
EMMS Technical Specification – 5MS and GS – Settlements and Billing

4.02 October 2020

Release series: EMMS521

Important Notice

PURPOSE & AUDIENCE

This document describes the technical changes required to participant's systems for the Five-Minute and Global Settlement (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**.
- Rules terms defined in the NER are listed in the Rules Terms section.

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VERSION HISTORY

4.02 Includes participant feedback and updates dates as per latest AEMC ruling.

DOCUMENTS MADE OBSOLETE

The release of this document changes only the version of EMMS Technical Specification – 5MS and GS – Settlements and Billing.

SUPPORT HUB

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

FEEDBACK

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

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1 Introduction

The EMMS Technical Specification – 5MS and GS – Settlements and Billing Release includes changes related to participants' IT systems. The technical specification describes the projects planned by AEMO from a participant perspective.

1.1 Status

This is a draft technical specification for participant feedback. The design may change in the final version. Please send feedback to 5ms@aemo.com.au.

Participants can discuss the changes in this version in the upcoming Software Working Group (SWG) meeting. For SWG meeting dates, see the 5MS Calendar: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement>.

Version	Status
4.02	Participants can commence their system builds but changes are still imminent due to participant feedback
4.01	Participants can commence their system builds but changes are still imminent due to participant feedback
3.00	Participants can commence their system builds but changes are still imminent due to participant feedback
2.00	Participants can commence their system builds but changes are still imminent due to participant feedback
1.00	Participants can commence their system builds but changes are still imminent due to participant feedback
0.02	Initial draft for review

1.2 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.

Changes are detailed below.

1.3 Changes in this version

Updates the commencement of the 5MS rule change and the commencement of financial settlement of Global Settlement dates as per AEMC's latest ruling. For more details, see [Five Minute Settlement and Global Settlement](#).

1.4 Background

This section details the 5MS changes to the Settlements and AEMO's real-time operational systems.

1.4.1 Global Settlement (GS)

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

On 6 December 2018, the AEMC made a final rule requiring a move to a Global Settlement framework for the demand side of the wholesale electricity market.

The AEMC made this rule for the following key reasons:

- Improved transparency, leading to fewer settlement disputes and lower levels of Unaccounted for Energy (UFE) over time.
- Competition on equal terms.
- Improved risk allocation driving enhanced incentives.

1.4.2 Five Minute Settlement (5MS)

On 28 November 2017, the AEMC made a final rule to alter the trading interval for the wholesale electricity Spot Market from 30 minutes to five minutes for pricing. The changes are effective from the commencement of the 5MS rule change date.

The AEMC determined the five-minute settlement provides a better price signal for investment in fast response technologies, such as batteries, new gas peaking Generation, and demand response. The alignment of the operational dispatch and financial settlement periods lead to more efficient bidding, operational decisions, and investment.

The 5MS updates are divided into different workstreams based on functionality as follows:

- Dispatch and Bidding
- Retail and Metering
- Settlements

For more information, see the [5MS Systems High-Level Impact Assessment \(HLIA\) document](#)

1.5 Audience

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

1.6 Project List

The Five-Minute and Global Settlement (Release) includes the following projects:

- Settlements Overview
- Global Settlements
- Publishing Direct API Design
- Electricity Data Model 5.00

1.7 Proposed timeline

For the schedule and the Program timeline, see the [Five Minute Settlement and Global Settlement](#) page on the AEMO website.

1.8 Approval to change

The changes are continually discussed and updated as a part of the 5MS Systems Working Group and other 5MS Consulting Forum meetings. There is no approval to change required from participant change controllers at this time.

Amendments to the Rules regarding five-minute settlements are published on the AEMC website: [National Electricity Amendment \(Five-minute settlement rule\) 2017](#).

Amendments to the Rules regarding Global Settlements are published on the AEMC website: [National Electricity Amendment \(Global Settlement and Market Reconciliation\) 2018](#).

2 Milestones

2.1 Revised technical specification

Published as required with further details of the changes to assist IT staff with their own technical implementation.

2.2 Systems working group (SWG)

For details about the SWG, see <https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Systems-Workstream/Systems-Working-Group>.

For SWG meeting dates, see the 5MS Calendar: <https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement>.

2.3 5MS staging environment

Status	Details
16 March 2020	<p>https://portal.5ms.staging.test.marketnet.net.au/</p> <p>AEMO implements components of the Release in stages. Participant access is not restricted; however, the data content or system availability is not guaranteed.</p> <p>For more details, see https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Systems-Workstream/Staging-Environment</p> <p>For a weekly breakdown of the Staging activity for Settlements and Billing, see Weekly Planned Tests in 5MS Staging .</p>

2.4 Data model v 5.00 scripts and pdrConfig release

Status	Details
<p>Staging 16 March 2020: Data Model changes.</p> <p>Pre-production: For details, see the Program Timeline on AEMO's website.</p> <p>Production: For details, see the Program Timeline on AEMO's website.</p>	<p>Release of Data Model scripts for Data Interchange environments.</p> <p>Please only apply these scripts to your staging environment until further notice.</p> <p>Script and pdrConfig location: Participant File Server > Releases > MMS Data Model > 5MSStaging > v5.0.0</p> <p>Instructions for applying the scripts are in the readme.txt and the Data Model Installation Note</p> <p>For details about Data Interchange and the Data Model, see Data Interchange Framework and Glossary.</p>

2.5 APIs and JSON schemas

Status	Details
<p>Available for use in the staging environment over the Internet gateway only.</p> <p>The work to submit APIs via MarketNet is still in progress. We will advise when participants can test APIs in the staging environment over MarketNet.</p>	<p>For API e-Hub access details, see API access on page 7.</p> <p>Participant IP addresses for the staging environment require whitelisting by AEMO. For help, see page 7.</p>

2.6 Pre-production refresh

Status	Details
<p>Friday 15 May 2020 9:00 am – 28 May 2020 10:00 am</p>	<p>This is an MSATS CATS and MDM pre-production refresh only. The MSATS pre-production environment is unavailable for the duration of the refresh.</p> <p>EMMS, NOS, OPDMS, and User Rights Management (URM) systems are not affected. User accounts, passwords, and privileges remain the same.</p>

2.7 Pre-production implementation

Status	Details
<p>1 week before the pre-production release</p>	<p>AEMO implements components of the Release to pre-production for participant testing.</p> <p>AEMO has full access to the system during this period.</p> <p>Participant access is not restricted; however, the data content or system availability is not guaranteed.</p>

2.8 Pre-production release

Status	Details
<p>For details, see the Program Timeline on AEMO's website.</p>	<p>Pre-production systems available to participants.</p> <p>The Readiness Working Group (RWG) provides these dates as they are confirmed.</p> <p>https://portal.preprod.nemnet.net.au</p>

2.9 Production implementation

Status	Details
<p>1 week before the production release</p>	<p>AEMO implements components of the Release to production.</p>

2.10 Production release

Status	Details
For details, see Program Timeline on AEMO's website .	Production systems available to participants. The Readiness Working Group (RWG), provides these dates as they are confirmed. https://portal.prod.nemnet.net.au

3 Weekly Planned Tests in 5MS Staging

This chapter details what the participants can expect for Settlements and Billing Staging release on a weekly basis.

3.1 Assumptions

For the staging release, AEMO assumes the following:

- Input data for each settlement, billing run uses production data where possible, with some provisions.
- 5-minute metering data is derived by profiling 30-minute data, using a regional scaling factor calculated from Dispatch results.
- UFE data is **artificially generated** using a random number generator. The generated UFE values are only used to demonstrate system capability and not for any other purpose. Any resemblance to actual UFE values is purely coincidental.
- Due to the use of production metering data, where transmission vs. distribution connected points are not distinguished, DME and therefore UFEA applies to all customer connection points.
- By default, participants are subscribed to the legacy versions of Settlements and Billing Data Model packages.
- Participants must use the Data Interchange portal in the staging environment to subscribe to the updated Data Model packages.
- Directions Compensation and NMAS settlements is not available initially.
- APC and RERT settlements are not exercised in the staging environment.
- Settlements Direct in the staging environment initially uses the production version, transitioning to the 5MS version in May in-line with the Prudentials staging release.

Global Settlements planning for the staging environment is currently underway.

3.2 Weekly planned tests in 5MS staging

Release Week	Date	Staging activity	What Participants receive (at minimum)
Week 1	16 March – 20 March	30-minute Preliminary 2019Wk24	<ul style="list-style-type: none"> • 2019Wk24 Preliminary SR • 2019Wk24 Preliminary SRR (TNSP's) • 2019Wk24 Preliminary MSR • 2019Wk24 Preliminary RSR • 2019Wk24 Non-Final SS • 2019Wk24 Preliminary Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Access to statements and invoices through Settlements Direct (production version)
Week 2	23 March – 27 March	30-minute Finals 2019Wk25 and 2019Wk24	<ul style="list-style-type: none"> • 2019Wk25 Final SR • 2019Wk25 Final SRR (TNSP's) • 2019Wk25 Final MSR • 2019Wk25 Final RSR • 2019Wk25 Final SS or Tax Invoice or RCTI • 2019Wk25 Final Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Access to statements and invoices through Settlements Direct
			<ul style="list-style-type: none"> • 2019Wk24 Final SR • 2019Wk24 Final SRR (TNSP's) • 2019Wk24 Final SS or Tax Invoice or RCTI • 2019Wk24 Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Access to statements and invoices through Settlements Direct
Week 3	30 March – 3 April	30-minute Revision 1 2019Wk25	<ul style="list-style-type: none"> • 2019Wk25 Revision SR • 2019Wk25 Revision SRR (TNSP's) • 2019Wk25 Revision SS or Adjustment Note or RC Adjustment Note • 2019Wk25 Revision Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Access to statements and invoices through Settlements Direct

Weekly Planned Tests in 5MS Staging

Release Week	Date	Staging activity	What Participants receive (at minimum)
Week 4	6 April – 10 April	30-minute Revision 2 2019Wk16	<ul style="list-style-type: none"> • 2019Wk16 Revision SR • 2019Wk16 Revision SRR (TNSP's) • 2019Wk16 Revision SS or Adjustment Note or RC Adjustment Note • 2019Wk16 Revision Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Access to statements and invoices through Settlements Direct
Week 5-11	13 April – 29 May	Participant engagement to review the 30-minute Settlements staging activity.	
Week 12	1 June – 5 June	30-minute to 5-minute transition Preliminary 2020Wk14 Nominated cutover date is 01/04/2020 – 3 days at 30-minute TI, 4 days at 5-minute TI	<ul style="list-style-type: none"> • 5-minute trading data for all settlement days >= cutover date • 2020Wk14 Preliminary SR • 2020Wk14 Preliminary SRR (TNSP's) • 2020Wk14 Preliminary MSR • 2020Wk14 Preliminary RSR • 2020Wk14 Non-Final SS • 2020Wk14 Preliminary Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Settlement results including non-financial settlement of UFE (for settlement days >= cutover date) • Access to statements and invoices through Settlements Direct (production version)

UFE data is artificially generated using a random number generator. The generated UFE values are only used to demonstrate system capability and not for any other purpose.

Weekly Planned Tests in 5MS Staging

Release Week	Date	Staging activity	What Participants receive (at minimum)
Week 13	8 June – 12 June	Full 5-minute week Preliminary 2020Wk15	<ul style="list-style-type: none"> • 5-minute wholesale metering data for all settlement days \geq cutover date • 5-minute trading data for all settlement days \geq cutover date • 2020Wk15 Preliminary SR • 2020Wk15 Preliminary SRR (TNSP's) • 2020Wk15 Preliminary MSR • 2020Wk15 Preliminary RSR • 2020Wk15 Non-Final SS • 2020Wk15 Preliminary Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Settlement results including non-financial settlement of UFE (for all settlement days in the week) • Access to statements and invoices through Settlements Direct (production version)
Week 14	15 June – 19 June	30-minute to 5-minute transition week Final 2020Wk14	<ul style="list-style-type: none"> • 5-minute wholesale metering data for all settlement days \geq cutover date • 5-minute trading data for all settlement days \geq cutover date • 2020Wk14 Final SR • 2020Wk14 Final SRR (TNSP's) • 2020Wk14 Final MSR • 2020Wk14 Final RSR • 2020Wk14 Final SS or Tax Invoice or RCTI • 2020Wk14 Final Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • UFE and Local Area / TNI mappings for all settlement days \geq cutover date • Settlement results including non-financial settlement of UFE for all settlement days \geq cutover date • Access to statements and invoices through Settlements Direct (production version)

Weekly Planned Tests in 5MS Staging

Release Week	Date	Staging activity	What Participants receive (at minimum)
Week 15	22 June – 26 June	Full 5-minute week Final 2020Wk15	<ul style="list-style-type: none"> • 5-minute wholesale metering data for all settlement days in the week • 5-minute trading data for all settlement days in the week • 2020Wk15 Final SR • 2020Wk15 Final SRR (TNSP's) • 2020Wk15 Final MSR • 2020Wk15 Final RSR • 2020Wk15 Final SS or Tax Invoice or RCTI • 2020Wk15 Final Data Interchange (SETTLEMENT_DATA, BILLING_RUN, METER_DATA) • Settlement results including non-financial settlement of UFE (for all settlement days in the week) • Access to statements/invoices through Settlements Direct (production version)

Global Settlements planning for the staging environment is currently underway.

4 Settlements Overview

The Settlements system is part of the Electricity Market Management System that depends on information from Registration and Dispatch systems and calculates amounts owing to or owned by each party including AEMO.

This document details the 5MS and GS changes to the Settlements stream.

4.1 Settlements stream

The Settlements stream includes Settlements, Billing, Invoicing, Reallocations, and Prudentials. This version of the document focuses on the updates to the Settlements and Billing packages.

From the commencement of the 5MS rule change date, the following services are impacted:

- Transactions are calculated every five minutes.
- Settlement estimation calculates energy transactions every five minutes.
- The inter-regional and intra-regional residue surplus are calculated on a five-minute basis.
- Several non-energy transactions, such as market Ancillary Services (such as FCAS) are completed using five-minute energy volumes.

4.2 Settlements

AEMO settles the NEM in a 30-minute resolution.

From the commencement of the 5MS rule change date, AEMO processes data based on five-minute data (both energy and price). AEMO publishes the Settlement reconciliation data at the same resolution as the associated settlement run.

4.3 Billing

Billing aggregates all settlement days in a Billing Period, calculates GST, interest and other Billing items.

With five-minute settlements, Billing executes aggregation of both 5-minute and 30-minute settlement amounts. There are format changes to the statements to apply to both line items and GST amounts.

- Billing handles both 30-minute and five-minute data processed across different settlement runs within the Billing week of the commencement of the 5MS rule change date (transitional week).
- Transitional Week:

- Produce Settlements Run Report as per the current process.
- Produce PDF Tax Invoice as per the current process
- Data tables in Data Interchange can be utilised to identify five-minutes vs 30 minutes.

4.4 Mandatory Restrictions compensation calculation

Mandatory Restrictions are a means to control the electricity supply in a region in times of extreme scarcity. The Settlements and Billing systems no longer include Mandatory Restrictions. If necessary, it is calculated manually and included in the statements as a part of the Revision Adjustment. With the five-minute settlements, the Mandatory Restrictions are removed from EMMS.

4.5 Settlements Data Interchange

With the five-minute settlements, the definition of PeriodID changes from 30 minutes (1 to 48) to five minutes (1 to 288).

- Data interchange prior to the commencement of the 5MS rule change date retains a 30-minute PeriodID. The 'Settlement Interval Length' column in the DAYTRACK table of the SETTLEMENT_DATA package determines the granularity.
- Additional indicators are added for 'interval length' to specify the length of an interval in each settlement run.
- A new version of the Electricity data model for 5MS. This will be an optional upgrade as the data model is backwards compatible with the existing 'legacy' version.
- All Settlements results tables in Data Interchange have the two columns (SettlementDate/SettlementRunNo.) as the first elements of the primary key.
- Participants can use 'Interval Length' to compare historical data and with both formats (five-minute and 30-minute).
- Data Model tables containing Mandatory Restrictions (MR) and Smelter Reductions are removed from the Data Interchange. For the list of related tables, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#).

4.6 Invoicing

With five-minute settlements, a new flexible invoicing system is available to the market participants. The PDF statement filename structure will remain the same as before:
<PARTICIPANTID>_<REPORTNAME>_<BILLINGWEEKSTARTDATE>.RNN

Where:

- Participant ID
- Report Name for example, for a Preliminary summary statement, the report name is PDFNONFINALSS

- Billing week start date in the format YYYYMMDD
- Bill run number

The following image shows the new invoice:

The screenshot displays an AEMO invoice interface. At the top left is the AEMO logo. Below it, there are fields for 'Reference:' and 'MSATS Case ID:'. To the right, a '<Statement Type>' dropdown menu is visible. Further right, a red box contains contact information: 'Enquiries 1300 361 011', 'Statement Date 06 Nov 2018', and 'Statement Total \$'. Below these fields are input boxes for '<Participant Name>', 'ABN:', and '<Participant Address>'. The main section is titled 'Summary of NEM Transactions for Week 25: 17 Jun 2018 - 23 Jun 2018'. It features a table with two columns: 'Description' and '\$'. The table lists various transaction types such as Energy, Ancillary Services, Settlement Residue Auction, Market Fess, TNSP Residue, Security Deposits, Reallocation, Revision Adjustment, Revision Interest, Early Payment Interest, Other, GST, and Reassignment, each followed by a greyed-out amount field. At the bottom of the table is a 'Total' row. Below the table, there is a link for 'Notes to the statement'.

For 5MS, Smelter reduction and Mandatory Restrictions are no longer displayed in the 'Summary of the NEM Transactions' or 'Detailed Transactions' section of any invoice statement. If Mandatory Restrictions component exists, it is calculated manually and included in the statements as a part of the Revision Adjustment.

4.7 Settlement Reports

The NEM Billing system generates the Settlement report in a text file format. With the five-minute settlements, the Billing system includes new DME, UFEA columns in the Settlement report at Transmission Node Identifier (TNI) level. The updated SR report includes new columns as shown below:

SETTLEMENT REPORT						
REPORT FOR [REDACTED]						
REVISION 1 Settlements ref [REDACTED]						
MSATS CASEID: [REDACTED]						
09-Sep-2018 to 15-Sep-2018			Week No 37			
Energy Transactions						
		Aggregate	Trading			
		Energy (MWh)	Amount (\$)			

Total Sales		[REDACTED]	[REDACTED]			
Total Purchases		[REDACTED]	[REDACTED]			

Nett Sales (Purchases)		[REDACTED]	[REDACTED]			

Sales (Purchases) by Transmission Connection Point						
Transmission Node	Description	Trading Amount (\$)	Load Wtd Avg. Price (\$/MWh)	Aggregate Energy (MWh)	DME (MWh)	UFEA (MWh)

The new columns are available from the commencement of the 5MS rule change date. Adjusted Gross Energy (AGE) is available in the Aggregated Energy column and moved from after Description to before DME (MWh). This does not include Unaccounted for Energy (UFE) between the commencement of the 5MS rule change date and the commencement of financial settlement of Global Settlement date.

The new SR Reports removes the following sections:

- Metered Data Agent column in the 'Sales (Purchases) by Transmission Connection Point'
- Mandatory Restrictions
- Smelter Reduction

4.8 Retention period in Settlements Direct

The retention period in Settlements Direct will gradually be extended to three years for the following categories:

- NEM Statements & Correspondence
- QldGas Statements & Correspondence
- SRA Statements & Correspondence
- STTM Statements & Correspondence
- VicGas Statements & Correspondence

The older files will not be back populated. A gradual build-up of the publication retention will take approximately 30 months for a full three-year retention.

4.9 NEM Reports

Due to updates to AEMO's internal systems, the Data Interchange reports for Settlements and Billing display values up to eight decimal places. When the data loads into the participant database table, it truncates, or rounds based on the column definition in the participant database. For example, in the ASPAYMENTS_SUMMARY report, if the value is 200.00123456. In the BILLINGASPAYMENTS table, if the column is defined to 5 decimal places, 200.00124 displays.

4.9.1 Direction Compensation Recovery Amount reports

The Direction Compensation Recovery Amount (CRA) report displays the CRA breakdown amounts by participant category and region ID. With the 5MS Settlements release, this report changes from Excel to CSV file format and is triggered by the posting of a Settlement Statement which includes a direction. The new reports are produced and published on <http://www.nemweb.com.au/#directions-reconciliation> when a Billing run is posted.

The filename convention for the new files are as follows:

- PUBLIC_BILLING_DIRECT_PROV_CRA_SPLIT_CAT_REG_<BillingWeek>_<Datetime>. CSV – produced when a PRELIM/FINAL run is posted.
- PUBLIC_BILLING_DIRECT_FINAL_CRA_SPLIT_CAT_REG_<BillingWeek>_<Datetime>. CSV – produced when a REVISE run is posted.

Currently, a separate file is produced for each Direction ID. With the new updates, a single file is produced with all Directions in the week.

4.10 Publishing Direct APIs - Summary

Function Name	Description
getContacts	Retrieve a list of all configured contacts for a participant
getCalendars	Retrieve a list of calendars for the supplied business process name
getDeliveryChannels	Retrieve a list of supported notification channels
getDeliveryLogEntries	Retrieve a log of delivered files and notifications
getPublishingCategories	Retrieve a list of supported publishing categories
getPublishingTypes	Retrieve a list of supported publishing types
getPublishingPeriodClasses	Retrieve a list of supported publishing period classes
getPublishingPeriodInstances	Retrieve a list of period instances for the supplied publishing type and period class
getAvailableFiles	Retrieve a list of files available for publishing
getUserSubscriptions	Retrieve a list of current user subscriptions
publishFiles	Publish a set of requested files via the chosen publication method
downloadFiles	Directly download a set of requested files
updateUserSubscriptions	Update subscriptions for one or more users

For detailed information on the APIs, see Publishing Direct API Design.

5 Global Settlements

This section describes the updates for Global Settlements.

5.1 Global Settlements

Global Settlements changes how the unaccounted-for energy (UFE) is calculated and allocated. Currently, based on the total energy consumed in a network, the UFE for a local area is apportioned to participants responsible at the Transmission Connection Point (TCP).

With GS, the UFE is now assigned to each participant in the Distribution Network based on the energy they consume. To facilitate allocation of UFE, from the commencement of the 5MS rule change date, meter data providers (MDPs) provide AEMO Metering Data for all participants and notify AEMO of the consumption of metered loads.

AEMO reports UFE calculation from the commencement of the 5MS rule change date and applies it to AGE calculations from the commencement of financial settlement of Global Settlement date.

5.2 AEMO reports on UFE

In order to comply with the Rules for reporting the UFE, AEMO creates the following reports in the Data interchange as csv files:

5.2.1 Settlement data extract file

UFE information is added to the confidential settlement data extract file. The settlement data extract file is available as a csv file or on the Data Interchange in the SETCPDATA table. This report now includes the following additional data for each settlement run number, market participant, settlement day, trading interval, and TNI:

- Local Area ID is the geographical area allocated to a Network Service Provider by the authority responsible for administering the Jurisdictional Electricity Legislation in the relevant Participating Jurisdiction.
- DME in MWh is the amount represented by $(ME- * DLF)$ for a Connection Point and Trading Interval where:
 - ME- is the amount of electrical energy in MWh flowing at the Connection Point in the trading interval (where the flow is away from the Transmission Network Connection Point to which the Connection Point is assigned)
 - DLF is the Distribution Loss Factor applicable at the market Connection Point.

For detailed definitions of the terms, see [NER Rules: Global Settlements and Market Reconciliation](#).

- UFEA in MWh is the allocation of Unaccounted for Energy for a relevant TNI and Trading Interval.
- AGE is the Adjusted Gross Energy in MWh which includes UFEA.

For entries in the SETCPDATA table, the UFE value is published and will contain a value of ZERO (rather than null) if the participant has energy at the TNI but is not subject to allocation of UFE.

This report is private meaning participants only have access to their data.

5.2.2 Local Area UFE Data Extract file

A new data extract report titled Local Area UFE Data Extract available publicly through NEMWEB as a csv file and the Data Interchange in the SETLOCALAREAENERGY and SETLOCALAREATNI tables. This report is produced for each settlement run for a combination of the LA and TI.

For detailed definitions of the terms, see **NER Rules: Global Settlements and Market Reconciliation**.

This report includes the following details:

- Settlement run number
- Local Area ID
- Settlement date
- Trading Interval (5 minutes) ID
- ADME in MWh is the aggregate of the amounts represented by (ME * DLF) for that trading interval for each Connection Point.
- TME in MWh is the amount of electrical energy flowing at each Transmission Network Connection Point in the local area in the trading interval.
- DDME in MWh is the amount of electrical energy flowing at each of the Distribution Network Connection Points in the local area, connected to an adjacent local area in the trading interval.
- UFE in MWh for the LA and TI

AGE in MWh is the Adjusted Gross Energy for the local area and trading interval which includes UFE.

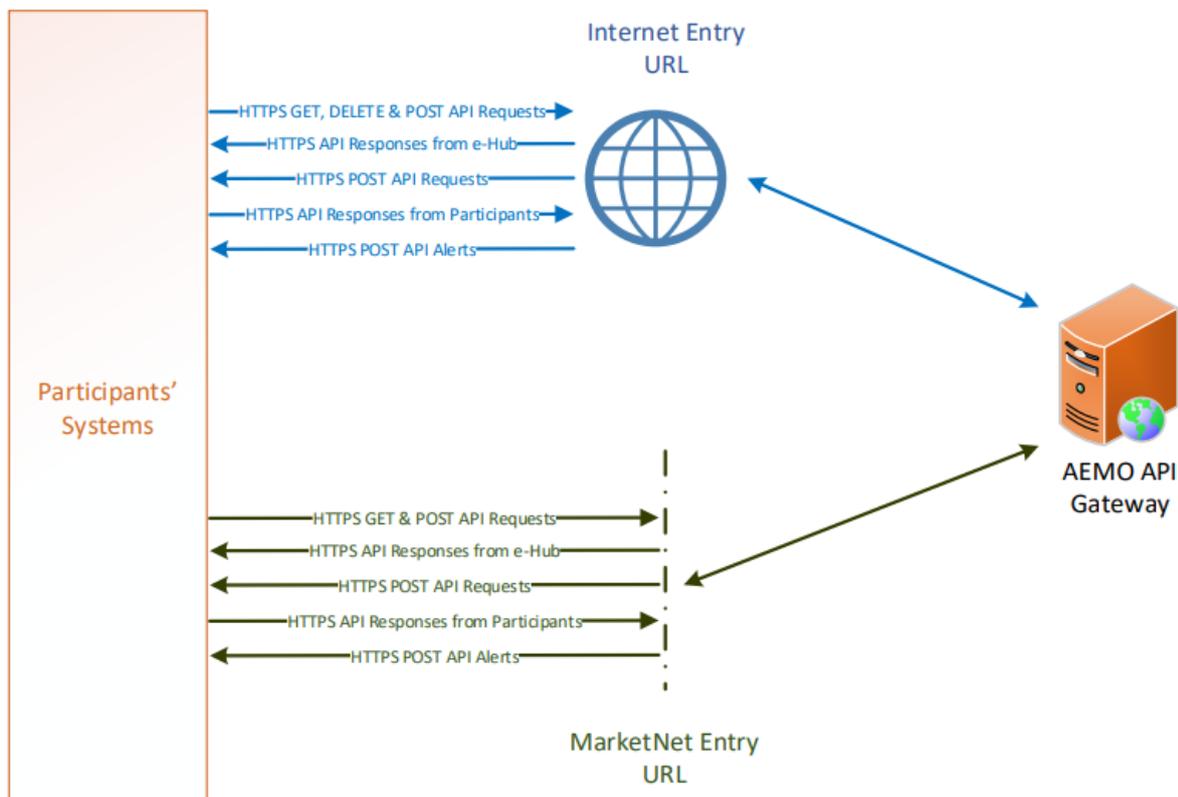
6 Publishing Direct API Design

The following chapter lists the new and updated Publishing Direct APIs and the request and response structure for the APIs.

6.1 API access

AEMO's Publishing Direct APIs are accessible via MarketNet and the Internet.

The contents of the rest of this document are finalised, the API changes are still under consultation and not definite at this stage.



6.2 API whitelisting

The staging environment requires AEMO to whitelist your public IP address. To have your IP whitelisted, log a call with the Support Hub who will ask you to provide the following details:

1. Participant ID(s)

2. Inbound Public IP address or a range of IPs
3. SSL Certificate Signing Request (CSR)
4. The APIs you want to access

For help obtaining SSL certificates, see **Guide to AEMO's APIs**.

6.3 For help with Participant User access and required URM entities, see API naming

The 5MS APIs follow a verb and noun naming convention, enabling a clear understanding of their action.

User rights access on page 9.

6.4 API e-Hub addresses

API documentation, including Swagger files, are available via AEMO's API Portal. For more information about e-Hub APIs, see **Guide to AEMO's e-Hub APIs**.

Environment	Internet Address	MarketNet Address
5MS Staging gateway	https://partner.api.5msstaging.aemo.com.au/	Unavailable until further notice https://apis.5msstaging.marketnet.net.au:9319/
5MS Staging API portal	https://staging.apiportal.aemo.com.au/	TBA
Pre-production gateway	https://apis.preprod.aemo.com.au	https://apis.preprod.marketnet.net.au
Production gateway	https://apis.prod.aemo.com.au	https://apis.prod.marketnet.net.au

6.5 API authentication and authorisation

API connections use SSL certificates to secure the transport layer ensuring encrypted communication and secure interactions between participant and AEMO's systems. AEMO issues the SSL certificates to participants on request.

API calls are authorised by Basic HTTP authentication using a username and password assigned by the company's Participant Administrator.

For more information about user rights and creating new Participant Users, see **Guide to User Rights Management (URM)**.

6.6 API format

API URLs are in the following format:

For details about obtaining a certificate, see [Guide to AEMO's e-Hub APIs](#).

```
https://<host>/<business_name>/<business_function>/<APIversion>/<resource>?querystring parameters
```

For example:

```
https://apis.prod.aemo.com.au:9319/NEMWholesale/PublishingDirect/v1/getContacts
```

Table 1 – API Definition

Parameter	Description
<protocol>	HTTPS
<host>	Names the server hosting the service or an external proxy Internet web service host: apis.prod.aemo.com.au:9319 MarketNet web service host: apis.prod.marketnet.net.au:9319
<business_name>	A business area such as NEMRetail or NEMWholesale
<business_function>	API Name – The AEMO system providing the services e.g. GeneratorRecall
<APIversion>	The version for this API i.e. v1, v2, v3 etc...
<verb> <resource>	Entities of a Business Function e.g. /getBids
?querystring parameters	Query string parameters for GET method

6.7 API naming

The 5MS APIs follow a verb and noun naming convention, enabling a clear understanding of their action.

API account passwords are reset every 90 days.

6.8 User rights access

The user rights access used in the Publishing Direct APIs use the following URM entity:

- EMMS – Settlements – Settlements Direct:
 - MMS_SETTLEMENTS_DIRECT
 - MMS_SETTLEMENTS_DIRECT_PUBLISH
 - MMS_SETTLEMENTS_DIRECT_SUBSCRIBE

The combination of Entity and Rights you must have to access the different Settlements Direct options are as follows:

API Name	Authorisation Mode	Entity	Right
getDeliveryChannels	None	Not Applicable	Not Applicable
getCalendars	None	Not Applicable	Not Applicable
getPublishingCategories	None	Not Applicable	Not Applicable
getPublishingPeriodInstances	None	Not Applicable	Not Applicable
getPublishingTypes	None	Not Applicable	Not Applicable
getPublishingPeriodClasses	None	Not Applicable	Not Applicable
getContacts	Participant Specific	MMS_SETTLEMENTS_DIRECT	READ
getDeliveryLogEntries	Participant Specific	MMS_SETTLEMENTS_DIRECT	READ
getAvailableFiles	Participant Specific	MMS_SETTLEMENTS_DIRECT	READ
downloadFiles	Participant Specific	MMS_SETTLEMENTS_DIRECT	READ
publishFiles	Participant Specific	MMS_SETTLEMENTS_DIRECT_PUBLISH	CREATE
getUserSubscriptions	Participant Specific	MMS_SETTLEMENTS_DIRECT_SUBSCRIBE	READ
updateUserSubscriptions	Participant Specific	MMS_SETTLEMENTS_DIRECT_SUBSCRIBE	UPDATE

The steps to set up URM rights for API access are:

1. If required, the Participant Administrator (PA) creates a new Participant User in MSATS.
2. The PA assigns the URM entity to the Participant User.

6.9 Publishing Direct system

The Publishing Direct system allows Market Participants to access data, subscriptions, message delivery logs and calendars to the EMMS Wholesale Market System. AEMO uses three instances of the Publishing Direct system based on the publishing Business ID. You can access these systems using the AEMO Markets Portal.

The APIs listed in this chapter allow you to access specific details from the Publishing Direct system depending on the request parameters. Settlements Direct is an instance of the Publishing Direct system.

To access the Publishing Direct systems on the Markets Portal, navigate as follows:

- For Settlements Direct: Settlements Direct, **MMS Markets Portal > MMS > Settlements > Settlements Direct**.
- Publishing Direct for GSH – To access Publishing Direct, **MMS Markets Portal > Gas Supply Hub > Publishing Direct**.
- Market Direct for Market Info – To access Market Direct, **MMS Markets Portal > Market Info > Market Direct**.

In the AEMO Markets Portal, Settlements Direct is denoted in the APIs as the publishingBusinessId with the value of Settlements. The publishingCategoryId represents the Category and the publishingTypeId represents the Type. The images below show the possible values of each of these categories.

For more details on all possible combinations of the Business, Category and Type, see Appendix: API Parameter Values.

6.9.1 Before you begin

This section defines some of the query parameters used in the APIs.

Parameter	Description
publishingBusinessId	Describes the system for which the APIs, categories and types are displayed. Possible values are NEM, NEM_SETTLEMENTS, or GSH.
publishingCategoryId	Each publishing business systems is divided into several categories. For details on all available categories, select the Business system and use the dropdown to find all possible categories.
publishingTypeId	Each category is then subdivided into different types. For details on all available types, select the business system and category from the portal and use the dropdown menu to find all possible types.
publishingPeriodClassId	Describes the period for which a specific publishingTypeId is valid. Possible values are DAILY_YMD, DAILY, BILLING_WEEK, BILLING_MONTH, CAL_MONTH, QUARTER, CAL_YEAR, or FIN_YEAR.
publishingPeriodInstanceId	Depending on the publishingPeriodClassId, the publishingPeriodInstanceId is an identifier for the period instance. For example, for the publishingPeriodClassId of BILLING_WEEK, the publishingPeriodInstanceId is 2019WK41 or DAILY_YMD is 20191025.
publishingQueueId	Unique identifier that each participant is assigned which tells AEMO which file they want.
deliveryChannelId	The channel through which the participant contacts want to be notified. Possible options are Email, Notify by Email and SMS.
deliveryTime	The time period for delivery. The values are in DATE data type.
fileFormatId	Format of the file returned. Possible options are PDF, Text, CSV,

6.9.2 getContacts

The getContacts API retrieves a list of all contacts for a Registered Participant.

API	getContacts
Method	GET
URL	/NEMWholesale/PublishingDirect/getContacts
Authorisation	Participant specific
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	NA
Success response	<p>Content Body:</p> <pre> { "data": { "contacts": [{ "contactId": [string], "contactSource": [string], "isActive": [boolean], "sourceUpdateTime": [datetime], "participantId": [string], "mobileNumber": [string], "emailAddress": [string], "title": [string], "firstName": [string], "lastName": [string] }] } } </pre>
Notes	
Validation rules	N/A

Example request

```
GET /NEMWholesale/PublishingDirect/v1/getContacts
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "6e000fde-ddf0-0000-a0d0-b0bd0000d00",
  "data": {
    "contacts": [
      {
        "contactId": "1000",
        "contactSource": "MSATSCONTACT",
        "isActive": "Y",
        "sourceUpdateTime": "2016-10-21T11:29:23",
        "participantId": "PARTICIPANTID1",
        "mobileNumber": "MOBILE_NUMBER",
        "emailAddress": "EMAIL_ADDRESS1",
        "title": "TITLE",
        "firstName": "FIRST_NAME",
        "lastName": "LAST_NAME"
      },
      {
        "contactId": "500",
        "contactSource": "MSATSCONTACT",
        "isActive": "Y",
        "sourceUpdateTime": "2011-04-06T09:56:46",
        "participantId": "PARTICIPANTID2",
        "mobileNumber": null,
        "emailAddress": "EMAIL_ADDRESS2",
        "title": ".",
        "firstName": "FIRST_NAME",
        "lastName": "LAST_NAME"
      }
    ]
  },
  "errors": []
}
```

6.9.3 getCalendars

The getCalendars API retrieves the list of calendars for the business process name which is Settlements Direct in this case.

API	getCalendars
Method	GET
URL	/NEMWholesale/PublishingDirect/getCalendars
Authorisation	None
Header	Standard request header attributes to include: <ul style="list-style-type: none">• Authorization: Basic• Content-Encoding: Should be one of [gzip, deflate, compress]• Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	Query Parameters: <ul style="list-style-type: none">• publishingBusinessId
Success response	Content Body <pre>{ "data": { "calendars": [{ "url": [string], "description": [string] }] } }</pre>
Notes	
Validation rules	

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getCalendars?publishingBusinessId=NEM_SETTLEM
ENTS
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "4f00000a-0000-0c2d-0c70-1efcca00000a",
  "data": {
    "calendars": [
      {
        "url": "https://www.aemo.com.au/energy-systems/electricity/national-
electricity-market-nem/market-operations/settlements-and-payments/prudentials-
and-payments/settlement-calendars",
        "description": "Settlement Calendars"
      },
      {
        "url": "https://www.aemo.com.au/energy-systems/electricity/national-
electricity-market-nem/market-operations/settlements-and-payments/prudentials-
and-payments/settlement-calendars/intervention-settlement-timetables",
        "description": "Intervention Settlements Timetable"
      }
    ]
  },
  "errors": []
}

```

6.9.4 getDeliveryChannels

The getDeliveryChannels API retrieves a list of supported notification channels.

API	getDeliveryChannels
Method	GET
URL	/NEMWholesale/PublishingDirect/getDeliveryChannels
Authorisation	None

API	getDeliveryChannels
Header	Standard request header attributes to include: <ul style="list-style-type: none">• Authorization: Basic• Content-Encoding: Should be one of [gzip, deflate, compress]• Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	NA
Success response	Content Body <pre>{ "data": { "channelList": [{ "deliveryChannelId": [string], "description": [string], "displayPriority": [integer] }] } }</pre>
Notes	
Validation rules	

Example request

```
GET /NEMWholesale/PublishingDirect/v1/getDeliveryChannels
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "800c6000-70b0-4df0-b0fa-a0dd400000c0",
  "data": {
    "channelList": [
      {
        "channelId": "EMAIL",
        "description": "E-mail",
        "displayPriority": 1
      },
      {
        "channelId": "EMAIL_NOTIFICATION",
        "description": "Notify by E-mail",
        "displayPriority": 3
      }
    ]
  },
  "errors": []
}
```

6.9.5 getPublishingCategories

The `getPublishingCategories` API retrieves a list of supported publishing categories.

API	<code>getPublishingCategories</code>
Method	GET
URL	<code>/NEMWholesale/PublishingDirect/getPublishingCategories</code>
Authorisation	None
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]

API	getPublishingCategories
Request Content	Query Parameters: <ul style="list-style-type: none">publishingBusinessId
Success response	Content Body <pre>{ "data": { "categories": [{ "publishingCategoryId": [string], "description": [string], "displayPriority": [integer], }] }, }</pre>
Notes	
Validation rules	publishingBusinessId must be a valid publishing business identifier.

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getPublishingCategories?publishingBusinessId=
NEM_SETTLEMENTS
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "579b7a6a-d205-4e9a-8275-ef9ca10f173d",
  "data": {
    "categories": [
      {
        "categoryId": "(All)",
        "description": "(All categories)",
        "displayPriority": -1,
      },
      {
        "categoryId": "NEM_STATEMENTS",
        "description": "NEM Statements",
        "displayPriority": 1
      }
    ]
  },
  "errors": []
}

```

6.9.6 getDeliveryLogEntries

The getDeliveryLogEntries API retrieves a log of delivered files and notifications.

API	getDeliveryLogEntries
Method	GET
URL	/NEMWholesale/PublishingDirect/getDeliveryLogEntries
Authorisation	Participant specific

API	getDeliveryLogEntries
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	<p>Query Parameters:</p> <ul style="list-style-type: none"> • publishingBusinessId (Mandatory) • publishingCategoryId (Optional) • publishingTypeId (Optional) • publishingPeriodClassId (Optional) • publishingPeriodInstanceIdFrom (Optional) • publishingPeriodInstanceIdTo (Optional) • contactId (Optional) • deliveryChannelId (Optional) • deliveryTimeFrom (Optional) • deliveryTimeTo (Optional)
Success response	<p>Content Body</p> <pre> { "data": { "logEntries": [{ "publishingCategoryId": [string], "publishingTypeId": [string], "publishingPeriodClassId": [string], "publishingPeriodInstanceId": [string], "fileName": [string], "deliveryChannelId": "string", "fileFormatId": [string], "contactId": "string", "documentEncryptionKey": [string], "eventQueueId": [string], "deliveryTime": [datetime], "headerText": [string], "bodyText": [string] }] } } </pre>
Notes	

API

getDeliveryLogEntries

Validation rules

- publishingBusinessId must be a query parameter and must be a valid publishing business identifier
- publishingCategoryId must be a valid publishing category for the provided publishing business identifier
- publishingTypeId must be a valid publishing type for the provided publishing business identifier
- publishingPeriodClassId must be a valid publishing period class
- deliveryChannelId must be a valid delivery channel identifier
- If deliveryTimeFrom is specified, then deliveryTimeTo must also be specified, and vice versa
- If publishingPeriodInstanceIdFrom is specified, then publishingPeriodInstanceIdTo must also be specified, and vice versa
- Either deliveryTimeFrom/deliveryTimeTo, or publishingPeriodInstanceIdFrom/publishingPeriodInstanceIdTo must be specified
- If deliveryTimeFrom/deliveryTimeTo are specified, the maximum allowable timespan between the two values is 1 year
- If publishingPeriodInstanceIdFrom/publishingPeriodInstanceIdTo are specified, the maximum allowable timespan between the two values is 1 year, or where the period instances do not align to day boundaries, as close to 1 year as can be reasonably determined, for example, 2018Wk44 to 2019Wk44 is allowed, but 2018Wk44 to 2018Wk55 is not.

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getDeliveryLogEntries?publishingBusinessId=NEM_SETTLEMENTS
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "c1fdd064-9803-4251-ae45-edfec20eb0e5",
  "data": {
    "deliveryLogList": [
      {
        "publishingCategoryId": "NEM_SUMMARY_DATA",
        "publishingTypeId": "NEM_SUMM_DIRECTIONS_P",
        "publishingperiodInstanceId": "2010WK34",
        "publishingPeriodClassId": "BILLING_WEEK",
        "fileName": "PUBLIC_BILLING_DIRECT_FINAL_RECON_2010Week34PRELIMINARY_20100830100000.zip",
        "deliveryChannelId": "EMAIL",
        "fileFormatId": "CSV",
        "contactId": "500",
        "documentEncryptionKey": null,
        "publishingQueueId": "0000000312184000",
        "deliveryTIME": "2010-08-30T11:27:48",
        "headerText": "AEMO Settlements Direct: NEM Direction Correspondence 2010WK34",
        "bodyText": null
      }
    ]
  },
  "errors": []
}

```

6.9.7 getAvailableFiles

The `getAvailableFiles` retrieves a list of files available for publishing.

API	<code>getAvailableFiles</code>
-----	--------------------------------

Method	GET
--------	-----

API	getAvailableFiles
URL	/NEMWholesale/PublishingDirect/getAvailableFiles
Authorisation	Participant specific
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	<p>Query Parameters:</p> <ul style="list-style-type: none"> • publishingBusinessId (Mandatory) • publishingCategoryId (Optional) • publishingTypeId (Optional) • publishingPeriodClassId (Optional) • publishingPeriodInstanceIdFrom (Optional) • publishingPeriodInstanceIdTo (Optional) • deliveryTimeFrom (Optional) • deliveryTimeTo (Optional)
Success response	<p>Content Body</p> <pre> { "data": { "files": [{ "publishingCategoryId": [string], "publishingTypeId": [string], "publishingPeriodClassId": [string], "publishingPeriodInstanceId": [string], "publishingQueueId": [string], "fileName": [string], "fileFormatId": [string], "documentEncryptionKey": [string], "deliveryTime": [datetime], "iLinkDescription": [string], "iLinkAddress": [string] }] } } </pre>
Notes	
Validation rules	

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getAvailableFiles?publishingBusinessId=NEM_SE
TTLEMENTS
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "c0fdd000-0000-0000-ae45-edfec00eb0e0",
  "data": {
    "deliveryLogList": [
      {
        "publishingCategoryId": "NEM_SUMMARY_DATA",
        "publishingTypeId": "NEM_SUMM_DIRECTIONS_P",
        "publishingPeriodInstanceId": "2010WK34",
        "publishingPeriodClassId": "BILLING_WEEK",
        "publishingQueueId": "0000000123456789",
        "fileName": "PUBLIC_BILLING_DIRECT_FINAL_RECON_2010Week34PRELIMINARY_20
100830100000.zip"
        "fileFormatId": "CSV",
        "documentEncryptionKey": null,
        "deliveryTime": "2010-08-30T11:27:48",
        "iLinkDescription": "Settlement Statements and Invoices in PDF format"
      ,
        "iLinkAddress": "http://aemo.com.au/-/media/Files/PDF/0500-0009-
pdf.pdf"
      }
    ]
  },
  "errors": []
}

```

6.9.8 getPublishingPeriodClasses

The `getPublishingPeriodClasses` API retrieves a list of supported publishing period classes.

API	<code>getPublishingPeriodClasses</code>
Method	GET

API	getPublishingPeriodClasses
URL	/NEMWholesale/PublishingDirect/getPublishingPeriodClasses
Authorisation	None
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	<p>Query Parameters:</p> <ul style="list-style-type: none"> • publishingTypeId
Success response	<p>Content Body</p> <pre> { "data": { "periodClasses": [{ "publishingPeriodClassId": [string] }] } } </pre>
Notes	
Validation rules	<ul style="list-style-type: none"> • publishingBusinessId must be a valid publishing business identifier • publishingTypeId must be a valid publishing type

Example request

```
GET
/NEMWholesale/PublishingDirect/v1/getPublishingPeriodClass?publishingTypeId=NEM
_REPORT_REGION_SUMMARY
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "c1fdd000-0000-0000-ae00-edfec00eb0e0",
  "data": {
    "periodClasses": [
      {
        "publishingPeriodClassId": "BILLING_WEEK",
      }
    ]
  },
  "errors": []
}
```

6.9.9 getPublishingPeriodInstances

The `getPublishingPeriodInstances` API retrieves a list of period instances for the supplied publishing type and period class.

API	<code>getPublishingPeriodInstances</code>
Method	GET
URL	<code>/NEMWholesale/PublishingDirect/getPublishingPeriodInstances</code>
Authorisation	None
Header	Standard request header attributes to include: <ul style="list-style-type: none"> • Authorization: Basic ... • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	Query Parameters: <ul style="list-style-type: none"> • <code>publishingTypeId</code> • <code>publishingPeriodClassId</code>

API	getPublishingPeriodInstances
Success response	<p>Content Body</p> <pre>{ "data": { "periodInstances": [{ "publishingPeriodInstanceId": [string] }] } }</pre>
Notes	
Validation rules	<ul style="list-style-type: none">• publishingBusinessId must be a valid publishing business identifier• publishingTypeId must be a valid publishing type• publishingPeriodClassId must be a valid publishing period class

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getPublishingPeriodInstances?publishingTypeId
=NEM_REPORT_REGION_SUMMARY &publishingPeriodClassId=BILLING_WEEK
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "34a00f0a-f00d-00d0-00a4-a0d0ebb00000",
  "data": {
    "periodInstanceList": [
      {
        "periodId": "20100830"
      },
      {
        "periodId": "20100829"
      }
    ]
  },
  "errors": []
}

```

6.9.10 getUserSubscriptions

The `getUserSubscriptions` API retrieves a list of current user subscriptions.

API	<code>getUserSubscriptions</code>
Method	GET
URL	<code>/NEMWholesale/PublishingDirect/getUserSubscriptions</code>
Authorisation	Participant specific
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]

API	getUserSubscriptions
Request Content	Query Parameters: <ul style="list-style-type: none">publishingBusinessId
Success response	Content Body <pre>{ "data": { "subscriptions": [{ "publishingCategoryId": [string], "publishingTypeId": [string], "isPlainTextRequested": [boolean], "contacts": [{ "contactId": "string", "deliveryChannels": [{ "deliveryChannelId": [string], "isSubscribed": [boolean] }] }] }] } }</pre>
Notes	
Validation rules	publishingBusinessId must be a valid publishing business identifier

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getUserSubscriptions?publishingBusinessId=NEM
_SETTLEMENTS
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "1000d00-0000-000d-00f0-0aa00f00c0cf",
  "data": {
    "subscriptions": [
      {
        "publishingCategoryId": "NEM_SUMMARY_DATA",
        "publishingTypeId": "NEM_SUMM_DIRECTIONS_P",
        "isPlainTextRequested": "N",
        "contacts": [
          {
            "contactId": "500",
            "deliveryChannels": [
              {
                "channelId": "EMAIL",
                "channelDescription": "E-mail",
                "isSelected": false,
                "isReadOnly": false
              }
            ]
          }
        ]
      },
      {
        "errors": []
      }
    ]
  }
}

```

6.9.11 getPublishingTypes

The getPublishingTypes API retrieves a list of supported publishing types.

API	getPublishingTypes
Method	GET
URL	/NEMWholesale/PublishingDirect/getPublishingTypes

API	getPublishingTypes
Authorisation	None
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]
Request Content	<p>Query Parameters:</p> <ul style="list-style-type: none"> • publishingBusinessId • publishingCategoryId
Success response	<p>Content Body</p> <pre> { "data": { "publishingTypes": [{ "publishingTypeId": [string], "displayPriority": [integer], "description": [string], }] } } </pre>
Notes	
Validation rules	<ul style="list-style-type: none"> • publishingBusinessId must be a valid publishing business identifier • publishingTypeId must be a valid publishing type • publishingPeriodClassId must be a valid publishing period class

Example request

```

GET
/NEMWholesale/PublishingDirect/v1/getPublishingTypes?publishingBusinessId=NEM_S
ETTLEMENTS&publishingCategoryId=NEM_SUMMARY_DATA
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "30e00e00-00f8-009d-b000-fe0000e00000",
  "data": {
    "publishingTypes": [
      {
        "publishingTypeId": "NEM_SUMM_DIRECTIONS_P",
        "displayPriority": 20,
        "description": "NEM Directions Recovery Reconciliation"
      }
    ]
  },
  "errors": []
}

```

6.9.12 downloadFiles

The downloadFiles API directly downloads a set of requested files.

API	downloadFiles
Method	POST
URL	/NEMWholesale/PublishingDirect/downloadFiles
Authorisation	Participant specific
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]

API	downloadFiles
Request Content	<p>Content Body</p> <pre>{ "files": [[string], [string], [string]] }</pre>
Success response	A zip file containing requested files
Notes	<p>'files' is an array of strings containing a set of publishingQueueId values retrieved through the getAvailableFiles API.</p> <p>A maximum of 10 files can be requested in a single API call.</p>
Validation rules	<p>The publishing queue ID's in the 'files' array must be:</p> <ul style="list-style-type: none">• Valid publishing event queue ID's that have not been archived• Associated with the requesting participant, either directly or through a data sharing arrangement <p>A validation failure for any element in the array causes the request as a whole to fail.</p>

Example request

```
POST /NEMWholesale/PublishingDirect/v1/downloadFiles
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
{
  "files":
  [
    "0000000312184277",
    "0000000312184278"
  ]
}
```

Example response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "70f0db00-0de3-4d0b-9e4f-81050000000c",
  "data": {
    "successful": true
  },
  "errors": []
}
```

Following the success response, a zip of the downloaded files is available in the participant file share.

6.9.13 publishFiles

The publishFiles API publishes a set of requested files using the chosen publication method.

API	publishFiles
Method	POST
URL	/NEMWholesale/PublishingDirect/publishFiles
Authorisation	Participant specific
Header	Standard request header attributes to include: <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]

API	publishFiles
Request Content	<p>Content Body</p> <pre data-bbox="496 378 1382 678"> { publicationMethod: [string], "files": [[string], [string], [string]] }</pre>
Success response	<p>Content Body</p> <pre data-bbox="496 779 1382 947"> { "data": { } }</pre>
Notes	<p>publicationMethod can be one of the following values:</p> <ul data-bbox="491 1037 1382 1227" style="list-style-type: none"> • EMAIL_TO_ME: Send the files to the email address associated with the logged-in user • RESEND_PUBLISHING: Re-send the files through the Settlements Direct delivery system • RESEND_FILESERVER: Re-post the files to the participant file share <p>'files' is an array of strings containing a set of publishingQueueId values retrieved through the getAvailableFiles API.</p> <p>A maximum of 10 files can be requested in a single API call.</p>
Validation rules	<p>The publishing queue ID's in the 'files' array must be:</p> <ul data-bbox="491 1429 1382 1541" style="list-style-type: none"> • Valid publishing event queue ID's that have not been archived • Associated with the requesting participant, either directly or through a data sharing arrangement <p>A validation failure for any element in the array causes the request as a whole to fail.</p>

Example request

```

POST /NEMWholesale/PublishingDirect/v1/publishFiles
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
{
  "publicationMethod": "RESEND_FILESERVER"
  "files":
  [
    "0000000312184277",
    "0000000312184278"
  ]
}

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "76f4db27-0de3-4d5b-9e4f-81059190614c",
  "data": {
    "successful": true
  },
  "errors": []
}

```

Following the success response, a zip of the published files is available in the participant file share.

6.9.14 updateUserSubscriptions

The updateUserSubscriptions API updates the subscriptions for one or more users.

API	publishFiles
Method	POST
URL	/NEMWholesale/PublishingDirect/updateUserSubscriptions
Authorisation	Participant specific
Header	<p>Standard request header attributes to include:</p> <ul style="list-style-type: none"> • Authorization: Basic • Content-Encoding: Should be one of [gzip, deflate, compress] • Accept-Encoding: Should be one or more of [gzip, deflate, compress]

API	publishFiles
Request Content	<p>Content Body</p> <pre> { "subscriptions": [{ "publishingCategoryId": [string], "publishingTypeId": [string], "isPlainTextRequested": [boolean], "contacts": [{ "contactId": "string", "deliveryChannels": [{ "deliveryChannelId": [string], "isSubscribed": [boolean] }] }] }] } </pre>
Success response	<p>Content Body</p> <pre> { "data": { } } </pre>
Notes	
Validation rules	<ul style="list-style-type: none"> • Each deliveryChannelId specified must be a valid delivery channel • Each contactId specified must be a valid contact directly associated with the requesting participant

Example request

```

POST /NEMWholesale/PublishingDirect/v1/updateUserSubscriptions
Content-Type: application/json
Accept: application/json
Accept-Encoding: gzip
Content-Length: nnn
Content-Encoding: gzip
Authorisation: Basic dGVzdG1hbnVhbSpOZK1tY28wMw==
X-market: NEM
X-initiatingParticipantID: <PARTICIPANTID>
{
  "transactionId": "10915d48-5700-430d-95f8-7aa49f56c3cf",
  "data": {
    "subscriptions": [
      {
        "publishingCategoryId": "NEM_SUMMARY_DATA",
        "publishingTypeId": "NEM_SUMM_DIRECTIONS_P",
        "isPlainTextRequested": "N",
        "contacts": [
          {
            "contactId": "500",
            "deliveryChannels": [
              {
                "channelId": "EMAIL",
                "isSubscribed": false
              }
            ]
          }
        ]
      }
    ],
    "errors": []
  }
}

```

Example response

```

HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnn
Content-Encoding: gzip
{
  "transactionId": "76f4db27-0de3-4d5b-9e4f-81059190614c",
  "data": {
    "successful": true or false
  },
  "errors": []
}

```

7 Electricity Data Model 5.00

Information about the v5.00 Data Model changes is now in the [EMMS Technical Specification – 5MS – Data Model v5.00](#).

8 Implementation

8.1 Transition

Participants are required to upgrade their Data Model versions to 5.00 to receive the new 5MS Settlements and Billing information. For details, see Electricity Data Model 5.00.

This section is a draft and subject to the 5MS Readiness Workstream transition and cutover forums.

8.2 Implications

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

- Review the changes implemented as part of this Release and assess the impact on their market systems.
- 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.

8.3 Risks

Participants not subscribed to the latest versions of files using the Data Subscriptions web application will not receive the new data. Upgrade options

8.4 Upgrade options

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

- Review the changes implemented as part of this Release and assess the impact on their market systems.
- Plan to upgrade their Data Interchange installations to the latest versions to utilise benefits from the new functionality, operate against newly supported platforms, and to maintain ongoing support from AEMO.
- 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.
- 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**.

8.5 What happens if I do not upgrade?

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

- Participant's database does not receive the new fields or tables because the Data Model elements are not created.
- 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.

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.

9 Appendix: API Parameter Values

This appendix lists all possible Category and Type IDs for the different publishing Business IDs with their description and display priorities.

9.1 Publishing Businesses

PUBLISHINGBUSINESSID	Description
NEM_SETTLEMENTS	NEM Settlements
NEM	National Electricity Market
GSH	Gas Supply Hub

9.2 Publishing Categories

PUBLISHINGCATEGORYID	Description
PUBLISHINGBUSINESSID: GSH	
GSH_SETTLEMENTS_AND_BILLING	GSH Settlements and Billing
GSH_REGISTRATION_AND_CONTACTS	GSH Registration and Contacts
GSH_PRUDENTIAL_MANAGEMENT	GSH Prudential Management
GSH_TRADING	GSH Trading
GSH_CORRESPONDENCE	GSH Correspondence

PUBLISHINGCATEGORYID	Description
GSH_DAY_AHEAD_AUCTION	GSH Day Ahead Auction
GSH_CAPACITY_TRADING	GSH Capacity Trading
PUBLISHINGBUSINESSID: NEM	
NETWORK_OPERATIONS	Network Operations
MARKET_NEM_ALERTS	Notifications and warnings
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS	
NEM_STATEMENTS	NEM Statements
NEM_CORRESPONDENCE	NEM Correspondence
NEM_SUMMARY_DATA	NEM Summary Data
NEM_MMS_DATA	NEM MMS Data
NEM_MARKET_REPORTS	NEM Market Reports
NEM_THIRD_PARTY_DATA	NEM Third Party Data
MISCELLANEOUS	Miscellaneous
SRA_STATEMENTS	SRA Statements
QLDGAS_STATEMENTS	QldGas Statements
SRA_CORRESPONDENCE	SRA Correspondence

PUBLISHINGCATEGORYID	Description
NEM_EXT_ALERTS	NEM Alerts, Reminders and Notifications
QLDGAS_CORRESPONDENCE	QldGas Correspondence
STTM_STATEMENTS	STTM Statements
VICGAS_STATEMENTS	VicGas Statements
NEM_ALERTS	NEM Alerts
STTM_CORRESPONDENCE	STTM Correspondence
VICGAS_CORRESPONDENCE	VicGas Correspondence
AEMC_MARKET_DATA	AEMC Market Data Reports
ASX_REPORTS	ASX Reports
PRICE_REPORTS	Price Reports

9.3 Publishing Types

PUBLISHINGTYPEID	Description	PERIODCLASSID
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_CAPACITY_TRADING		
GSH_CONTRACT_DETAILS_C	Contract Details	DAILY_YMD
GSH_RCPT_DELIV_POINT_PREFS_PT	CTP Receipt and Delivery Point Preferences	DAILY_YMD

PUBLISHINGTYPEID	Description	PERIODCLASSID
GSH_CONTRACT_REFERENCES_PT	Contract References	DAILY_YMD
GSH_SHIPPER_CAP_XFR_NT_GRP_C	Shipper Capacity Transfer Notification Group	DAILY_YMD
GSH_CONTRACT_DETAILS_TRK_C	Contract Details	DAILY_YMD
GSH_SHIPPER_CAP_XFR_NOTICE_C	Shipper Capacity Transfer Notification	DAILY_YMD
GSH_ZONE_CURTAIL_INFORMATION_P	Zone Curtailment Information	DAILY_YMD
GSH_CONTRACT_REFERENCES_C	Contract References	DAILY_YMD
GSH_CAPACITY_TRANSFER_NOTICE_C	Capacity Transfer Notice	DAILY_YMD
GSH_RCPT_DELIV_POINT_PREFS_C	CTP Receipt and Delivery Point Preferences	DAILY_YMD
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_CORRESPONDENCE		
GSH_MARKET_NOTICE_P	GSH Market Event Notice	CAL_MONTH
GSH_CAPACITY_XFR_AUCTION_NT_P	Capacity Transfer and Auction Notice	DAILY_YMD
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_DAY_AHEAD_AUCTION		
GSH_AUCTION_QUANTITIES_P	Auction Quantities	DAILY_YMD
GSH_AUCTION_PRICE_VOLUME_P	Auction Product Price and Volume	DAILY_YMD
GSH_AUCTION_BID_CONFIRMATION_C	Auction Bid Confirmation	DAILY_YMD

PUBLISHINGTYPEID	Description	PERIODCLASSID
GSH_AUCTION_RESULTS_C	Auction Results	DAILY_YMD
GSH_REVISSED_AUCT_QUANTITIES_P	Revised Auction Quantities	DAILY_YMD
GSH_AUCTION_CURTAIL_NOTICE	GASBB Auction Curtailment Notice	DAILY_YMD
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_PRUDENTIAL_MANAGEMENT		
GSH_REALLOCATION	Reallocation Confirmation	DAILY_YMD
GSH_PRUDENTIAL_EXPOSURE	Prudential Exposure	DAILY_YMD
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_REGISTRATION_AND_CONTACTS		
GSH_CONTACTS_DETAILS	Contacts Details	DAILY_YMD
GSH_REGISTERED_PARTICIPANTS	Registered Participants	DAILY_YMD
GSH_TRADING_DELIVERY_CONTACTS	Trading and Delivery Contact Details	DAILY_YMD
GSH_REGISTERED_FACILITIES_P	Transportation Facility Register	DAILY_YMD
GSH_REGISTERED_SERVICE_PT_P	Transportation Service Point Register	DAILY_YMD
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_SETTLEMENTS_AND_BILLING		
GSH_SETT_SUPPORTING_DATA	Settlements Supporting Data	DAILY_YMD

PUBLISHINGTYPEID	Description	PERIODCLASSID
PUBLISHINGBUSINESSID: GSH PUBLISHINGCATEGORYID: GSH_TRADING		
GSH_DELIVERY_NETT_PREFS	Delivery Netting Preferences	DAILY_YMD
GSH_ORDER_CONFIRMATION	Order Confirmation	DAILY_YMD
GSH_DELIVERY_OBLIGATIONS	Delivery Obligations	DAILY_YMD
GSH_TRADE_EXECUTION	Trade Execution	DAILY_YMD
GSH_HISTORICAL_TRANS_SUMMARY	Historical Transaction Summary	DAILY_YMD
GSH_DAILY_TRANS_SUMMARY	Daily Transaction Summary	DAILY_YMD
GSH_DELIVERED_QUANTITY	Delivered Quantity	DAILY_YMD
GSH_BENCHMARK_PRICE	GSH Benchmark Price	DAILY_YMD
PUBLISHINGBUSINESSID: NEM PUBLISHINGCATEGORYID: MARKET_NEM_ALERTS		
NEM_SD_CAPS_C	Semi-dispatch Cap Applied	DAILY_YMD
VPP_INTERNAL_NOTIFICATION	VPP Internal notifications	DAILY_YMD
VPP_MAX_AGG_CAP_NOTIFICATION	VPP Notification for when aggregated capacity falls below registered capacity	DAILY_YMD
PUBLISHINGBUSINESSID: NEM PUBLISHINGCATEGORYID: NETWORK_OPERATIONS		

PUBLISHINGTYPEID	Description	PERIODCLASSID
NOS	Network Outage Schedule (NOS)	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: AEMC_MARKET_DATA		
AEMC_GAS_INT330_TOTALMIRNS_C	Gas Total Number of MIRNs (INT330)	CAL_MONTH
AEMC_GAS_INT331_MONTHLYCHURN_C	Gas Monthly Churn Activity (INT331)	CAL_MONTH
AEMC_GAS_INT332_COMDECOM_C	Gas Commission/Decommission Activity (INT332)	CAL_MONTH
AEMC_GAS_INT333_AGGCONSUMPTN_C	Gas Aggregated Consumption Activity (INT333)	CAL_MONTH
AEMC_ELECRETAIL_STATS_C	Elec Retail Stats	CAL_MONTH
AEMC_ELECWHSLSALE_MTHLYENERGY_C	Elec Wholesale Monthly Energy	CAL_MONTH
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: MISCELLANEOUS		
NEM_ENERGYDATA_C	NEM Energy	DAILY_YMD
NEM_ENERGYDATA_P	NEM Public Energy	DAILY_YMD
NEM_MISC_C	Miscellaneous	DAILY_YMD
NEM_MISC_P	Public Miscellaneous	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_CORRESPONDENCE		

PUBLISHINGTYPEID	Description	PERIODCLASSID
NEM_GUARANTEE_EXPIRY_C	NEM Guarantee Expiry	DAILY_YMD
NEM_MCL_REVIEW_C	NEM MCL Review	QUARTER
NEM_PART_FEES_C	NEM Participant Fees	FIN_YEAR
NEM_SETT_UPDATE	NEM Settlement Update	NEM_SETT_UPDATE_ID
NEM_OTHER_C	NEM Other	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_EXT_ALERTS		
NEM_PCO_FORECAST_EXT_ALERT	Notification: Daily Forecasted Prudential Position (Afternoon)	DAILY_YMD
NEM_ALERT_EXT_RERT_ITT	NEM RERT ITT Alert	DAILY_YMD
NEM_PCO_POSITION_EXT_ALERT	Notification: Daily Prudential Position Actual (Morning)	DAILY_YMD
NEM_PRUD_TRAD_MARGIN_EXT_ALERT	Alert: Trading Limit Breach	DAILY_YMD
NEM_EARLY_PAY_FAIL_EXT_ALERT	Alert: Unsuccessful Early Payment	DAILY_YMD
NEM_EARLY_PAY_TODAY_EXT_ALERT	Reminder: Early Payment Due Today	DAILY_YMD
NEM_PAYER_EXT_ALERT	Reminder: Regular Settlement Receiver, Pays Next Settlement Day	DAILY_YMD

PUBLISHINGTYPEID	Description	PERIODCLASSID
NEM_GUAR_EXP_11_EXT_ALERT	Alert: Bank Guarantee Due 1 Day (Expiry in 11 days)	DAILY_YMD
NEM_GUAR_EXP_20_EXT_ALERT	Reminder: Bank Guarantee Due 10 Business Days (Expiry in 20 days)	DAILY_YMD
NEM_INSUFF_CRE_SUPP_EXT_ALERT	Alert: Insufficient Credit Support in 5 Business Days	DAILY_YMD
NEM_BUSALERT_EXT_RERT_CANCEL	NEM RERT Cancellation Alert	DAILY_YMD
NEM_BUSALERT_EXT_RERT_ACT	NEM RERT Activation Alert	DAILY_YMD
NEM_BUSALERT_EXT_RERT_PREACT	NEM RERT PreActivation Alert	DAILY_YMD
NEM_ALERT_EXT_RERT_DACT	NEM RERT End of Activation Alert	DAILY_YMD
NEM_BUSALERT_EXT_RERT_ADJUST	NEM RERT Amendment Alert	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_MARKET_REPORTS		
NEM_REPORT_MARKET_SUMM	NEM Market Summary Report	BILLING_WEEK
NEM_REPORT_REGION_INTER	NEM Regional Interconnector Report	BILLING_WEEK
NEM_REPORT_REGION_SUMMARY	NEM Regional Summary Report	BILLING_WEEK
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_MMS_DATA		

PUBLISHINGTYPEID	Description	PERIODCLASSID
NEM_MMS_SETT_C	NEM Confidential Settlements	BILLING_WEEK
NEM_MMS_BILLING_C	NEM Confidential Billing	BILLING_WEEK
NEM_MMS_PRUDENTIAL_C	NEM Confidential Prudential	DAILY
NEM_MMS_METER_C	NEM Confidential Meter	BILLING_WEEK
NEM_MMS_SETT_P	NEM Public Settlements	BILLING_WEEK
NEM_MMS_BILLING_P	NEM Public Billing	BILLING_WEEK
NEM_MMS_METER_INTER	NEM Public Interconnector Meter	BILLING_WEEK
NEM_BILLING_AER_C	Billing AER EnergyLoad	BILLING_WEEK
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_STATEMENTS		
NEM_STMT_PRELIMINARY	NEM Preliminary Statement	BILLING_WEEK
NEM_STMT_FINAL	NEM Final Statement	BILLING_WEEK
NEM_STMT_MAKEUP	NEM Makeup Statement	BILLING_WEEK
NEM_STMT_SHORTFALL	NEM ShortFall Statement	BILLING_WEEK
NEM_STMT_REVISION	NEM Revision Statement	BILLING_WEEK
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_SUMMARY_DATA		

PUBLISHINGTYPEID	Description	PERIODCLASSID
NEM_SUMM_DIRECTIONS_P	NEM Directions Recovery Reconciliation	BILLING_WEEK
NEM_SUMM_NMAS_P	NEM NMAS Recovery Reconciliation	BILLING_WEEK
NEM_SUMM_DAILY_ENERGY_C	NEM Confidential Daily Energy Summary	BILLING_WEEK
NEM_SUMM_DAILY_ENERGY_P	NEM Public Daily Energy Summary	BILLING_WEEK
NEM_CO2E_INDEX_P	CDEII Summary Report	BILLING_WEEK
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: NEM_THIRD_PARTY_DATA		
NEM_THIRDP_ASX	NEM ASX	QUARTER
NEM_THIRDP_ESC_C	NEM ESC	CAL_YEAR
NEM_THIRDP_ICRC_C	NEM ICRC	CAL_YEAR
NEM_THIRDP_IPART_C	NEM IPART	CAL_YEAR
NEM_THIRDP_ORER_C	NEM ORER	CAL_YEAR
NEM_THIRDP_QCA_C	NEM QCA	CAL_YEAR
NEM_THIRDP_SFE	NEM SFE	QUARTER
NEM_THIRDP_ASXMONTHLYINTERIM	NEM ASX Monthly Data (interim)	CAL_MONTH
NEM_THIRDP_AER	NEM AER	DAILY_YMD

PUBLISHINGTYPEID	Description	PERIODCLASSID
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: PRICE_REPORTS		
PRICE_REPORT_ELEC_MONTHLY_C	Price Monthly Report	CAL_MONTH
PRICE_REPORT_ELEC_QUARTERLY_C	Price Quarterly Report	CAL_MONTH
PRICE_REPORT_GAS_QUARTERLY_C	Price Gas Quarterly Report	CAL_MONTH
PRICE_REPORT_GSH_MONTHLY_C	Price GSH Monthly Report	CAL_MONTH
PRICE_REPORT_GSH_QUARTERLY_C	Price GSH Quarterly Report	CAL_MONTH
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: QLDGAS_CORRESPONDENCE		
QLDGAS_OTHER_C	QldGas Other	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: QLDGAS_STATEMENTS		
QLDGAS_STMT_PRELIMINARY	QldGas Preliminary Statement	BILLING_MONTH
QLDGAS_STMT_FINAL	QldGas Final Statement	BILLING_MONTH
QLDGAS_STMT_REVISION	QldGas Revision Statement	BILLING_MONTH
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: SRA_CORRESPONDENCE		
SRA_OTHER_C	SRA Other	DAILY_YMD

PUBLISHINGTYPEID	Description	PERIODCLASSID
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: SRA_STATEMENTS		
SRA_STATEMENT_PURCHASE	SRA Final Purchase	QUARTER
SRA_STATEMENT_PROCEEDS	SRA Final Proceeds	QUARTER
SRA_STATEMENT_RECON	SRA Reconciliation	QUARTER
SRA_STATEMENT_PUR_PRELIMINARY	SRA Preliminary Purchase	QUARTER
SRA_STATEMENT_PRO_PRELIMINARY	SRA Preliminary Proceeds	QUARTER
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: STTM_CORRESPONDENCE		
STTM_MEL_C	STTM Minimum Exposure Letter	FIN_YEAR
STTM_OTHER_C	STTM Other	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: STTM_STATEMENTS		
STTM_STMT_PRELIMINARY	STTM Preliminary Statement	BILLING_MONTH
STTM_STMT_FINAL	STTM Final Statement	BILLING_MONTH
STTM_STMT_REVISION	STTM Revision Statement	BILLING_MONTH
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: VICGAS_CORRESPONDENCE		

PUBLISHINGTYPEID	Description	PERIODCLASSID
VICGAS_MEL_C	VicGas Minimum Exposure Letter	FIN_YEAR
VICGAS_UAFG_PRICE	VicGas UAFG Initial Pricing	CAL_MONTH
VICGAS_UAFG_DRAFT	VicGas UAFG Draft Statement	CAL_MONTH
VICGAS_UAFG_FINAL	VicGas UAFG Final Statement	CAL_MONTH
VICGAS_OTHER_C	VicGas Other	DAILY_YMD
PUBLISHINGBUSINESSID: NEM_SETTLEMENTS PUBLISHINGCATEGORYID: VICGAS_STATEMENTS		
VICGAS_STMT_PRELIMINARY	VicGas Preliminary Statement	BILLING_MONTH
VICGAS_STMT_FINAL	VicGas Final Statement	BILLING_MONTH
VICGAS_STMT_REVISION	VicGas Revision Statement	BILLING_MONTH

10 Appendix: Data Model Tables with PeriodID Change

Information about the v5.00 Data Model PERIODID changes in tables is now in the [EMMS Technical Specification – 5MS – Data Model v5.00](#).

11 Rules Terms

This section lists the terms defined in the [National Electricity Rules \(NER\)](#).

Rules Terms	Rules Terms
Adjusted Gross Energy (AGE)	Local Area
AEMC	Mandatory Restrictions
AEMO	Market Customer
Ancillary Services	Market Participant
Billing	NEM
Billing Period	Network Service Provider
Compensation Recovery Amount (CRA)	Participating Jurisdiction
Connection point	Prudential Requirements
Dispatch	Settlements
Dispatch Interval	Settlement Statements
Distribution	Settlements Residue
Distribution Loss Factor	Spot Market
Distribution Network	Spot Price
Energy	Tax
Generation	Trading Interval
Generation Centre	Transmission Network Connection Point
Jurisdictional Electricity Legislation	Transmission Node

12 Related Resources

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

National Electricity Rules ("The Rules"): Provides details on the national electricity rules that govern all system and process/procedural changes.

NER Amendment – 5MS: Explains the amendments to the Rules regarding five-minute settlements. See 'National Electricity Amendment (Five-minute settlement rule) 2017'.

NER Amendment – GS: Explains the amendments to the Rules regarding Global settlements. See 'National Electricity Amendment (Global Settlement and Market Reconciliation) Rule 2018'.

Final Report – Structure of Participant Fees in AEMO's Electricity Markets 2016: Equations for Market Fees.

5MS Factsheet: Provides an overview of what 5 Minute Settlement (5MS) is, and how AEMO is going about implementing the change.

5MS High Level Design: Provides information about the potential design of AEMO processes and systems to support the proposed introduction of five-minute settlement'.

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 AEMO's e-Hub APIs: Provides details about using AEMO's e-Hub as an interface to communicate information with AEMO. It assists Wholesale electricity and gas participants developing their own APIs.

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.

Guide to Markets Direct: Explains how to use the Markets Portal Market Direct web application providing participants with access to reports and statements published by AEMO.

13 Glossary

Abbreviation	Explanation
30-minute period	New term to replace 'trading interval', where the period needs to remain as 30 minutes
5MS	Five-Minute Settlement Program
AEST	Australian Eastern Standard Time
AFE	Allocated for Energy
APA	Auction Participation Agreement
Billing Period	7 days from the first trading interval on a Sunday to the last trading interval on the next Saturday.
Company ID	<p>In AEMO IT system, Participant ID sits under a Company ID. A Company ID can have multiple Participant IDs.</p> <p>AEMO IT system currently identifies Market Participant as a Participant ID, except for FCAS recovery calculation was changed in 2015.</p> <p>However, as part of the 5MS project, it is required that AEMO system identifies Company ID as Market Participant in accordance with the rules.</p>
CSV files	Files containing data in comma separated values format.
Data Interchange	Data Interchange (DI) is a set of cooperating applications to replicate data between AEMO's systems and a participant's RDBMS conforming to the MMS or Gas Data Model.
Dispatch Interval	Obsolete term. See Trading Interval.
DLF	Distribution Loss Factor
DME	DME is the loss-adjusted consumer metered energy. It is the product of the negative (consumed) energy and the distribution loss factor.
DUID	Dispatch unit ID
Electricity Data Model	Data published to participants by AEMO from NEM systems.
EMMS	(Wholesale) Electricity Market Management System. Single web portal interface to access AEMO's IT systems; software, hardware, network and related processes used to operate the energy market.

Abbreviation	Explanation
EMMS Data Model	AEMO's federated data model in Electricity Wholesale markets for replication of internal data to market participants.
Equation Variables	Some requirements refer to the formulation document which contains the equations and uses various variables. The equation variables have been defined in this document, this is located here .
FRMP	Financially Responsible Market Participant. It is equivalent to the Participant ID in the AEMO IT system.
GS	Global Settlement
GST	The goods and services tax governed by A New Tax System (Goods and Services Tax) Act 1999 (Cth) and related legislation.
LA	Local Area
Market Customer	AEMO's registration category. Market Customers are typically retailers or large users who draw energy from the transmission grid.
Market Participant	<p>AEMO IT system currently identifies Market Participant as a Participant ID.</p> <p>However, as part of the 5MS project, it is required that AEMO system identifies Market Participant as a Company ID.</p> <p>Note: In AEMO IT system, Participant ID sits under a Company ID. A Company ID can have multiple Participant IDs.</p>
MLF	<p>Marginal Loss Factor.</p> <p>Note: Some AEMO documents use Transmission Loss Factor (TLF) and Marginal Loss Factor (MLF) interchangeably. This document uses the term TLF to indicate loss factor.</p>
MNSP	Market Network Service Provider.
NEM	National Electricity Market.
NEMDE	NEM Dispatch Engine.
Net Energy Flow	Metering reads calculated at regional boundary which is used to derive the energy flow at each end of the interconnector.
NER	National Electricity Rules. https://www.aemc.gov.au/regulation/energy-rules/national-electricity-rules/current . Often just called 'the Rules'.
Participant	A registered organisation participating in the NEM.

Abbreviation	Explanation
Participant ID	<p>In AEMO IT system, Participant ID sits under a Company ID. A Company ID can have multiple Participant IDs.</p> <p>AEMO IT system currently identifies Market Participant as a Participant ID, except for FCAS recovery calculation was changed in 2015.</p> <p>However, as part of the 5MS project, it is required that AEMO system identifies Market Participant as a Company ID, and FRMP as a Participant ID.</p>
RERT	Reliability and Emergency Reserve Trader.
RRN	Regional Reference Node.
RRP	Regional Reference Price.
Settlements database	Data warehouse for all EMMS market systems data, plus the EMMS settlements/metering database.
Settlement day	Calendar day starting at 12am. Where 'day' unless otherwise specified, the 24-hour period beginning and ending at midnight Eastern Standard Time (EST).
SR	Settlements Report
SGA	Small Generator Aggregator.
SIMMS	Settlement Interface Market Management System.
Small customer	Under Market Customer registration category, small customers are the ones with meter type small.
SOM	Settlements Operations Manual.
TLF	<p>Transmission Loss Factor.</p> <p>Note: Some AEMO documents use Transmission Loss Factor (TLF) and Marginal Loss Factor (MLF) interchangeably. This document uses the term TLF to indicate loss factor.</p>
TNI	Transmission Node Identifier. In the document this is referred to as Transmission Connection Point in some instances.
TNISF	Wholesale Connection Point Scaling Factor
TNSP	Transmission Network Service Provider.
Trading Day	"The 24-hour period commencing at 4.00 am and finishing at 4.00 am on the following day." (NER) Where 'day' "Unless otherwise specified, the 24-hour period beginning and ending at midnight Eastern Standard Time (EST).

Abbreviation	Explanation
TUOS	Transmission Use of System.
UFE	Unaccounted for Energy.
UFEA	UFE prorated to each NMI load.
WCP	Wholesale Connection Point. In the document this is referred to as Connection Point in some instances.

14 Version History

14.1 V4.02

Updates the commencement of the 5MS rule change and the commencement of financial settlement of Global Settlement dates as per AEMC's latest ruling. For more details, see [Five Minute Settlement and Global Settlement](#).

14.2 V4.01

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Adds details about the updates to the Directions CRA reports. For more details, see Direction Compensation Recovery Amount reports.
- Updates the getAvailableFiles API response. For more information, see getAvailableFiles API.

14.3 V4.00

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Updates pre-production refresh date. See Pre-production refresh section in the Milestones chapter.
- As per participant feedback, moves the Electricity Data Model 5.00 chapter to a separate technical specification for all Data Model changes for 5MS. For more information, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#). Includes the following changes:
 - Minor update to the BILLRESERVERTRADERPAYMENT table based on participant feedback.
 - Updated the Appendix: Data Model Tables with PERIODID changes to include some tables based on participant feedback.

14.4 V3.01

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Adds a list of Data Model tables for which the data in PERIODID column changes from 30 minutes to 5 minutes. For more information, see Appendix: Data Model Tables with PeriodID Change.
- Removes Unchanged Data Model Tables appendix.

- Updates the Discontinued Data Model tables list to include more tables. For more information, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#).

14.5 V3.00

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Adds weekly breakdown for 5MS Settlements and Billing and GS details. For more information, see Weekly Planned Tests in 5MS Staging .
- Splits the Modified tables into two tables, one for modified columns and a second one for new columns. For more information, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#).
- Changes some VARCHAR to VARCHAR2 in the BILLRESERVETRADERRECOVERY table.
- Changes NUMBER(18,8) to NUMBER(16,6) for existing rows of SETCPDATA table.
- Adds an Appendix of Unchanged Data Model Tables. For more information, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#).

14.6 V2.01

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Splits the Modified tables into two tables, one for modified columns and a second one for new columns. For more information, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#).
- Changes some VARCHAR to VARCHAR2 in the BILLRESERVETRADERRECOVERY table.
- Changes NUMBER(18,8) to NUMBER(16,6) for existing rows of SETCPDATA table.
- Adds an Appendix of Unchanged Data Model Tables. For more information, see [Draft EMMS Technical Specification - 5MS - Data Model v5.00](#).

14.7 V 2.00

This version of the 5MS Settlements and Billing technical specifications includes the following updates:

- Adds a chapter detailing various milestones for 5MS Settlements and Billing. See Milestones.
- Adds details about changes to each version in this Release series: EMMS521 in Version History.
- Adds a section above, indicating the status of this version. For example, whether it is for participant review or stable enough for participants to complete their own systems builds.

- Adds information about accessing the staging environment for APIs and APIs unavailable over MarketNet until further notice on page 7.
- Adds information about having your public participant IP address whitelisted by AEMO on page 7.
- Data Model changes:

Package	Table	Changes
SETTLEMENT_DATA	DAYTRACK (modified)	Adds SETTLEMENTINTERVALLENGTH column.
BILLING_RUN	BILLINGCPDATA (modified)	Adds AGE column Removes UFEADOLLARVALUE column
	BILLRESERVETRADERPAYMENT	Adds new tables to manage billing for RERT.
	BILLRESERVETRADERRECOVERY	
	BILLING_RES_TRADER_PAYMENT	These tables are discontinued.
	BILLING_RES_TRADER_RECOVERY	

- The retention policy for correspondence on Settlements Direct is increased to 3 years. For more details, see Retention period in Settlements Direct on page 3.
- Includes updates to existing sections based on the feedback provided by participants for the previous version of the document.

14.8 V 1.00

- Adds a new chapter detailing the new and updated Publishing Direct APIs, see Publishing Direct API Design.
- Adds new tables titled New table: BILLRESERVETRADERPAYMENT and New table: BILLRESERVETRADERRECOVERY in the BILLING_RUN package describing details of RERT reconciliation data.
- Adds a new appendix consisting of the complete list of values and priorities for a combination of Business, Category and Type details for Publishing Direct system, see Appendix: API Parameter Values.
- Includes updates to existing sections based on the feedback provided by participants for the draft version of the document.

14.9 V 0.02

- Initial draft published to participants.

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