

5MS Industry Testing Working Group #4

Wednesday, 25 March 2020 10:00 – 12:00AM (AEDT) **By Webex**

Agenda

Preliminary matters				
Matters for discussion				



Open actions

Item	Action required	Responsible	Action update	Ву
2.5.1	AEMO to provide test plans for Release 3 and 4 detailing the scope as understood at this point.	AEMO	Release 3 scope will be presented in ITWG#3 and Release 4 in ITWG#4.	25-Mar-2020
2.6.1	AEMO to provide performance test strategy timelines in ITWG #3	AEMO	Timelines will not available until ITWG#4	25-Mar-2020
3.4.1	AEMO to present an updated version of Release 3 scope to include B2M via API release in ITWG #4.	AEMO	Release 3 scope will be presented in ITWG#3 and Release 4 in ITWG#4.	25-Mar-2020
3.4.2	AEMO to confirm if RM reports can be generated at net level or at stream level.	AEMO	RM reports will be generated based on the meter reads received. If the reads received are at the Net data stream level that is registered in CNDS table, then the report will have the data at Net data stream level. If the reads received are at individual data stream level as registered in CNDS table, then the report will have the data accordingly.	25-Mar-2020
3.4.3	AEMO to provide the list of reports to participants.	AEMO	Provided via email	17-Mar-2020
3.4.4	AEMO to confirm how the meter transition plan is incorporated into Industry Testing of Release 3.	AEMO	To be discussed in ITWG #4	25-Mar-2020
3.4.5	AEMO to clarify what is the impact of switching to new schema before Release 3.	AEMO	To be discussed in ITWG #4	25-Mar-2020
3.4.6	AEMO to clarify the discrepancies noted in the effective dates of B2B procedure, MSATS Standing Data with Release 3.	AEMO	To be discussed in ITWG #4	25-Mar-2020
3.4.7	AEMO to provide the go-live date of Customer Switching project.	AEMO	Go-live date for Customer Switching project to be confirmed on 31-March-2020.	25-Mar-2020
3.4.8	AEMO to include the discussion of Settlements files in ITWG #4.	AEMO	To be discussed in ITWG #4	25-Mar-2020
3.6.1	AEMO to provide the EMMS production data cut-off date.	AEMO	To be discussed in ITWG #4	25-Mar-2020



Release 1 - Reallocations

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5MS Release 1: Reallocations

MSATS Security can be setup ahead of deployment



From 01 Nov 2019

- Software published and available for participants to interact with.
- Industry-discovered defects submitted via Support Hub.

01 Nov 2019

- <u>Tech Spec</u> published and available for participants
- <u>User Guide</u> published and available for participants

Jan 2020

- Internal AEMO testing, only a few P4s (cosmetic) defects remaining.
- AEMO business has accepted the results of testing.

28 Feb 2020

- Cutover into Pre-Prod commenced 25 Feb and completed 28 Feb
- Industry Testing only
- Support is via <u>Support Hub</u>.

1 Apr 2020

- Deployment in PROD environment. There is no participant impact as part of the cutover.
- Support is via <u>Support Hub</u>.

From 01 Apr 2020

 Market Participants can submit reallocations with a 5min cadence for the time period from 00:00:00 01-Jul-2021



Release 3 – MDM & B2M APIs

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Release 3 – Industry Test Strategy Scope

MDM Platform			
Affected participants	Metering Data Providers		
Description	B2M MTRD and MDMT transactions and capability for submission of MDFF files for metering data submitted at 5 minute granularity, along with the introduction of the upgraded MDM platform operating in support of the existing 30 minute settlement market		
Test objective/s	Operation of the upgraded MDM platform in line with the current 30 minute settlement market Verification of B2B MDFF reads in 30, 15 and 5 minute format Verification of B2M MDFF reads in 30, 15 and 5 minute format Verification of B2M MDMF reads Validate the RM reports Validate the new meter enquiry screens		
Test type Market Trial with coordinated test cases between participants and AEMO			
Timeframe	Initial MDM release into staging environment from 01 December 2019 Test phase commences: 22 October 2020 Test phase finishes: 01 December 2020		



Release 3 – MDM Functionality

In Release 3, 5MS Program will enable the following functional capabilities. Scope of Market Trials will be determined in the test planning workshops, this is simply an indication of the release scope.

- Meter data load transactions to NEMMCO
- Response from NEMMCO for meter data transactions
- MSATS browser changes to support meter data load and metering search
- RM and PMS reports
- Vic TUoS
- MTRD File size changes



Release 3 – Industry Test Strategy Scope

B2M APIs				
Affected participants	Any participant who would like to develop API functionality for B2M transactions or access MSATS via the market portal.			
Description	Verification of the new web service API for B2M, and the new web portal access. The current access to MSATS and communications protocols for B2M remain active and fully supported.			
Test objective/s	Verify the: - Interfacing protocols to support the submission of Inbox / inbound CATS, NMID and MDMT B2M messages and acknowledgments to AEMO by Participants Interfacing protocols for the delivery of Outbox / outbound CATS, NMID and MDMT B2M messages and acknowledgments to Participants by AEMO. Confirm Network access protocols for Retail B2M message exchange Accessibility of B2M communications through MarketNet Accessibility of B2M API communications through the Internet and MarketNet. Interfacing protocols for any B2M transaction types currently provided through legacy B2M Synchronous Web Services to Participants. Verify protocols for any MSATS management functions currently provided through legacy B2M Synchronous Web Services to Participants. Confirm MSATS Browser changes to allow Participants to: - Manage their B2M Outbound messages queued in their queue.			
Test type	Market Trial with coordinated test cases between participants and AEMO			
Timeframe	Initial MDM release into staging environment from 01 December 2019 Test phase commences: 22 October 2020 Test phase finishes: 01 December 2020			



Release 3 – B2M via API Functionality

Release 3 will also enable a new communication method for B2M transactions. Scope of Market Trials will be determined in the test planning workshops, and below is an indication of the release scope.

- New APIs for B2M transactions.
 - CATS, MDMT, HMGT, NMID
- Access to MSATS via Market Portal.
- MSATS browser changes to allow participants control the communication method (Push/Pull – API / FTP).
- MSATS security updates and changes to support EMDM.



Release 4 – Settlements and Dispatch & Bidding

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Release 4 – Industry Test Strategy Scope

Settlements, Dispatch & Bidding Platform		
Affected participants	Retailers Generators Small generation aggregators	Market ancillary service providers Distribution network service provider (potentially affected), MNSP Metering Service Provider (potentially affected)
Description	Changes specific to the Settlements system update to support current Procedures Changes resulting from the 5MS procedural changes and the upgraded Dispatch and Bidding platform to support the submission of 5-minute market bids.	
Test objective/s	New Bidding and Dispatch processes to support 5-minute bidding Processes for the conversion of 30 minute bids into 5 minute bids during the transition period Integration and interfacing upgrades for the Dispatch and Settlement platforms Upgraded settlement platform supporting the current 30-minute settlement market Calculation of Settlement accounts under a Global Settlement regime Settlement invoice generation and reconciliation in 5MS environment Participant invoice reconciliation processes for 5MS Production and verification of settlement invoices produced for the 5MS market start period where settlement is split across 30- and 5-minute granularity	
Test type	Market Trial with coordinated test cases between participants and AEMO	
Timeframe	Test phase commences: 17 February 2021 Test phase finishes: 13 March 2021	



Release 4 – Bidding Functionality

In Release 4, 5MS Program will enable the following functional capabilities. Scope of Market Trials will be determined in the test planning workshops, below is an indication of the release scope.

- Bids submission
 - FTP
 - Web Portal
 - API
 - SubmitBids
- Bids retrieval
 - Web Portal
 - API
 - GetBid
 - GetBids
 - GetSubmission
 - GetSubmissions



Energy, FCAS and MNSP Bidding

- The number of Bid intervals increases from 48 to 288. New data structures to receive, use, and store 5-mins bids and offers.
- Introduction of a new bid submission file format (.JSON), replacing the current .txt format.
- The bidding submission receipt format changes from .csv to a new .JSON format.
- AEMO introduces new web APIs to support bid submission and associated functionality. Participants can access the APIs over the internet and MarketNet.
- The Rebid explanation changes from a single Reason field to five fields.
- The EMMS Market Portal web bidding interface changes to support the new bidding format using the new APIs.



Bids Submission & Retrieval

- Bids submission will use a new .JSON format that will be supported via FTP, API and web upload.
- Participants can submit **5-minute bids** via FTP in a new .JSON format.
- FTP acknowledgement and rejection files will be in .JSON format.
- Introduction of web-based APIs for retrieving bid information from AEMO.
- Enhancements to the existing Web Bidding interfaces to support the new 5-minute bids functionality.



Release 4 – Dispatch Functionality

In Release 4, 5MS Program will enable the following Dispatch functional capabilities. Scope of Market Trials will be determined in the test planning workshops, below is an indication of the release scope.

Dispatch

- Use of 5-min bids
- Rolling Sum Price calculation based on 5-min Dispatch Price
- Administered Price Capping based on the modified Rolling Sum Price
- Market Suspension Schedule Price calculation based on 5-min Dispatch Price

Pre Dispatch

• Use of 5-min bids in 5-min pre dispatch (P5min) and 30-min pre dispatch

PASA

• Use of 5-min bids in Dispatch (DS), Pre-Dispatch (PD) and Short Term (ST) PASA.

Data Interchange

- Changes in the participant Data Model
- New Bids Report
- New Trading Price report



Dispatch

- The effective bids provided for the 5-minute trading period are used in the Dispatch process.
- Mandatory restrictions schedule remains produced at 30-minute resolution.
- Trading price changes from a 30-minute to 5-minute price.
- Rolling-sum price calculation for energy is now determined for 5-minute Spot Prices.
- During administered pricing, format for automatically generated market notices are changed to reflect the rules and calculation changes.
- When market suspension pricing applies, AEMO applies the determined 30-minute suspension price as the associated 5-minute Spot Price.
- The market suspension price schedules remain calculated for the 30-minute intervals over the 28 days.



Pre - dispatch, PASA and Data Interchange

- 30min Pre-Dispatch:
 - The last 5-minute bid in a 30-minute interval is used as the bidding input, i.e. the bids for periods 6, 12, 18, 24, ... to 288
- 5-Min pre-dispatch:
 - The effective bids and offers provided for the 5-minute Trading Intervals are used.
- PASA:
 - The 5-minute bid with the lowest availability in a 30-minute period is used as input.



Release 4 – Settlements Functionality

In Release 4, 5MS Program will enable the following functional capabilities. Scope of Market Trials will be determined in the test planning workshops, this is simply an indication of the release scope.

- Settlement process
- Invoicing
- Data Interchange
- Settlements Direct
- Prudentials and Prudential Forecaster
- Prudential Dashboard and Prudential Forecast web interface



Settlement Process

- Currently AEMO settles the NEM in a 30-min resolution.
- From 1 July 2021
 - Settlement transactions will be calculated in five minute resolution.
 - Settlement estimation calculation for energy transactions will be in five minute resolution.
 - All Energy and Non Energy (Ancillary services) calculations will be completed using 5-min resolution and prices.
 - AEMO publishes the Settlement reconciliation data at the same resolution as the associated settlement run.
 - Settlements UFE calculation reports will be available from 1 July 2021.
 - UFE will be applied to Adjusted Gross Energy calculations from 6 February 2022.



Invoicing and Report

Invoicing

- Smelter reduction and Mandatory Restrictions will no longer be displayed in the 'Summary of the NEM Transactions' or 'Detailed Transactions' section of any invoice statement.
- Invoices and statements will have a new look.
- PDF version will be upgraded to v1.5 from v1.4.

Settlement Report

- New columns DME & UFEA at TNI level in the Settlement Report.
- Section 'Sales (Purchases) by Transmission Connection Point' will no longer have 'Metered Data Agent' column.
- Following sections are removed from Settlement Report
 - Mandatory Restrictions
 - Smelter Reduction



Data Interchange

- With the five-minute settlements, the definition of PeriodID changes from 30 minutes (1 to 48) to five minutes (1 to 288).
- Additional indicators are added for 'interval length' to specify the length of an interval in each settlement run.
- An updated version of the Electricity data model, v5.0.
 - This will be an optional upgrade as the data model is backwards compatible.
- Participants can use 'Interval Length' to compare historical data and with both formats (five-minute and 30-minute).
- Settlement Data Extract
 - 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 additional data of AFE, DME, UFEA and AGE for each settlement run number, market participant, settlement day, trading interval, and TNI
- Local Area UFE Data Extract
 - 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 includes settlement run number, Local Area ID, Settlement date, Trading Interval(5 min) ID, ADME, TME, DDME, UFE for a combination of the LA and TI.

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Publishing Direct

- The Publishing Direct system allows Market Participants to access data, subscriptions, message delivery logs and calendars to the EMMS Wholesale Market System.
- The Publishing Direct system can be accessed via
 - API
 - Web
- The retention period in Publishing 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



Prudentials

Prudentials and Prudential Forecaster

- Changes to support 5-minute resolution
 - Reallocations
 - Trading price

Prudential Dashboard and Prudential Forecast Web Interface

- The web interface does not have any changes except to support the 5 min changes
- A new set of APIs to provide with the latest prudential information.
 - getPrudentialCompanySummary: Retrieve company details for supplied participant id
 - getCumulativePrice: Retrieve cumulative price per region
 - getPrudentialCalendar: Retrieve details for a billing calendar
 - getPrudentialRunVersion: Retrieve a latest prudential run detail
 - getPrudentialRunAllCompanies: Retrieve a prudential summary for each company in a prudential run
 - getForecastCompanySummary: Retrieve company details for supplied participant id, forecast run no and date
 - · getForecastRegionalPrice: Retrieve regional price details for supplied forecast run no and date
 - getForecastRevenue: Retrieve regional revenue details for supplied forecast run no and date
 - getForecastRunVersion: Retrieve metadata for the latest forecast prudential run
 - getForecastRunAllCompanies: Retrieve a prudential forecast summary for each company in a prudential forecast



Discussion on testing Settlement Files in Release 3

Tui Grant



Release 3: Settlement File Testing

Action 3.4.8: AEMO to include the discussion of Settlements files in ITWG #4.

- Generation of a settlement run and subsequent invoices can be performed using the existing Production settlements solution to provide confidence that the results are accurate.
- This test will have to be repeated at Release #4 to validate the new Settlements solution.



Metering transition - Industry Testing

Greg Minney



Metering transition - Industry Testing

Action 3.4.4: AEMO to confirm how the meter transition plan is incorporated into Industry Testing of Release 3.

Metering transition plan provide an industry agreed approach to the update of metering related information required to support 5MD and GS regulatory go-live dates.

Transition principles for 5MS & GS:

- Meet mandated dates
- Support uninterrupted NEM operation during transition period
- Minimise risks for system go-lives and 5MS and GS commencements
- Introduce certainty for project planning purposes

Metering transition focuses on below key areas;

- 5MS Metering installation requirements
- 5MS/GS metering data delivery to AEMO
- 5MS/GS: MSATS standing data datastream
- 5MS/GS: MSATS standing data general

Industry testing focus groups will take the above into consideration during the planning and preparation for Release 3.



5MS Metering installation requirements

Metering Type	Requirement	Date
Types 1, 2, 3 and 7	Must be capable of recording and providing, and configured to record and provide, five-minute trading interval energy data.	By 1 July 2021
Subset of Type 4*	Must be capable of recording and providing, and configured to record and provide, five-minute trading interval energy data.	By 1 July 2021
Types 4, 4A and 5	 All new or replacement metering installations (other than type 4A metering installations) installed from 1 December 2018 must be capable of recording and providing, and configured to record and provide, five-minute trading interval energy data. All new or replacement type 4A metering installations installed from 1 December 2019 must be capable of recording and providing, and configured to record and provide, five-minute trading interval energy data. 	By 1 Dec 2022

- * Subset type 4 meters definition:
- Type 4 metering installations at a:
 - Transmission network connection point; or
 - Distribution network connection point where the relevant financially responsible Market Participant is a Market Generator or Small Generation Aggregator



5MS/GS metering data delivery to AEMO

Topic	Requirement	Date
File Format	 MDFF NEM12 files to be the required file format For all interval metering data being delivered to AEMO MDFF NEM13 files to be supported by AEMO MDMF files for basic meter reads will continue to be supported and accepted 	From 1 July 2021
Granularity	 NEM12 interval metering data to be: Delivered at the register level (E, B, Q and K) NEM12 200 records must be accurate As per the meter's trading interval configuration i.e. 5, 15 or 30-minute intervals 	From 1 July 2021
Energy	 Metering data which must be sent to AEMO: Import and Export Active energy (kWh) (E and B) Import and Export Reactive energy (kVarh) (Q and K), where applicable All other forms of measurement (such as volts and amps) are not required to be delivered to AEMO but will be processed if they are provided. 	From 1 July 2021



5MS/GS: MSATS standing data - datastream

Metering Type	Requirement	Date
Types 1, 2, 3 and 7	• Net datastreams (N1) must be converted to Register level datastreams (E1, B1, etc.)	By 1 July 2021
Subset of Type 4*	• Net datastreams (N1) must be converted to Register level datastreams (E1, B1, etc.)	By 1 July 2021
Types 4, 4A and 5	 All new records relating to interval meters must be created at the register level e.g. E and B. Existing net datastream records can remain active post 1 July 2021, until an update to the datastream record is required e.g. meter replacement. Where an update is required to a CNDS record, the net datastream record is to be inactivated and any new active datastreams records are to be created at the register level. Datastreams associated with import and export reactive energy e.g. Q and K must be created in the CNDS table if they exist in the CRI table. Datastreams must be established in a manner that ensures they are not included in market settlements. 	From 1 July 2021
Basic Meters	 All 1st tier datastreams must be activated and meter reads delivered to AEMO, for UFE purposes 	By 1 July 2021



5MS/GS: MSATS standing data - general

By 1 July 2021

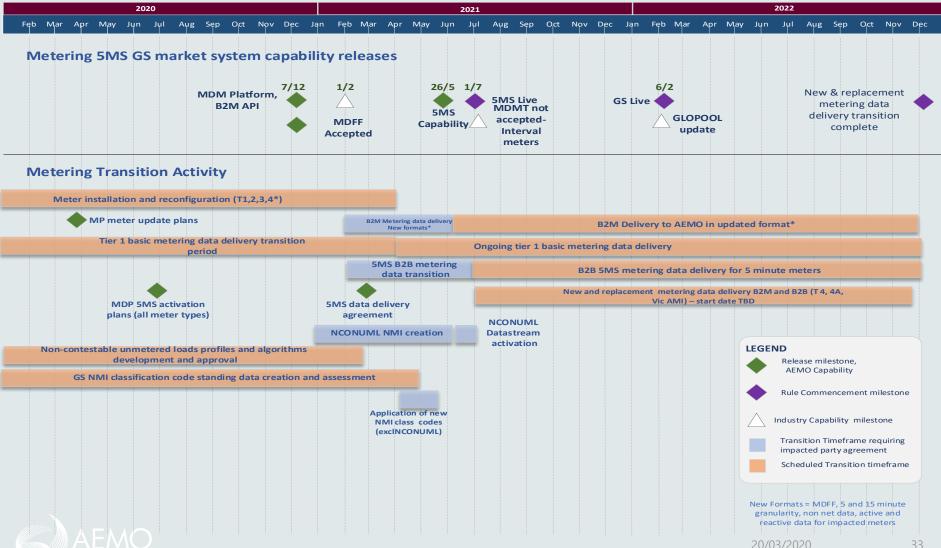
- Non-contestable unmetered load (NCONUML) NMIs and associated standing data created in MSATS
- NMI Classification Code updates, for affected existing NMIs, to reflect the new code requirements

NMI Classification Code	Description
BULK	Connection point where a transmission network connects to a distribution network - also termed 'Bulk Supply Point'
DWHOLSAL	Distribution network connection point where energy is directly purchased from the spot market by a Market Customer
NCONUML	Non-contestable unmetered load
NREG	Connection point associated with a non-registered embedded generator, i.e. a generating unit that is not classified by a Market Generator, but may be classified by a Small Generation Aggregator as a market generating unit.
WHOLESAL	Transmission network connection point where energy is directly purchased from the spot market by a Market Customer
XBOUNDRY	Connection point where a distribution network connects to another to distribution network



Metering Transition Plan

Back to Agenda



Staging environment

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Dispatch	Settlements	Metering
DROP ONE – 29 November 2019 Submit 5-Min Bids, via new web interface, API and/or FTP Bidding Data Model changes as per technical specifications released July 2019 Case Loaders for PASA, Dispatch, 5- minute Pre-Dispatch & 30-minute Pre- Dispatch data	DROP ONE – 1 November 2019 Reallocations: available at both 30 and 5-min intervals New Web UI Calendar selection Alerts	DROP ONE – 1 December 2019 Test connection to Staging Test MDFF validations Validate data exchange
Status: Live Participant interaction: at least 6 participants accessing in Jan 2020. Issues: issues related to the tech specs, now addressed. API connectivity issues for some participants.	Status: Live Participant interaction: at least 6 participants accessing in Jan 2020. Issues: incorrect setup by participants of their user roles.	Status: Live Participant interaction: 2 participants accessing in Jan 2020. Issues: None identified.
<u>DROP TWO – 15 May 2020</u>	<u>DROP TWO – 16 Mar 2020</u>	<u>DROP TWO – 31 July 2020</u>
Status: On track	Status: See next slide	Status: On track (noting some functionality will be introduced earlier)



- Settlements Package 3 was deployed in the 5MS Staging Environment on 16th March 2020.
- Key Points to note:
 - Input data for each of the settlement/billing runs will use production data where possible.
 - No integration with Reallocations system in the staging environment
 - UFE data for 5-minute and transition weeks will be artificially generated via a random generator.
 - Participants will be subscribed by default to the legacy versions of Settlements and Billing data model files.
 - Participants must use the data interchange portal in the staging environment to subscribe to the updated data model files
- The functions being made available are:
 - Prelim, Final, and Revision Settlements
 - Invoicing (Tax Invoice, RCTI, Adjustment Note, etc)
 - Reconciliation reports (SR, SS, etc)
 - Data Interchange
 - Settlements Direct (Production version, no API's)



- The initial focus will be 30 minute data generated in the new settlement solution:
 - Week 1: 16th March to 20th March 30 minute Prelim 2019Wk24 Completed
 - Week 2: 23rd March to 27th March 30 minute Finals 2019Wk25 and 2019Wk24
 - Week 3: 30th March to 3rd April 30 minute Revision 1 2019Wk25
 - Week 4: 6th April to 10th April 30 minute Revision 2 2019WK16
- A review will then be undertaken with participants for a period:
 - Weeks 5-11: 13th April to 29th May 30-minute Settlements review and retrospective, participant engagement, Q&A.
- To be followed by an example of a transition invoice
 - Week 12: 1st June to 5th June 30-minute to 5-minute transition (Prelim) 2020Wk14
- Then examples of the 5 minute settlement data:
 - Week 13: 8th June to 12th June Full 5-minute week (Prelim) 2020Wk15
 - Week 14: 15nd June to 19th June 30-minute to 5-minute transition week (Final) 2020Wk15
 - Week 15: 22nd June to 26th June Full 5-minute week (Final) 2020Wk15
- A review will then be undertaken with participants and a plan for global settlement examples will be published.



- Q&A Sessions have been scheduled for any questions you may have about Settlements Package 3 in the Staging Environment.
 - 1. Tuesday, 24 March 10.30
 - 2. Friday, 27 March 10.30
 - 3. Wednesday, 1 March 14.00
 - 4. Friday, 3 March 10.30
 - 5. Wednesday, 8 March 14.00
- Dates / times subject to change. Will be added / removed in line with demand.
- Didn't receive an invite? Contact us at 5MS@aemo.com.au



Release 3: Test planning activities – Focus Group

Tui Grant



Release 3 – Industry Test Focus Group

- Industry Test Focus Group will be a small group of ITWG participants representing various NEM roles.
- Focus group will be responsible for defining the test coverage for the Industry Testing/Market Trials.
 - Test scenario identification.
 - Test case preparation.
 - Data requirement definitions.
 - Test execution timeframes.
 - Consideration on defining the number of test cycles required.
- Nominations are called for parties interested in participating. Please email your interest to <u>5MS@aemo.com.au</u> by Friday, 10-Apr.
- First focus group meeting to be held by Friday, 24-Apr via WebEx.



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Forward meeting plan

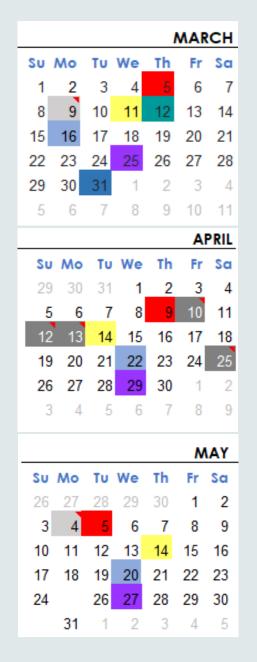
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Upcoming meetings

https://aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-program-and-global-settlement

Current as at 04/03/2020



Forums/Working Groups
Executive (EF)

Program Consult. (PCF)

Procedures (PWG)

Systems (SWG)

Readiness (RWG)

Industry Testing (ITWG)

Focus Groups
Dispatch
Metering
Settlements
Transition
Industry Testing
Reconciliation
Contingency

Other
Information sessions
General Q&A session
National Public Holiday
State Public Holiday*
*Relevant state has been marked

"Relevant state has been marked in a comment. WA, NT, TAS, ACT holidays have not been marked.



Proposed upcoming ITWG meeting content

Date	Meeting	Proposed content
Wed 29 Apr 2020	ITWG #5	 Walk through of Release 3 - Test Plan Update on Staging
Wed 27 May 2020	ITWG #6	• Topics TBA

If you have any suggested agenda topics, please contact 5MS@aemo.com.au



