# EMMS TECHNICAL SPECIFICATION REVISED - DECEMBER 2017

## AEMO RELEASE SCHEDULE SERIES: EMMS10112017

# IMPORTANT NOTICE

### Purpose & audience

This document describes the technical changes required to participant's systems for the EMMS October and November Releases 2017. (Release). 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 Gas or 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.
- You can find resources mentioned in this guide on AEMO's website.
- Text in this format indicates a reference to a document on AEMO's website.
- The references listed throughout this document are primary resources and take precedence over this document.
- 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, see Glossary on page 73.
- *Italicised terms* are defined in the Rules. Any rules terms not in this format still have the same meaning.

### AEMO reference numbers

Included in each project heading is a Quality Centre Identifier (QCID) that provides useful tracking information. There may be none, one, or more QCIDs relevant to each project heading.

References to change notices are CN followed by the change notice number.

### Privacy and legal notices

The material in this publication may be used in accordance with the privacy and legal notices on AEMO's website.

### Trademark Notices

Microsoft, Windows and SQL Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

UNIX is a registered trademark of The Open Group in the US and other countries.

© 2015 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

### Distribution

Available to the public.

### Document Identification

Version: 4.00
Prepared by: AEMO Market Systems
Last update:Friday, 17 November 2017

### Version History

4.00 Initial version.

### Documents made obsolete

The release of this document changes only the version of EMMS Technical Specification Revised - December 2017.

### Further Information

For further information, please visit AEMO's website www.aemo.com.au or contact:

AEMO Support Hub      Phone: 1300 AEMO 00 (1300 236 600) and follow the prompts.

Email: supporthub@aemo.com.au

### Feedback

Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's Support Hub.

# CONTENTS

# 1  WHOLESALE MARKET SYSTEM PROJECTS

The EMMS October and November Releases 2017. (Releases) include changes related to participants' IT systems. This technical specification describes the projects planned by AEMO from a participant perspective. AEMO provides this information as a service targeting business analysts and IT staff in participant organisations.

This Release contains the following projects:

## P630 – MTPASA Redevelopment (rescheduled)

**For details about the rescheduling of this project, see the EMMS RELEASE SCHEDULE – OCTOBER—DECEMBER 2017 v4.00.**

### 1.1.1  Overview

Recognising that the NEM is evolving, AEMO is redeveloping its Medium Term Projected Assessment of System Adequacy (MTPASA) methodology to make sure it is fit for purpose into the future. Specifically, AEMO is focusing on how MTPASA is used to report potential reliability standard breaches.

MTPASA incorporates two separate functions:

1. A high frequency three-hourly information service providing a regional breakdown of the supply situation over the two-year horizon, taking into account participant submissions on availability.

2. A weekly assessment of system reliability, including provision of information on demand, supply and network conditions.

The MTPASA redevelopment seeks to replace the current deterministic approach towards assessing reliability with a probabilistic approach. The probabilistic approach removes the need for Minimum Reserve Levels (MRLs). Each simulation analyses the electricity system

under a different set of demand and supply conditions, including variations in intermittent generation, and records the resulting amount of Unserved Energy (USE). The full set of USE from these individual simulations provides insight into the distribution of potential USE across the two-year horizon.

## 1.1.2 Functional changes

### Reliability Standard Implementation Guidelines

The Reliability Standard Implementation Guidelines (RSIG) are updated as part of the RSIG consultation. For details, see http://www.aemo.com.au/Stakeholder-Consultation/Consultations/Reliability-Standard-Implementation-Guidelines-Consultation.

### MTPASA runs

AEMO has identified two distinct MTPASA run types to support the NER:
- The reliability run to assess the likelihood of reliability standard breaches.
- The loss of load probability run used to determine days most at risk of USE.

### Website visualisations

The data visualisations, charts and formats, published on AEMO's website reflect the new MTPASA outputs. For examples, see Appendix A on page 74.

## 1.1.3 Unchanged

- The redeveloped MTPASA is still published in the data visualisations on AEMO's website.
- *Market Participants* provide the PASA availabilities and the weekly energy constraints for each scheduled generator.
- Changes to the way participants submit their availability are out of scope for this project.

## 1.1.4 Electricity Data Model

**For this project, there are substantial changes to the MTPASA package. Participants not upgrading to Electricity Data Model 4.27 will not receive MTPASA reports to their DBMS.**

**The following tables are DISCONTINUED:**

**MTPASA_CASESOLUTION**

**MTPASA_REGIONSOLUTION**

**MTPASA_INTERCONNECTORSOLUTION**

**MTPASA_CONSTRAINTSOLUTION**

**MTPASA_RESERVELIMITSOLUTION**

For Data Model details, see Package: MTPASA on page 22.

## 1.1.5 Rules and procedures

The following NEM Rule clauses (v89) relate to this project.

| Clause | Name | Description (if relevant) |
|---|---|---|
| 3.7.2 | Medium Term PASA | Detailed requirements of MT PASA inputs, outputs and publishing requirements |
| 4.8.4 (a) | Declaration of conditions - LRC | Definition of low reserve condition |
| 3.9.3C | Reliability Standard | Definition of reliability standard in terms of unserved energy |
| 3.9.3 (D) | Implementation of the reliability standard | Detailed information on the establishment of the reliability standard implementation guidelines (RSIG) |
| 8.9 | Rules consultation procedures | Detailed information on the rules consultation procedures |
| 3.20.2 | Reliability and emergency reserve trader | Information on the operation and activation of RERT |
| 4.3.1 | Responsibility of AEMO for power system security | Clauses (l)(m) specifically refer to the RSIG |

| Clause | Name | Description (if relevant) |
|--------|------|--------------------------|
| 4.2.7 (c) | Reliable operating state | Whether the *power system* meets the *reliability standard* having regard to the RSIG |
| 4.8.9 | Power to issue directions and Clause 4.8.9 instructions | |

## 1.1.6 Related resources

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

| Name | Detail |
|------|--------|
| Final report for Operation MRLs – 2010 MRL Recalculation | This document becomes obsolete: http://www.aemo.com.au/-/media/Files/Electricity/NEM/Data/MMS/2016/Final-Report-for-Operational-MRLs---2010-MRL-Recalculation.pdf |
| Interconnector Limit Forecast for MT PASA | This document becomes obsolete: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Dispatch-information/Policy-and-process-documentationThis document becomes obsolete: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Dispatch-information/Policy-and-process-documentation |
| Medium Term PASA Process Description | Reflects the changes to the methodology due to the MTPASA redevelopment. http://www.aemo.com.au/-/media/Files/Stakeholder_Consultation/Consultations/Electricity_Consultations/2017/MTPASA/MT_PASA_Process_Description---Final-Version.pdf |
| Projected Assessment Of System Adequacy (PASA) | Links to MTPASA data: https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Data/Market-Management-System-MMS/Projected-Assessment-of-System-Adequacy |
| Reliability Standard Implementation Guidelines Consultation | Consultation details: http://www.aemo.com.au/Stakeholder-Consultation/Consultations/Reliability-Standard-Implementation-Guidelines-Consultation |

| Name | Detail |
|------|--------|
| Reliability Standard Implementation Guidelines | Reflects the changes to MT PASA moving from a deterministic to a probabilistic process for assessing reliability: http://www.aemo.com.au/-/media/Files/Stakeholder_Consultation/Consultations/Electricity_Consultations/2017/MTPASA/Reliability-Standard-Implementation-Guidelines---MT-PASA-Final.pdf |

# P421 – Helios - Phase 3 ASEFS

## 1.1.7 Overview

This project aims to improve the accuracy of solar forecasts used in the market by utilising satellite data to predict cloud movement and providing 30-minute forecast updates.

> **Work in this Release for this project is Data Model preparation only. Participants will not see changes until the application release early 2018.**

## 1.1.8 Electricity Data Model

In early 2018, AEMO will publish two new Electricity Data Model files from the ROOFTOP_PV_ACTUAL table:

- Satellite based actuals
- Measurement based actuals

For more details, see Package: DEMAND_FORECAST on page 51.

> **The primary key of the ROOFTOP_PV_ACTUAL table change to Interval_Datetime, Type, RegionId.**

# P1252 – NEM Settlements Shortfall Calculation

## 1.1.9 Overview

In the event of a payment default, AEMO have modified the NEM settlement shortfall calculation to do a company level mapping to the Participant ID, where the calculation is now based on the company's net amount for the billing week.

## 1.1.10 Functional changes

There are three new Shortfall reports generated according to the participant's category:

1. ShortFall Adjusted Recipient Created Tax Invoice
2. ShortFall Adjusted Final Statement
3. ShortFall Adjusted Tax Invoice

For details, see Shortfall report examples below.

### Shortfall PDF Report

A new PDF adjustment statement is generated when a shortfall is authorised:

| | |
|---|---|
| Title | Shortfall Adjusted Adjustment Note |
| Generation | Generated for affected participants only |
| Format | The format is the same as the Final Statement with a line item for the Shortfall Amount |
| Report ID | PDFADJSHORTFALL |
| Trigger | Authorisation of a Shortfall<br>If Shortfall amount is 0 then do not trigger the PDF Shortfall Invoice |

### Shortfall report examples

**These are examples only; the published version may differ slightly.**

**ShortFall Adjusted Recipient Created Tax Invoice**

1

## ShortFall Adjusted Recipient Created Tax Invoice

**AEMO**
AUSTRALIAN ENERGY MARKET OPERATOR

Reference:
MSATS CASEID:

| Enquiries |
| --- |
| **1300 361 011** |

| Statement Date |
| --- |
| **25 Aug 2017** |

| Due Date |
| --- |
| **10 Mar 2017** |

| Adjusted Statement Total |
| --- |

### Summary of NEM Transactions
### for Week 6: 05 Feb 2017 - 11 Feb 2017

| Description | $ |
| --- | --- |
| Energy | |
| Ancillary Services | |
| Settlement Residue Auction | |
| Market Fees | |
| TNSP Residue | |
| Smelter-Reduction | |
| Security Deposits | |
| Reallocation | |
| Revision Adjustment | |
| Revision Interest | |
| Early Payment Interest | |
| Other | |
| GST | |
| Reassignment | |
| ShortFall Amount | |
| **Adjusted Statement Total** | |

**Payment Information:**
Nominated Payment Date: **10 Mar 2017**
Nominated Payment Method: **Austraclear**

Market payments must be made using the Austraclear system. AEMO's Austraclear code is NEMM30. When the total above is a negative amount, the amount must be confirmed as a cleared payment to AEMO prior to 10:30am, Sydney Time, on the Due Date shown. When the total above is a positive amount, the amount will be available for receipting between 2pm and 4pm, Sydney Time, on the Due Date, subject to National Electricity Rules Clause 3.15.22.

### Notes to the statement

Australian Energy Market Operator Ltd   ABN: 94 072 010 327
Telephone: 03 9609 8000; Facsimile: 03 9609 8080

**ShortFall Adjusted Final Statement**

1

# ShortFall Adjusted Final Statement

| Enquiries |
| --- |
| **1300 361 011** |

| Statement Date |
| --- |
| **25 Aug 2017** |

| Due Date |
| --- |
| **10 Mar 2017** |

| Adjusted Statement Total |
| --- |

Reference:
MSATS CASEID:

### Summary of NEM Transactions
### for Week 6: 05 Feb 2017 - 11 Feb 2017

| Description | $ |
| --- | --- |
| Energy | 0.00 |
| Ancillary Services | 0.00 |
| Settlement Residue Auction | 0.00 |
| Market Fees | 0.00 |
| TNSP Residue | 0.00 |
| Smelter-Reduction | 0.00 |
| Security Deposits | 0.00 |
| Reallocation | 0.00 |
| Revision Adjustment | 0.00 |
| Revision Interest | 0.00 |
| Early Payment Interest | 0.00 |
| Other | 0.00 |
| GST | 0.00 |
| Reassignment | 0.00 |
| ShortFall Amount | -3.42 |
| **Adjusted Statement Total** | |

**Payment Information:**
Nominated Payment Date: **10 Mar 2017**
Nominated Payment Method: **Austraclear**

Market payments must be made using the Austraclear system. AEMO's Austraclear code is NEMM30. When the total above is a negative amount, the amount must be confirmed as a cleared payment to AEMO prior to 10:30am, Sydney Time, on the Due Date shown. When the total above is a positive amount, the amount will be available for receipting between 2pm and 4pm, Sydney Time, on the Due Date, subject to National Electricity Rules Clause 3.15.22.

**Notes to the statement**

Australian Energy Market Operator Ltd   ABN: 94 072 010 327
Telephone: 03 9609 8000; Facsimile: 03 9609 8080

**ShortFall Adjusted Tax Invoice**

## ShortFall Adjusted Tax Invoice

**AEMO**
AUSTRALIAN ENERGY MARKET OPERATOR

The maximum total payment in respect of this billing period is not sufficient to meet the aggregate of the net amounts payable by AEMO to each of the Market Participants to whom payments are to me made in relation to spot market transactions or reallocation transactions.In accordance with Clause 3.15.22(c) of the NER, the adjusted shortfall amounts payable for energy and reallocation have been reduced as shown above.AEMO will be pursuing recovery of defaulted amounts in accordance with Rule 3.15.21.

### Detailed Transactions

**Non Taxable Supplies made to AEMO**

| BAS Classification | Description | GST Exclusive ($) | Sub Total ($) |
|---|---|---|---|
| Input Taxed Supplies | Security Deposit Interest | 0.00 | |
| | Direction Interest | 0.00 | |
| | Revision Interest | 0.00 | |
| | Early Payment Interest | 0.00 | |
| | Manual Adjustment | 0.00 | |
| | | | 0.00 |
| GST-free Supplies | Smelter Reduction | 0.00 | |
| | Manual Adjustment | 0.00 | |
| | | | 0.00 |
| Total Sales and Income & Other Supplies made to AEMO | | | 0.00 |

**Supplies made by AEMO**

| BAS Classification | Description | GST Exclusive ($) | Sub Total ($) |
|---|---|---|---|
| Taxable Supplies | Energy | | |
| | Ancillary Service | | |
| | Compensation | | |
| | Pool Fee - EUA | | |
| | Pool Fee - NEM | | |
| | Manual Adjustment | 0.00 | |
| GST Exclusive Amount | | | |
| GST Amount | | | |
| GST Inclusive Amount | | | |
| Acquisitions with no GST | Direction Interest | 0.00 | |
| | Revision Interest | 0.00 | |
| | Smelter Reduction | 0.00 | |
| | Settlement Residue Auction Fee | 0.00 | |
| | Manual Adjustment | 0.00 | |
| | | | 0.00 |
| Total Sales and Income & Other Supplies made by AEMO | | | |

**Transactions Not Subject to GST**

| Description | GST Exclusive ($) | Sub Total ($) |
|---|---|---|
| Reallocation | | |
| TNSP Residue | 0.00 | |
| Settlement Residue Auction | 0.00 | |
| Security Deposits | 0.00 | |
| Compensation | 0.00 | |
| Manual Adjustment | 0.00 | |
| Revision Adjustment | 0.00 | |
| Reassignment | 0.00 | |

| Statement Total for Week 6 of 2017 | |
|---|---|

Australian Energy Market Operator Ltd   ABN: 94 072 010 327
Telephone: 03 9609 8000; Facsimile: 03 9609 8080

> **You can find the Shortfall Adjustment Statement in Settlements Direct. For more details, see Guide to Settlements Direct.**

### 1.1.11 ABN format fix

Some settlement reports that include the participant's ABN number displayed a leading zero to the number. The reports now display the correct ABN format. Impacted reports were:

1. Shortfall Text Report and Tax Invoice generated at the time of a shortfall run
2. PDF Tax invoice generated at Final Billing Run time.
3. NEMreports: PARTICIPANTACCOUNT and DVDCV_PARTICIPANTACCOUNT.

### 1.1.12 Electricity Data Model

AEMO will publish the EFT Shortfall Calculation results to participants via the Electricity Data Model. The Billing Run and Billing Config packages contains new tables:

For details, see:

- Package: BILLING_RUN on page 43.

### 1.1.13 Data sharing

> **AEMO recommends participants check this change does not affect any existing Data Sharing arrangements. For help, see Guide to Data Sharing.**

## P1209 – Security Deposit Calculation

### 1.1.14  Overview

Due to APRA regulations, banks in Australia will not break a term deposit that matures in less than 31 days, limiting AEMO's ability to draw down on these funds in the event of participant failure, so AEMO will move away from the current practice of depositing funds in term deposits.

Current practice involves placing each participant security deposit in a separate bank term deposit with its own interest rate. This project supports process changes required to adopt a more flexible approach to Prudentials related security deposits in the case of participant failure.

### 1.1.15 Functional changes

At the completion of this project, AEMO will keep all participant security deposits in the same term deposit account. The interest rate of this account will change over time as the bank reacts to changes in the cash rate set by the Reserve Bank of Australia. This process ensures security deposits are always available to offset potential settlement shortfalls.

### 1.1.16 Electricity Data Model

The new process requires system changes to the Electricity Billing Run and Billing Config packages. For details, see: Electricity Data Model 4.27 on page 22.

### 1.1.17 Gas Data Model

The new process also requires system changes to the Gas Supply Hub package. For details, see: GAS_SUPPLY_HUB on page 64.

## P1235 – Dynamic LOR Stage 2 for SA

### 1.1.18 Overview

To enhance reporting of LOR conditions to the market, this project implements logic to automate the calculation of LOR trigger levels for DSPASA, PDPASA, and STPASA in South Australia.

### 1.1.19 Functional changes

Participants will see improvements to the reporting of LOR conditions.

### 1.1.20 Electricity Data Model

There is no impact to the Data Model for this project.

## P1242 – Automation of Market Suspension Pricing

### 1.1.21 Overview

This project involves automating the publication of market suspension schedules and automating the application of market suspensions.

## 1.1.22 Functional changes

### Market Suspension Prices report

The Market Suspension Prices report is a calculated daily price profile, generated every Sunday at 3:00 am. Participants can subscribe to this file in the Data Subscription interface and replicate it to their DBMS using the Data Interchange software. It is also publicly available on NEMWeb: http://www.nemweb.com.au/Reports/Current/.

> **If the prices in the date range are not FIRM (for example, unresolved OCD), AEMO may delay publishing the report. We will publish it once the prices are FIRM.**

### Market Suspension Administration

Under the Force Majeure package, the current Market Suspension tables are discontinued (MarketSuspension and MarketSusRegion) and replaced with two new tables:

- Market_Suspend_Region_Sum (tracks Regions within a suspension).
- Market_Suspend_Regime_Sum (tracks Pricing Regime applied within a suspension).

## 1.1.23 Electricity Data Model

This project contains new, updated, and discontinued tables to the Electricity Data Model FORCE_MAJEURE package (for details, see Package: FORCE_MAJEURE on page 58) and the DISPATCH package (for details, see Package: DISPATCH on page 54).

## 7-day Pre-dispatch

## 1.1.24 Overview

To improve the ability to assess short-term gas supply for gas-fired generators, this project implements a 7-day forecast of NEM dispatch.

## 1.1.25 Functional changes

At production release time, AEMO publishes a new csv report on the Gas Supply Guarantee web page with the Aggregate fuel forecast (GJ) for NEM gas powered generators for each of the next 7 days. The forecast utilises an assumed heat rate conversion for each station.

## 1.1.26 Electricity Data Model

This project does not affect the Data Model.

# 2 DATA INTERCHANGE

This Release contains a new version of the Electricity Data Model, 4.27 and a new version of the Gas Data Model 1.4. This section describes the affected packages, tables, files, reports, and interfaces.

> **AEMO will update the Data Interchange software in a separate release later this year. There is no dependency between this Data Model release and the update of the Data Interchange software v7.4.**
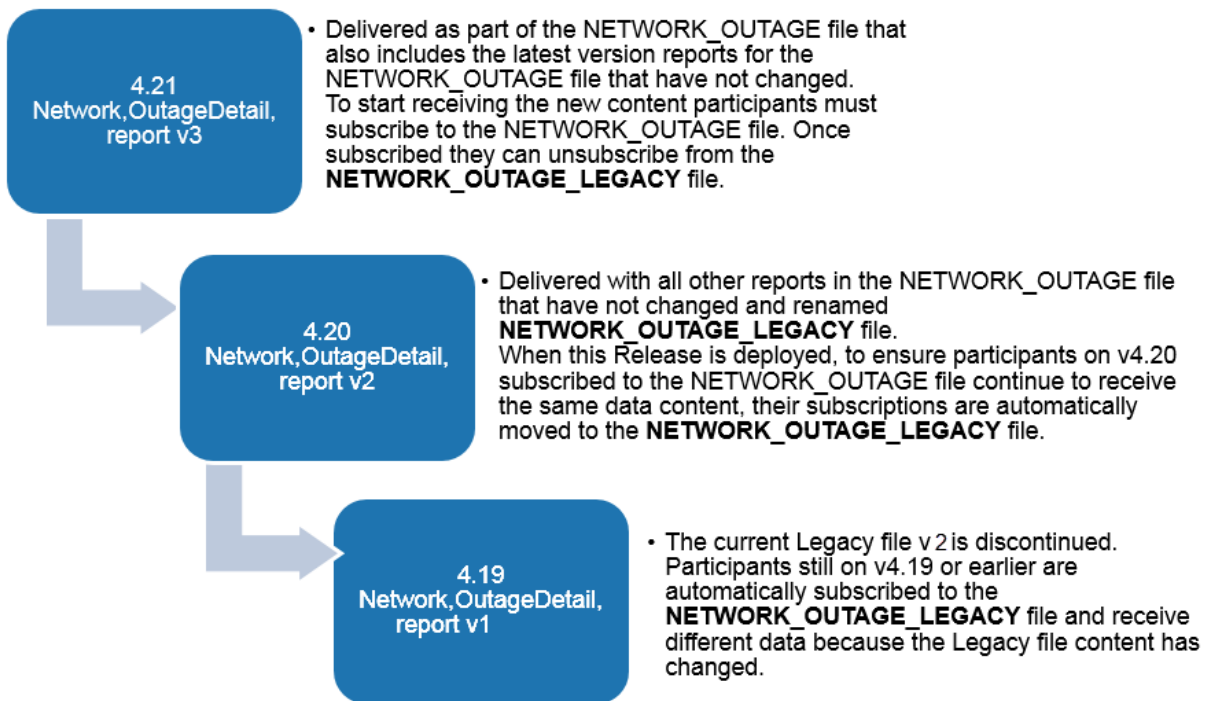
## 2.1 Definitions

Table 1      Electricity Data Model terms used in this technical specification

| Definition | Electricity | Gas | Description |
|---|---|---|---|
| Discontinued Report | 4.25 or earlier | 1.2 or earlier | When a Legacy version of a file replaces an existing Legacy file, some versions of the included reports may change. The replaced report versions are referred to as discontinued. Participants on Discontinued versions may be impacted if a report is discontinued in a Legacy file they are receiving. |
| Discontinued version | 4.25 | 1.2 | Refers to the tables, files, and reports deployed in the EMMS Year-end Release 2016. |
| File | n/a | n/a | Logically groups one or more reports delivered as a physical file, for example BILLING. Participants subscribe to files using the Data Interchange->Data Subscription menu in the Markets Portal. |
| Latest version | 4.27 | 1.4 | Refers to the tables, files, and reports deployed in this Release. |
| Legacy file | 4.26 or earlier | 1.3 | Currently supported but no longer updated. If a report is changed in a release, the previous version of the report and the latest version of other reports in the file are delivered from the Legacy file. For an example, see Figure 1 on page 14. AEMO automatically moves participants' subscriptions to the Legacy file. This ensures participants on Data Model versions: electricity 4.26 or gas 1.3, subscribed to files that change, will continue to receive the same data. Once upgraded, and the new data is received, you can unsubscribe from the Legacy files. Participants still on Electricity Data Model 4.25 or earlier remain on any subscribed Legacy files but may receive different content if the Legacy file content has changed. |

| Definition | Electricity | Gas | Description |
|---|---|---|---|
| Previous version | 4.26 | 1.3 | Refers to the tables, files, and reports deployed in the previous Data Model release. |
| Report | n/a | n/a | A data report that loads into a data model table. Identified by its type, subtype, and version. For example: BILLING,BILLINGASPAYMENTS,2 |

Figure 1 Legacy file example

The design of the data model supports the latest and previous version of a file. AEMO refers to the previous version as the Legacy version, for example NETWORK_OUTAGE_LEGACY. The example below describes what happens to an existing Legacy file in v4.19 when AEMO releases a new Data Model version, 4.21.

**4.21 Network,OutageDetail, report v3**
- Delivered as part of the NETWORK_OUTAGE file that also includes the latest version reports for the NETWORK_OUTAGE file that have not changed. To start receiving the new content participants must subscribe to the NETWORK_OUTAGE file. Once subscribed they can unsubscribe from the **NETWORK_OUTAGE_LEGACY** file.

**4.20 Network,OutageDetail, report v2**
- Delivered with all other reports in the NETWORK_OUTAGE file that have not changed and renamed **NETWORK_OUTAGE_LEGACY** file. When this Release is deployed, to ensure participants on v4.20 subscribed to the NETWORK_OUTAGE file continue to receive the same data content, their subscriptions are automatically moved to the **NETWORK_OUTAGE_LEGACY** file.

**4.19 Network,OutageDetail, report v1**
- The current Legacy file v 2 is discontinued. Participants still on v4.19 or earlier are automatically subscribed to the **NETWORK_OUTAGE_LEGACY** file and receive different data because the Legacy file content has changed.

## 2.2 Transition

- To receive the new data in the modified packages and tables, participants must upgrade to Electricity v4.27 or gas v1.4.

- Versions of tables in the Electricity Data Model 4.26 or Gas Data Model 1.3 are moved to Legacy versions.

- Some Data Model report versions are moved to Legacy versions and others are discontinued. Participants must ensure they remove all dependencies on discontinued tables and reports prior to the deployment of this Release; otherwise, participant

processes may be impacted. Participants on Data Models versions prior to 4.26 or 1.3 may be impacted if a report is discontinued in a Legacy file they are receiving.

- AEMO automatically moves participants' subscriptions to the Legacy file. This ensures participants on Electricity Data Model 4.26 or Gas Data Model 1.3 subscribed to files that change, continue to receive the same data.

- Participants still on Electricity Data Model 4.25 and earlier or Gas Data Model 1.2 and earlier remain on any subscribed Legacy files but may receive different content if the Legacy file content changes.

- Once subscribed, and the new data is received, you can unsubscribe from the Legacy files.

- AEMO encourages participants using data replication products critical to their business to make use of the four-week pre-production period to assess and test any impact to their market systems and business processes.

## 2.3  Data Interchange software and guides

You can find Data Interchange software and associated documents in the following locations:

- Releases directory on the participant file share: FTP to 146.178.211.25; Data Interchange, pdrBatcher, pdrLoader, or Replication Manager.

- Data Subscription web application in the Markets Portal:

    – Production: https://portal.prod.marketnet.net.au

    – Pre-production: https://portal.preprod.marketnet.net.au

- AEMO's website: NEM or Gas IT Systems > Wholesale IT systems software > Data Interchange.

For help upgrading or setting up a Data Interchange environment, see:

- Guide to Upgrading a Standard Data Interchange Environment
- Guide to Setting up a Standard Data Interchange Environment
- Concise Guide to Data Interchange
- Comprehensive Data Interchange Guide
- Guide to Troubleshooting Data Interchange

## 2.4 Data Model changes summary

### 2.4.1 Electricity Data Model 4.27

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| MTPASA<br>Details on page 22 | MTPASA_CASERESULT | New table | Holds one Record for entire solution | RUN_DATETIME + RUN_NO |
| | MTPASA_CONSTRAINTRESULT | New table | Constraint results for Binding or Violation Constraints | RUN_DATETIME + RUN_NO + RUNTYPE + DEMAND_POE_TYPE + DAY + CONSTRAINTID |
| | MTPASA_CONSTRAINTSUMMARY | New table | Constraint Summary results over aggregation periods | RUN_DATETIME + RUN_NO + RUNTYPE + DEMAND_POE_TYPE + DAY + CONSTRAINTID + AGGREGATION_PERIOD |
| | MTPASA_INTERCONNECTORRESULT | New table | Interconnector results for interval of max demand per day | RUN_DATETIME + RUN_NO + RUNTYPE + DEMAND_POE_TYPE + DAY + INTERCONNECTORID |
| | MTPASA_LOLPRESULT | New table | Results for Loss of Load Probability (LOLP) run per day | RUN_DATETIME + RUN_NO + RUNTYPE + DAY + REGIONID |
| | MTPASA_REGIONRESULT | New table | Region results for interval of max demand per day | RUN_DATETIME + RUN_NO + RUNTYPE + DEMAND_POE_TYPE + DAY + REGIONID |
| | MTPASA_REGIONSUMMARY | New table | Region Results summary over aggregation periods | RUN_DATETIME + RUN_NO + RUNTYPE + DEMAND_POE_TYPE + AGGREGATION_PERIOD + PERIOD_ENDING + REGIONID |

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| | MTPASA_REGIONITERATION | New table | Region results for Unserved Energy (USE) | RUN_DATETIME + RUN_NO + RUNTYPE + DEMAND_POE_TYPE + AGGREGATION_PERIOD + PERIOD_ENDING + REGIONID + USE_ITERATION_ID |
| | MTPASA_REGIONAVAILABILITY | Modified table New fields | Extra detail on demand and capacity | PUBLISH_DATETIME + DAY + REGIONID |
| BILLING_CONFIG Details on page 39 | SECDEPOSIT_PROVISION | New table | SECURITY DEPOSIT ID<br>PARTICIPANT ID<br>TRANSACTION DATE<br>MATURITY_CONTRACTYEAR<br>MATURITY_WEEKNO<br>AMOUNT<br>INTEREST_RATE<br>INTEREST_CALC_TYPE<br>INTEREST_ACCT_ID | SECURITY_DEPOSIT_ID + PARTICIPANTID |
| | SECDEPOSIT_INTEREST_RATE | New table | INTEREST_ACCT_ID_EFFECTIVEDATE<br>VERSION_DATETIME<br>INTEREST_RATE | INTEREST_ACCT_ID + EFFECTIVEDATE + VERSION_DATETIME |

| Package | Table name | Change | Details | PK |
|---------|-----------|--------|---------|-----|
| BILLING_RUN<br>Details on page 43 | BILLING_EFTSHORTFALL_AMOUNT | New table | CONTRACTYEAR<br>WEEKNO<br>BILLRUNNO<br>PARTICIPANTID<br>SHORTFALL_AMOUNT<br>SHORTFALL<br>SHORTFALL_COMPANY_ID<br>COMPANY_SHORTFALL_AMOUNT<br>PARTICIPANT_NET_ENERGY<br>COMPANY_NET_ENERGY | CONTRACTYEAR + WEEKNO + BILLRUNNO + PARTICIPANTID |
| | BILLING_EFTSHORTFALL__DETAIL | New table | CONTRACTYEAR<br>WEEKNO<br>BILLRUNNO<br>PARTICIPANTID<br>TRANSACTION_TYPE<br>AMOUNT | CONTRACTYEAR + WEEKNO + BILLRUNNO + PARTICIPANTID+TRANSACTION_TYPE |
| | BILLING_SECDEPOSIT_APPLICATION | New table | CONTRACTYEAR<br>WEEKNO<br>BILLRUNNO<br>PARTICIPANTID<br>APPLICATION_AMOUNT | CONTRACTYEAR + WEEKNO + BILLRUNNO + PARTICIPANTID |

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| | BILLING_SECDEP_INTEREST_RATE | New table | CONTRACTYEAR<br>WEEKNO<br>BILLRUNNO<br>INTEREST_ACCT_ID<br>EFFECTIVEDATE<br>INTEREST_RATE | CONTRACTYEAR + WEEKNO + BILLRUNNO + INTEREST_ACCT_ID + EFFECTIVEDATE |
| | BILLING_SECDEP_INTEREST_PAY | New table | CONTRACTYEAR<br>WEEKNO<br>BILLRUNNO<br>SECURITY_DEPOSIT_ID<br>PARTICIPANTID<br>INTEREST_AMOUNT<br>INTEREST_CALC_TYPE<br>INTEREST_ACCT_ID<br>INTEREST_RATE | CONTRACTYEAR + WEEKNO + BILLRUNNO + SECURITY_DEPOSIT_ID + PARTICIPANTID |

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| DEMAND_FORECASTS Details on page 51 | ROOFTOP_PV_ACTUAL | Modified table New fields | Type QI | INTERVAL_DATETIME + TYPE + REGIONID Changes from INTERVAL_DATETIME + REGIONID |
| DISPATCH Details on page 54 | DISPATCH_INTERCONNECTION | New Table | SETTLEMENTDATE RUNNO INTERVENTION FROM_REGIONID TO_REGIONID DISPATCHINTERVAL IRLF MWFLOW METEREDMWFLOW FROM_REGION_MW_LOSSES TO_REGION_MW_LOSSES | SETTLEMENTDATE + RUNNO + INTERVENTION + FROM_REGIONID + TO_REGIONID |
| FORCE MAJEURE Details on page 58 | MARKET_SUSPEND_REGION_SUM | New Table | SUSPENSION_ID REGIONID INITIAL_INTERVAL END_REGION_INTERVAL END_SUSPENSION_INTERVAL LASTCHANGED | SUSPENSION_ID + REGIONID |
| | MARKET_SUSPEND_REGIME_SUM | New Table | SUSPENSION_ID REGIONID START_INTERVAL END_INTERVAL PRICING_REGIME LASTCHANGED | SUSPENSION_ID + REGIONID + START_INTERVAL |

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| | MARKET_SUSPEND_SCHEDULE_TRK | New Table | EFFECTIVEDATE<br>SOURCE_START_DATE<br>SOURCE_END_DATE<br>COMMENTS<br>AUTHORISEDDATE<br>LASTCHANGED | EFFECTIVEDATE |
| | MARKET_SUSPEND_SCHEDULE | New Table | EFFECTIVEDATE<br>DAY_TYPE<br>REGIONID<br>PERIODID<br>ENERGY_RRP<br>R6_RRP<br>R60_RRP<br>R5_RRP<br>RREG_RRP<br>L6_RRP<br>L60_RRP<br>L5_RRP<br>LREG_RRP<br>LAST_CHANGED | EFFECTIVEDATE + REGIONID + PERIODID |

## 2.4.2  Gas Data Model 1.4

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| GAS_SUPPLY_HUB<br>Details on page 64 | GSH_PRD_SECURITY_DEPOSITS | Modified | INTEREST_CALC_TYPE<br>INTEREST_ACCT_ID | ORGANISATION_CODE + PARTICIPANT_CODE + PRUDENTIAL_DATETIME + PRUDENTIAL_RUN_ID + REALLOCATION_ID |

| Package | Table name | Change | Details | PK |
|---|---|---|---|---|
| | GSH_SECDEPOSIT_INTEREST_RATE | New Table | INTEREST_ACCT_ID EFFECTIVEDATE VERSION_DATETIME INTEREST_RATE | INTEREST_ACCT_ID + EFFECTIVEDATE + VERSION_DATETIME |

## 2.5 Electricity Data Model 4.27

### 2.5.1 Package: MTPASA

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

The MTPASA package changes due to the P630 – MTPASA Redevelopment project.

### New table: MTPASA_CASERESULT

| | |
|---|---|
| Comment | MTPASA solution header table |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME + RUN_NO |

## Columns: MTPASA_CASERESULT

| Field Name | Data type | Null | Comment |
|---|---|---|---|
| RUN_DATETIME | DATE | No | Date processing of the run begins |
| RUN_NO | NUMBER(4) | No | Unique run ID |
| PLEXOS_VERSION | VARCHAR2(20) | Yes | Version of PLEXOS used |
| LASTCHANGED | DATE | Yes | Last date and time record changed |

## New Table: MTPASA_CONSTRAINTRESULT

| | |
|---|---|
| Comment | Constraint results for Binding or Violating Constraints |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DEMAND_POE_TYPE, DAY, CONSTRAINTID |

## Columns: MTPASA_CONSTRAINTRESULT

| Field Name | Data type | Comment |
|---|---|---|
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always RELIABILITY |

| Field Name | Data type | Comment |
|---|---|---|
| DEMAND_POE_TYPE | VARCHAR2(20) | Demand POE type used. Value is POE10 |
| DAY | DATE | Day this result is for |
| CONSTRAINTID | VARCHAR2(20) | The unique identifier for the constraint. Only binding or violating constraints are reported |
| EFFECTIVEDATE | DATE | The effective date of the constraint used |
| VERSIONNO | NUMBER(3,0) | The version of the constraint used |
| PERIODID | NUMBER(3,0) | Half hourly period reported, selected as period of maximum NEM scheduled demand (calculated as maximum of scheduled demands, averaged across iterations and reference years) |
| PROBABILITYOFBINDING | NUMBER(8,5) | Proportion of a constraint binding, across iterations and reference years |
| PROBABILITYOFVIOLATION | NUMBER(8,5) | Proportion of a constraint violating, across iterations and reference years |
| CONSTRAINTVIOLATION90 | NUMBER(12,2) | The 90th percentile violation degree for this constraint, across iterations and reference years (MW) |
| CONSTRAINTVIOLATION50 | NUMBER(12,2) | The 50th percentile violation degree for this constraint, across iterations and reference years (MW) |
| CONSTRAINTVIOLATION10 | NUMBER(12,2) | The 10th percentile violation degree for this constraint, across iterations and reference years (MW) |
| LASTCHANGED | DATE | Last date and time record changed |

## New Table: MTPASA_CONSTRAINTSUMMARY

| Comment | Constraint Summary results over aggregation periods |
|---|---|
| Visibility | PUBLIC |

| Trigger | MTPASA Solution published to the market |
| --- | --- |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DEMAND_POE_TYPE, DAY, CONSTRAINTID, AGGREGATION_PERIOD |

### Columns: MTPASA_CONSTRAINTSUMMARY

| Field Name | Data type | Comment |
| --- | --- | --- |
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always RELIABILITY |
| DEMAND_POE_TYPE | VARCHAR2(20) | Demand POE type used. Value is POE10 |
| DAY | DATE | Day this result is for |
| CONSTRAINTID | VARCHAR2(20) | The unique identifier for the constraint. Only binding or violating constraints are reported |
| EFFECTIVEDATE | DATE | The effective date of the constraint used |
| VERSIONNO | NUMBER(3,0) | The version of the constraintID |
| AGGREGATION_PERIOD | VARCHAR2(20) | Period data is aggregated over. Values are PEAK, SHOULDER, OFFPEAK. PEAK = 14:00-19:59, SHOULDER = 07:00-13:59 and 20:00-21:59, OFFPEAK = 22:00-06:59 |
| CONSTRAINTHOURSBINDING | NUMBER(12,2) | Constraint hours binding or violating for period, averaged across iterations and reference years |
| LASTCHANGED | DATE | Last date and time record changed |

## New Table: MTPASA_INTERCONNECTORRESULT

| | |
|---|---|
| Comment | Interconnector results for interval of max demand per day |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DEMAND_POE_TYPE, DAY,INTERCONNECTORID |

### Columns MTPASA_INTERCONNECTORRESULT

| Field Name | Data type | Comment |
|---|---|---|
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always RELIABILITY |
| DEMAND_POE_TYPE | VARCHAR2(20) | Demand POE type used. Value is POE10 |
| DAY | DATE | Day this result is for |
| INTERCONNECTORID | VARCHAR2(20) | The unique identifier for the interconnector |
| PERIODID | NUMBER(3,0) | Half hourly period reported, selected as period of maximum NEM scheduled demand (calculated as maximum of scheduled demands, averaged across iterations and reference years) |
| FLOW90 | NUMBER(12,2) | The 90th percentile for flows, across iterations and reference years. Positive values indicate exporting, negative values indicate importing (MW) |

| Field Name | Data type | Comment |
|---|---|---|
| FLOW50 | NUMBER(12,2) | The 50th percentile for flows, across iterations and reference years. Positive values indicate exporting, negative values indicate importing (MW) |
| FLOW10 | NUMBER(12,2) | The 10th percentile for flows, across iterations and reference years. Positive values indicate exporting, negative values indicate importing (MW) |
| PROBABILITYOFBINDINGEXPORT | NUMBER(8,5) | Proportion of iterations and reference years with interconnector constrained when exporting |
| PROBABILITYOFBINDINGIMPORT | NUMBER(8,5) | Proportion of iterations and reference years with interconnector constrained when importing |
| CALCULATEDEXPORTLIMIT | NUMBER(12,2) | Calculated Interconnector limit of exporting energy on the basis of invoked constraints and static interconnector export limit, averaged across iterations and reference years |
| CALCULATEDIMPORTLIMIT | NUMBER(12,2) | Calculated Interconnector limit of importing energy on the basis of invoked constraints and static interconnector import limit, averaged across iterations and reference years |
| LASTCHANGED | DATE | Last date and time record changed |

## New Table: MTPASA_LOLPRESULT

| | |
|---|---|
| Comment | Results for Loss of Load Probability (LOLP) run per day |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DAY, REGIONID |

## Columns: MTPASA_LOLPRESULT

| Field Name | Data type | Comment |
| --- | --- | --- |
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always LOLP |
| DAY | DATE | Day this result is for |
| REGIONID | VARCHAR2(20) | The unique region identifier |
| WORST_INTERVAL_PERIODID | NUMBER(3,0) | The half hourly interval period with the highest LOLP, or highest region demand if LOLP = 0 for all intervals (1..48) |
| WORST_INTERVAL_DEMAND | NUMBER(12,2) | The Abstract Operational Demand for the worst interval in this region (MW) |
| WORST_INTERVAL_INTGEN | NUMBER(12,2) | The half hourly aggregate intermittent generation for the worst interval in this region (MW) |
| WORST_INTERVAL_DSP | NUMBER(12,2) | The half hourly aggregate demand side participation for the worst interval period in this region (MW) |
| LOSSOFLOADPROBABILITY | NUMBER(8,5) | Loss of Load Probability for the worst interval in this region |
| LOSSOFLOADMAGNITUDE | VARCHAR2(20) | Loss of Load Magnitude for the worst interval in this region. Values are LOW, MEDIUM, HIGH |
| LASTCHANGED | DATE | Last date and time record changed |

## New Table: MTPASA_REGIONRESULT

| | |
|---|---|
| Comment | Region results for interval of max demand per day |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DEMAND_POE_TYPE, DAY, REGIONID |

## Columns: MTPASA_REGIONRESULT

| Field Name | Data type | Comment |
|---|---|---|
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always RELIABILITY |
| DEMAND_POE_TYPE | VARCHAR2(20) | Demand POE type used. Value is POE10 |
| DAY | DATE | Day this result is for |
| REGIONID | VARCHAR2(20) | The unique region identifier |
| PERIODID | NUMBER(3,0) | Half hourly period reported, selected as period of maximum NEM scheduled demand (calculated as maximum of scheduled demands, averaged across iterations and reference years) |
| DEMAND | NUMBER(12,2) | Demand value from selected half hourly interval (MW) |
| AGGREGATEINSTALLEDCAPACITY | NUMBER(12,2) | The total installed capacity of all generation (MW) |

| Field Name | Data type | Comment |
|---|---|---|
| NUMBEROFITERATIONS | NUMBER(12,2) | Total number of iterations and reference years performed |
| USE_NUMBEROFITERATIONS | NUMBER(12,2) | Number of iterations and reference years with unserved energy>0 |
| USE_MAX | NUMBER(12,2) | Maximum unserved energy, across iterations and reference years (MW) |
| USE_UPPERQUARTILE | NUMBER(12,2) | Upper quartile unserved energy, across iterations and reference years (MW) |
| USE_MEDIAN | NUMBER(12,2) | Median unserved energy, across iterations and reference years (MW) |
| USE_LOWERQUARTILE | NUMBER(12,2) | Lower quartile unserved energy, across iterations and reference years (MW) |
| USE_MIN | NUMBER(12,2) | Minimum unserved energy, across iterations and reference years (MW) |
| USE_AVERAGE | NUMBER(12,2) | Average unserved energy, across iterations and reference years (MW) |
| USE_EVENT_AVERAGE | NUMBER(12,2) | Average unserved energy event size, across iterations and reference years (MW) |
| TOTALSCHEDULEDGEN90 | NUMBER(12,2) | The 90th percentile for scheduled generation across iterations and reference years (MW) |
| TOTALSCHEDULEDGEN50 | NUMBER(12,2) | The 50th percentile for scheduled generation across iterations and reference years (MW) |
| TOTALSCHEDULEDGEN10 | NUMBER(12,2) | The 10th percentile for scheduled generation across iterations and reference years (MW) |
| TOTALINTERMITTENTGEN90 | NUMBER(12,2) | The 90th percentile for intermittent generation, across iterations and reference years (MW) |
| TOTALINTERMITTENTGEN50 | NUMBER(12,2) | The 50th percentile for intermittent generation, across iterations and reference years (MW) |
| TOTALINTERMITTENTGEN10 | NUMBER(12,2) | The 10th percentile for intermittent generation, across iterations and reference years (MW) |
| DEMANDSIDEPARTICIPATION90 | NUMBER(12,2) | The 90th percentile for demand side participation, across iterations and reference years (MW) |

| Field Name | Data type | Comment |
|---|---|---|
| DEMANDSIDEPARTICIPATION50 | NUMBER(12,2) | The 50th percentile for demand side participation, across iterations and reference years (MW) |
| DEMANDSIDEPARTICIPATION10 | NUMBER(12,2) | The 10th percentile for demand side participation, across iterations and reference years (MW) |
| LASTCHANGED | DATE | Last date and time record changed |

## New Table: MTPASA_REGIONSUMMARY

| | |
|---|---|
| Comment | Region Results summary over aggregation periods |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DEMAND_POE_TYPE, AGGREGATION_PERIOD, PERIOD_ENDING, REGIONID |

## Columns: MTPASA_REGIONSUMMARY

| Field Name | Data type | Comment |
|---|---|---|
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always RELIABILITY |
| DEMAND_POE_TYPE | VARCHAR2(20) | Demand POE type used. Value are POE10, POE50 |

| Field Name | Data type | Comment |
|---|---|---|
| AGGREGATION_PERIOD | VARCHAR2(20) | Period data is aggregated over. Values are YEAR, MONTH |
| PERIOD_ENDING | DATE | Datetime of day at end of period (i.e. last day of month or year reported) |
| REGIONID | VARCHAR2(20) | The unique region identifier |
| NATIVEDEMAND | NUMBER(12,2) | Native demand calculated from Operational As Generated trace supplied by Energy Forecasting |
| USE_PERCENTILE10 | NUMBER(12,2) | Unserved energy period amount at the 10th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE20 | NUMBER(12,2) | Unserved energy period amount at the 20th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE30 | NUMBER(12,2) | Unserved energy period amount at the 30th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE40 | NUMBER(12,2) | Unserved energy period amount at the 40th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE50 | NUMBER(12,2) | Unserved energy period amount at the 50th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE60 | NUMBER(12,2) | Unserved energy period amount at the 60th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE70 | NUMBER(12,2) | Unserved energy period amount at the 70th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE80 | NUMBER(12,2) | Unserved energy period amount at the 80th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE90 | NUMBER(12,2) | Unserved energy period amount at the 90th percentile of iterations and reference years (MWh) |
| USE_PERCENTILE100 | NUMBER(12,2) | Unserved energy period amount at the 100th percentile of iterations and reference years (MWh) |
| USE_AVERAGE | NUMBER(12,2) | Average period unserved energy across iterations and reference years (MWh) |
| NUMBEROFITERATIONS | NUMBER(12,2) | Total number of iterations and reference years performed |

| Field Name | Data type | Comment |
|---|---|---|
| USE_NUMBEROFITERATIONS | NUMBER(12,2) | Number of iterations and reference years showing unserved energy |
| USE_EVENT_MAX | NUMBER(12,2) | Maximum unserved energy event size across all half hourly intervals and iterations and reference years that have unserved energy>0 (MW) |
| USE_EVENT_UPPERQUARTILE | NUMBER(12,2) | Upper quartile unserved energy event size across all half hourly intervals and iterations and reference years that have unserved energy>0 (MW) |
| USE_EVENT_MEDIAN | NUMBER(12,2) | Median unserved energy event size across all half hourly intervals and iterations and reference years that have unserved energy>0 (MW) |
| USE_EVENT_LOWERQUARTILE | NUMBER(12,2) | Lower quartile unserved energy event size across all half hourly intervals and iterations and reference years that have unserved energy>0 (MW) |
| USE_EVENT_MIN | NUMBER(12,2) | Minimum unserved energy event size across all half hourly intervals and iterations and reference years that have unserved energy>0 (MW) |
| WEIGHT | NUMBER(12,2) | Fixed Values of 0.696 for 50 POE and 0.304 for 10 POE. |
| USE_WEIGHTED_AVG | NUMBER(12,2) | Weighted average USE per region = (USE_AVERAGE_POE10/NATIVE_DEMAND_POE_10*WEIGHT_POE_10 + USE_AVERAGE_POE50/NATIVE_DEMAND_POE_50*WEIGHT_POE_50)*100 |
| LRC | NUMBER(12,2) | LRC Condition reported (Value=1) if USE_WEIGHTED_AVG >= 0.002% otherwise (Value=0) |
| LASTCHANGED | DATE | Last date and time record changed |

## New Table: MTPASA_REGIONITERATION

| | |
|---|---|
| Comment | Region results for Unserved Energy (USE) |
| Visibility | PUBLIC |
| Trigger | MTPASA Solution published to the market |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | RUN_DATETIME, RUN_NO, RUNTYPE, DEMAND_POE_TYPE, AGGREGATION_PERIOD, PERIOD_ENDING, REGIONID, USE_ITERATION_ID |

### Columns: MTPASA_REGIONITERATION

| Field Name | Data type | Comment |
|---|---|---|
| RUN_DATETIME | DATE | Date processing of the run begins |
| RUN_NO | NUMBER(4) | Unique run ID |
| RUNTYPE | VARCHAR2(20) | Type of run. Always RELIABILITY |
| DEMAND_POE_TYPE | VARCHAR2(20) | Demand POE type used. Value is POE10 or POE50 |
| AGGREGATION_PERIOD | VARCHAR2(20) | Period data is aggregated over. Values are YEAR |
| PERIOD_ENDING | DATE | Datetime of day at end of period (i.e. last day of year reported) |
| REGIONID | VARCHAR2(20) | The unique region identifier |
| USE_ITERATION_ID | NUMBER(5) | Iteration ID, only produced for iterations showing unserved energy>0 |
| USE_ITERATION_EVENT_NUMBER | NUMBER(12,2) | Number of half hours showing unserved energy over year, for iteration |

| Field Name | Data type | Comment |
|---|---|---|
| USE_ITERATION_EVENT_AVERAGE | NUMBER(12,2) | Average unserved energy event size for iteration over year (MW) |
| LASTCHANGED | DATE | Last date and time record changed |

## Modified table: MTPASA_REGIONAVAILABILITY

| | |
|---|---|
| Comment | Region Generation Availability and Demand |
| Visibility | PUBLIC |
| Trigger | Every 3 hours during market business hours |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | PUBLISH_DATETIME, DAY, REGIONID |

## Added columns: MTPASA_REGIONAVAILABILITY

| Field Name | Data type | Comment |
|---|---|---|
| PUBLISH_DATETIME | DATE | Date Time the report was published |
| DAY | DATE | Date on which the aggregation applies |
| REGIONID | VARCHAR2(20) | NEM Region |
| PASAAVAILABILITY_SCHEDULED | NUMBER(12,0) | Aggregate of the offered PASA Availability for all Scheduled generators in this region |
| LATEST_OFFER_DATETIME | DATE | Date Time of the latest offer used in the aggregation for this region and date |

| Field Name | Data type | Comment |
| --- | --- | --- |
| ENERGYUNCONSTRAINEDCAPACITY | NUMBER(12,0) | Region energy unconstrained MW capacity |
| ENERGYCONSTRAINEDCAPACITY | NUMBER(12,0) | Region energy constrained MW capacity |
| NONSCHEDULEDGENERATION | NUMBER(12,2) | Allowance made for non-scheduled generation in the demand forecast (MW) |
| DEMAND10 | NUMBER(12,2) | 10% probability demand (ex non-scheduled demand) |
| DEMAND50 | NUMBER(12,2) | 50% probability demand (ex non-scheduled demand) |
| ENERGYREQDEMAND10 | NUMBER(12,2) | Total weekly operational as generated consumption (POE 10) |
| ENERGYREQDEMAND50 | NUMBER(12,2) | Total weekly operational as generated consumption (POE 50) |
| LASTCHANGED | DATE | Last date and time record changed |

## Participant interface changes

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| MTPASA_CASERESULT | MTPASA | MTPASA,CASERESULT,1 | New |
| MTPASA_CONSTRAINTRESULT | MTPASA | MTPASA, CONSTRAINTRESULT,1 | New |
| MTPASA_CONSTRAINTSUMMARY | MTPASA | MTPASA, CONSTRAINTSUMMARY,1 | New |
| MTPASA_INTERCONNECTORRESULT | MTPASA | MTPASA, INTERCONNECTORRESULT,1 | New |
| MTPASA_LOLPRESULT | MTPASA | MTPASA, LOLPRESULT,1 | New |
| MTPASA_REGIONRESULT | MTPASA | MTPASA, REGIONRESULT,1 | New |
| MTPASA_REGIONSUMMARY | MTPASA | MTPASA, REGIONSUMMARY,1 | New |
| MTPASA_REGIONITERATION | MTPASA | MTPASA, REGIONITERATION,1 | New |
| MTPASA_REGIONAVAILABILITY | MTPASAREGIONAVAILABILITY | MTPASA, REGIONAVAILABILITY,2 | Modified |

## File interface changes

These subscriptions have not changed, only the file contents.

| File ID | Description | Batcher file masks | Frequency | Change | Auto-subscription |
|---|---|---|---|---|---|
| MTPASA | MTPASA Solution | *_MTPASA_*.csv | Ad hoc (usually 1 per week) | Modified | Yes |
| MTPASA | MTPASA Region Availability | *_MTPASAREGIONAVAILABILITY_*.csv | 3 hourly during market business hours | Modified | No |

## Discontinued reports

Participants must ensure they remove all dependencies on these CSV report types prior to the deployment of this Release. If a report is discontinued in a Legacy file you are receiving, you may be impacted.

| MMS Data Model table | File ID | Delivered in file | CSV report type | Replaced by |
|---|---|---|---|---|
| MTPASA_CASESOLUTION | MTPASA | *_MTPASA_*.CSV | MTPASA, CASESOLUTION, 4 | MTPASA_CASERESULT,1 |
| MTPASA_CONSTRAINTSOLUTION | MTPASA | *_MTPASA_*.CSV | MTPASA, CONSTRAINTSOLUTION, 2 | MTPASA_CONSTRAINTRESULT,1 MTPASA_CONSTRAINTSUMMARY,1 |
| MTPASA_INTERCONNECTORSOLUTION | MTPASA | *_MTPASA_*.CSV | MTPASA, INTERCONNECTORSOLUTION, 2 | MTPASA_INTERCONNECTORRESULT,1 |
| MTPASA_REGIONSOLUTION | MTPASA | *_MTPASA_*.CSV | MTPASA, REGIONSOLUTION,6 | MTPASA_REGIONRESULT,1 MTPASA_REGION SUMMARY,1 |
| MTPASA_RESERVELIMITSOLUTION | MTPASA | *_MTPASA_*.CSV | MTPASA,RESERVELIMITSOLUTION,1 | Data is now across region and LOLP result tables |
| MTPASA_RESERVELIMIT | MTPASA_RESERVELIMIT | *_MTPASA_RESERVELIMIT_*.CSV | RESERVE_DATA, MTPASA_RESERVELIMIT,1 | n/a |
| MTPASA_RESERVELIMIT_REGION | MTPASA_RESERVELIMIT | *_MTPASA_RESERVELIMIT_*.CSV | RESERVE_DATA, MTPASA_RESERVELIMIT,1 | n/a |
| MTPASA_RESERVELIMIT_SET | MTPASA_RESERVELIMIT | *_MTPASA_RESERVELIMIT_*.CSV | RESERVE_DATA, MTPASA_RESERVELIMIT,1 | n/a |

**Discontinued historical tables**

| MMS Data Model table | Package | Comment |
| --- | --- | --- |
| MTPASA_CASE_SET | HISTORICAL TABLES | Obsolete from the 2005 Year-end Release. |
| MTPASACONSTRAINTSOLUTION_D | HISTORICAL TABLES | Sets out MT PASA constraint solution results, where constraints are binding. |
| MTPASAINTERCONNECTORSOLUTION_D | HISTORICAL TABLES | Shows interconnector results for MT PASA, shown region by region. MTPASAREGIONSOLUTION_ D MTPASAREGIONSOLUTION_D shows region |
| MTPASAREGIONSOLUTION_D | HISTORICAL TABLES | Shows region results for MT PASA, showing predicted demand and any capacity limits. |

## 2.5.2 Package: BILLING_CONFIG

Configuration data for the billing process

The Billing Config package changes for the P1209 – Security Deposit Calculation.

## New table: SECDEPOSIT_PROVISION

| | |
|---|---|
| Comment | The security deposit provision entry details |
| Visibility | Private |
| Trigger | Upon entering and authorising the security deposit provision and interest rate (Table Trigger) |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key | SECURITY_DEPOSIT_ID + PARTICIPANTID |

### Columns: SECDEPOSIT_PROVISION

| Name | Data type | Null | Comment |
|---|---|---|---|
| SECURITY_DEPOSIT_ID | VARCHAR2(20) | No | The security deposit ID |
| PARTICIPANTID | VARCHAR2(20) | No | The Participant ID linked to the security deposit ID |
| TRANSACTION_DATE | DATETIME | Yes | The date the security deposit ID is entered and authorised by settlements |
| MATURITY_CONTRACTYEAR | NUMBER(4,0) | Yes | The contract year of the billing week when the security deposit is maturing |
| MATURITY_WEEKNO | NUMBER(3,0) | Yes | The week no of the billing week when the security deposit is maturing |
| AMOUNT | NUMBER(18,8) | Yes | The security deposit amount |
| INTEREST_RATE | NUMBER(18,8) | Yes | The interest rate assigned to the security deposit ID. Null if INTEREST_CALC_TYPE <> FIXED |
| INTEREST_CALC_TYPE | VARCHAR2(20) | Yes | FIXED OR DAILY |
| INTEREST_ACCT_ID | VARCHAR2(20) | Yes | The Interest Account ID for calculating the Interest Payment. This is NULL if the INTEREST_CALC_TYPE = FIXED |

## New table: SECDEPOSIT_INTEREST_RATE

| | |
|---|---|
| Comment | The security deposit interest rate on a daily basis. This is the public table published when the business enter and authorise a new daily interest rate |
| Visibility | Public |
| Trigger | Upon entering and authorising the security deposit interest rate |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key | INTEREST_ACCT_ID + EFFECTIVEDATE + VERSION_DATETIME |

### Columns: SECDEPOSIT_INTEREST_RATE

| Name | Data type | Null | Comment |
|---|---|---|---|
| INTEREST_ACCT_ID | VARCHAR2(20) | No | The interest account ID for calculating the interest payment |
| EFFECTIVEDATE | DATETIME | No | The effective date of the interest rate change |
| VERSION_DATETIME | DATETIME | No | Date Time this record was added |
| INTEREST_RATE | NUMBER(18,8) | Yes | The interest rate for the interest account ID as on the effective date. |

**Participant interface changes**

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| SECDEPOSIT_INTEREST_RATE | SECDEPOSIT_INTEREST_RATE | BILLING_CONFIG, SECDEPOSIT_INTEREST_RATE,1 | New |
| SECDEPOSIT_PROVISION | SECDEPOSIT_PROVISION | BILLING_CONFIG, SECDEPOSIT_PROVISION,1 | New |

**File interface changes**

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---|---|---|---|---|---|---|
| SECDEPOSIT_INTEREST_RATE | The security deposit interest rate on a daily basis. This is the public table published when the business enter and authorise a new daily interest rate | PUBLIC_ SECDEPOSIT_INTEREST_RATE_*.CSV | Database table trigger: On entering and authorising the security deposit interest rate. | New | Yes | No |
| SECDEPOSIT_PROVISION | The security deposit provision entry details | *_SECDEPOSIT_PROVISION_*.CSV | Database table trigger: On entering and authorising security deposit provision and interest rate. | New | Yes | No |

**Discontinued reports**

None for the Billing Config package.

## 2.5.3  Package: BILLING_RUN

Results from a published Billing Run. The settlement data and billing run data are updated daily between 6am and 8am 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.

The Billing Run package changes due to the following projects:

- P1209 – Security Deposit Calculation

- P1252 – NEM Settlements Shortfall Calculation

### New table: BILLING_EFTSHORTFALL_AMOUNT

| | |
|---|---|
| Comment | The billing shortfall run amounts |
| Visibility | Private |
| Trigger | Authorisation of Billing shortfall Run |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports<br><#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key (in order) | CONTRACTYEAR + WEEKNO + BILLRUNNO + PARTICIPANTID |

## Columns: BILLING_EFTSHORTFALL_AMOUNT

| Name | Data type | Null | Comment |
| --- | --- | --- | --- |
| CONTRACTYEAR | NUMBER(4,0) | No | The shortfall affected billing contract year |
| WEEKNO | NUMBER(3,0) | No | The shortfall affected billing week no |
| BILLRUNNO | NUMBER(3,0) | No | The shortfall affected billing week run no |
| PARTICIPANTID | VARCHAR2(20) | No | The participant affected by the shortfall calculation |
| SHORTFALL_AMOUNT | NUMBER(18,8) | Yes | The Participant shortfall amount |
| SHORTFALL | NUMBER(18,8) | Yes | The market shortfall amount |
| SHORTFALL_COMPANY_ID | VARCHAR2(20) | Yes | The Company ID associated with the Participant ID used in the shortfall calculation |
| COMPANY_SHORTFALL_AMOUNT | NUMBER(18,8) | Yes | The shortfall amount for the Company ID associated with the Participant ID used in the shortfall calculation |
| PARTICIPANT_NET_ENERGY | NUMBER(18,8) | Yes | The participant NET energy used in shortfall calculation |
| COMPANY_NET_ENERGY | NUMBER(18,8) | Yes | The NET energy for the Company ID associated with the Participant ID used in the shortfall calculation |

## New table: BILLING_EFTSHORTFALL_DETAIL

| | |
|---|---|
| Comment | The Billing Shortfall Run Amount details |
| Visibility | Private |
| Trigger | Authorisation of Billing shortfall Run |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key (in order) | CONTRACTYEAR + WEEKNO + BILLRUNNO + PARTICIPANTID+TRANSACTION_TYPE |

## Columns: BILLING_EFTSHORTFALL_DETAIL

| Name | Data type | Null | Comment |
|---|---|---|---|
| CONTRACTYEAR | NUMBER(4,0) | No | The shortfall affected billing contract year |
| WEEKNO | NUMBER(3,0) | No | The shortfall affected billing week no |
| BILLRUNNO | NUMBER(3,0) | No | The shortfall affected billing week run no |
| PARTICIPANTID | VARCHAR2(20) | No | The participant affected by the shortfall calculation |
| TRANSACTION_TYPE | VARCHAR2(40) | No | The transaction type details associated with the shortfall calculation |
| AMOUNT | NUMBER(18,8) | Yes | The amount for each transaction type |

## New table: BILLING_SECDEPOSIT_APPLICATION

| | |
|---|---|
| Comment | The security deposit application details |
| Visibility | Private |
| Trigger | After posting a Billing Run (FINAL and REVISION) |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key | CONTRACTYEAR, WEEKNO, BILLRUNNO, PARTICIPANTID |

### Columns: BILLING_SECDEPOSIT_APPLICATION

| Name | Data type | Null | Comment |
|---|---|---|---|
| CONTRACTYEAR | NUMBER(4,0) | No | The billing contract year where (security deposit application) SDA is applied |
| WEEKNO | NUMBER(3,0) | No | The billing week no. where the SDA is applied |
| BILLRUNNO | NUMBER(3,0) | No | The billing run no. where the SDA is applied |
| PARTICIPANTID | VARCHAR2(20) | No | The Participant ID lodging the SDA |
| APPLICATION_AMOUNT | NUMBER(18,8) | Yes | The SDA application amount |

## New table: BILLING_SECDEP_INTEREST_RATE

| | |
|---|---|
| Comment | The DAILY interest rates used by billing when calculating the interest amount |
| Visibility | Public |
| Trigger | After posting a Billing Run (FINAL and REVISION) |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key | CONTRACTYEAR, WEEKNO, BILLRUNNO, INTEREST_ACCT_ID, EFFECTIVEDATE |

### Columns: BILLING_SECDEP_INTEREST_RATE

| Name | Data type | Null | Comment |
|---|---|---|---|
| CONTRACTYEAR | NUMBER(4,0) | No | The billing contract year the SDA application is processed and interest calculated |
| WEEKNO | NUMBER(3,0) | No | The billing week no. the SDA application is processed and interest calculated |
| BILLRUNNO | NUMBER(3,0) | No | The billing run no. the SDA application is processed and interest calculated |
| INTEREST_ACCT_ID | VARCHAR2(20) | No | The interest account ID used by security deposit interest calculation |
| EFFECTIVEDATE | DATETIME | No | The effective date of the new interest change |
| INTEREST_RATE | INTEGER(18,8) | Yes | The interest rate to apply from the effective date |

## New table: BILLING_SECDEP_INTEREST_PAY

| | |
|---|---|
| Comment | The interest amount for security deposit calculated by billing, based on whether it is a fixed/floating rate |
| Visibility | Private |
| Trigger | After posting a Billing Run (FINAL and REVISION) |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports<#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key | CONTRACTYEAR + WEEKNO + BILLRUNNO + SECURITY_DEPOSIT_ID + PARTICIPANTID |

### Columns: BILLING_SECDEP_INTEREST_PAY

| Name | Data type | Null | Comment |
|---|---|---|---|
| CONTRACTYEAR | NUMBER(4,0) | No | The billing contract year the SDA application is processed and interest calculated |
| WEEKNO | NUMBER(3,0) | No | The billing week no. the SDA application is processed and interest calculated |
| BILLRUNNO | NUMBER(3,0) | No | The billing run no. the SDA application is processed and interest calculated |
| SECURITY_DEPOSIT_ID | VARCHAR2(20) | No | The security deposit ID for which billing has calculated the Interest amount |
| PARTICIPANTID | VARCHAR2(20) | No | The participant ID of the security deposit for whom the interest is paid |
| INTEREST_AMOUNT | NUMBER(18,8) | Yes | The security deposit interest amount calculated by billing |
| INTEREST_CALC_TYPE | VARCHAR2(20) | Yes | FIXED or DAILY |
| INTEREST_ACCT_ID | VARCHAR2(20) | Yes | The interest account ID used by billing for calculating the interest. NULL if INTEREST_CALC_TYPE = FIXED |

| Name | Data type | Null | Comment |
|------|-----------|------|---------|
| INTEREST_RATE | NUMBER(18,8) | Yes | The STATIC Interest Rate used by Billing for calculating the interest. This is NULL if INTEREST_CALC_TYPE <> FIXED |

## Participant interface changes

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| BILLING_EFTSHORTFALL_AMOUNT | BILLINGSHORTFALL | BILLING,EFTSHORTFALL_AMOUNT,1 | New |
| BILLING_EFTSHORTFALL_DETAIL | BILLINGSHORTFALL | BILLING,EFTSHORTFALL_DETAIL,1 | New |
| BILLING_SECDEPOSIT_APPLICATION | BILLING | BILLING,SECDEPOSIT_APPLICATION,1 | New |
| BILLING_SECDEP_INTEREST_RATE | BILLING | BILLING,SECDEP_INTEREST_RATE,1 | New |
| BILLING_SECDEP_INTEREST_PAY | BILLING | BILLING,SECDEP_INTEREST_PAY,1 | New |

## File interface changes

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---|---|---|---|---|---|---|
| BILLINGSHORTFALL | Billing shortfall Calculation Results | *_BILLINGSHORTFALL_*.CSV | On posting of Billing shortfall Run for the shortfall affected contract year/week | New | Yes | No |
| BILLING | Results from a published Billing Run. The settlement data and billing run data are updated daily between 6am and 8am 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. | *_BILLING_*.CSV | On posting Billing RUN | New | Yes | No |

## Discontinued reports

Participants must ensure they remove all dependencies on these CSV report types prior to the deployment of this Release. If a report is discontinued in a Legacy file you are receiving, you may be impacted.

| MMS Data Model table | File ID | Delivered in file | CSV report type | Replaced by |
|---|---|---|---|---|
| BILLING_APC_COMPENSATION | BILLING_LEGACY | BILLING*_LEGACY.CSV | BILLING, APC_COMPENSATION,1 | APC_COMPENSATION,2 |
| BILLING_APC_RECOVERY | BILLING_LEGACY | BILLING*_LEGACY.CSV | BILLING*_LEGACY.CSV | APC_RECOVERY,2 |

### 2.5.4  Package: DEMAND_FORECASTS

Regional Demand Forecasts and Intermittent Generation forecasts.

The DEMAND_FORECASTS package changes due to the Helios - Phase 3 ASEFS project. For this Release, when your Data Model upgrade is complete you will see the new tables but no data until the application release early in 2018. AEMO will advise the schedule date as soon as it is available.

**The primary key of the ROOFTOP_PV_ACTUAL table changes to INTERVAL_DATETIME, TYPE, REGIONID.**

## Modified table: ROOFTOP_PV_ACTUAL

| | |
|---|---|
| Comment | Estimate of regional Rooftop Solar actual generation for each half-hour interval in a day |
| Visibility | Public |
| Trigger | Event timing – every 30 minutes |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports<#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key | INTERVAL_DATETIME + TYPE + REGIONID<br>Changes from INTERVAL_DATETIME + REGIONID |

## Added columns: ROOFTOP_PV_ACTUAL

| Name | Data type | Null | Comment |
|---|---|---|---|
| Type | Varchar2(20) | No | One of DAILY, MEASUREMENT or SATELLITE |
| QI | Number(2,1) | Yes | Quality indicator. Represents the quality of the estimate. |

## Participant interface changes

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| DEMAND_FORECASTS | ROOFTOP_PV_ACTUAL | ROOFTOP,ACTUAL,2 | Modified |

## File interface changes

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---------|-------------|--------------------|-----------|--------|------------|-------------------|
| ROOFTOP_PV_ACTUAL | Estimate of regional Rooftop Solar actual generation for each half-hour interval in a day | *_ROOFTOP_PV_ACTUAL_* | Every 30 minutes | Modified | yes | No |

## Discontinued reports

None for the DEMAND_FORECASTS package.

## 2.5.5 Package: DISPATCH

Market Suspensions and administer pricing event data

The DISPATCH package changes due to the P1242 – Automation of Market Suspension Pricing

### New table: DISPATCH_INTERCONNECTION

| | |
|---|---|
| Comment | Inter-regional flow information common to or aggregated for regulated (i.e. not MNSP) Interconnectors spanning the From-Region and To-Region - NB only the pricing run is calculated |
| Visibility | Public |
| Trigger | Every 5 minutes |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports<#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key (in order) | SETTLEMENTDATE + RUNNO + FROM_REGIONID + TO_REGIONID + INTERVENTION |

### Columns: DISPATCH_INTERCONNECTION

| Name | Data type | Null | Comment |
|---|---|---|---|
| SETTLEMENTDATE | DATE | No | Dispatch interval from which this regime applies |
| RUNNO | NUMBER(3,0) | No | Unique run ID |
| INTERVENTION | NUMBER(2,0) | No | Market Rules define what intervention is |
| FROM_REGIONID | VARCHAR2(20) | No | Nominated RegionID from which the energy flows |
| TO_REGIONID | VARCHAR2(20) | No | Nominated RegionID to which the energy flows |

| Name | Data type | Null | Comment |
|---|---|---|---|
| DISPATCHINTERVAL | NUMBER(22,0) | Yes | Dispatch period identifier, from 001 to 288 in format YYYYMMDDPPP |
| IRLF | NUMBER(15,5) | Yes | Inter-Regional Loss Factor. Calculated based on the MWFLOW and the nominal From and To Region losses. |
| MWFLOW | NUMBER(16,6) | Yes | Summed MW flow of the parallel regulated Interconnectors |
| METEREDMWFLOW | NUMBER(16,6) | Yes | Summed Metered MW flow of the parallel regulated Interconnectors |
| FROM_REGION_MW_LOSSES | NUMBER(16,6) | Yes | Losses across the Interconnection attributable to the nominal From Region |
| TO_REGION_MW_LOSSES | NUMBER(16,6) | Yes | Losses across the Interconnection attributable to the nominal To Region |
| LASTCHANGED | DATE | Yes | Last date and time record changed |

## Participant interface changes

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| DISPATCH_INTERCONNECTION | DISPATCHIS | DISPATCH,INTERCONNECTION,1 | New table |

## File interface changes

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---|---|---|---|---|---|---|
| DISPATCHIS | Dispatch in data model format | *_DISPATCHIS_* | Every 5 minutes | New report | Yes | No |

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---------|-------------|--------------------|-----------|--------|------------|-------------------|
| PRICE_REVISION_DISPATCH | Contains both 5-minute dispatch and 30-minute trading interval price updates. | *_PRICE_REVISION_DISPATCH_* | Generated when there is a price adjustment to a 5-minute dispatch interval. | Updated | Yes | No |
| PRICE_REVISION_DISPATCHIS | An audit trail of price changes on the DISPATCHPRICE table (i.e. 5-minute dispatch prices for energy and FCAS). | *_PRICE_REVISION_DISPATCHIS_* | Generated when there is a price adjustment to a 5-minute dispatch interval. | Updated | Yes | No |

## Discontinued reports

Participants must ensure they remove all dependencies on these CSV report types prior to the deployment of this Release. If a report is discontinued in a Legacy file you are receiving, you may be impacted.

| MMS Data Model table | File ID | Delivered in file | CSV report type | Replaced by |
|---|---|---|---|---|
| DISPATCHINTERCONNECTORRES | DISPATCHIS | *_DISPATCHIS_* | DISPATCH,INTERCONNECTORRES,2 | DISPATCH,INTERCONNECTORRES,3 |
| DISPATCHPRICE | DISPATCHIS | *_PRICE_REVISION_DISPATCH_* | DISPATCH,PRICE,3 | DISPATCH,PRICE,4 |

## 2.5.6  Package: FORCE_MAJEURE

Market Suspensions and administer pricing event data

The FORCE_MAJEURE package changes due to P1242 – Automation of Market Suspension Pricing

[1,1]
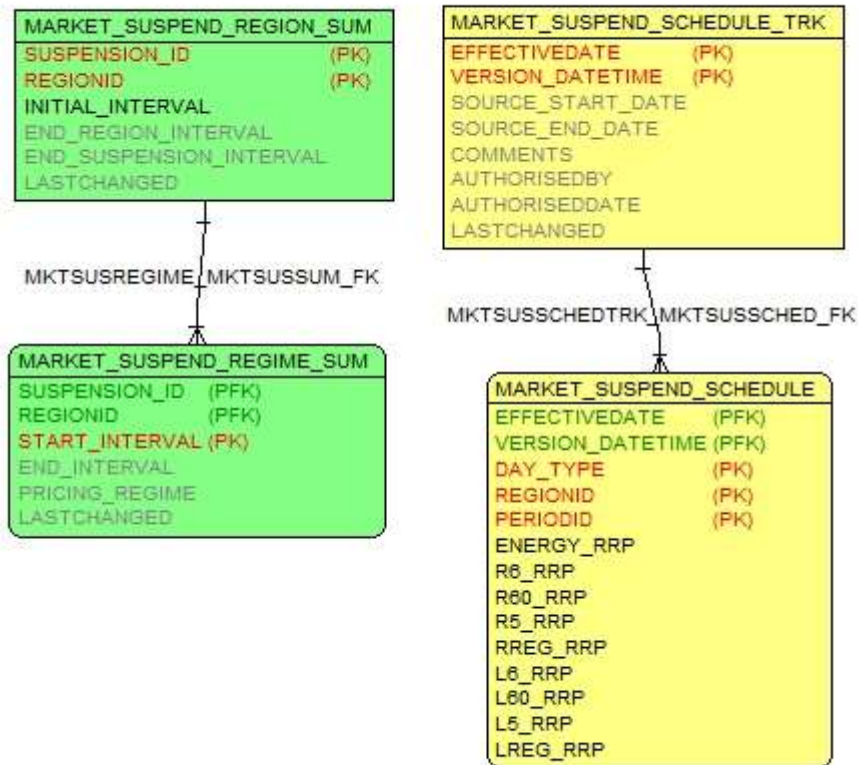
## New table: MARKET_SUSPEND_REGION_SUM

| | |
|---|---|
| Comment | 'Summary of Market Suspension timings |
| Visibility | Public |
| Trigger | Creation of Market Suspension |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVREPORTS |
| Primary key (in order) | SUSPENSION_ID, REGIONID |

### Columns: MARKET_SUSPEND_REGION_SUM

| Name | Data type | Null | Comment |
|---|---|---|---|
| SUSPENSION_ID | VARCHAR2(20) | No | Unique identifier for this suspension event |
| REGIONID | VARCHAR2(20) | No | Region(s) covered by the Suspension event |
| INITIAL_INTERVAL | DATE | Yes | Initial interval of the Suspension event |
| END_REGION_INTERVAL | DATE | Yes | Last Dispatch interval for the Suspension event for this Region |
| END_SUSPENSION_INTERVAL | DATE | Yes | Last Dispatch interval for the Suspension event |
| LASTCHANGED | DATE | Yes | Last DateTime the Suspension was administered |

## New table: MARKET_SUSPEND_REGIME_SUM

| | |
|---|---|
| Comment | Tracks the evolution of pricing regimes applied to the suspended region and from which Dispatch Interval |
| Visibility | Public |

| Trigger | Market Suspension |
|---|---|
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports<#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key (in order) | SUSPENSION_ID + REGIONID + START_INTERVAL |

## Columns: MARKET_SUSPEND_REGIME_SUM

| Name | Data type | Null | Comment |
|---|---|---|---|
| SUSPENSION_ID | VARCHAR2(20) | No | Unique identifier for this suspension event |
| REGIONID | VARCHAR2(20) | No | Region(s) covered by this evolution of the event |
| START_INTERVAL | DATE | No | First Dispatch interval from which this regime applies |
| END_INTERVAL | DATE | Yes | Last Dispatch interval for which this regime applies |
| PRICING_REGIME | VARCHAR2(20) | Yes | Pricing Regime applied |
| LASTCHANGED | DATE | Yes | Last date and time record changed |

## New table: MARKET_SUSPEND_SCHEDULE_TRK

| Comment | Parent table for pricing regimes used in suspensions |
|---|---|
| Visibility | Public |
| Trigger | Market Suspension |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |

| Primary key (in order) | EFFECTIVEDATE |
| --- | --- |

## Columns: MARKET_SUSPEND_SCHEDULE_TRK

| Name | Data type | Null | Comment |
| --- | --- | --- | --- |
| EFFECTIVEDATE | DATE | No | Calendar date from when this record set is effective |
| SOURCE_START_DATE | DATE | Yes | Start Date of the date range for the source data |
| SOURCE_END_DATE | DATE | Yes | End Date of the date range for the source data |
| COMMENTS | Varchar2(1000) | Yes | Reason why this regime was applied |
| AUTHORISEDDATE | DATE | Yes | DateTime this record set was loaded |
| LASTCHANGED | DATE | Yes | Last date and time record changed |

## New table: MARKET_SUSPEND_SCHEDULE

| Comment | Trading prices that will apply in the event of a market suspension event updated weekly. |
| --- | --- |
| Visibility | Public |
| Trigger | Weekly + ad hoc |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\import\Reports\CSVReports |
| Primary key (in order) | EFFECTIVEDATE, DAY_TYPE, REGIONID, PERIODID |

## Columns: MARKET_SUSPEND_SCHEDULE

| Name | Data type | Null | Comment |
|------|-----------|------|---------|
| EFFECTIVEDATE | Date | No | Calendar date from when this record set is effective |
| DAY_TYPE | Varchar2(20) | No | Distinguishes which record set to apply - at time of writing this was Business or Non-business day but may change in the future depending on outcome of consultation |
| REGIONID | Varchar2(20) | No | Region affected. |
| PERIODID | Number(3,0) | No | 48 intervals for a day, midnight base (equates to 00:30 - 00:00) |
| ENERGY_RRP | Number(15,5) | Yes | Energy Price applied for this period for this Day Type |
| R6_RRP | Number(15,5) | Yes | Raise 6Sec contingency Price applied for this period for this Day Type |
| R60_RRP | Number(15,5) | Yes | Raise 60Sec contingency Price applied for this period for this Day Type |
| R5_RRP | Number(15,5) | Yes | Raise 5Min contingency Price applied for this period for this Day Type |
| RREG_RRP | Number(15,5) | Yes | Raise Regulation Price applied for this period for this Day Type |
| L6_RRP | Number(15,5) | Yes | Lower 6Sec contingency Price applied for this period for this Day Type |
| L60_RRP | Number(15,5) | Yes | Lower 60Sec contingency Price applied for this period for this Day Type |
| L5_RRP | Number(15,5) | Yes | Lower 5Min contingency Price applied for this period for this Day Type |
| LREG_RRP | Number(15,5) | Yes | Lower Regulation Price applied for this period for this Day Type |
| LASTCHANGED | DATE | Yes | Last date and time record changed |

## Participant interface changes

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| MARKET_SUSPEND_REGION_SUM | SUSPENSION_REGION | FORCE_MAJEURE, MARKET_SUSPEND_REGION_SUM,1 | New |
| MARKET_SUSPEND_REGIME_SUM | SUSPENSION_REGIME | FORCE_MAJEURE, MARKET_SUSPEND_REGIME_SUM,1 | New |
| MARKET_SUSPEND_SCHEDULE_TRK | SUSPENSION_SCHEDULE | FORCE_MAJEURE, MARKET_SUSPEND_SCHEDULE_TRK,1 | New |
| MARKET_SUSPEND_SCHEDULE | SUSPENSION_SCHEDULE | FORCE_MAJEURE, MARKET_SUSPEND_SCHEDULE,1 | New |

## File interface changes

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---|---|---|---|---|---|---|
| SUSPENSION_SCHEDULE | Market Suspension Prices | *_MARKET_SUSPENSION_PRICES_*.CSV | Weekly | Updated | Yes | Yes |
| SUSPENSION_REGION | Regions included in the Market Suspension event | *_MARKET_SUSPENSION_REGION_*.CSV | Ad hoc | New | Yes | Yes |
| SUSPENSION_REGIME | Pricing regime applied to suspended regions – either 'SCHEDULE' or 'DISPATCH' | *_MARKET_SUSPENSION_REGIME_*.CSV | Ad hoc | New | Yes | Yes |

## Discontinued reports

Research into credible Market Suspension scenarios showed the current model is inadequate so a more comprehensive model is included in this Release.

**Participants must ensure they remove all dependencies on these CSV report types prior to the deployment of this Release. If a report is discontinued in a Legacy file you are receiving, you may be impacted.**

| MMS Data Model table | File ID | Delivered in file | CSV report type | Replaced by |
|---|---|---|---|---|
| MARKETSUSREGION | MARKETSUSPENSION | *_FORCE_MAJEURE_*.CSV | FORCE_MAJEURE,MARKETSUSREGION,1 | FORCE_MAJEURE,MARKET_SUSPEND_REGION,1 |
| MARKETSUSPENSION | MARKETSUSPENSION | *_FORCE_MAJEURE_*.CSV | FORCE_MAJEURE,MARKETSUSPENSION,1 | FORCE_MAJEURE,MARKET_SUSPEND,1 |
| N/A | MARKETSUSPENSION PRICES | *_MKTSUSP_PRICES_*.CSV | MKTSUSP_PRICES,DATESAPPLICABLE,1 MKTSUSP_PRICES,WEEKLY,1 | FORCE_MAJEURE,MARKET_SUSPEND_SCHEDULE_TRK,1 FORCE_MAJEURE, MARKET_SUSPEND_SCHEDULE,1 |

## Non-Data Model reports

This non-Data Model report contains a field called **EFFECTIVEDATETO** that AEMO cannot support with confidence because it is the expected date of the supersedure not the guaranteed date. AEMO publishes this file for reference only so it is replaced in this Release rather than discontinued.

| | |
|---|---|
| File ID | MarketSuspensionPrices |
| Description | Public Automation Generation of Market Suspension Prices |
| Visibility | Public |
| Report type | csv |

| NEMweb location | aemo.com.au/Market Notices/Market Suspension |
| --- | --- |
| Replaced by | MarketSuspensionPrices (only the data inside the file changes, the file name remains the same. |

## 2.6 Gas Data Model 1.4

### 2.6.1 GAS_SUPPLY_HUB

Gas Supply Hub markets reports to provide participants with information on their trades, prudential exposure, settlement runs, and registration details

The GAS_SUPPLY_HUB package changes due to the P1209 – Security Deposit Calculation project.

### New table: GSH_SECDEPOSIT_INTEREST_RATE

| Comment | The Security Deposit Interest Rate On Daily Basis. This is the public table published when a new floating daily interest rate is entered and authorised. |
| --- | --- |
| Visibility | PUBLIC |
| Trigger | Upon entering and authorising Security Deposit Interest Rate |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\GSH\REPORTS |
| Primary key | INTEREST_ACCT_ID + EFFECTIVEDATE + VERSION_DATETIME |

### New columns: GSH_SECDEPOSIT_INTEREST_RATE

| Name | Data type | Null | Comment |
| --- | --- | --- | --- |
| INTEREST_ACCT_ID | VARCHAR2(20) | No | The Interest Account Id for calculating the Interest Payment. This is NULL if the INTEREST_CALC_TYPE = FIXED |

| Name | Data type | Null | Comment |
|------|-----------|------|---------|
| EFFECTIVEDATE | DATETIME | No | The Effective Date of the Interest Rate Change |
| VERSION_DATETIME | DATETIME | No | The Version Date time of the Effective Date for the Interest Rate Change |
| INTEREST_RATE | NUMBER(18,8) | Yes | The Interest Rate for the Interest Account ID as on the Effective Date |

## Modified table: GSH_PRD_SECURITY_DEPOSITS

| | |
|---|---|
| Comment | Gas Supply Hub Prudential Exposure Details |
| Visibility | PRIVATE |
| Trigger | 1 am daily |
| Participant file share location | <#INTRFACE>\<#PARTICIPANTID>\IMPORT\GSH\REPORTS |
| Primary key | ORGANISATION_CODE + PARTICIPANT_CODE + PRUDENTIAL_DATETIME + PRUDENTIAL_RUN_ID + SECURITY_DEPOSIT_ID |

## Added columns: GSH_PRD_SECURITY_DEPOSITS

| Name | Data type | Null | Comment |
|------|-----------|------|---------|
| INTEREST_CALC_TYPE | VARCHAR2(20) | Yes | Fixed or daily. |
| INTEREST_ACCT_ID | VARCHAR2(20) | Yes | The Interest Account ID for calculating the Interest Payment. This is NULL if the INTEREST_CALC_TYPE = FIXED |

**Participant interface changes**

| Data Model table | File ID | CSV report type | Change |
|---|---|---|---|
| GSH_PRD_SECURITY_DEPOSITS | GSH_PRUDENTIAL_EXPOSURE | GSH_PRUDENTIAL,SECURITY_DEPOSITS,2 | Modified |
| GSH_SECDEPOSIT_INTEREST_RATE | GSH_SECDEPOSIT_INTEREST_RATE | GSH, SECDEPOSIT_INTEREST_RATE, 1 | Added |

**File interface changes**

| File ID | Description | Batcher file masks | Frequency | Change | Data Model | Auto-subscription |
|---|---|---|---|---|---|---|
| GSH_PRUDENTIAL_EXPOSURE | Gas Supply Hub prudential exposure details | *_ PRUDENTIALEXPOSURE _*.CSV | 1:00 am each morning | Modified reports | No | No |
| GSH_SECDEPOSIT_INTEREST_RATE | The security deposit interest rate on a daily basis. This is the public table published when a new floating daily interest rate is entered and authorised. | *_ SECDEPOSIT_INTEREST_RATE_*.CSV | Upon entering and authorising the security deposit interest rate | New | Yes | Yes |

**Discontinued reports**

None for the Gas Supply Hub package.

## 2.7  Non-functional changes

None for this Release.

## 2.8 How to apply a Data Model upgrade
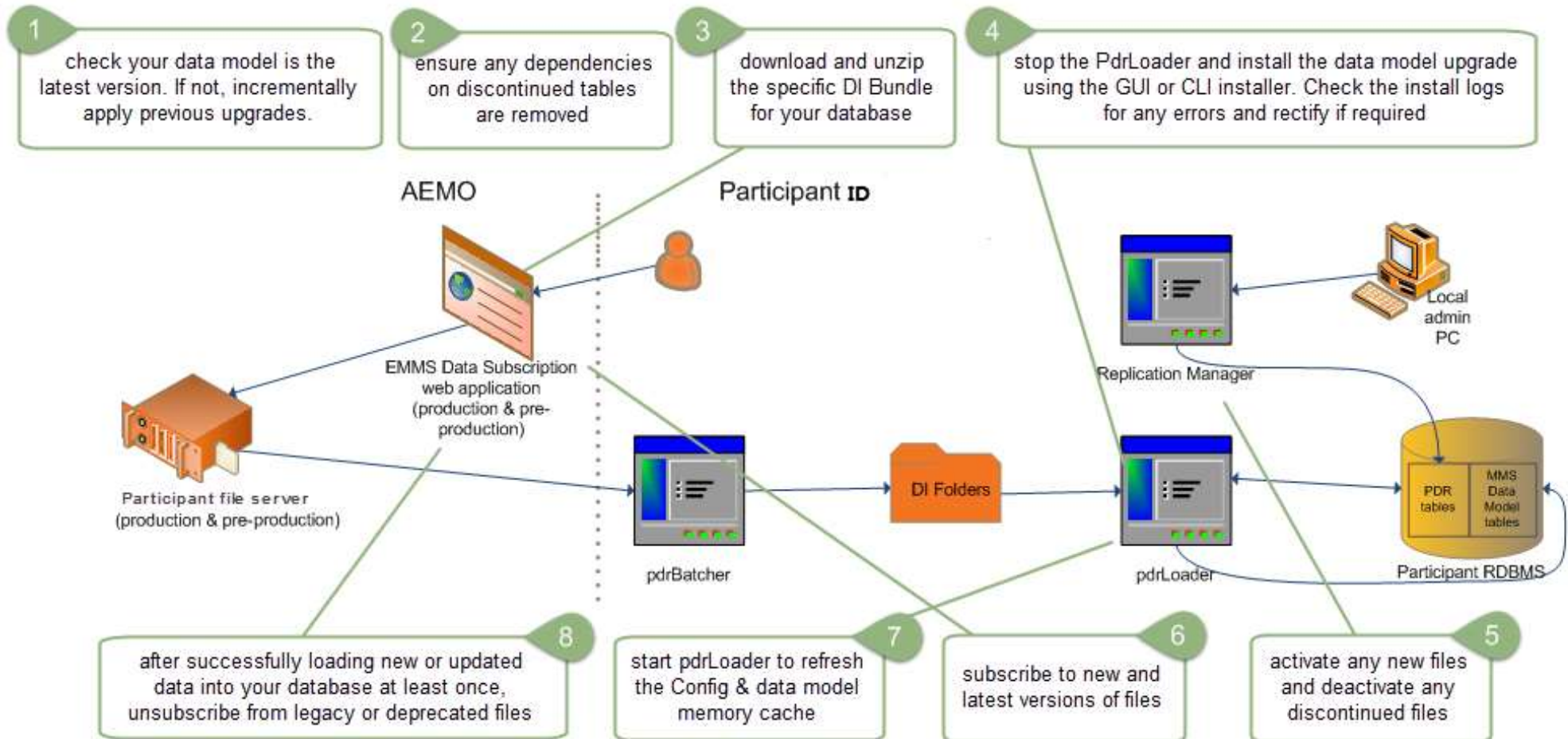
# 3 BASELINE ASSUMPTIONS

AEMO works to the assumption that participants' systems are compliant with the minimum supported configuration of the following software and systems.

## 3.1 Software

The current software versions are:

|  | Current version | Release | Still supported |
|---|---|---|---|
| Web Services | 1.04 | June 2013 | n/a |
| Java | 7 | n/a | n/a |
| Windows service | 64 bit JRE | n/a | 32 bit JRE |

## 3.2 Data Interchange

The current DI software versions are:

|  | Current version | Still supported |
|---|---|---|
| Electricity Data Model | 4.27 | 4.26 |
| Gas Data Model | 1.4 | 1.3 |
| PDR Loader | 7.3 | 7.3 |
| PDR Batcher | 7.3 | 7.3 |
| Replication Manager | v3.0.16 | v3.0.16 |

## 3.3 Database management systems

Oracle 10g platform installs are unsupported. AEMO encourages participants to upgrade to 12c or 11g to remain on a supported Oracle platform.

**AEMO discontinues version 2008 of Microsoft SQL Server in this Release. The new current version is 2014.**

| | Current | Still supported |
|---|---|---|
| Microsoft SQL Server | 2014 | 2012 |
| Oracle | 12c | 11g |

# 4 IMPLEMENTATION

## 4.1 Approval or agreement to change

This Release Schedule is for Information only. AEMO sought approval to proceed in EMMS Release Schedule – October and November 2017 v1.00.

## 4.2 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 to ensure they are up-to-date. AEMO recommends participants' wholesale market systems are compliant with the latest Data Interchange software versions; see Baseline Assumptions on page 69.

- Schedule staff and resources to upgrade their market systems for the production implementation of this Release.

- If participants have a system dependency on the formats of the non-Electricity or -Gas Data Model reports they need to manage these dependencies using the detail provided in this technical specification.

## 4.3 After deployment of this Release

- To receive the new data in the modified packages and tables, participants must upgrade their data models to electricity 4.27 or gas 1.4.

- Once upgraded, and the new data is received, you can unsubscribe from the Legacy files.

- AEMO automatically moves participants' subscriptions to the Legacy file. This ensures participants on Data Model versions: electricity 4.26 or gas 1.3, subscribed to files that change, will continue to receive the same data.

- Participants on Data Model versions: electricity 4.25, gas 1.2 or earlier remain on any subscribed Legacy files but may receive different content if the Legacy file content has changed.

## 4.4 What happens if I do not upgrade?

Participants who do not upgrade will not receive the following new Data Model reports when they become available:

- MTPASA

- Helios – Phase 2 ASEFS

- NEM Shortfall Calculation

- Security Deposit Calculation

- Automation of Market Suspension Pricing

Not upgrading may also 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.

# 5 GLOSSARY

| Abbreviation | Explanation |
|---|---|
| ASEFS | Australian Solar Energy Forecasting System |
| csv | Comma-separated values; A plain text file format with fields separated by a comma or some other character. |
| Data Interchange (DI) | The set of cooperating applications to replicate data between AEMO's Wholesale Market Systems and a participant's RDBMS conforming to the Electricity and/or Gas Data Models. |
| Data Model | Refers to the Electricity or Gas Data Models, which is the definition of the interface to participants for data published by AEMO. |
| DBMS | Database Management System |
| DSP | Demand Side Participation: Information *Registered Participants* must provide to *AEMO*. For more information, see the Demand side participation information guidelines in the NER, clause 3.7D. |
| LOR | Loss of Reserve |
| Markets Portal | AEMO's web-based wholesale market management system. |
| MTPASA | Medium Term PASA |
| MW | Megawatt |
| NEMweb | Public market data in csv file format: http://www.nemweb.com.au/ |
| NER | National Electricity Rules |
| PASA | Projected Assessment of System Availability |
| PD | Pre-dispatch |
| Release | EMMS October and November Releases 2017. |
| Reliability Standard | The minimum acceptable reliability target that the NEM should achieve. The reliability standard is set out in Rules clause 3.9.3 C. |
| Unserved Energy (USE) | Load not met due to insufficient bulk supply or transmission. |

# Appendix A    AEMO website visualisations for MTPASA

> **The visualisations in this section are examples only; the final designs may change. The data used in the graphs is not real modelling data.**

### A.1.    Estimated Unserved Energy and Indication of whether the reliability standard can be met

Provides an overall indication of whether the reliability standard in each region will be met, based on the modelling results.

If a bar in the chart is above the reliability standard line, it flags a **low reserve condition** for that particular region.
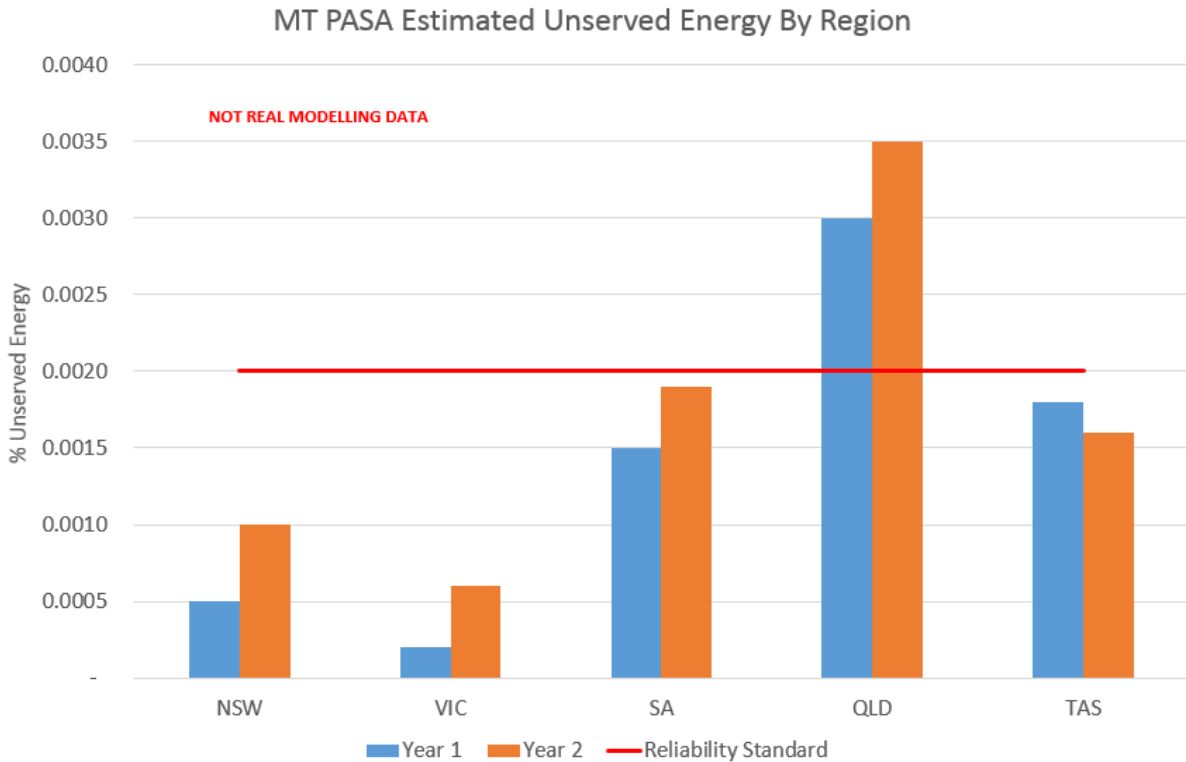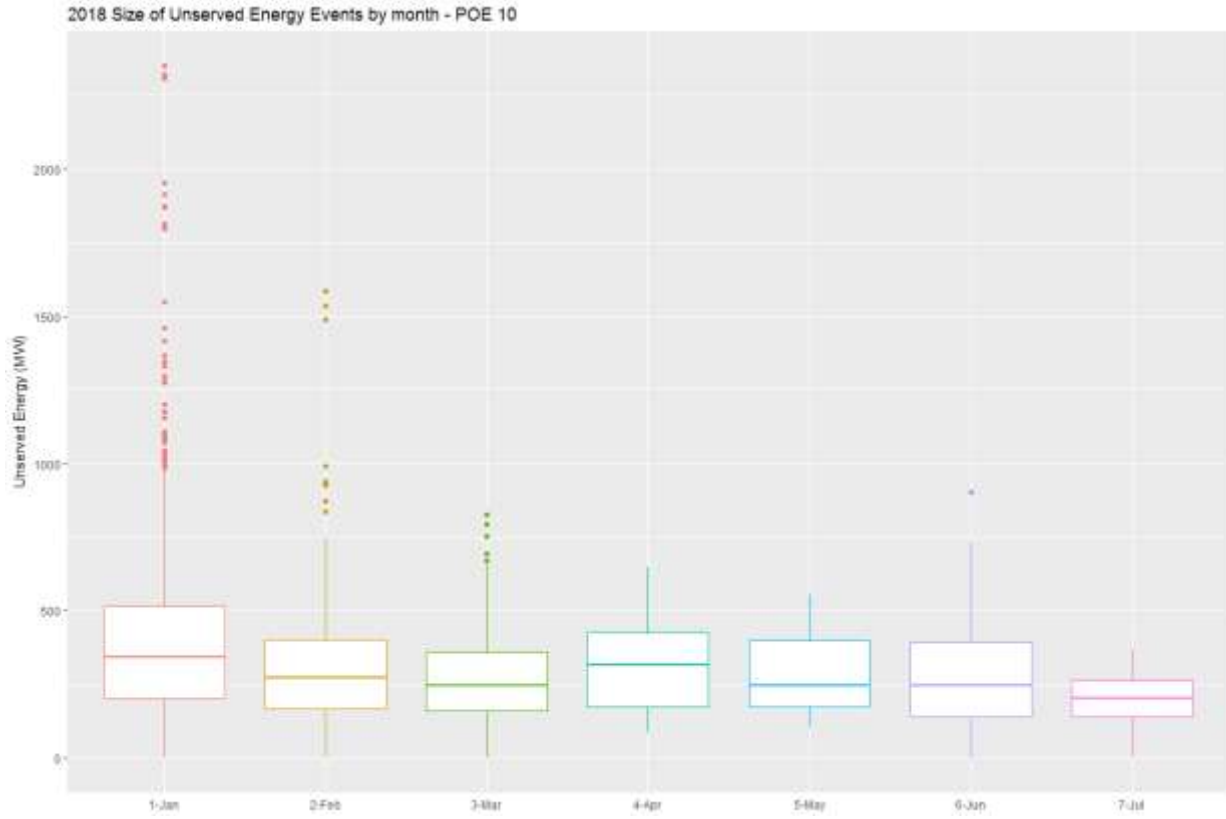
### A.2.    Distribution of Unserved Energy

Shows the distribution of unserved energy over each year in each region for each POE demand level.
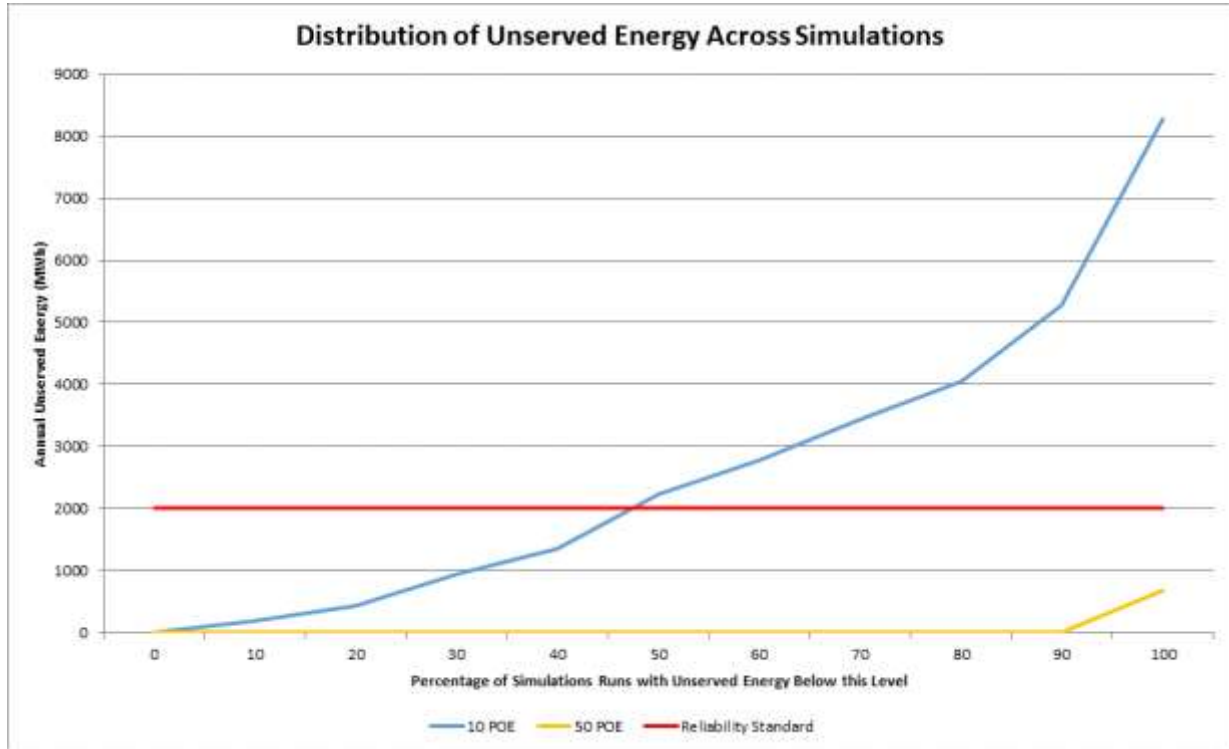
### A.3. Unserved Energy by Month

Displays the distribution of unserved energy events in each month of the year.



2018 Size of Unserved Energy Events by month - POE 10

### A.4. Severity and Frequency of Unserved Energy

Shows the frequency and severity of unserved energy occurring in each simulation. For each simulation, the number of half hours with unserved energy and the average amount of unserved energy is calculated.



2018 Severity and Frequency of Unserved Energy in Region X
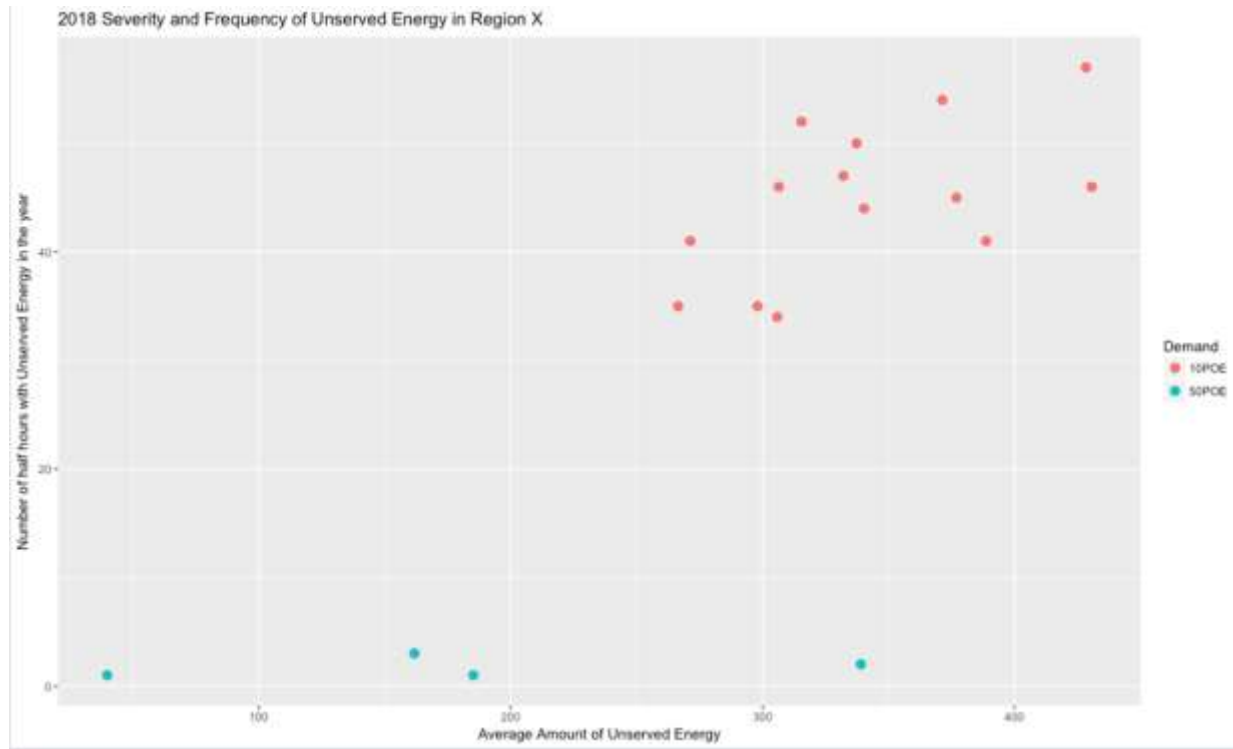
## A.5. LOLP Model Run output

Provides an indication of the best time to schedule maintenance.
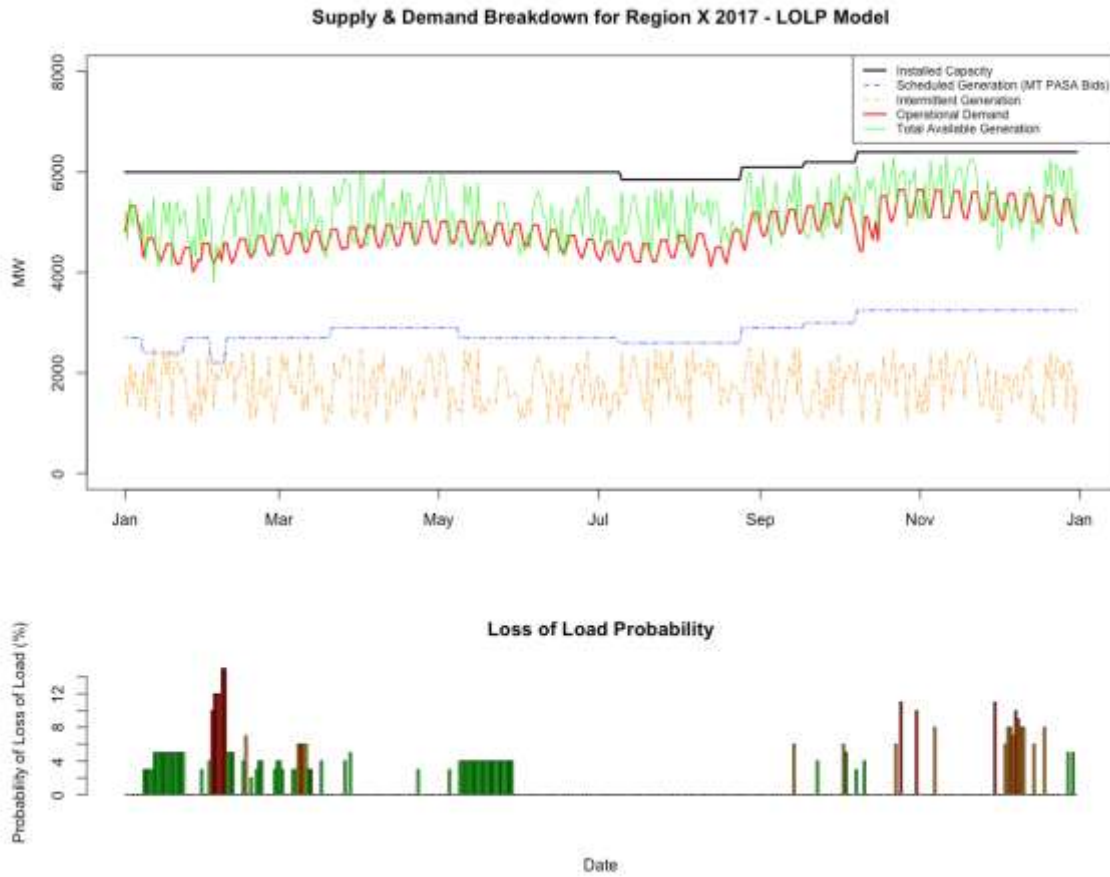
## A.6.       Interconnector Capacity

Provides high value information on the average interconnector capacity (includes network outages) across different iterations.