application Programming Interface: A set of rules and protocols for building and interacting with software applications.
Data age	The age of RTM submission data, calculated as the number of trading days elapsed since the trading day of the primary dispatch interval to which the submission relates.
Data age threshold	The number of trading days that RTM submission data will be retained in the RTMS database and hence the threshold beyond which submission data ceases to be available to query via API or MPI.
EDP	Enterprise Data Platform: A centralised system for managing, storing and retrieving AEMO's data.
ESM Rules	Electricity System and Market Rules. The WEM and the SWIS are governed by the Electricity System and Market Rules. See https://www.wa.gov.au/government/document-collections/electricity-system-and-market-rules
FCESS	Frequency Control Essential System Services: Services required to maintain Power System Security and Reliability, including Regulation Raise/Lower, Contingency Raise/Lower, and Rate of Change of Frequency (RoCoF). These are co-optimised with Energy within WEMDE. (ESM Rules, Clause 3.11.2(b))
IA	Implementation Assessment: a summary of AEMO's proposed or settled approach to implementing an initiative, to explain the changes or the benefit of external stakeholders.
MPI	Market Participant Interface: The primary user interface/portal through which market participant users interact with WEM systems. Also referred to as the Wholesale Electricity Market Systems Market Participant Interface (WEMS MPI)
MPWG	Major Projects Working Group: A consultative forum for engagement with industry stakeholders regarding the work program of AEMO's WA Reform Program - the delivery vehicle for AEMO's WA-focused projects.
MSDC	Market Surveillance Data Catalogue: A catalogue of data used for monitoring and analysing market performance and compliance. (ESM Rules, Clause 10.6)
Older data	For the purposes of this IA, "older data" refers to RTMS data older than the "data age threshold"
PDI	Primary Dispatch Interval: The first Dispatch Interval in a Dispatch Schedule, from which operative Dispatch Instructions and Market Clearing Prices are determined. (Facility Dispatch Process WEM Procedure)
RTMS	Real-Time Market Submission: A notice submitted by a Market Participant to AEMO setting out the parameters under which it intends to have a Registered Facility participate in the Real-Time Market. (ESM Rules, Chapter 11)
SCED	Security Constrained Economic Dispatch supports secure and reliable power system operation by incorporating consideration of physical power system characteristics (such as network limitations, supply/demand balance, and ESS requirements) into the scheduling and dispatch process. These characteristics are represented in the Dispatch Algorithm by 'Constraint Equations', which must be respected by the software while scheduling and dispatching Facilities.
WEM	Wholesale Electricity Market: The market for the wholesale sale and purchase of electricity in the SWIS. (ESM Rules, Clause 1.1.2)

A2. Interpreting the age of RTMS data

For the purposes of the data lifecycle policy that it intends to establish for RTMS data, AEMO’s interpretation of the “age” of RTMS submission data is illustrated in the following diagram. Noting that submissions can only be made in advance of the Primary Dispatch Interval (PDI), any time prior to the PDI to which a submission relates is ignored for the purposes of calculating “age”. The PDI falls within a given Trading Day⁴ ‘t’. The data age equals the difference between Trading Day ‘t’ and the Trading Day of the request for those submission data.

Figure 3 Determining the age of RTMS data



The submission data will remain in the RTMS database until the age of the data exceeds the data age threshold (‘DAT’ in the illustration above). AEMO has proposed that the data age threshold be set at 180 days, meaning that data would remain in the RTMS database up to and including 180 Trading Days after the Trading Day to which the submission data relates. During the next Trading Day, those RTMS data would be deleted from the RTMS database. Requests for that data would thereafter be served by whatever service is determined (see “Approach to provide external access to older data” under Section 3.2)

⁴ Recall that in the WEM a Trading Day runs from 8:00 am to 8:00am the following day.



A3. System usage analysis

Table 8 below sets out the results of recent analysis of how Market Participants are using the RTMS API endpoints at present. AEMO analysed call data for the key RTMS API endpoints for the period 7 July to 30 August 2025, namely: the 'submission', 'consolidated' and 'gateClosureViolation' endpoints. From these data, we derived average daily calls and then broke the call counts out by the age of the data being called.

A3.1 'submission' endpoint

For the 'submission' endpoint, AEMO identified that it receives hundreds of daily calls from one Market Participant for an historical data range that precedes new market start. Since the data returned are always the same, it is apparent that there is no analytical purpose for these data requests, rather this particular subset of calls is simply a legacy API health check. Once that subset of calls from the Market Participant in question are removed, the analysis shows that 100% of calls the 'submission' endpoint relate to data that are no more than 7 days old.

A3.2 'consolidated' endpoint

Our analysis indicates that 99.975% of queries to the 'consolidated' endpoint related to data that were either future dated or were up to 7 days old. Only 0.025% of calls related to data older than 7 days, or around 3 calls per day. This share continues to drop as we consider progressively higher data age thresholds. For instance, calls for data older than 180 days represent 0.009% of calls, or around 1 call per day.

A3.3 'gateClosureViolation' endpoint

Our analysis indicates that participants did not query this service once in the period of close to 8 weeks that we analysed.

Table 8 Analysis of usage of the RTMS API endpoints 7 July to 30 August

Operations	Ave calls/day	Ave daily calls for future data	Ave daily calls for historical data (headers show the upper or lower bound of data age)						
			<7 days	>7 days	>30 days	>60 days	>90 days	>180 days	>365 days
Raw Counts per day									
Calls to 'submission' endpoint ⁵ (Raw)	2370	N/A	1588	0	0	0	0	0	782
Calls to 'submission' endpoint ⁶ (Cleansed)	1577	N/A	1577	0	0	0	0	0	0
Calls to 'consolidated' endpoint ⁷	12966	2381	10582	3.2	3.2	1.9	1.8	1.2	0.6
Calls to 'gateClosureViolation' endpoint ⁸	0	0	0	0	0	0	0	0	0
As proportion of data of any age									
Calls to 'submission' endpoint (Raw)	2370	N/A	67%	0	0	0	0	0	33%
Calls to 'submission' endpoint (Cleansed)	1577	N/A	100%	0	0	0	0	0	0
Calls to 'consolidated' endpoint	12,966	18.37%	81.61%	0.025%	0.025%	0.015%	0.014%	0.009%	0.005%
Calls to 'gateClosureViolation' endpoint	0	0	0	0	0	0	0	0	0

⁵ WEM/v1/realTimeMarketSubmission/submissions

⁶ Calls to the WEM/v1/realTimeMarketSubmission/submissions endpoint, cleansed of a recurring GET call from one participant dated back to 2022, which is believed to be a health check.

⁷ WEM/v1/realTimeMarketSubmission/consolidated

⁸ WEM/v1/realTimeMarketSubmission/gateClosureViolation

A4. Options, costs and benefits

A4.1 Additional detail on data provisioning options

Table 9, below, sets out a preliminary summary of the two options that AEMO considered for new arrangements under which Market Participants would be able to request and receive RTMS data that is older than the data age threshold. In preparing the table, AEMO assumed a data age threshold of 180 days. Conceptually, the choice of approach here is a question separate to the choice of data age threshold. In practice, AEMO recognises that some of the information set out in the table below may be dependent on where the data age threshold is set.

Table 9 Options considered for AEMO to maintain access for Market Participants to older RTMS data

Element	Option 1: Email request	Option 2: Dedicated API
Features	<ul style="list-style-type: none"> Email request to wa.rtm@aemo.com.au inbox Simple, fit for purpose file-sharing solution published guidance on how to make a request and the service standard to expect in response robust internal procedures and checks to ensure 1) timely and accurate fulfilment and 2) compliance with data confidentiality obligations 	<ul style="list-style-type: none"> a dedicated API that calls the EDP to retrieve older data API would be specified and designed to accommodate high latency <ul style="list-style-type: none"> EDP storage tiers trade-off cost against performance parameters like latency For operations involving large datasets, low retrieval frequencies and tolerance for higher latency, AEMO can achieve considerable savings by using a lower tier storage option API would likely involve asynchronous fulfilment of GET operations Options such as only allowing the API to operate during set hours could also be considered to manage EDP resource costs.
Data availability To what extent is the ability of Market Participants to access all historical data curtailed?	No change: all RTMS data currently available to participants continues to be available.	No change: all RTMS data currently available to participants continues to be available
Additional delay in data provisioning How much longer will it take to obtain older RTMS data relative to today? Note: these estimates are only indicative	Up to several business days Note: AEMO assumes that the type of analysis requiring older RTMS data will tend not to be urgent in nature. Market Participants can challenge this assumption – informing both the choice between Options 1 and 2 and the specification of the turnaround time. .	Up to 24 hours
Implementation requirements for AEMO	<ul style="list-style-type: none"> no system changes; minor internal process changes; routine database query operations. 	<ul style="list-style-type: none"> non-trivial design and development work; cyber security review; change management to design and roll-out new operational support arrangements
Implementation requirements for participants	<ul style="list-style-type: none"> prepare internal processes for: <ul style="list-style-type: none"> raising email requests, securing internal authorisations; storing historical RTMS data 	<ul style="list-style-type: none"> development work to direct queries for older RTMS data to new dedicated API Adjust interfaces to handle increased latency and other behaviours at variance to those of the existing RTMS API.

A4.2 Benefits and costs of proposed data age threshold

AEMO proposes to set the data age threshold at 180 days and assesses the benefits and costs of this as follows.

A4.2.1 Benefits

If all RTMS data older than 180 days is excluded from the RTMS database, AEMO estimates that we could reduce the allocated capacity to around one third of its current level and maintain it at around that level in perpetuity. This drives both operational and financial benefits.

- Operational benefits:
 - The performance of the RTMS system is expected to immediately benefit as a result of reducing the size of the database. The main operational benefit of achieving this stabilisation will be to significantly reduce the incidence of system errors and market incidents that may arise from such errors.
 - The Market as a whole will benefit from the reduced risk of disruptions to the RTMS system.
 - Market Participants may enjoy a small convenience from shorter response times
- Financial benefits:
 - AEMO would immediately achieve savings through reducing operating costs arising from this initial reduction. However, more significant savings of around \$10,000 per month will accrue in 6 months – when the volume of data in the RTMS database is forecast to push into the next data storage pricing tier.
 - AEMO would also avoid or delay the need to implement a new system architecture in order to keep the RTMS system operational. Absent this work, the RTMS system will run out of storage capacity, as the service currently used for data storage is capped at a finite level that AEMO projects it will exceed in around 16 months.

A4.2.2 Costs

The costs associated with setting the data age threshold at 180 days appear to be comparatively modest.

Our quantitative analysis finds that Market Participants make around one call per day for data older than 180 days (<0.01% of all calls). We hypothesise that this call frequency can be considerably reduced by Market Participants without materially affecting their operations.

AEMO recognises that participants may, from time-to-time need to perform analysis that requires a full history of their submission data as drawn from AEMO's database of record. However, AEMO considers that if such analysis needs to be performed more often than bi-annually, then it is reasonable to expect that Market Participants will progressively maintain their datasets by querying and storing their own RTMS data before it ages more than 180 days – i.e. by means of the existing API and MPI channels.

The reasoning above underpins AEMOs expectations of the two costs main costs associated with implementing a data age threshold of 180 days and an email data request approach (Option 1), namely that:

- AEMO will incur modest labour costs to establish the internal processes for handling email data requests and small ongoing labour costs to fulfil each email request.
- Participants will incur costs, which AEMO also expects to be modest, in adjusting from the current API or MPI approach to accessing older RTMS data to the new approach of submitting occasional email data requests. AEMO has recorded requests for data older than 180 days from seven Market Participants, so this type of adjustment cost does not appear applicable for any of the remaining Market Participants.



A5. Impact Rating Guidance

AEMO’s approach for rating impacts from No Impact, Low, Medium or High applies a predefined matrix of impact types, summarised in the table below (see next page).

Table 10 Impact assessment guidance

Dimension considered	Question	High	Medium	Low	None
Impact on documentation	What is the change to a given internal process, WEM Procedure or technical document that AEMO must maintain and/or publish?	Major changes to documentation. E.g. creating a significant new document (or extensively rewriting existing). E.g. document drafting and review extensively involves multiple AEMO teams.	Moderate changes to an existing document. E.g. addition, elimination or reorder of multiple process steps. E.g. document drafting and review involves multiple AEMO teams to some extent.	Minimal change to an existing document. E.g. addition, elimination or reorder of small number of process steps. E.g. document drafting and review is primarily carried out within a single AEMO team.	No changes to documentation
Systems impact – market applications (internal only)	How extensively will the change affect the underlying market applications?	Involves a major change to, or addition of, a market application. E.g. introduction of a new application or decommissioning of existing system	Moderate change to existing market applications. E.g. introducing many new features or significantly increasing non-functional requirements	Minor change to existing market applications. E.g. adding one or several minor new features. E.g. expanding system functionality with only minor adjustments to the application’s data and processing frameworks.	No change market applications
Systems impact – user interfaces (internal and external)	How is the change affecting user interfaces? How easily will the change be integrated by users?	Major changes to user interface(s) e.g. introduction of significant new or decommissioning of existing UI tabs. E.g. many users may not understand the UI without training.	Moderate change to existing interfaces. E.g. significantly expanded range of controls within an existing UI tab. E.g. many users will understand the UI relatively quickly on their own, but without training, some many not.	Minor change to existing interfaces. E.g. small addition of controls within an existing UI tab. E.g. almost all users will understand the UI quickly on their own, even in the absence of training.	No change to user interfaces
Systems impact – system to system interfaces (internal-internal and internal-external)	How is the change affecting the interactions between systems? How easily will changes be accommodated by systems up or downstream?	Major systems interface change. E.g. entirely new machine interface, with unfamiliar data schema or transfer formats must be negotiated or understood. E.g. upstream or downstream limitations significantly constrain or complicate the implementation of the core application changes.	Moderate systems interface change. E.g. the change involves significantly expanding the number of parameters or data-streams to be exchanged, but closely follows established patterns, formats and schemas. E.g. upstream or downstream systems require many changes, but these closely follow established patterns, logic or structures.	Minor system interface change. E.g. the change involves adding a small number of parameters or data-streams, adhering to established patterns, formats and schemas. E.g. upstream or downstream systems require several minor changes.	No system to system interface impacts