EMMS Release Schedule and Technical Specification - October 2021

1.02 October 2021

Pre-production: 4 October 2021

Production: 24 October 2021

Release series: EMMS1021

Important Notice

PURPOSE & AUDIENCE

This document describes the technical changes required to participant's systems for the AEMO Release Schedule - System Month Year (Release). The Australian Energy Market Operator (AEMO) provides this information as a service targeting business analysts and IT staff in participant organisations. It provides guidance about the changes to their market systems under the National Electricity Rules (Rules), as at the date of publication.

HOW TO USE THIS DOCUMENT

- If you have questions about the business aspects of these changes, please see Consultations on AEMO's website.
- The references listed throughout this document are primary resources and take precedence over this document.
- Unless otherwise stated, you can find resources mentioned in this guide on AEMO's website.
- Text in this format is a link to related information.
- **Text in this format**, indicates a reference to a document on AEMO's website.
- **Text in this format** is an action to perform in the MSATS Web Portal.
- This document is written in plain language for easy reading. Where there is a discrepancy between the Rules and information or a term in this document, the Rules take precedence.
- Glossary Terms are capitalised and have the meanings listed against them in the **Glossary**.
- *Italicised terms* are defined in the Rules. Any rules terms not in this format still have the same meaning.

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VERSION HISTORY

1.02 See Changes in this version on Page 3.

DOCUMENTS MADE OBSOLETE

The release of this document changes only the version of EMMS Release Schedule and Technical Specification - October 2021.

SUPPORT HUB

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Contents

1. Introduction

The Year-end Release (Release) is part of the Wholesale Demand Response (WDR) project and includes changes related to participants' IT systems. This technical specification describes the projects planned by AEMO from a participant perspective.

1.1 Audience

AEMO provides this information as a service targeting business analysts and IT staff in participant organisations.

1. The primary audience is the business analysts and IT staff in the participant organisations implementing and maintaining Data Interchange environments.
2. The secondary audience is Participant Administrators providing rights to their Participant User to access AEMO's systems.

1.2 Rule and procedure changes

Type	Details
Rule	National Electricity Amendment (Wholesale demand response mechanism) Rule 2020 No. 9.
Procedures for issue of directions and clause 4.8.9 instructions	Procedures for the issue of directions made under clause 4.8.9(b) of the National Electricity Rules (NER) (Procedures)
Wholesale Demand Response Guidelines	Provides the guidelines for WDRM under clause 3.10.1 of the NER.
Retail Procedures (Wholesale Demand Response)	Provides the list of new and updated Procedures and Guidelines for the Retail workstream for WDR.

Type	Details
Credit Limit Procedures v6.0	Provides the methodology by which the AEMO will determine the prudential settings for each Market Participant so that the prudential standard is met for the National Electricity Market (NEM).
Final NEM Settlements Estimates Policy	Provides the principles and process for calculating estimated settlement amounts when normal processing is not possible.

1.3 Schedule

Scheduled for implementation in:

- Pre-production: 4 October 2021
- Production: 24 October 2021

1.4 Status

This technical specification presents the system design at the time of publication. It may change as participants provide feedback and test in the staging environment. Please send feedback to WDR@aemo.com.au.

Version	Status
1.00	This is the final version of the tech spec, from the pre-production release, participants can refer to the MMS Data Model Report for design details.
0.04	Participants can commence their system builds but small changes may still occur as AEMO continues the development and testing internally.
0.03	Participants can commence their system builds but small changes may still occur as AEMO continues the development and testing internally.
0.02	Participants can commence their system builds but small changes may still occur as AEMO continues the development and testing internally.
0.01	This technical specification is an initial creation for review by participants.

1.5 Version numbers

Incremental version numbers such as 1.01, 2.01 and so on mean there is a small change to the technical specification.

Major version numbers such as 1.00, 2.00 means there are substantial changes to the technical specification. Participants must carefully review these changes.

1.6 Changes in this version

- Adds details about the PMS reports in the Portfolio Management chapter.
- Updates missing information in the File interface changes section of the Electricity Data Model 5.1 chapter.
- Data Model changes:

Package	Table	Change	Reason
PARTICIPANT_REGISTRATION	PMS_GROUPNMI	Updates descriptions for VERSIONTO and ENDDATE columns	Clarification

1.7 Approval to change

The changes are continually discussed and updated as a part of the WDR Consulting Forum meetings. There is no approval or agreement to change required from participant change controllers for this Release.

Amendments to the wholesale demand response mechanism are published on the AEMC website: National Electricity Amendment (Wholesale demand response mechanism).

1.8 Proposed timeline

The dates for the Market System User Group Meetings (MSUG) are tentative. We will provide an invitation one week prior to the meeting.

Milestone	Date	Description
Revised Technical Specification	June 2021	Further details of the changes to assist IT staff with their own technical implementation. New versions each month as required.
MSATS Pre-production refresh	10 April 2021 – 16 April 2021 (completed) Mid-June 2021	Refresh of the pre-production system with data refreshed from the production system. An outage of up to five days can occur to the pre-production environment during this period. Participant access is not restricted, however, AEMO do not guarantee the pre-production data content or system availability. During the refresh, access to other AEMO systems such as EMMS, GSH, OPDMS, and STTM may be intermittently affected.
EMMS Pre-production refresh	1 July 2021 – 20 July 2021	To support 5MS Market Trials, the pre-production EMMS environment was refreshed with production data recovered up to 4-July-2021 06:00 PM (AEST).
User group meeting before the pre-production release	8 September 2021	Market systems user group meeting to discuss the Data Model scripts and configuration files release into pre-production.
Pre-production implementation	28 September 2021 – 4 October 2021	AEMO implements components of the Release to pre-production for participant testing. AEMO has full access to the system during this period. Participant access is not restricted; however, the data content or system availability is not guaranteed.
Pre-production Data Model release	20 September 2021	Participant Data Model scripts released.
Pre-production available	4 October 2021	Testing period begins for participants.
User group meeting: pre-production review	13 October 2021	Market systems user group meeting to review the implementation of this pre-production release. This date is tentative, and participants will be advised via email when this is scheduled.

Milestone	Date	Description
Production implementation	18 October – 24 October 2021	AEMO implements the release to production.
Production systems go-live	24 October 2021	Production systems available to participants
User group meeting: post-implementation review	17 November 2021	Market systems user group meeting to review the implementation of the production release. This date is tentative, and participants will be advised via email when this is scheduled.

2. Project

2.1 Overview

The Wholesale Demand Response (WDR) project allows consumers to sell demand response in the wholesale market at any time, most likely at times of high electricity prices and electricity supply scarcity either directly or through specialist aggregators. It introduces a low-cost mechanism for transparently engaging the demand side in central dispatch.

Demand Response Service Providers (DRSPs) will classify and aggregate demand response capability of large market loads for dispatch through NEM's standard bidding and scheduling processes. The DRSPs will receive payment for the dispatched response measured in MWh against a baseline estimate at the electricity spot price.

2.2 Detail

The WDR project implementation includes updates to the following AEMO systems:

- Registration – Demand Response Service Provider (DRSP) registration and Wholesale Demand Response Unit (WDRU) classification, including portfolio management to track aggregations of WDRU, demand response capacity and eligibility status.
- Settlements – calculations and financial flows at the single WDRU (that is, NMI) level to allow recovery of demand response from the FRMP.
- Baselining – eligibility criteria and baseline methodology to allow establishment of the counterfactual against which demand response settlement can occur for both the DRSP and FRMP.
- Prudentials – management of DRSP prudential risk through the standard collateral requirements setting and prudential processes.

- Dispatch and forecasting – dispatching, pre-dispatch, and short-term forecasting of WDRU energy to occur primarily through a new type of scheduled load (WDR) which is issued load reduction dispatch targets.
- Demand side participants – DRSP data requirements in the medium-term forecasting timeframes to be delivered through the demand side participation information portal.
- Retail systems – DRSP role to be included in the retail system and B2B transactions to be made visible to DRSPs.
- A new system for portfolio management is required. This system simplifies the application classification process for both AEMO and the participants.

The following chapters provide details on the updates the different streams within AEMO are working on for WDR.

3. Registration

Under the Rule, anyone wishing to provide wholesale demand response or market ancillary services in the NEM from a market load connection point must register with AEMO as a Demand Response Service Provider (DRSP)and classify the market load as WDRU and/or an ancillary service load.

The DRSP category will replace the existing Market Ancillary Service Provider (MASP) category.

While registering as a DRSP with respect to WDR, an applicant must simultaneously apply to have a qualifying load classified by AEMO as WDRU. A DRSP is a market participant that will be controlling the demand-responsive component of a WDRU that is to be dispatched in real time into the market.

For the WDR project, the following areas of Registration are updated:

- A new Participant category named Demand Response Service Provider (DRSP).
- A new field for the Dispatchable Unit named DISPATCHSUBTYPE to indicate the type of Load unit.

  For more details on the tables with the new DISPATCHSUBTYPE column, see Modified table: DUDETAIL and Modified table: DUDETAILSUMMARY tables in the Electricity Data Model v5.1 chapter.

With the introduction of the new column DISPATCHSUBTYPE, AEMO strongly urges all participants to upgrade to the Data Model version 5.1 to ensure the system can distinguish between Scheduled loads and WDR loads. Not upgrading to the latest version may result in incorrect values if data is analysed based on the DISPATCHTYPE only.

- For WDR Units, if aggregated, the connection point in the TRANSMISSIONLOSSFACTOR table has a value of 1 for the TRANSMISSIONLOSSFACTOR column, otherwise it can be a non-unity number.

4. Bidding and Dispatch

Under the Rule, AEMO includes the maximum responsive component of the WDRU which is the maximum amount that can be dispatched by the WDRU to provide a level of demand response. The demand response settlement occurs against the baseline for each individual WDRU (NMI) that is part of the dispatched WDRU (which may be an aggregation).

For the WDR project, the following areas are updated:

- Changes to the order and accumulation of Bidding Band Availabilities. In the View Bid and the Enter Bid screens, a new LOAD type is added, and the ENERGY band order goes from 1 to 10.
- Displays the new WDR Region Solution values.
- Updates the MTPASA bid validations to reject an WDR unit bids with the following message – "MTPASA offers cannot be submitted for Wholesale Demand Response (WDR) Unit <DUID> on <DATE>".

4.1 Offer band availability order

Type	ENERGY Band Order	FCAS Band Order
GENERATOR	1 to 10 (no change)	1 to 10 (no change)
LOAD (excluding WDR)	10 to 1 (no change)	1 to 10 (updated)
LOAD (WDR)	1 to 10 (new)	1 to 10 (new)

5. Settlements

Under the Rule, a DRSP participating in the WDR mechanism must settle for reduction in the consumption against a baseline, participant fees and registration fees. WDRUs are not included in the recovery of regulation or contingency FCAS.

The demand response settlement values are determined at each individual WDRU (NMI) level. During a demand response event, the FRMP (retailer) is settled with respect to both the energy market settlements and the baseline energy level. To ensure the FRMP is compensated for hedging costs following a demand response event, the wholesale demand regional reimbursement rate (WDRRR) is calculated and charged to the DRSP, paid to the FRMP, based on the energy difference between the baseline and the metered energy.

5.1 Updates to Settlements invoices

For the WDR project several NEMReports for the Settlements are updated. For more details, see Settlements section in the Reports chapter.

WDR units are excluded from Prudential Forecaster.

5.2 Updates to Billing

The Settlements systems calculates all WDR transactions and the Billing system aggregates and stores the results per billing week for DRSP and FRMP participants.

For the WDR project, the following Billing functions are new/updated:

- Aggregate and store the WDR transactions from the Settlements results
- Calculate and store GST amounts for WDR transactions.

DRSP are excluded from NON-ENERGY recovery calculation as they have no customer or generator energy records. As a result, there are no changes required for APC, RERT and Directions in Billing.

5.3 Updates to NEM Prudentials

When using SCADA, Dispatch, Trading, P5Min, or Predispatch data as the source of a forecast generator energy amount, all WDRU are excluded from the input.

6. Zero Demand Conditions

Under the National Electricity Rules (NER), AEMO recovers the costs of national electricity market (NEM) non-energy services, including market and non-market ancillary services, compensation for directions, market suspension or administered pricing and reserve contract payments. These costs are recovered from relevant Market Participants based on their registration category and the energy at their classified connection points. The registered participant categories are set up to represent that "generation", with flow predominantly into the network, or 'load', with flow predominantly from the network or "load" occurs at connection points. The NER assumes that electricity flows in the opposite direction are immaterial for non-energy cost recovery purposes.

As the number of connection points with significant bi-directional electricity flows continues to grow with growth in distributed energy resources (DER) and because net metering data is used to calculate the customer energy values, it becomes possible that low or negative net regional demand (or customer energy) could occur. If a net regional demand of less than 1 MWh occurs in a region, the NER non-energy cost recovery formulas cannot be solved by market settlement systems, this will in turn impact NEM settlement and prudential functions. To prepare for this, AEMO must change the market settlement system to ensure that at least 1 MWh regional customer energy value is always available for cost allocation.

AEMO has consulted with stakeholders by way of an information session and options paper between November 2020 and January 2021 on the issue and its proposal to substitute customer values where less than 1 MWh regional demand occurs. For more details, see NEM settlement under zero and negative regional demand conditions. This consultation focussed on the options for determining substitution values and AEMO took stakeholder feedback into account, which is reflected in its rule change proposal submitted to the AEMC in February 2021. The Australian Energy Market Commission (AEMC) is currently consulting on AEMO's rule change to allow AEMO to substitute:

- Average customer energy values for the previous four completed billing weeks if (and only if) less than 1 MWh net regional customer energy is recorded in a trading interval or other relevant cost-recovery period. For

more information, see NEM settlement under low, zero and negative demand conditions.

Both the substitution value (1 MWh) and number of billing weeks (four) are configurable.

Given this issue needs to be implemented urgently, AEMO has commenced implementation concurrently with the AEMC's rule change consultation, which seeks to address the non-compliance associated with this temporary solution. If the AEMC determines a different substitution value or the number of billing weeks, this will be changed in the reports identified below.

6.1 Zero demand reports

To report zero demand conditions, the Settlements system creates the following reports:

- There is a new report that publishes trading intervals and region where zero/low demand occurs.
- A new report capturing Market Customers' rolling 4 previous billing weeks' energy usage apportionment. This report consists of the following fields:
  - Run date
  - Per participant
  - Participant energy in rolling 4 previous billing weeks. This rolling 4 previous billing weeks is a configurable input.
  - Sum region energy in rolling 4 previous billing weeks − Apportionment factor (that is, the participant energy in rolling 4 previous billing weeks / Sum region energy in rolling 4 previous billing weeks.

The values in these reports are subject to the AEMC's final rule on NEM settlement under low, zero and negative demand conditions.

For more information, see the following tables:

- New table: BILLING_SUBST_DEMAND
- New table: BILLING_SUBST_RUN_VERSION

- New table: SET_SUBSTITUTE_DEMAND
- New table: SET_SUBST_RUN_VERSION
- New table: SET_RECOVERY_ENERGY
- Modified table: SET_FCAS_REGULATION_TRK

7. Baselining

Baselines are an estimate of the consumption per trading interval during a day, based on the history of like days in the near past. They are required for two reasons:

- They are the counterfactual energy amount for each single WDRU that is dispatched individually or as part of an aggregated WDRU for demand response. This baseline is required for demand response settlement.
- They are the counterfactual energy amount for the WDRU that is dispatched for demand response. The aggregate WDRU baseline is required to assess performance against dispatch targets.

AEMO is working on a new system to receive and store the baseline methodology, setting and metering data against an NMI or aggregation to determine the baseline energy value output per trading interval for settlement purposes. The system can also calculate the baseline forecast skill scores for a NMI or aggregation.

The new baselining systems integrates with the wholesale systems to receive settlements and dispatch information. It also integrates with the Portfolio Management System (PMS) to receive NMI settings and for triggering Predictability of Load (PoL) calculations, return of PoL data as well as ad hoc settlement calculation requests and return of calculation data.

As a part of the baselining systems, AEMO will publish the reports of baselining performance to the market.

The functionality provided by the Baselining system can be categorised as follows:

- Settlement Baseline: a baseline will be determined for each collection of NMI involved in a dispatch event for each trading Interval that the dispatch even occurred
- Predictability of Load: an accuracy and bias score is determined for each collection of NMI based on the baseline methodology, settings, and the history of meter data. These form the eligibility criteria to take part in

the WDR mechanism. AEMO assesses these skill scores against predefined thresholds.

- WDRM Predictability of Load (PoL) Calculator
- WDRM Predictability of Load (PoL) Calculator

7.1 WDRM Predictability of Load (PoL) calculator

The PoL Calculator provides Demand Response Service Providers (DRSPs) the ability to estimate a NMIs' indicative bias and accuracy metrics – the two outputs of the PoL assessment - prior to registration. It is intended to provide indicative scores for a NMI's PoL to assist participants in determining:

The WDRM Predictability of Load (PoL) Calculator is now available on the AEMO website.

- Which NMIs to include in their application,
- What methodology might best suit their profile, and
- How the baseline results differentiate between the four available methodologies.

A NMI must have and maintain a predictable load to be eligible to participate in WDR. This is so baseline energy is accurately estimated and the NMI is shown to satisfy the baseline compliance standard.

As part of the registration and classification processes, each NMI in a WDRU must individually qualify based on a PoL assessment (baseline eligibility assessment). AEMO also uses PoL assessment to ensure the WDRU remains baseline compliant (baseline compliance testing).

AEMO uses a series of baseline calculations from relevant days in the NMI's recent history to return the accuracy and bias scores. PoL is determined by whether the accuracy and bias metrics for the NMI/WDRU, meet the accuracy and bias thresholds.

The calculator is a macro-enabled Microsoft Excel workbook, that provides accuracy and bias scores for a NMI:

- based on meter data input by the participant, and
- using the logic and metrics outlined in the Baseline Eligibility Compliance and Metrics Policy.

There are three variable inputs to this tool:

- Meter data (provided by the participant)
- Selection of baseline methodology from a drop-down menu
- Selection of the NMI's NEM region from a drop-down menu, which is used to identify regional public holidays

The calculator will display the following data per calculation:

- As-at date and time of the calculation
- PoL Eligibility days selected to use in the calculation
- Trading intervals used in the calculation on each selected eligibility day
  - Corresponding meter data, per TI
  - Corresponding baseline value, per TI
- Bias score
- Accuracy score
- Bias threshold
- Accuracy threshold
- Overall eligibility status

8. Portfolio Management

The Portfolio Management System (PMS) simplifies the application classification process for AEMO and participants, providing transparency into the classification process to the Market Participants.

AEMO staff are consulting on the details of the PMS portal. We will continue to update this section as they are finalised.

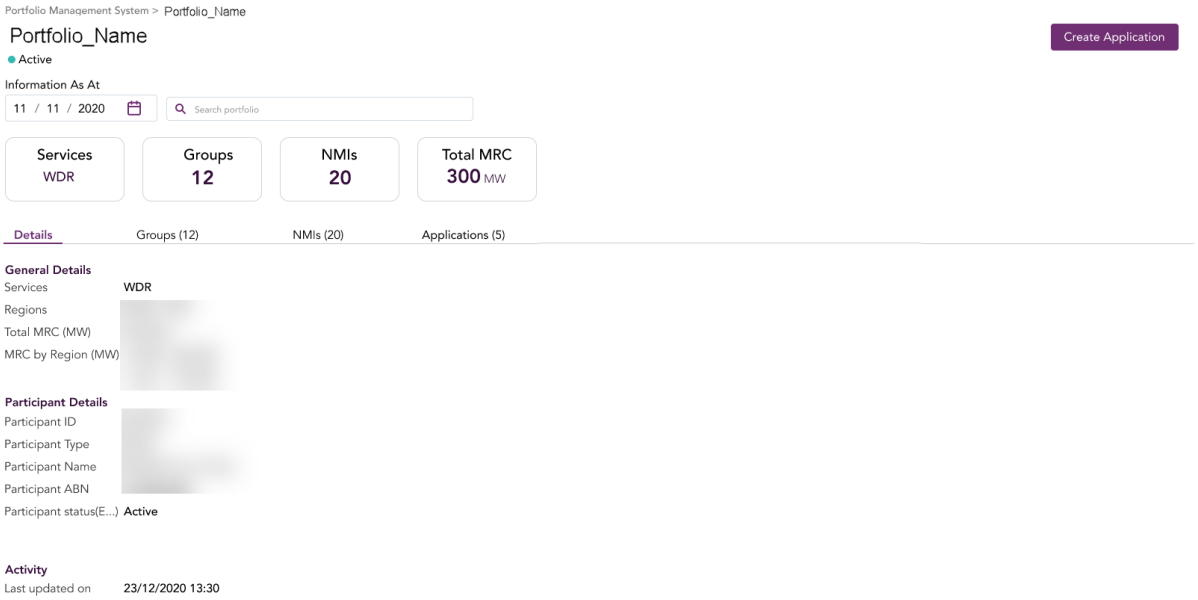
The PMS portal allows participants to do the following:

- Create and submit applications
- View the progress of application assessment
- Assess ad-hoc Predictability of Load
- View applications post determination

8.1 Portfolios

A portfolio is a container of sorts that contains details of a participant's associated WDRU classifications and aggregations.

The following portal design is still under consultation and not definite at this stage.



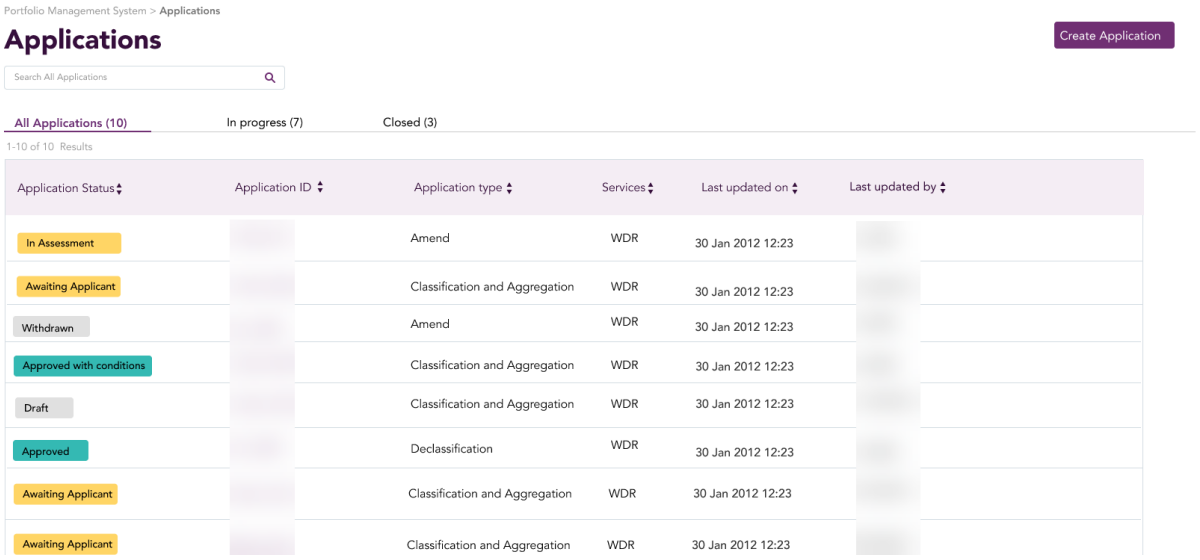
You can view all portfolios on the All portfolios screen displaying details about the portfolio name, participant ID, services, regions, total MRC in MW, MRC by region, group, NMI and the portfolio status.

The screenshots available in this chapter are examples only and can differ from the final version on the Markets Portal.

8.2 Applications

An application contains details mostly about a participant's classification and aggregation details.

To view all applications, click Applications in the menu. A list of all applications is displayed with their status, application ID, portfolio, application type, service, last updated on and last updated by details are shown.



You can filter the list by All Applications, In Progress and Closed.

When the list of applications goes beyond 10, pagination occurs, and you can navigate the list using the arrows below.

You can click on the Application ID to view the application details.

8.3 PMS reports

The following new reports are planned as a part of the WDR project:

- DUID:NMI mapping report for DNSPs
- DUID:NMI mapping report or FRMPs

These reports are generated from the information populated in the Data Model tables for PMS. For more information on the details of the fields for these reports, see the following tables:

- New table: PMS_GROUP
- New table: PMS_GROUPSERVICE
- New table: PMS_GROUPNMI

These reports are generated once every day at 3 AM. All participants are automatically subscribed to the PMS_GROUP file, which should be available

in their FTP folder. Participants using the pdrBatcher are able to download this file from the FTP server to pdrLoader/Reports folder, which will eventually move to the pdrLoader/archive folder.

The file is processed and the PMS_* tables are populated **IF** the participants have upgraded to Data Model v5.1. If they have not upgraded to the latest Data model version, the file still moves to the pdrLoader/archive folder.

The PMS_GROUP file contains 2 components:

- PUBLIC_PMS_GROUP file – sent to all participants who contain the PMS_GROUP, PMS_GROUPSERVICE authorised data.
- PARTICIPANTID_PMS_GROUP – a private file containing the participants' own authorised NMI records populated in the PMS_GROUPNMI table. If a participant does not contain any private data, they would not receive this file.

9. Reports

This chapter includes a list of non-data model reports.

9.1 Settlements Direct reports

There are several modified reports for the WDR project for the Settlements stream:

- Reports:
  - New WDR line items to Tax Invoices, Adjustment Notes, Settlement Statements and Shortfall/Makeup Statements (PDF invoices) in the Summary of the NEM Transaction section.
  - Settlement Report: The Settlement Report provides a breakdown of the settlement transactions for the Billing Week. This allows participants to get more details on the components for each line item. For WDR, includes a new section named Wholesale Demand Response (WDR) by Region and Quarter
  - Regional Summary Report (RSR): Region Summary Report (SR) provides a summary of Energy, Surpluses, Generation and Trading at the region level for the Billing Week and can contain more than one region if there is data for other regions. For WDR, it includes a new line item titled Wholesale Demand Response.
  - Market Summary Report (MSR): Market Summary Report (MSR) provides a summary of Energy, Surpluses, Generation and Trading summing all participants and regions for the Billing Week. For WDR, it includes a new line item named Wholesale Demand Response.
  - WDR transactions to BAS (GST) related reports:

9.2 WDR Capacity no telemetry report

A new public report providing aggregate capacity of WDR registered with no telemetry per region will be published each day to NEMWeb for the previous day.

This report is not a part of the Data Model or available via Data Subscription. You can only access it using NEMWeb.

This report provides the following information:

Column name	Description	Data type
CALENDAR_DATE	Calendar date	DATE
REGIONID	Unique region identifier	VARCHAR2(20)
WDR_CAPACITY_NO_SCADA	Aggregate max MW capacity of registered WDR with no SCADA per region	NUMBER(6,0)

- Report type: WDR_CAPACITY_NO_SCADA
- Report subtype: WDR_NO_SCADA
- Report version: 1
- File ID: WDR_CAPACITY_NO_SCADA

9.3 Discontinued reports

The following non-data model reports will be discontinued with this update:

- ASX
- ASXMONTHLYINTERIM

These reports will be removed from subscription as they are now obsolete.

10. Electricity Data Model 5.1

Participant systems incorrectly configured and not compliant with the Baseline Assumptions in the Data Interchange Framework and Glossary may suffer data loss.

This Release contains an updated version of the Electricity Data Model 5.1. This section describes the affected packages, tables, files, reports, and interfaces.

AEMO releases new versions of this document as the technical requirements are streamlined.

10.1 Data Model changes summary

Package	Table name	Change	Details
BIDS	BIDOFFERFILETRK	Modified table	Adds SUBMISSION_METHOD column.
BILLING_RUN	BILLING_WDR	New table	Adds table for Billing WDR components
	BILLING_WDR_DETAIL	New table	Adds table for detailed Billing Summary for WDR
	BILLINGREGIONFIGURES	Modified table - adds new columns	Adds new columns for WDR calculations in Billing region summary
	BILLING_SUBST_DEMAND	New table	Adds tables for WDR substituted values in Billing calculation

Package	Table name	Change	Details
	BILLING_SUBST_RUN_VERSION	New table	Adds tables for WDR substituted values in Billing calculation
MTPASA	MTPASA_DUIDAVAILABILITY	Modified table - adds new column	Adds new columns for MTPASA submitted availability
	MTPASA_REGIONAVAILABILITY	Modified table - adds new column	Adds new columns for MTPASA submitted availability
PDPASA	PDPASA_REGIONSOLUTION	Modified table - adds new columns	Adds new columns for WDR values
STPASA_SOLUTION	STPASA_REGIONSOLUTION	Modified table - adds new columns	Adds new columns for WDR values
DISPATCH	DISPATCHREGIONSUM	Modified table - adds new columns	Adds new columns for WDR values
	DISPATCHLOAD	Modified table - adds new column	Adds new column for FSIP changes
PREDISPATCH	PREDISPATCHREGIONSUM	Modified table - adds new columns	Adds new columns for WDR values
P5MIN	P5MIN_REGIONSOLUTION	Modified table - adds new columns	Adds new columns for WDR values

Package	Table name	Change	Details
	P5MIN_UNITSOLUTION	Modified table - adds new column	Adds new column for FSIP changes
METERDATA	METERDATA_WDR_READS	New table	Adds table for Metering Data readings for WDR
SETTLEMENT_DATA	SET_WDR_RECON_DETAIL	New table	Adds table for Settlements WDR reconciliation
	SET_WDR_TRANSACT	New table	Adds table for Settlements WDR transactions
	SET_SUBSTITUTE_DEMAND	New table	Adds table for Settlements substitution demand for Zero Demand figures
	SET_SUBST_RUN_VERSION	New table	Adds table for Settlements substitution demand run version numbers
	SET_RECOVERY_ENERGY	New table	Adds table for Settlements substitution recovery energy used
	SET_FCAS_REGULATION_TRK	Modified table - adds new columns	Adds new columns WDR in the Settlements FCAS regulation tracking table
SETTLEMENT_CONFIG	SETCFG_WDR_REIMBURSE_RATE	New table	Adds table for Settlements WDR reimbursement rate
	SETCFG_WDRRR_CALENDAR	New table	Adds new table for WDR Reimbursement Rate Calendar

Package	Table name	Change	Details
DEMAND_FORECASTS	DEMANDOPERATIONALACTUAL	Modified table - adds new columns	Adds new column for WDR estimate
	INTERMITTENT_CLUSTER_AVAIL	Modified table – adds new and modified columns	Adds new columns for Intermittent Generation updates
	MTPASA_INTERMITTENT_AVAIL	Modified table – adds new and modified columns	Adds new columns for Intermittent Generation updates
PARTICIPANT_REGISTRATION	DUDETAIL	Modified table - adds new columns	Modifies column DISPATCHTYPE and adds new column DISPATCHSUBTYPE for WDR subtype under LOAD type
	DUDETAILSUMMARY	Modified table - adds new columns	Modifies column DISPATCHTYPE and adds new column DISPATCHSUBTYPE for WDR subtype under LOAD type
	GENUNITS_UNIT	Modified table – modified column	Update UNIT_COUNT column to NUMBER(10,0)
	GENUNITS	Modified table – modified column	Changes data type for DISPATCHTYPE column.
	PMS_GROUP	New table	Adds new table for PMS reports

Package	Table name	Change	Details
	PMS_GROUPSERVICE	New table	Adds new table for PMS reports
	PMS_GROUPNMI	New table	Adds new table for PMS reports
NETWORK	NETWORK_EQUIPMENTDETAIL	Modified table - adds new column	Add ELEMENTID, SUBSTATIONID, EQUIPMENTTYPE, EQUIPMENTID as part of Primary Key.
	NETWORK_OUTAGEDETAIL	Modified table - adds new column	Add ELEMENTID, SUBSTATIONID, EQUIPMENTTYPE, EQUIPMENTID as part of Primary Key
	NETWORK_SUBSTATIONDETAIL	Modified table – updates data type.	Updates data type for LASTCHANGED column

10.2 Package: BIDS

Energy and Market Based FCAS Offers

Modified table: BIDOFFERFILETRK

Comment	**BIDOFFERFILETRK shows an audit trail of all files submitted containing ENERGY/FCAS/MNSP bid, including corrupt bids and rebids.**
Visibility	PRIVATE
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	FILENAME+OFFERDATE+PARTICIPANTID

New column

Field Name	Data type	Comment	PK
SUBMISSION_METHOD	VARCHAR2(20)	Method by which this submission was made – typically FTP, API, WEB. **The SUBMISSION_METHOD field is a late addition to the WDR release and will not be populated within the timeline of the WDR project. AEMO will advise participants when this field is ready to be populated.**	N

10.3 Package: BILLING_RUN

Results from a published Billing Run. The settlement data and billing run data are updated daily between 6 am and 8 am for AEMO's prudential processes. In a normal week, AEMO publishes one PRELIM, one FINAL and two REVISION runs in addition to the daily runs. Each billing run is uniquely identified by contract year, week no and bill run no.

New table: BILLING_WDR

Comment	**Billing WDR Transaction Weekly Summary**
Visibility	PRIVATE
Trigger	Posting a Billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	CONTRACTYEAR+WEEKNO+BILLRUNNO+PARTICIPANTID

New column

Field Name	Data type	Comment	PK
CONTRACTYEAR	NUMBER(4,0)	Contract year of the Billing run	Y
WEEKNO	NUMBER(3,0)	Week number of the Billing run	Y

Field Name	Data type	Comment	PK
BILLRUNNO	NUMBER(3,0)	Billing run number identifier	Y
PARTICIPANTID	VARCHAR2(20)	DRSP or FRMP Participant Identifier	Y
WDR_CREDIT_AMOUNT	NUMBER(18,8)	WDR credit transaction amount	N
WDR_DEBIT_AMOUNT	NUMBER(18,8)	WDR debit transaction amount	N

New table: BILLING_WDR_DETAIL

Comment	Billing WDR transaction detail summary
Visibility	PRIVATE
Trigger	Posting a Billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	CONTRACTYEAR+WEEKNO+BILLRUNNO+WDRRRPERIOD+REGIONID+FRMP+DRSP

New column

Field Name	Data type	Comment	PK
CONTRACTYEAR	NUMBER(4,0)	Contract year of the Billing run	Y
WEEKNO	NUMBER(3,0)	Week number of the Billing run	Y
BILLRUNNO	NUMBER(3,0)	Billing run number identifier	Y
WDRRRPERIOD	VARCHAR2(20)	Unique identifier for the period to which the WDRRR applies. For quarter-based periods, this will be equal to “YYYY[Q]NN”, for example, 2020Q3 for 2020 Quarter 3.	Y
REGIONID	VARCHAR2(20)	Region identifier	Y
FRMP	VARCHAR2(20)	Financial Responsible Market Participant Identifier	Y
DRSP	VARCHAR2(20)	Demand Response Service Provider Identifier	Y
WDRSQ	NUMBER(18,8)	WDR Settlement Quantity capped in MWh	N
WDRRR	NUMBER(18,8)	WDR reimbursement rate in $/MWh	N
WDRTA	NUMBER(18,8)	WDR transaction amount in $ for demand response	N

Modified table: BILLINGREGIONFIGURES

Comment	**Billing region summary**
Visibility	PUBLIC
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	CONTRACTYEAR+WEEKNO+BILLRUNNO+REGIONID

New column

Field name	Data type	Description	PK
WDRSQ	NUMBER(18,8)	WDR Settlement Quantity Capped in MWh	N
WDRTA	NUMBER(18,8)	WDR transaction amount in $	N

New table: BILLING_SUBST_DEMAND

Comment	**Demand Values Substituted in Billing Calculation**
Visibility	PRIVATE
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	CONTRACTYEAR+WEEKNO+BILLRUNNO+SETTLEMENTDATE+TNI+PARTICIPANTID

New column

Field name	Data type	Description	PK
CONTRACTYEAR	NUMBER(4,0)	Billing contract year	Y
WEEKNO	NUMBER(3,0)	Billing week number	Y
BILLRUNNO	NUMBER(3,0)	Billing run number	Y
SETTLEMENTDATE	DATE	Settlement Date	Y
TNI	VARCHAR2(20)	Unique identifier for the connection point	Y

Field name	Data type	Description	PK
PARTICIPANTID	VARCHAR2(20)	Unique identifier for the participant	Y
REGIONID	VARCHAR2(20)	Unique identifier for the region to which the TNI belongs to on this settlement date	N
SUBSTITUTEDEMAND	NUMBER(18,8)	Substitute metered quantity for non-energy recovery in MWh for the TNI and participant in the trading interval. A negative value indicates net consumption and a positive value indicates net generation	N

New table: BILLING_SUBST_RUN_VERSION

Comment	**Details of settlement runs used as input in the substitute demand calculation**
Visibility	PRIVATE
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	CONTRACTYEAR+WEEKNO+BILLRUNNO+REFERENCESETTLEMENTDATE+REFERENCESETTLEMENTRUNNO

New column

Field name	Data type	Description	PK
CONTRACTYEAR	NUMBER(4,0)	Billing contract year	Y
WEEKNO	NUMBER(3,0)	Billing week number	Y
BILLRUNNO	NUMBER(3,0)	Billing run number	Y
REFERENCESETTLEMENTDATE	DATE	Settlement Date	Y
REFERENCESETTLEMENTRUNNO	NUMBER(3,0)	The settlement run number matching the settlement date for a settlement run included in the reference period	Y

10.4 Package: MTPASA

Results from a published Medium Term PASA Run and region-aggregate offered PASA Availability of scheduled generators

Modified table: MTPASA_DUIDAVAILABILITY

Comment	**Offered PASA Availability of the scheduled generator DUID for each day over the Medium Term PASA period. The data in this table is input data to the MT PASA process it is not part of the MTPASA solution. The availability does not reflect any energy limitations in the MT PASA offers**
Visibility	Public
Trigger	MTPASA_REGIONAVAILABILITY is updated each MTPASA run (i.e. every 7 days).
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	DAY, DUID, PUBLISH_DATETIME, REGIONID

New column

Field name	Data type	Description	PK
CARRYOVERSTATUS	NUMBER(1,0)	Status of a reported capacity value (e.g. 1 for Yes, 0 for No)	N

Modified table: MTPASA_REGIONAVAILABILITY

Comment	**Stores the Region-aggregate offered PASA Availability of scheduled generators for each day over the Medium Term PASA period. The data in this table is an aggregate of input data to the MT PASA process it is not part of the MTPASA solution. The aggregate availability does not reflect any energy limitations in the MT PASA offers.**
Visibility	Public
Trigger	MTPASA_REGIONAVAILABILITY is updated each MTPASA run (i.e. every 7 days).
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	DAY, PUBLISH_DATETIME, REGIONID

New column

Field name	Data type	Description	PK
CARRYOVERCAPACITY	NUMBER(12,0)	Split of the CARRYOVER component of aggregate capacity vs the currently reported capacity.	N

10.5 Package: PDPASA

The PDPASA package provides a 30-minute solving process to the Market systems.

The current methodology for calculating reserves in the PreDispatch timeframe is determined in a post processing step using a heuristic calculation based on the results and Interconnector limits from the PreDispatch run.

The calculation is a reserve assessment based on the PASA solver similar to existing ST and MT PASA business processes.

The process reflects all intra-regional and inter-regional network constraints as an input to the process.

Modified table: PDPASA_REGIONSOLUTION

Comment	**The PDPASA region solution data**
Visibility	Public
Trigger	PDPASA_REGIONSOLUTION is updated each PDPASA run (i.e. half-hourly).
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	INTERVAL_DATETIME, REGIONID, RUN_DATETIME, RUNTYPE

New column

Field Name	Data type	Comment	PK
WDR_AVAILABLE	NUMBER(12,2)	Regional aggregated Wholesale Demand Response (WDR) availability in MW.	N
WDR_PASAAVAILABLE	NUMBER(12,2)	Regional aggregated Wholesale Demand Response (WDR) PASA availability in MW.	N
WDR_CAPACITY	NUMBER(12,2)	Regional aggregated Wholesale Demand Response (WDR) capacity in MW.	N

10.6 Package: STPASA_SOLUTION

Results from a published Short Term PASA Run.

Modified table: STPASA_REGIONSOLUTION

Comment	**STPASA_REGIONSOLUTION shows the results of the regional capacity, maximum surplus reserve and maximum spare capacity evaluations for each period of the study.**
Visibility	Public
Trigger	STPASA_REGIONSOLUTION is updated each STPASA run (i.e every 2 hours).

Comment	**STPASA_REGIONSOLUTION shows the results of the regional capacity, maximum surplus reserve and maximum spare capacity evaluations for each period of the study.**
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	BILLRUNNO, CONTRACTYEAR, REGIONID, WEEKNO

New column

Field Name	Data type	Comment	PK
WDR_AVAILABLE	NUMBER(12,2)	Regional aggregated Wholesale Demand Response (WDR) availability in MW.	N
WDR_PASAAVAILABLE	NUMBER(12,2)	Regional aggregated Wholesale Demand Response (WDR) PASA availability in MW.	N
WDR_CAPACITY	NUMBER(12,2)	Regional aggregated Wholesale Demand Response (WDR) capacity in MW.	N

10.7 Package: DISPATCH

Results from a published Dispatch Run.

Modified table: DISPATCHREGIONSUM

Comment	**DISPATCHREGIONSUM sets out the 5-minute solution for each dispatch run for each region, including the Frequency Control Ancillary Services (FCAS) services provided. Additional fields are for the Raise Regulation and Lower Regulation Ancillary Services plus improvements to demand calculations.**
Visibility	Public
Trigger	DISPATCHREGIONSUM updates every 5 minutes.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DISPATCHINTERVAL, INTERVENTION, REGIONID, RUNNO, SETTLEMENTDATE

New column

Field name	Data type	Description	PK
WDR_INITIALMW	NUMBER(15,5)	Regional aggregated MW value at start of interval for Wholesale Demand Response (WDR) units	N
WDR_AVAILABLE	NUMBER(15,5)	Regional aggregated available MW for Wholesale Demand Response (WDR) units	N
WDR_DISPATCHED	NUMBER(15,5)	Regional aggregated dispatched MW for Wholesale Demand Response (WDR) units	N

Modified table: DISPATCHLOAD

Comment	**DISPATCHLOAD set out the current SCADA MW and target MW for each dispatchable unit, including relevant Frequency Control Ancillary Services (FCAS) enabling targets for each five minutes and additional fields to handle the new Ancillary Services functionality. Fast Start Plant status is indicated by dispatch mode.**
Visibility	Private; Public Next-Day
Trigger	DISPATCHLOAD shows data for every 5 minutes for all units, even zero targets.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DUID, INTERVENTION, RUNNO, SETTLEMENTDATE

New column

Field name	Data type	Description	PK
DISPATCHMODETIME	NUMBER(4,0)	Minutes for which the unit has been in the current DISPATCHMODE. From NEMDE TRADERSOLUTION element FSTARGETMODETIME attribute.	N

10.8 Package: PREDISPATCH

Results from a published Dispatch Run.

Modified table: PREDISPATCHREGIONSUM

Comment	**PREDISPATCHREGIONSUM sets out the overall regional Pre-Dispatch results for base case details (excluding price).**
Visibility	Public
Trigger	DISPATCHREGIONSUM updates every 5 minutes.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DATETIME, REGIONID

New column

Field name	Data type	Description	PK
WDR_INITIALMW	NUMBER(15,5)	Regional aggregated MW value at start of interval for Wholesale Demand Response (WDR) units	N
WDR_AVAILABLE	NUMBER(15,5)	Regional aggregated available MW for Wholesale Demand Response (WDR) units	N

Field name	Data type	Description	PK
WDR_DISPATCHED	NUMBER(15,5)	Regional aggregated dispatched MW for Wholesale Demand Response (WDR) units	N

Modified table: PREDISPATCHINTERSENSITIVITIES

Comment	**PREDISPATCHINTERSENSITIVITIES sets out the sensitivity flows for each interconnector by period.**
Visibility	Public
Trigger	DISPATCHREGIONSUM updates every 5 minutes.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DATETIME, INTERCONNECTORID

Modified columns

Field name	Data type	Description	PK
INTERVENTION_ACTIVE	NUMBER(1,0)	Flag to indicate if the sensitivity run contains an active intervention constraint: 0 = No, 1 = Yes	N

Modified table: PREDISPATCHPRICESENSITIVITIES

Comment	**PREDISPATCHPRICESENSITIVITIES sets out the sensitivity prices for each region by period.**
Visibility	Public
Trigger	Every 30 minutes
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DATETIME, REGIONID

Modified columns

Field name	Data type	Description	PK
INTERVENTION_ACTIVE	NUMBER(1,0)	Flag to indicate if the sensitivity run contains an active intervention constraint: 0 = No, 1 = Yes	N

10.9 Package: P5MIN

Results from a published Five-Minute Predispatch Run.

Modified table: P5MIN_REGIONSOLUTION

Comment	**The five-minute predispatch (P5Min) is an MMS system providing projected dispatch for 12 Dispatch cycles (one hour). The 5-minute Predispatch cycle runs every 5-minutes to produce a dispatch and pricing schedule to a 5-minute resolution covering the next hour, a total of twelve periods.** **P5MIN_REGIONSOLUTION shows the results of the regional capacity, maximum surplus reserve and maximum spare capacity evaluations for each period of the study.**
Visibility	Public
Trigger	Populated by the posting of a Billing run.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	INTERVAL_DATETIME, REGIONID, RUN_DATETIME

New column

Field name	Data type	Description	PK
WDR_INITIALMW	NUMBER(15,5)	Regional aggregated MW value at start of interval for Wholesale Demand Response (WDR) units	N
WDR_AVAILABLE	NUMBER(15,5)	Regional aggregated available MW for Wholesale Demand Response (WDR) units	N

Field name	Data type	Description	PK
WDR_DISPATCHED	NUMBER(15,5)	Regional aggregated dispatched MW for Wholesale Demand Response (WDR) units	N

Modified table: P5MIN_UNITSOLUTION

Comment	**The five-minute predispatch (P5Min) is a MMS system providing projected dispatch for 12 Dispatch cycles (one hour). The 5-minute Predispatch cycle runs every 5-minutes to produce a dispatch and pricing schedule to a 5-minute resolution covering the next hour, a total of twelve periods. P5MIN_UNITSOLUTION shows the Unit results from the capacity evaluations for each period of the study.**
Visibility	Private
Trigger	P5MIN_UNITSOLUTION updates every 5 minutes for all units, even zero targets.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DUID, INTERVAL_DATETIME, RUN_DATETIME

New column

Field name	Data type	Description	PK
DISPATCHMODETIME	NUMBER(4,0)	Minutes for which the unit has been in the current DISPATCHMODE. From NEMDE TRADERSOLUTION element FSTARGETMODETIME attribute.	N

Modified table: P5MIN_INTERSENSITIVITIES

Comment	**P5MIN Sensitivies for 5MinPD solution. New solution every 5 minutes. Current Scenarios defined in P5MIN_SCENARIODEMANDTRK/P5MIN_SCENARIODEMAND**
Visibility	Public
Trigger	Every 5 minutes
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	INTERCONNECTORID, INTERVAL_DATETIME, RUN_DATETIME

Modified columns

Field name	Data type	Description	PK
INTERVENTION_ACTIVE	NUMBER(1,0)	Flag to indicate if the sensitivity run contains an active intervention constraint: 0 = No, 1 = Yes	N

Modified table: P5MIN_PRICESENSITIVITIES

Comment	**Price Sensitivies for 5MinPD solution. New solution every 5 minutes. Current Scenarios defined in P5MIN_SCENARIODEMANDTRK/P5MIN_SCENARIODEMAND**
Visibility	Public
Trigger	Every 5 minutes
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	INTERVAL_DATETIME, REGIONID, RUN_DATETIME

Modified columns

Field name	Data type	Description	PK
INTERVENTION_ACTIVE	NUMBER(1,0)	Flag to indicate if the sensitivity run contains an active intervention constraint: 0 = No, 1 = Yes	N

10.10 Package: NETWORK

Configuration data for the physical network

To receive the updated changes for the NETWORK tables:

- Ensure that you are subscribed to the latest NETWORK_OUTAGE file and unsubscribed from the _legacy version.
- Stop the pdrLoader application.
- Upgrade to Electricity Data Model v5.1.
  - We have added a new column ELEMENTID as part of Primary Key in NETWORK_EQUIPMENTDETAIL and NETWORK_OUTAGEDETAIL tables.
  - This upgrade will truncate these tables and add the ELEMENTID column.
- Place the PUBLIC_NETWORK_*_BASELINE file available in \MarketData\Baseline\PUBLIC_NETWORK_*_BASELINE.zip location from the Production participant file server in your pdrLoader\Reports directory.

  - This will load the baseline data in your database.
- Start the pdrLoader application.
- Wait for some time for the above file to load.
- Run the following query to verify of the baseline file has loaded successfully:

```
 select * from pdr_report_audit a where a.file_id in ('NETWORK_OUTAGE','PART_BASE_NETWORK') order by file_receive_time
desc;
```

- Once this file gets processed, NETWORK_EQUIPMENTDETAIL and NETWORK_OUTAGEDETAIL should get populated with the baseline data.
- Also, to populate the OUTAGES table since the time BASELINE was generated till the data model was upgraded, copy all the NETWORK files since 2AM from Archive folder and place it in the pdrLoader\Reports directory.

Modified table: NETWORK_EQUIPMENTDETAIL

Comment	**NETWORK_EQUIPMENTDETAIL Provides details on equipment that may have outages or ratings.**
Visibility	Public
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS

Comment	**NETWORK_EQUIPMENTDETAIL Provides details on equipment that may have outages or ratings.**
Primary key (in order)	ELEMENTID, SUBSTATIONID, EQUIPMENTTYPE, EQUIPMENTID, VALIDFROM

New column

Field name	Data type	Description	PK
ELEMENTID	NUMBER(15,0)	Equipment element id	Y

Modified column

Field name	Data type	Description	PK
VALIDFROM	TIMESTAMP(3)	The date that this record is applies from (inclusive)	Y
VALIDTO	TIMESTAMP(3)	The date that this record applies until (exclusive)	N
LASTCHANGED	TIMESTAMP(3)	The time that this record was last changed.	N

Modified table: NETWORK_OUTAGEDETAIL

Comment	**Lists asset owners planned outages for transmission equipment.**
Visibility	Public
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	OUTAGEID, ELEMENTID, SUBSTATIONID, EQUIPMENTTYPE, EQUIPMENTID, STARTTIME

New column

Field name	Data type	Description	PK
ELEMENTID	NUMBER(15,0)	Equipment element id	Y

Modified column

Field name	Data type	Description	PK
LASTCHANGED	TIMESTAMP(3)	The time that this record was last changed.	N

Modified table: NETWORK_SUBSTATIONDETAIL

Comment	**Sets out the attributes of sub-stations across time**
Visibility	Public
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	SUBSTATIONID, VALIDFROM

Modified column

Field name	Data type	Description	PK
VALIDFROM	TIMESTAMP(3)	The date that this record is applies from (inclusive)	Y
VALIDTO	TIMESTAMP(3)	The date that this record applies until (exclusive)	N
LASTCHANGED	TIMESTAMP(3)	The time that this record was last changed.	N

10.11 Package: METER_DATA

Wholesale market aggregated Meter data

New table: METERDATA_WDR_READS

Comment	**Metering Data WDR Readings**
Visibility	Private
Trigger	Posting a Billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	MARKET_ID+CASE_ID+SETTLEMENTDATE+METER_ID+PERIODID

New column

Field Name	Data type	Comment	PK
MARKET_ID	VARCHAR2(20)	Unique identifier for the market to which this metering record applies. Always equal to “NEM” in the current system.	Y

Field Name	Data type	Comment	PK
CASE_ID	NUMBER(15,0)	Unique identifier for the metering case.	Y
SETTLEMENTDATE	DATE	The settlement date for the metering record	Y
METER_ID	VARCHAR2(20)	Unique identifier for the meter to which the metering record applies	Y
TNI	VARCHAR2(20)	Unique identifier for the transmission node to which this meter belongs on the settlement date	N
FRMP	VARCHAR2(20)	Unique identifier for the participant acting as the FRMP for this NMI on the settlement date	N
DRSP	VARCHAR2(20)	Unique identifier for the participant acting as the DRSP for this NMI on the settlement date	N
PERIODID	NUMBER(3,0)	Trading interval identifier, with Period 1 being the first TI for the calendar day, i.e interval ending 00:05.	Y
METEREDQUANTITYIMPORT	NUMBER(18,8)	Metered quantity Import in MWh for the NMI in the trading interval. A negative value indicates net consumption, while a positive value indicates net generation	N
METEREDQUANTITYEXPORT	NUMBER(18,8)	Metered quantity Export in MWh for the NMI in the trading interval. A negative value indicates net consumption, while a positive value indicates net generation	N
BASELINEQUANTITY	NUMBER(18,8)	Baseline quantity in MWh for the NMI in the trading interval. A negative value indicates net consumption, while a positive value indicates the net generation	N

Field Name	Data type	Comment	PK
QUALITYFLAG	VARCHAR2(20)	Quality flag for the meter read. Where multiple datastreams exist against the NMI with different quality flags for each read, the “lowest quality” flag will be published against the NMI for the interval.	N
ISNONCOMPLIANT	NUMBER(1,0)	A value of TRUE (indicated by 1) for this column indicates that financial settlement of WDR transactions for this NMI should not proceed for the settlement date and trading interval. Possible values are 1 and 0.	N
BASELINECALCULATIONID	VARCHAR2(100)	A reference to the baseline run that produced the baseline quantity for this NMI and interval	N

10.12 Package: SETTLEMENT_DATA

Results from a published Settlements Run. The settlement data and billing run data are updated daily between 6 am and 8 am for AEMO's prudential processes. In a normal week, AEMO publishes one PRELIM, one FINAL and two REVISION runs in addition to the daily runs.

New table: SET_WDR_RECON_DETAIL

Comment	**Settlements WDR reconciliation details**
Visibility	PRIVATE

Comment	**Settlements WDR reconciliation details**
Trigger	posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	SETTLEMENTDATE+SETTLEMENTRUNNO+NMI+PERIODID

New column

Field Name	Data type	Comment	PK
SETTLEMENTDATE	DATE	Settlement date	Y
SETTLEMENTRUNNO	NUMBER(3,0)	Settlement run number	Y
NMI	VARCHAR2(20)	Unique identifier for the meter to which the metering records applies	Y
TNI	VARCHAR2(20)	Unique identifier for the transmission node to which this meter belongs on the settlement date	N
REGIONID	VARCHAR2(20)	Unique identifier for the region to which the TNI belongs on the settlement date	N
FRMP	VARCHAR2(20)	Unique identifier for the participant acting as the FRMP for this NMI on the settlement date	N

Field Name	Data type	Comment	PK
DRSP	VARCHAR2(20)	Unique identifier for the participant acting as the DRSP for this NMI on the settlement date	N
PERIODID	NUMBER(3,0)	Trading interval identifier with Period 1 being the first TI for the calendar day, that is the interval ending 00:05	Y
WDRSQ_UNCAPPED	NUMBER(18,8)	WDR settlement quantity before any capping or flooring (MWh)	N
WDRSQ_CAPPED	NUMBER(18,8)	WDR settlement quantity after capping or flooring (MWh)	N
MRC	NUMBER(18,8)	Maximum responsive component for the NMI (MW)	N
MRCSQ	NUMBER(18,8)	Maximum responsive component settlement quantity for the NMI (MWh)	N
WDRRR	NUMBER(18,8)	WDR reimbursement rate for the region ($/MWh)	N
RRP	NUMBER(18,8)	Regional reference price for the region in the settlement interval ($/MWh)	N
TLF	NUMBER(18,8)	Transmission loss factor for the wholesale connection point associated with the NMI	N
ME_DLFADJUSTED	NUMBER(18,8)	Metered quantity in MWh for the NMI trading interval. A negative value indicates net consumption and a positive value indicates net generation	N
BQ_DLFADJUSTED	NUMBER(18,8)	Baseline quantity in MWh for the NMI in the trading interval. A negative quantity indicates net consumption, while a positive value indicates net generation	N

Field Name	Data type	Comment	PK
ISNONCOMPLIANT	NUMBER(1,0)	A value of TRUE (indicated by 1) for this column indicates that financial settlement of WDR transactions for this NMI should not proceed for the settlement date and trading interval. Possible values are 1 and 0.	N
QUALITYFLAG	VARCHAR2(20)	Quality flag for the meter read. Where multiple datastreams exist against the NMI with different quality flags for each read, the lowest quality flag will be published against the NMI for the interval	N
TRANSACTIONAMOUNT	NUMBER(18,8)	WDR transaction amount for this NMI in the settlement interval ($)	N
BASELINECALCULATIONID	VARCHAR2(100)	A reference to the baseline run that produced the baseline quantity for this NMI and interval	N

New table: SET_WDR_TRANSACT

Comment	**Settlements WDR transactions summary**
Visibility	PRIVATE
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

Comment	Settlements WDR transactions summary
Primary key (in order)	SETTLEMENTDATE+SETTLEMENTRUNNO+PERIODID+REGIONID+PARTICIPANTID+ COUNTERPARTYPARTICIPANTID +PARTICIPANTROLEID

New column

Field Name	Data type	Comment	PK
SETTLEMENTDATE	DATE	Settlement date	Y
SETTLEMENTRUNNO	NUMBER(3,0)	Settlement run number	Y
PERIODID	NUMBER(3,0)	Trading interval identifier with Period 1 being the first TI for the calendar day, that is the interval ending 00:05	Y
REGIONID	VARCHAR2(20)	Unique identifier for the region to which the TNI belongs on the settlement date	Y
PARTICIPANTID	VARCHAR2(20)	Unique identifier for a participant	Y
PARTICIPANTROLEID	VARCHAR2(20)	Participant role identifier - FRMP or DRSP	Y
COUNTERPARTYPARTICIPANTID	VARCHAR2(20)	Unique identifier for the counter participant id.	Y

Field Name	Data type	Comment	PK
TRANSACTIONAMOUNT	NUMBER(18,8)	Aggregate WDR transaction amount for the participant and counterparty in the settlement interval	N

New table: SET_SUBSTITUTE_DEMAND

Comment	Settlements substitution demand for Zero Demand figures
Visibility	PRIVATE
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	SETTLEMENTDATE+SETTLEMENTRUNNO+TNI+PARTICIPANTID

New column

Field name	Data type	Description	PK
SETTLEMENTDATE	DATE	Settlement date	Y

Field name	Data type	Description	PK
SETTLEMENTRUNNO	NUMBER(3,0)	Settlement run number	Y
TNI	VARCHAR2(20)	Unique identifier for the connection point	Y
PARTICIPANTID	VARCHAR2(20)	Unique identifier for the participant	Y
REGIONID	VARCHAR2(20)	Unique identifier for the region to which the TNI belongs to on this settlement date	N
SUBSTITUTEDEMAND	NUMBER(18,8)	Substitute metered quantity for non-energy recovery in MWh for the TNI and participant in the trading interval. A negative value indicates net consumption and a positive value indicates net generation	N

New table: SET_SUBST_RUN_VERSION

Comment	**Settlements substitution demand run version numbers**
Visibility	PUBLIC
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	SETTLEMENTDATE+SETTLEMENTRUNNO+REFERENCESETTLEMENTDATE+REFERENCESETTLEMENTRUNNO

New column

Field name	Data type	Description	PK
SETTLEMENTDATE	DATE	Settlement date	Y
SETTLEMENTRUNNO	NUMBER(3,0)	Settlement run number	Y
REFERENCESETTLEMENTDATE	DATE	The settlement date of a settlement run included in the reference period	Y
REFERENCESETTLEMENTRUNNO	NUMBER(3,0)	The settlement run number matching the settlement date for a settlement run included in the reference period	Y

New table: SET_RECOVERY_ENERGY

Comment	**Settlements substitution recovery energy used**
Visibility	PRIVATE
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	SETTLEMENTDATE+SETTLEMENTRUNNO+PARTICIPANTID+REGIONID+PERIODID

New column

Field name	Data type	Description	PK
SETTLEMENTDATE	DATE	Settlement date	Y
SETTLEMENTRUNNO	NUMBER(3,0)	Settlement run number	Y
PARTICIPANTID	VARCHAR2(20)	Unique identifier for the participant	Y
REGIONID	VARCHAR2(20)	Unique Identifier for the Region to which the TNI belongs on this settlement date	Y
PERIODID	NUMBER(3,0)	Trading interval identifier, with Period 1 being the first TI for the calendar day, i.e interval ending 00:05 for 5MS or 00:30 for 30MS.	Y
CUSTOMERENERGYACTUAL	NUMBER(18,8)	Actual Customer Demand	N
CUSTOMERENERGYMPFEXACTUAL	NUMBER(18,8)	Actual Customer Demand excluding TNIs that have a causer pays MPF	N
CUSTOMERENERGYSUBSTITUTE	NUMBER(18,8)	Substitute Customer Demand	N

Field name	Data type	Description	PK
CUSTOMERENERGYMPFEXSUBSTITUTE	NUMBER(18,8)	Substitute Customer Demand excluding TNIs that have a causer pays MPF	N
GENERATORENERGYACTUAL	NUMBER(18,8)	Actual Generator Output	N
REGIONCUSTENERGYACTUAL	NUMBER(18,8)	Region Total of Actual Customer Demand	N
REGIONCUSTENERGYMPFEXACTUAL	NUMBER(18,8)	Region Total of Actual Customer Demand excluding TNIs that have a causer pays MPF	N
REGIONCUSTENERGYSUBST	NUMBER(18,8)	Region Total of Substitute Customer Demand	N
REGIONCUSTENERGYMPFEXSUBST	NUMBER(18,8)	Region total of Substitute Customer Demand excluding TNIs that have a causer pays MPF	N
REGIONGENENERGYACTUAL	NUMBER(18,8)	Region Total of Actual Generator Output	N

Modified table: SET_FCAS_REGULATION_TRK

Comment	**Settlements FCAS regulation tracking**
Visibility	PRIVATE
Trigger	Posting a billing run
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	CONSTRAINTID+INTERVAL_DATETIME+SETTLEMENTDATE+VERSIONNO

New column

Field name	Data type	Description	PK
USESUBSTITUTEDEMAND	NUMBER(1,0)	Flag to indication that substitute demand was used to recover this requirement	N
REQUIREMENTDEMAND	NUMBER(18,8)	the aggregate customer demand value used to recover the cost of this requirement	N

10.13 Package: SETTLEMENT_CONFIG

Configuration and input data for the Settlements Process

New table: SETCFG_WDR_REIMBURSE_RATE

Comment	**Settlements WDR transactions**
Visibility	PUBLIC
Trigger	Generated quarterly
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	WDRRRPERIOD+REGIONID+VERSION_DATETIME

New column

Field Name	Data type	Comment	PK
WDRRRPERIOD	VARCHAR2(20)	Unique identifier for the period to which the WDRRR applies. For quarter-based periods, this will be equal to “YYYY[Q]NN”, e.g. 2020Q3 for 2020 Quarter 3.	Y
REGIONID	VARCHAR2(20)	Unique identifier for the region	Y
VERSION_DATETIME	TIMESTAMP(3)	The Version Date time of the latest changes.	Y
WDRRR	NUMBER(18,8)	WDRRR value for the period and region ($/MWh)	N

Field Name	Data type	Comment	PK
ISFIRM	NUMBER(3,0)	A flag to indicate that the WDRRR value is FIRM for the period and region, i.e. it is based on a complete set of firm prices from dispatch. Possible Values are 1 and 0	N
LASTCHANGED	TIMESTAMP(3)	Last changed date for the record	N

New table: SETCFG_WDRRR_CALENDAR

Comment	**Wholesale Demand Response Reimbursement Rate Calendar**
Visibility	PUBLIC
Trigger	When records are added/modified
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
Primary key (in order)	WDRRPERIOD+REGIONID+VERSION_DATETIME

New column

Field name	Data type	Description	PK
WDRRRPERIOD	VARCHAR2(20)	Unique identifier for the period to which the WDRRR applies. For quarter-based periods, this will be equal to “YYYY[Q]NN”, for example, 2020Q3 for 2020 Quarter 3.	Y
REGIONID	VARCHAR2(20)	Unique Identifier for the region id	Y
VERSION_DATETIME	TIMESTAMP(3)	The Version Date time of the latest changes.	Y
STARTDATE	DATE	Start Date of Period (Inclusive).	N
ENDDATE	DATE	End Date of Period (Inclusive).	N
LASTCHANGED	TIMESTAMP(3)	Last changed date for the record	N

10.14 Package: DEMAND_FORECASTS

Regional Demand Forecasts and Intermittent Generation forecasts.

Modified table: DEMANDOPERATIONALACTUAL

Comment	**Shows Actual Operational Demand for a particular date time interval.**
Visibility	Public
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	INTERVAL_DATETIME, REGIONID

New column

Field name	Data type	Description	PK
WDR_ESTIMATE	NUMBER(10,0)	Estimated average 30-minute MW amount of Wholesale Demand Response that occurred	N

Modified column

Field name	Data type	Description	PK
OPERATIONAL_DEMAND	NUMBER(10,0)	Average 30-minute measured operational demand MW value (unadjusted)	N

Modified table: INTERMITTENT_CLUSTER_AVAIL

Comment	A submission of expected plant availability for an intermittent generating unit cluster, by Trading Day and Trading Interval.
Visibility	Private; Public Next-day
Trigger	Upon submission by participants
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	CLUSTERID, DUID, OFFERDATETIME, PERIODID,TRADINGDATE

New column

Field name	Data type	Description	PK
ELEMENTS_AVAILABLE	NUMBER(5,0)	Number of elements within this CLUSTERID (turbines for wind, or inverters for solar) that are available for this TRADINGDATE and PERIODID (scheduled maintenance in AWEFS/ASEFS). Value between 0 and the registered Number of Cluster Elements. Value = 0 means no elements available	N

Modified column

Field name	Data type	Description	PK
ELEMENTS_UNAVAILABLE	NUMBER(5,0)	Number of elements within this CLUSTERID (turbines for wind, or inverters for solar) that are not available for this TRADINGDATE and PERIODID (scheduled maintenance in AWEFS/ASEFS). Value between 0 and the registered Number of Cluster Elements. Value = 0 means no elements unavailable	N

Modified table: MTPASA_INTERMITTENT_AVAIL

Comment	**A submission of expected plant availability for intermittent generators for use in MTPASA intermittent generation forecasts.**
Visibility	Private
Trigger	Upon submission by participants.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	CLUSTERID, DUID, OFFERDATETIME, TRADINGDATE

New column

Field name	Data type	Description	PK
ELEMENTS_AVAILABLE	NUMBER(5,0)	Number of elements within this CLUSTERID (turbines for wind, or inverters for solar) that are available for this TRADINGDATE. Value between 0 and the registered Number of Cluster Elements. Value = 0 means no elements available	N

Modified column

Field name	Data type	Description	PK
ELEMENTS_UNAVAILABLE	NUMBER(5,0)	Number of elements within this CLUSTERID (turbines for wind, or inverters for solar) that are not available for this TRADINGDATE. Value between 0 and the registered Number of Cluster Elements. Value = 0 means no elements unavailable	N

10.15 Package: PARTICIPANT_REGISTRATION

Participant registration data.

Modified table: DUDETAIL

Comment	**DUDETAIL sets out records specific details for each unit including start type and whether normally on or offload. Much of this data is information only and is not used in dispatch or settlements.**
Visibility	Public
Trigger	DUDETAILSUMMARY updates only when registration details change.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DUID, EFFECTIVEDATE, VERSIONNO

New column

Field name	Data type	Description	PK
DISPATCHSUBTYPE	VARCHAR2(20)	Additional information for DISPATCHTYPE. ▪ For DISPATCHTYPE = LOAD, subtype value is WDR for wholesale demand response units. ▪ For DISPATCHTYPE = LOAD, subtype value is NULL for Scheduled Loads. ▪ For DISPATCHTYPE = GENERATOR type, the subtype value is NULL.	

Modified column

Field name	Data type	Description	PK
DISPATCHTYPE	VARCHAR2(20)	'Identifies LOAD or GENERATOR. This will likely expand to more generic models as new technology types are integrated into the NEM	N

Modified table: DUDETAILSUMMARY

Comment	**DUDETAILSUMMARY sets out a single summary unit table so reducing the need for participants to use the various dispatchable unit detail and owner tables to establish generating unit-specific details.**
Visibility	Public
Trigger	DUDETAILSUMMARY updates only when registration details change.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	DUID, START_DATE

New column

Field name	Data type	Description	PK
DISPATCHSUBTYPE	VARCHAR2(20)	Additional information for DISPATCHTYPE. ▪ For DISPATCHTYPE = LOAD, subtype value is WDR for wholesale demand response units ▪ For DISPATCHTYPE = LOAD, subtype value is NULL for Scheduled Loads. ▪ For DISPATCHTYPE = GENERATOR type, subtype value is NULL.	N

Modified column

Field name	Data type	Description	PK
DISPATCHTYPE	VARCHAR2(20)	'Identifies LOAD or GENERATOR. This will likely expand to more generic models as new technology types are integrated into the NEM	N

Modified table: GENUNITS

Comment	**GENUNITS shows Genset details for each physical unit with the relevant station.**
Visibility	Public
Trigger	GENUNITS_UNIT updates only when registration details change.

Comment	**GENUNITS shows Genset details for each physical unit with the relevant station.**
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	GENSETID

Modified column

Field name	Data type	Description	PK
DISPATCHTYPE	VARCHAR2(20)	Identifies LOAD or GENERATOR. This will likely expand to more generic models as new technology types are integrated into the NEM.	N

Modified table: GENUNITS_UNIT

Comment	**GENUNITS_UNIT Physical units within a Gen Unit Set**
Visibility	Public
Trigger	GENUNITS_UNIT updates only when registration details change.
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS

Comment	**GENUNITS_UNIT Physical units within a Gen Unit Set**
Primary key (in order)	GENSETID, EFFECTIVEDATE, VERSIONNO, UNIT_GROUPING_LABEL

Modified column

Field name	Data type	Description	PK
UNIT_COUNT	NUMBER(10,0)	Number of units in this Gen Unit grouping	N

New table: PMS_GROUP

Comment	**Entity table for group**
Visibility	Public
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	GROUPID

New column

Field name	Data type	Description	PK
GROUPID	NUMBER(20,0)	Abstract identifier for the group	Y
CREATEDDATE	TIMESTAMP(3)	Date record was created	N
LASTCHANGED	TIMESTAMP(3)	Date record was last changed	N

New table: PMS_GROUPSERVICE

Comment	**Describe the services a group provides and its relation to a market**
Visibility	Public
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS
Primary key (in order)	GROUPSERVICEID
Index	ENTITYID, GROUPID

New column

Field name	Data type	Description	PK
GROUPSERVICEID	NUMBER(20, 0)	Record identifier of the Service allocated to the Group. When data is updated, existing record identifier is terminated, and new record identifier(s) are allocated.	Y
GROUPID	NUMBER(20, 0)	Group id of the Group where the Service is attached to.	N
VERSIONFROM	TIMESTAMP(3)	Date for which this version is effective from	N
VERSIONTO	TIMESTAMP(3)	Date for which this version is effective to. Will be set to max date 9999/12/31 23:59:59.999 until this version ends or a change to the version is required.	N
STARTDATE	TIMESTAMP(3)	Effective date of when this service started operation	N
ENDDATE	TIMESTAMP(3)	Effective date of when this service ended operation. Will be set to max date 9999/12/31 23:59:59.999 until its service ends or a change to the service is required.	N
MARKET	VARCHAR2(50)	Market that this group is operating its service in. Will only be NEM initially.	N
SERVICETYPE	VARCHAR2(50)	Service that this group is operating. Will be only be ENERGY initially	N
ENTITYTYPE	VARCHAR2(50)	Describes the entity that is operating. Will only be WDRU initially.	N
ENTITYID	VARCHAR2(50)	Describe the entity's ID in the market that it will be operating in. Will only contain the 'DUID" of the group initially.	N

Field name	Data type	Description	PK
MRC	NUMBER(10,3)	Maximum responsive component for the service offering	N
MRCREASON	VARCHAR2(120)	Reason for the MRC	N
MAXIMUMRAMPRATEPERMIN	NUMBER(10,0)	Maximum ramp rate MW per minute of the service	N
REGION	VARCHAR2(20)	Region the group is operating this service in One of NSW1, QLD1, VIC1, SA1 or TAS1	N
APPROVEDDATE	TIMESTAMP(3)	Date which this record was approved	N
LASTCHANGED	TIMESTAMP(3)	Date time which record was last changed	N

New table: PMS_GROUPNMI

Comment	**Describe the NMIs that a group uses to provide its service**
Visibility	PRIVATE
Trigger	
Participant file share location	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS

Comment	**Describe the NMIs that a group uses to provide its service**
Primary key (in order)	GROUPNMIID
Index	GROUPID, NMI

New column

Field name	Data type	Description	PK
GROUPNMIID	NUMBER(20,0)	Record Identifier of the NMI within a Group. When data is updated, existing record identifier is terminated, and new record identifier(s) are allocated.	Y
GROUPID	NUMBER(20,0)	Group id of the Group which the NMI belongs in	N
VERSIONFROM	TIMESTAMP(3)	Date for which this version is effective from	N
VERSIONTO	TIMESTAMP(3)	Date for which this version is effective to. Will be set to current day plus one if it is the current active record or past date if the record has been superseded/ended.	N
STARTDATE	TIMESTAMP(3)	Effective date of when this service started operation	N
ENDDATE	TIMESTAMP(3)	Effective date of when this NMI record ended. Will be set to current day plus one for current records or past date if the record was effective for a past date.	N
NMI	VARCHAR2(20)	National Meter Identifier linked to the group.	N

Field name	Data type	Description	PK
SITENAME	VARCHAR2(50)	Site name	N
NERRGROUPPREMISES	NUMBER(1,0)	Specifies whether NMI is in a NERR aggregated premises (TRUE = 1/FALSE = 0)	N
BASELINEMETHODOLOGYID	VARCHAR2(50)	Baseline methodology to be used for the PoL and Baseline assessment of the NMI	N
MRC	NUMBER(10, 3)	Maximum responsive component for the NMI	N
MRCREASON	VARCHAR2(120)	Reason for the MRC	N
RETAILCUSTOMER	VARCHAR2(50)	Retail customer of the NMI	N
SUSPENDED	NUMBER(1,0)	Indicates whether the NMI has been suspended from use. (TRUE = 1/FALSE = 0)	N
UNAVAILABLE	NUMBER(1,0)	Indicates whether the NMI is unavailable for use. (TRUE = 1/FALSE = 0)	N
APPROVEDDATE	TIMESTAMP(3)	Date which this record was approved	N
LASTCHANGED	TIMESTAMP(3)	Date time which record was last changed	N

10.16 File interface changes

Package ID	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
BIDS	BIDOFFERFILETRK	Modifies the BIDOFFERFILETRK table to include a new column for SUBMISSION_METHOD.	BIDS.CSV	Ad-hoc (as per participant submission)	Modified	No
BILLING_RUN	BILLING	Adds BILLING_WDR, BILLING_WDR_DETAIL, BILLING_SUBST_DEMAND, BILLING_SUBST_RUN_VERSION tables and modifies the BILLINGREGIONFIGURES table.	BILLING.CSV	Weekly	Modified	No
MTPASA	MTPASADUIDAVAILABILITY, MTPASAREGIONAVAILABILITY	Modifies the MTPASA_DUIDAVAILABILITY, MTPASA_REGIONAVAILABILITY tables to include new columns.	MTPASA.CSV	Every 3 hours during business hours (~7AM - ~6PM, Monday to Friday)	Modified	No

Package ID	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
PDPASA	PDPASA	Modifies the PDPASA_REGIONSOLUTION table to include WDR columns	PDPASA.CSV	Every 30-minute (post predispatch)	Modified	No
STPASA_SOLUTION	STPASA	Modifies the STPASA_REGIONSOLUTION table to include WDR columns	STPASA.CSV	Hourly	Modified	No
DISPATCH	DISPATCHIS	Modifies the DISPATCHREGIOSUM table to include WDR columns	DISPATCH.CVS	Every 5-minutes	Modified	No
PREDISPATCH	PREDISPATCHIS	Modifies the PREDISPATCHREGIOSUM table to include WDR columns	PREDISPATCH.CSV	Every 30-minutes	Modified	No
P5MIN	P5MIN	Modifies the P5MIN_REGIONSOLUTION table to include WDR columns	P5MIN.CSV	Every 5-minutes	Modified	No
NETWORK	NETWORK_EQUIPMENTDETAIL	Adds new primary keys and changes data type to TIMESTAMP(3)	NETWORK.CSV	Daily	Modified	No

Package ID	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
	NETWORK_OUTAGEDETAIL	Adds new primary keys and changes data type to TIMESTAMP(3)			Modified	
	NETWORK_SUBSTATIONDETAIL	Changes data type to TIMESTAMP(3)			Modified	
METER_DATA	METER_DATA	METERDATA_WDR_READS	METER_DATA.CSV	Weekly	Modified	
SETTLEMENT_DATA	SETTLEMENTS	Adds SET_WDR_RECON_DETAIL, SET_WDR_TRANSACT, SET_SUBSTITUTE_DEMAND, SET_SUBST_RUN_VERSION, SET_RECOVERY_ENERGY, and modifies the SET_FCAS_REGULATION_TRK tables.	_SETTLEMENTDATA.CSV	Daily	Modified	No
SETTLEMENT_CONFIG		Adds SETCFG_WDR_REIMBURSE_RATE, and the SETCFG_WDRRR_CALENDAR tables	SETTLEMENT_CONFIG.CSV	Ad-hoc (when the WDRRR Calendar and WDR reimbursement rate are updated)	New	Yes

Package ID	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
DEMAND_FORECASTS	DEMANDOPERATIONACTUAL	Modifies the DEMANDOPERATIONACTUAL table for WDR	DEMANDOPERATIONACTUAL		Modified	No
		Modifies the INTERMITTENT_CLUSTER_AVAIL and MTPASA_INTERMITTENT_AVAIL tables for Intermittent Generation project.		Upon every availability submission by the participant.		
PARTICIPANT_REGISTRATION	DUDETAIL DUDETAILSUMMARY GENUNIT_UNITS GENUNITS	Modifies the DUDETAIL, DUDETAILSUMMART, GENUNITS, and GENUNIT_UNITS tables for WDR.	PARTICIPANT_REGISTRATION.CSV	Ad-hoc (whenever the registration changes)	Modified	No
	PMS_GROUP PMS_GROUPSERVICE PMS_GROUPNMI			Daily	Modified	Yes

10.17 Participant interfaces changes

For more information about Legacy Files, see the DI help, Framework > Legacy Files.

Package Name	MMS Data Model table	File ID	CSV report type	Change
BIDS	BIDOFFERFILETRK	BIDOFFERFILETRK	BIDOFFERFILETRK,BIDOFFERFILETRK,1	Modified
BILLING_RUN	BILLING_WDR	BILLING	BILLING,WDR,1	New
	BILLING_WDR_DETAIL		BILLING,WDR_DETAIL,1	New
	BILLINGREGIONFIGURES		BILLING,REGIONFIGURES,6	Modified
	BILLING_SUBST_DEMAND		BILLING,SUBST_DEMAND,1	New
	BILLING_SUBST_RUN_VERSION		BILLING,SUBST_RUN_VERSION,1	New
MTPASA	MTPASA_DUIDAVAILABILITY	MTPASADUIDAVAILABILITY	MTPASA,DUIDAVAILABILITY,2	Modified
	MTPASA_REGIONAVAILABILITY	MTPASAREGIONAVAILABILITY	MTPASA,REGIONAVAILABILITY,4	Modified
PDPASA	PDPASA_REGIONSOLUTION	PDPASA	PDPASA,REGIONSOLUTION,7	Modified

Package Name	MMS Data Model table	File ID	CSV report type	Change
STPASA_SOLUTION	STPASA_REGIONSOLUTION	STPASA	STPASA,REGIONSOLUTION,7	Modified
DISPATCH	DISPATCHREGIONSUM	DISPATCHIS	DISPATCH,REGIONSUM,6	Modified
	DISPATCHLOAD		DISPATCH,UNIT_SOLUTION,3	
PREDISPATCH	PRESIPATCHREGIONSUM	PREDISPATCHIS	PREDISPATCH,REGION_SOLUTION,6	Modified
P5MIN,UNITSOLUTION,4	P5MIN_REGIONSOLUTION	P5MIN	P5MIN,REGIONSOLUTION,7	Modified
P5MIN,UNITSOLUTION,4	P5MIN_UNITSOLUTION	P5MIN	P5MIN,UNITSOLUTION,4	
METER_DATA	METERDATA_WDR_READS	METER_DATA	METERDATA,WDR_READS,1	New
NETWORK	NETWORK_EQUIPMENTDETAIL	NETWORK_STANDING	NETWORK,EQUIPMENTDETAIL,1	Modified
	NETWORK_OUTAGEDETAIL	NETWORK_OUTAGE	NETWORK,OUTAGEDETAIL,3	Modified
	NETWORK_SUBSTATIONDETAIL	NETWORK_STANDING	NETWORK,SUBSTATIONDETAIL,1	Modified

Package Name	MMS Data Model table	File ID	CSV report type	Change
SETTLEMENT_DATA	SET_WDR_RECON_DETAIL	SETTLEMENTS	SETTLEMENTS,WDR_RECON_DETAIL,1	New
	SET_WDR_TRANSACT		SETTLEMENTS,WDR_TRANSACT,1	New
	SET_SUBSTITUTE_DEMAND		SETTLEMENTS,SUBST_DEMAND,1	New
	SET_SUBST_RUN_VERSION		SETTLEMENTS,SUBST_RUN_VERSION,1	New
	SET_RECOVERY_ENERGY		SETTLEMENTS,RECOVERY_ENERGY,1	New
	SET_FCAS_REGULATION_TRK		SETTLEMENTS,SET_FCAS_REGULATION_TRK,2	Modified
	SETCFG_WDRRR_CALENDAR		SETTLEMENTS, SETCFG_WDRRR_CALENDAR,1	New
SETTLEMENT_CONFIG	SETCFG_WDR_REIMBURSE_RATE	SETTLEMENT_CONFIG	SETTLEMENTS_CONFIG,WDR_REIMBURSE_RATE,1	New
	SETCFG_WDRRR_CALENDAR		SETTLEMENTS_CONFIG,WDRRR_CALENDAR,1	New
DEMAND_FORECASTS	DEMANDOPERATIONACTUAL	ACTUAL_OPERATIONAL_DEMAND_HH	OPERATIONAL_DEMAND,ACTUAL,3	Modified

Package Name	MMS Data Model table	File ID	CSV report type	Change
	INTERMITTENT_CLUSTER_AVAIL	AVAIL_SUBMISS_CLUSTER	DEMAND,INTERMITTENT_CLUSTER_AVAIL,2	Modified
	MTPASA_INTERMITTENT_AVAIL	AVAIL_MTPASA_DUID	DEMAND,MTPASA_INTERMITTENT_AVAIL,2	Modified
PARTICIPANT_REGISTRATION	GENUNIT_UNITS	GENSETUNITS_UNIT	GENSETUNITS_UNIT,GENUNIT_UNITS,2	Modified
	GENUNITS	GENUNITS	GENUNITS,GENUNITS,3	
	DUDETAIL	DUDETAIL	PARTICIPANT_REGISTRATION,DUDETAIL,4	Modified
	DUDETAILSUMMARY	DUDETAIL SUMMARY	PARTICIPANT_REGISTRATION,DUDETAILSUMMARY,5	Modified
	PMS_GROUP	PMS_GROUP	PARTICIPANT_REGISTRATION,PMS_GROUP,1	New
	PMS_GROUPSERVICE	PMS_GROUPSERVICE	PARTICIPANT_REGISTRATION,PMS_GROUPSERVICE,1	New
	PMS_GROUPNMI	PMS_GROUPNMI	PARTICIPANT_REGISTRATION,PMS_GROUPNMI,1	New

10.18 Discontinued reports

MMS Data Model table	File ID	Delivered in file	CSV report type	Replaced by
BILLING_DIRECTION_RECONCILIATN	BILLING, BILLING_LEGACY			NA This is an old table where files are discontinued. This is moving to HISTORICAL package.
GENCONSETINVOKE	4AMPUBLIC, 4AMPUBLIC_LEGACY	GENCONSETINVOKE_TRG, GENCON_*BASELINE		GENCONSETINVOKE table will be removed from 4AMPUBLIC and 4AMPUBLIC_LEGACY files as these are obsolete. However, this will continue to get populated with GENCONSETINVOKE_TRG

11. Implementation

11.1 Transition

Upgrading

You can upgrade your pre-production or production Data Model environments once you receive the Data Model scripts. Applying the scripts sets up the new Data Model structure on your local database. You receive the same data until the new versions of fields, files, and reports are released into pre-production or production and you update your subscriptions.

For help, see:

- Upgrading your DI environments
- Updating your subscriptions

11.2 Implications

To maintain systems in-line with AEMO's market systems, participants need to:

- Review and assess the impact on their market systems with respect to the changes implemented as part of this Release.
- Change their systems prior to the implementation of this Release.
- Schedule staff and resources to upgrade their market systems for the production implementation of this Release.

11.3 Risks

- No critical impacts to participants identified.

11.4 Upgrade options

EMMS

From a wholesale energy market system's focus, participants need to:

1. Review and assess the impact on their market systems with respect to the changes implemented as part of this Release.

3. Plan to upgrade their Data Interchange installations to the latest versions to realise benefits from the new functionality, operate against newly supported platforms, and to maintain ongoing support from AEMO.

4. Schedule staff and resources to upgrade their market systems from the implementation of this Release. To maintain systems in-line with AEMO's market systems, AEMO recommends upgrading within six months of the implementation date.

5. Change their systems prior to the deployment of this Release to ensure they are up to date. AEMO recommends participants' wholesale market systems are compliant with the latest Data Interchange software versions, see **Data Interchange Framework and Glossary**.

11.5 What happens if I do not upgrade?

AEMO encourages participants to make use of the four-week pre-production period, to assess and test any impact to their market systems and business processes.
Participants using data replication products critical to their business are strongly advised to participate in the pre-production rollout and testing period.

EMMS

If participants' systems are compliant with AEMO's supported configuration defined in the Data Interchange Framework and Glossary, this Release does not impact MMS Data Model systems immediately. Depending on participant's systems, not upgrading may result in the following issues:

- New data is not received to the new fields or tables because the data model elements are not created on the participant's database.

- Participants not subscribed to the latest versions of files, using the Data Subscriptions web application, will not receive the new data.
- Content in legacy files may change after deployment of this Release.

If participants have a system dependency on the formats of the non-MMS Data Model reports they need to manage these dependencies using the detail provided in this technical specification. Participants need to review and assess the impact on their market systems with respect to the changes implemented as part of this Release.

11.6 How do auto subscriptions work?

New participants

AEMO registers newly registered participants to the latest version of the files in the Data Model at the time of participant registration.

Subscribe to the new and latest version of files so they are sent to your Participant File Share ID folders. AEMO recommends subscribing to all available files and selectively activating them using the pdrMonitor to load into your database.

Existing participants

Existing participants are auto subscribed to any new files when AEMO implements a Data Model release.

When AEMO implements a Data Model release, participants are moved to the legacy version of their subscribed files for any existing files with modified/new tables. Participants continue to receive columns as per legacy tables and need to subscribe manually to the latest report versions as part of their Data Model upgrade process.

12. Frequently Asked Questions

12.1 WDR release

Has been a WDR participant registered?

AEMO is expecting participants to be registered closer to the pre-production and the production dates. Any new participant registrations as DRSPs are not applied until after the rule commencement date.

12.2 Dispatch and PASA tables

If there's no telemetry, how are you getting the values for initial, available and dispatch columns?

For WDR units with no telemetry:

- InitialMW = previous dispatch target for that unit
- Availability = dispatch capacity offered by unit (aka energy Max Avail)
- TotalCleared = current dispatch target for that unit

For regions:

- WDR_InitialMW = aggregate InitialMW for WDR units in that region (may contain a mix of WDR units with and without telemetry
- WDR_Available = aggregate availability offered by WDR units in that region
- WDR_Dispatched = aggregate dispatched MW (Total Cleared) for WDR units in that region

12.3 Data model and Data Interchange

Is it possible to support MySQL or PostgreSQL for the Data Model?

No, currently they are not supported by AEMO but we are aware participants are using them in production. AEMO will send out a survey to see participant interest and see how we can best tackle this. We will keep you posted on the progress.

Is it possible to set up a mechanism to share our own scripts with other participants?

Yes, if there is significant interest. Thank you for the suggestion.

Which one is AEMO most likely to support in the future, MySQL or PostgreSQL because we need to know we will have support from AEMO?

AEMO will take an action to define what this support might look like.

AEMO are aware of 1 issue with MySQL, where AEMO worked with the participant to understand the problem and provided a binary patch to solve the issue.

We will send out a survey to find out the interest from other participants and provide a clear answer about open-source platform support in the future.

13. Rules Terms

You can find the following terms defined in the National Electricity Rules (NER).

Term
AEMO
AEMO Clearing Account
AEMO Markets Portal
AEMO Website
Allocated Units
APA
Auction
Auction Participant
Auction Rules
Average cancellation price
Average purchase price
Bid File
Cancelled Units
Cancelled volume
Cash Security

Term
Confidential Information
Directional interconnector
DNSP
DRSP
DUID
Linked Bid
Market Clearing Price
Market Participants
Maximum Units
NEM
Notional Interconnector
Offer Database
Offer File
Offer Period
Offer Submission
Offered Units

Term
Offers
Product
Prudential Approved Participant
Prudential Exposure
Region
Regional reference prices
Registered Participant
Relevant Quarter
Settlement residue auction
Settlement residue committee
Settlement residue distribution agreement
SRDA Units
Trading Limit
Trading Margin

Term	Term
Trading Position	Units
Unit Category	

14. Glossary

Abbreviation/Term	Explanation
Additive adjustment	Average actual adjustment window energy – average baseline adjustment window energy. This may be positive or negative.
Adjustment window	If the event starts in trading interval t, then this is trading intervals t-48, to t-13 (that is, the three hours ending one hour before the start of the event). The adjustment will apply across all demand response trading intervals during the dispatch of a demand response. Rules are required to manage a scenario where the adjustment interval contains a demand response interval
AEMO	Australian Energy Market Operator
AEST	Australian Eastern Standard Time
Average actual adjustment window energy	The simple average of the metered energy over the adjustment window.
Average baseline adjustment window energy	The simple average of the unadjusted baseline energy over the adjustment window.
Baseline Proponent	A Market Participant who submits an application, in accordance with section 4.1 of these Guidelines, for a new baseline methodology to be developed.
BM	Baseline Methodology
BM Register	The register of BMs and baseline settings published by AEMO in accordance with NER 3.10.3(d)
B2B	Business-to-business
B2M	Business-to-market
Baseline Energy	Unadjusted baseline energy + additive adjustment
Baseline window	45 calendar days. This time range is long enough to allow for a significant number of qualifying days but not so long as to create serious distortions due to changing seasons.

Abbreviation/Term	Explanation
DFS	Demand Forecasting System
DNSP	Distributed Network Service Provider
EMS	Emerging Markets and Services supports new energy markets and services. Its purpose is to work closely with AEMO's new and existing members and governments, as well as across other business divisions to develop and deliver new markets and services, and then embed them appropriately, to ultimately create real value for end consumers. The Emerging Markets and Services Division also supports the Energy Security Board (ESB).
EMMS	Electricity Market Management System; software, hardware, network and related processes to implement the wholesale energy market
FCAS	Frequency Control Ancillary Services
FTP	File Transfer Protocol
MSATS	Market Settlement and Transfer Solution for retail electricity
NEM	National Electricity Market
NER	National Electricity Rules
NMI	National Metering Identifier for electricity meters
Non-Scheduled Generation	Generation by a generating unit that is not scheduled by AEMO as part of the central dispatch process, and which has been classified as a non-scheduled generating unit in accordance with Chapter 2 of the NER.
MW	Megawatt
Qualifying days	Calendar weekdays which are not (local) state public holidays (in that region) and on which demand response events have not been called or tested for the WDRU.
Release	EMMS Release Schedule and Technical Specification - October 2021

Abbreviation/Term	Explanation
Selected days	The most recent 10 qualifying days within the baseline window. If fewer than 10 qualifying days exist but five or more qualifying days exist, then use the number of qualifying days available. If fewer than five qualifying days are available, then a process to manage this outcome is required.
Unadjusted baseline energy	For a trading interval, the average metered values for the corresponding trading interval on each of the selected days.
WDR	Wholesale Demand Response

15. References

You can find the following resources on AEMO's website:

Wholesale Demand Response Mechanism High-level Design: Provides participants with the design of AEMO processes and systems to support the proposed introduction of a Wholesale Demand Response (WDR) Mechanism.

Wholesale Demand Response Guidelines: Provides the wholesale demand response guidelines under the clause 3.10.1 of the NER.

Demand Side Participation Information Guidelines: Provides the Demand Side Participation Information Guidelines made under the clause 3.7d(e) of the NER

WDRM Predictability of Load (PoL) Calculator: Provides Demand Response Service Providers (DRSPs) the ability to estimate a NMIs' indicative bias and accuracy metrics.

NEM settlement under zero and negative regional demand conditions: Provides details on how AEMO's NEM settlements system will operate to settle the NEM if there is zero or negative regional demand.

Data Interchange Framework and Glossary: provides important information about upgrading your Data Interchange (DI) environment, explains DI terms, and DI related resources. Please read this guide in conjunction with this technical specification.

Guide to Electricity Information Systems: Provides guidance for *Registered Participants* and interested parties about AEMO's participant electricity market systems.

Guide to User Rights Management: Assists participant administrators (PAs) to use the user rights management functions in the MSATS Web Portal.

15.1 Data interchange and data model resources

Software

You can find Data Interchange software in the following locations:

- Data Interchange Help > Software Releases.
- Releases directory on the participant file share: FTP to 146.178.211.25 > Data Interchange, pdrBatcher, pdrLoader, or pdrMonitor.
- Full install: **AEMO's website** > Electricity or Gas IT Systems.

Reports

- Data Interchange Help > **Data Model Reports**.

Releases

- Data Interchange Help > **Release Documents**.

Help

- **Data interchange online help**

16. Version History

16.1 V1.00

This version includes the following updates:

- Updates the dates for preproduction and production releases because of participant concern about the Data Model v5.1 going into pre-production in the middle of Market trials for 5MS.
- Adds a link to the PMS Data Model tables in the PMS chapter Reports section.
- Adds another step to the primary key update procedure related to the Package: NETWORK tables.
- Adds clarification in the Replaced By column in the Discontinued Reports table for GENCONSETINVOKE in the Data Model chapter.
- Updates the Participant interfaces changes table with the latest information.
- Data Model changes:

Package	Table	Change	Reason
PARTICIPANT_REGISTRATION	PMS_GROUPSERVICE	Adds details about index columns and updates description as per feedback	Clarification
	PMS_GROUPNMI		
SETTLEMENT_CONFIG	SETCFG_WDR_REIMBURSE_RATE	Updated description for LASTCHANGED column as per feedback.	Correction
	SETCFG_WDRRR_CALENDAR		
SETTLEMENT_DATA	SET_WDR_RECON_DETAIL	Changes FRM to FRMP in description	Correction

Package	Table	Change	Reason
PREDISPATCH	PREDISPATCHINTERSENSITIVITIES PREDISPATCHPRICESENSITIVITIES	Updates the description for INTERVENTION_ACTIVE column.	Clarification
P5MIN	P5MIN_INTERSENSITIVITIES P5MIN_PRICESENSITIVITIES	Updates the description for INTERVENTION_ACTIVE column.	Clarification

16.2 V 0.04

- Adds a link to the WDRM Predictability of Load (PoL) Calculator on the AEMO website. See WDRM Predictability of Load (PoL) calculator section.
- Data Model changes:

Package	Table	Change	Reason
PARTICIPANT_REGISTRATION	PMS_GROUP PMS_GROUPSERVICE PMS_GROUPNMI	Renamed tables with prefix PMS_ and updated description as per feedback	Clarification
SETTLEMENT_DATA	SET_RECOVERY_ENERGY	Region column names updated as per standards.	Correction
	SET_SUBSTITUTE_DEMAND	Updates the SUBSTITUTEDEMAND column description as per feedback	Clarification
SETTLEMENT_CONFIG	SETCFG_WDRRR_CALENDAR	Updated data type for	Clarification

Package	Table	Change	Reason
	SETCFG_WDR_REIMBURSE_RATE	LASTCHANGED column to TIMESTAMP and description as per feedback.	
NETWORK	NETWORK_EQUIPMENTDETAIL	Adds primary keys – SUBSTATIONID, EQUIPMENTTYPE, EQUIPMENTID. Also changes data type from DATE to TIMESTAMP(3) for VALIDFROM, VALIDTO, LASTCHANGED columns.	Correction
	NETWORK_OUTAGEDETAIL	Adds SUBSTATIONID, EQUIPMENTTYPE, EQUIPMENTID as primary keys. Changes data type for LASTCHANGED column to TIMESTAMP(3).	Correction
	NETWORK_SUBSTATIONDETAIL	Adds updates to the table.	Correction

16.3 V 0.03

- Adds a note in about the DISPATCHSUBTYPE column and participants needing to upgrade to Data Model v5.1 for all participants, see Registration chapter.

- Adds some details about the PMS portal available to the participants, for more information, see Portfolio Management chapter.
- Data Model changes:

Package	Table	Change	Reason
BIDS	BIDOFFERFILETRK	Adds a note to indicate this field will not be populated within the WDR project timeline.	Clarification
PARTICIPANT_REGISTRATION	DUDETAIL	Moves DISPATCHSUBTYPE to New table and updates description.	Clarification
	DUDETAILSUMMARY	Moves DISPATCHSUBTYPE to New table and updates description.	Clarification
	GROUP	New table	Addition This is for the PMS reports.
	GROUPSERVICE	New table	
	GROUPNMI	New table	
SETTLEMENT_DATA	SET_RECOVERY_ENERGY	Adds four new columns for total region demand values.	Clarification
DEMAND_FORECASTS	INTERMITTENT_CLUSTER_AVAIL	Includes new column ELEMENTS_AVAILABLE and modifies column ELEMENTS_UNAVAILABLE.	Addition. This is a non-WDR update.

Package	Table	Change	Reason
	MTPASA_INTERMITTENT_AVAIL	Includes new column ELEMENTS_AVAILABLE and modifies column ELEMENTS_UNAVAILABLE.	Addition. This is a non-WDR update.

16.4 V 0.02

- Updates the information on the WDRM Predictability of Load (PoL) Calculator to determine baseline scores.
- Adds more clarification to the data model tables based on participant feedback.
- Creates new Reports chapter and adds a list of reports that are not available via the Data Model.
- Data Model changes:

Package	Table	Change	Reason
BIDS	BIDOFFERFILETRK	Adds new column SUBMISSION_METHOD.	Clarification
PARTICIPANT_REGISTRATION	GENUNITS	Modifies the data type for column DISPATCHTYPE.	Correction
NETWORK	NETWORK_EQUIPMENTDETAIL NETWORK_OUTAGEDETAIL	Adds ELEMENTID column as the primary key.	Correction
SETTLEMENT_CONFIG	SETCFG_REIMBURSE_RATE SETCFG_WDRRR_CALENDAR	Changes the data type for VERSION_DATETIME from DATETIME to TIMESTAMP.	Correction

Package	Table	Change	Reason
DEMAND_FORECASTS	DEMANDOPERATIONALACTUAL	Included Modified column with updated description for OPERATIONAL_DEMAND column.	Correction
BILLING_RUN	BILLING_DIRECTION_RECONCILIATN	Added to Discontinued tables section. This is an old table where files are discontinued. This is moving to HISTORICAL package.	Clarification
	BILLING_SUBST_DEMAND	Updated data type for WEEKNO to NUMBER(3,0) to be consistent with existing tables. PARTICIPANTID was listed in the table description but said NULL in column. This is now updated. Also updated description for SUBSTITUTEDEMAND column	Correction
	BILLING_SUBST_RUN_VERSION	Updated data type for WEEKNO to NUMBER(3,0) to be consistent with existing tables.	Correction
METER_DATA	METERDATA_WDR_READS	Updated CASE_ID data type to (15,0) to be consistent with existing Data Model tables.	Correction
SETTLEMENT_DATA	SET_WDR_RECON_DETAIL	Included units for columns. See table for updates	Clarification
	SET_WDR_TRANSACT	Updated description for TRANSACTIONAMOUNT column and the table	Clarification
	SET_SUBSTITUTE_DEMAND	Updated description for SUBSTITUTEDEMAND column, see table for details.	Clarification

Package	Table	Change	Reason
	SET_RECOVERY_ENERGY	Updated column names for CUSTOMERENERGYMPFEXACTUAL and CUSTOMERERENERGYMPFEXSUBSTITUTE. Also updates descriptions for columns. See table for details.	Correction
GENERIC_CONSTRAINT	GENCONSETINVOKE	Added to Discontinued tables section. GENCONSETINVOKE table will be removed from 4AMPUBLIC and 4AMPUBLIC_LEGACY files as these are obsolete. However, this will continue to get populated with GENCONSETINVOKE_TRG.	Clarification

16.5 V 0.01

Initial draft.

17. Index

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