



5MS & GS Systems Working Group #14

17 September 2019

Agenda

No	Time (AEST)	Agenda item	Presenter
1	10:00 – 10:05	Welcome, introduction and apologies	Sammy Wainrit
2	10:05 – 10:15	Minutes and actions from last meeting	Sammy Wainrit
3	10:15 – 10:20	Retail Stream update	Jim Agelopoulos
4	10:20 – 10:40	Meter data validation for reads with same MDP version DateTime	Simon Tu
5	10:40 – 10:45	Change Requests – RM Reports	Jim Agelopoulos
6	10:45 – 10:50	Settlements Stream update	Mark Hillaby
7	10:50 – 11:10	Reallocations Web UI walkthrough	Pierre Fromager
8	11:10 – 11:30	Settlements & Billing Technical Specification	Pierre Fromager
Break 11:30 – 11:40			
9	11:40 – 11:45	Dispatch Stream update	Hamish McNeish
10	11:45 – 12:25	Staging Environment – details of the November/December drops Retail / Reallocations APIs / Bidding APIs	Jim / Pierre / Hamish
11	12:25 – 12:30	Readiness Working Group update	Greg Minney
12	12:30 – 12:45	Transition Focus Group update	Greg Minney
13	12:45 – 12:50	Industry Engagement Structure	Monica Morona
Other business			
14	12:50 – 12:50	Forward meeting plan	Sammy Wainrit
15	12:50 – 13:00	General questions	Sammy Wainrit

Actions

Sammy Wainrit

Open actions

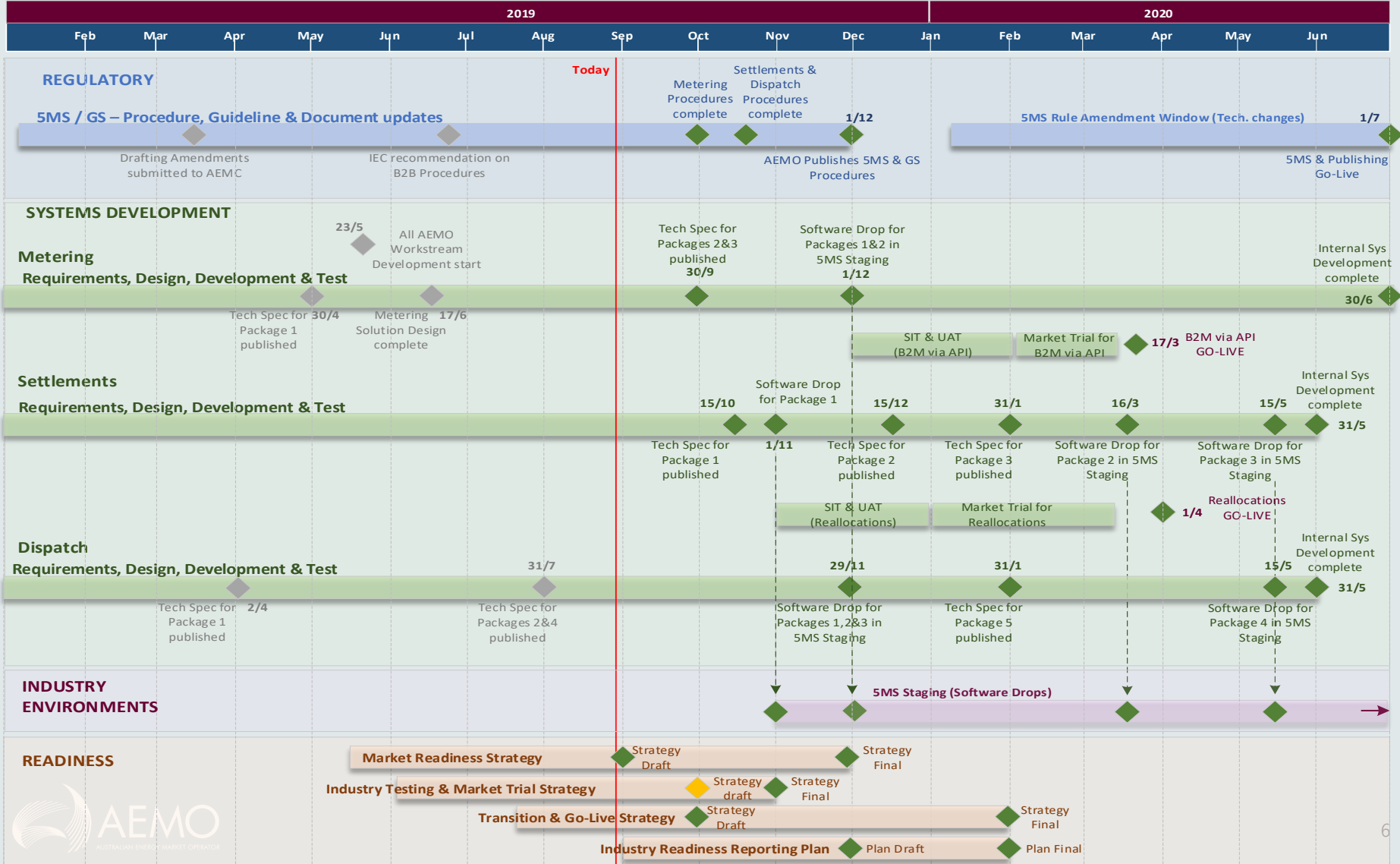
Item	Action required	Responsible	Action Update	By
1.6	AEMO to provide assessment on bandwidth/networking impacts.	AEMO	Pending Networking impact analysis is ongoing and an update to SWG will be provided no later than November 2019	November 2019
12.3.2	SWG members to provide any further feedback on if they plan to move to B2M via APIs and the expected timeline.	SWG members	Closed 1 response via the 5ms mailbox; 6 responses received via the survey	
12.4.1	SWG Members to review Technical Specifications and provide feedback to AEMO via 5MS@aemo.com.au.	SWG members	Closed	16 August 2019
12.12.1	AEMO to advise SWG of first Testing Focus Group when details available.	AEMO	Ongoing Details will be provided when TFG activities commence.	Ongoing
12.13.1	AEMO to present predictions to SWG on volume of meters capturing 5-minute data by the end of 2022.	AEMO	Pending An update will be provided during the meeting	17 September 2019
12.13.2	SWG members to provide feedback to AEMO regarding the 5MS Staging environment and any concerns relation to the new APIs being only accessible via the internet and not available via MarketNet.	SWG members	Closed 1 response via the 5ms mailbox; 6 responses received via the survey	

Level 2 Milestones – timeline

Sammy Wainrit

20 Level 1 and External Level 2 Milestones

Current as at 30 08 2019



Retail Stream update

Jim Agelopoulos

Systems Workstream - Metering

Current as at 30-08-2019

5 MINUTE SETTLEMENT SYSTEMS TRACKING	TIMING										
	Internal HLIA	Focus/Group	SWG Engagement	External HLIA	Draft Tech Spec	Final Tech Spec	User Guides	SMS Staging	Preprod	Production	
METERING											
PACKAGE 1 - Metering Data & Metrology											
MDFF • MDFF Specification NEM12 NEM13 v20	Aug-18	Oct-18	Oct-18	Nov-18	Jan-19	Apr-19	-	1 Dec 19	Sep-20	Nov-20	
PACKAGE 2 - MSATS & SLPs											
Transition • MSATS Release Schedule & Technical Specification	Aug-18	Sep-18	Aug-18	Nov-18	31-May-19	30-Sep-19	Date pushed out (internal Tech Spec prioritisation; SWG informed)	1 Dec 19	Sep-20	Nov-20	
Meter Data - MDFF and MDMF • MDM File Format and Load Process (User Guide) • MSATS Release Schedule & Technical Specification	Aug-18	Oct-18	Sep-18	Nov-18	31-May-19	30-Sep-19					
PACKAGE 3 - Miscellaneous											
B2M via API • MSATS Release Schedule & Technical Specification	Oct-18	-	Apr-19	9-May-19	31-May-19	30-Sep-19	31-Oct-19	N/A	Feb 20 TBC	Mar 20 TBC	
MSATS Browser (LVI) changes • MSATS Release Schedule & Technical Specification	Aug-18	-	May-19	9-May-19	28-Jun-19	30-Sep-19	TBC	31 Jul 20	Sep-20	Nov-20	
MSATS Report changes • MSATS Procedures MDM Procedure • MDM File Format and Load Process (User Guide) • MSATS Release Schedule & Technical Specification General Process & Document Clean-up	Oct-18	-	Apr-19	Apr-19	28-Jun-19	30-Sep-19	-	31 Jul 20	Sep-20	Nov-20	

Date pushed out (internal Tech Spec prioritisation; SWG informed)

Staging deployment not feasible for B2M via API

Alignment with L2-M3;
No content changes to MSATS LVI from Draft Tech Spec to Final

Systems Workstream - Metering

Current as at 30-08-2019

Key Milestones (Program)						
ID	Milestone	Description	Target Date	Expected Date	Status	Comments
L2-M1	AEMO internal metering solution – solution design complete (internal)	Solution Design phase for new AEMO Meter Data Management (MDM) and Profiling Allocation Engine (PAE) complete.	31-May-2019	17-Jun-2019	Complete	
L2-M2	Final technical specifications for Package 1 published by AEMO	Technical Specification for changes to MDFF NEM12 NEM13 as a result of 5MS and GS available to Participants.	30-Jun-2019	30-Apr-2019	Complete	
L2-M3	Final technical specifications for Package 2 published by AEMO	Technical Specification for changes to Transition, Meter Data Load – MDFF as a result of 5MS and GS available to Participants.	30-Sep-2019	30-Sep-2019	On Track	Alignment with Metering Package 2
L2-M4	Final technical specifications for Package 3 published by AEMO	Technical Specification for introduction of B2M via API as well as changes to the MSATS Browser (LVI) and MSATS Report changes as a result of 5MS and GS available to Participants.	30-Sep-2019	30-Sep-2019	On Track	Alignment with Metering Package 2
L2-M5	Software drop for Packages 1 & 2 in 5MS Staging Environment	Software deployed into the 5MS Staging environment for Meter Data Load – MDFF available for Participant testing.	01-Dec-2019	01-Dec-2019		On Track
L2-M6	Agreement on requirements for accreditation & Market Trial	Program agreement of the Accreditation requirements and process, and on market testing requirements and process.	31-Mar-2020	[31-Mar-2020]		Aligned with the MSP Accreditation Plan document
L2-M7	AEMO internal metering solution – build complete (internal)	Build phase for new AEMO Meter Data Management (MDM) and Profiling Allocation Engine (PAE) complete	30-Jun-2020	30-Jun-2020		On Track
L2-M8	Software drop for Package 3 in 5MS Staging Environment	Software deployed into the 5MS Staging environment for B2M via API, MSATS Browser (LVI) and MSATS Report enhancements and available for Participant testing.	31-Jul-2020	31-Jul-2020		On Track
L2-M9	AEMO internal metering solution – go live complete (internal)	Go Live date for new AEMO Meter Data Management (MDM) and Profiling Allocation Engine (PAE) complete	31-Oct-2020	[31-Oct-2020]		On Track
L2-M10	New MDFF format accepted by AEMO	AEMO deploys MDFF capable software to PROD, and all Market Participants can begin submitting files in the new MDFF format.	01-Nov-2020	[01-Nov-2020]		Dependent upon readiness strategy
L2-M11	Market Trial preparation completed by participants	All Market Participants who are required to submit five-minute meter reads are ready for market trials	30-Nov-2020	[30-Nov-2020]		Content and timing of Market Trials TBD
L2-M12	Market Trial preparation completed by AEMO	AEMO has deployed all relevant software to the 5MS pre-Production environment and is ready to deliver the agreed Market Trial scenarios	30-Nov-2020	[30-Nov-2020]		Content and timing of Market Trials TBD
L2-M13	Market Trials conclude	All relevant Market Participants have completed Market Trials to submit five-minute read data.	31-May-2021	[31-May-2021]		Content and timing of Market Trials TBD

Validations Matrix updates: Replacement Reads

Simon Tu

Replacement Reads

Duplicate Reads and Reads that are older than a stored read

- AEMO needs to cater for scenarios where *metering data* has erroneously been sent to the enterprise MDM with the same or older NMI, NMI suffix, Data Stream, settlement date and MDPVersionDate/UpdateDateTime as a read already present in the MDM.
- The handling of such reads depends on the transaction type, either as a MDMT MeterDataNotification or a MTRD MeterDataNotification.

Replacement Reads

Situation

- **MDMT:** For MDMT transactions AEMO shall continue to reject duplicate or reads with an older MDP Version Date.
- **MTRD:** AEMO shall commence accepting *metering data* send via the MTRD MeterDataNotification transaction type for the purpose of market settlements from 1/12/2020. Participants attending the industry work groups have requested that AEMO follows the de facto B2B message exchange for MTRD MeterDataNotification where the receiving party accepts all reads.

Complication

- AEMO, in its role as the market operator will use all efforts necessary to notify participants when *metering data*, sent by a MDP will not be used for Market Settlements.
- AEMO, is in a compliance monitoring role, checking the compliance of participants to their obligations. MDPs should only send *metering data* to registered parties where the metering data has changed and should be sending the latest version of data as flagged by the MDPVersionDate or UpdateDateTime.
- AEMO only stores metering data for the purpose of market settlements, where the data is sent to AEMO in error, AEMO shall not store these reads.

Replacement Reads

Approach

- AEMO shall emulate the existing B2M practice of sending a reject for a read that is a duplicate or has an older MDP Version Date
- AEMO shall not load the *metering data* into the database
- AEMO sends a market response to the MDP to indicate that the *metering data* was rejected by sending a *ase:TransactionAcknowledgement* with:
 - an event of severity "Error"
 - Event code 1089 representing the event "There is a record in the system that overlaps this record with a 'Version Date' that is equal to the 'Version Date' of this record."
 - the details of the NMI, NMI Suffix, settlement data and MDP Version Date
Time of the rejected read

Change Requests – RM Reports

Jim Agelopoulos

CR18 – Additional reconciliation data in RM reports

Background

The RM reports do not include the MDP version date/time in metering or settlement reports. The omission of the MDP version date/time means participants are unable to identify which version of meter reads have been used in the settlement period. Pain points (incl. risk):

- Unable to identify the version of data used for settlements
- Unable to correctly validate settlement data

Objective

To include the MDP version date/time to the settlement reports to enable participants to accurately validate the settlement statement. This involves:

- Including the MDP version date/time for each settlement day on the RM17, RM21 and RM27 reports

Report Number	Report Name
RM17	Level 3 Settlement Reconciliation for Non-Aggregated Data
RM21	Level 2 Settlement Reconciliation Report
RM27	Automated RM21 Report Level 2 Settlement Reconciliation Report

Benefit

- Ability to identify which read version is used in settlements
- Ability to validate settlements to a higher degree of accuracy, reducing the quantity of service desk calls to AEMO

CR19 – Continuation of 30-minute RM and Settlement reports

Background

Settlements is performed at 30 minute intervals with participant systems configured to accept, validate and report exceptions within the 30 minute data intervals. Pain points (incl. risk):

- Introduction of 5 minute settlements requires participants to validate settlements at 5 minute granularity, even if all customer reads are received in 30 minute intervals

Objective

To maintain a 30 minute version of RM and Settlement reports from MDM to support participants existing reconciliation processes. This involves:

- Including the creating a new version of the RM16, RM17, RM20, RM22, RM25 and RM43 reports

Report Number	Report Name
RM16	Level 1 Settlement Reconciliation Report
RM17	Level 3 Settlement Reconciliation for Non-Aggregated Data
RM20	PPS Report
RM22	Data Estimation Report
RM25	Settlement - Profile Shape Data
RM43	UFE Values by Profile Area

Benefit:

- Cost/benefit not immediately clear to AEMO
- **Participants to provide business benefits to support change due to development impacts**

Settlements Stream update

Mark Hillaby

Systems Workstream - Settlements

Current as at 30-08-2019

5 MINUTE SETTLEMENT SYSTEMS TRACKING	TIMING									
	Internal HLIA	Focus/Group	SWG Engagement	External HLIA	Draft Tech Spec	Final Tech Spec	User Guides	SMS Staging	Preprod	Production
SETTLEMENTS										
PACKAGE 1 - Reallocations										
Reallocations	Dec-18	Nov-18	Dec-18	Mar-19	31-Jul-19	15 Oct 19	1-Nov-19	1-Nov-19	Mar-20	Apr-20
PACKAGE 2 - Settlements and Billing										
Settlements	Oct-18	Nov-18	Dec-18	Mar-19	30-Aug-19	20 Dec 19	-	16 Mar 20	Nov-20	May-21
Billing	Oct-18	Nov-18	Dec-18	Mar-19	30-Aug-19	20 Dec 19	-	16 Mar 20	Nov-20	May-21
PACKAGE 3 - Prudentials and Estimation										
Prudentials	Sep-18	Nov-18	Dec-18	Mar-19	31-Oct-19	31 Jan 20	15 May 20	15 May 20	Nov-20	May-21
Estimation	Oct-18	Nov-18	Dec-18	Mar-19	31-Oct-19	31 Jan 20	-	15 May 20	Nov-20	May-21
Full Data Model	Refer DISPATCH									

Alignment with Staging deployment

Level 2 Milestones – Settlements

Current as at 30-08-2019

Key Milestones (Program)

ID	Milestone	Description	Target Date	Expected Date	Status	Comments
L2-S1	Final technical specifications for Package 1 published by AEMO	Technical Specification for changes to Reallocation as a result of 5MS and GS available to Participants.	15-Oct-2019	15-Oct-2019	On Track	
L2-S2	Software drop for Package 1	Software deployed into the 5MS Staging environment for Reallocations.	01-Nov-2019	01-Nov-2019	On Track	
L2-S3	Final technical specifications for Package 2 published by AEMO	Technical Specification for changes to Settlements and Billing as a result of 5MS and GS available to Participants.	15-Dec-2019	15-Dec-2019	On Track	
L2-S4	Final technical specifications for Package 3 published by AEMO	Technical Specification for changes to Prudentials as a result of 5MS and GS available to Participants.	31-Jan-2020	31-Jan-2020	On Track	
L2-S5	Development completed (internal)	All AEMO internal UAT has completed for Settlements stream	31-May-2020	31-May-2020	Firm	
L2-S6	Software drop for Package 2 in 5MS Staging Environment	Software deployed into the 5MS Staging environment for Settlements and Billing.	16-Mar-2020	16-Mar-2020	Firm	
L2-S7	Software drop for Package 3 in 5MS Staging Environment	Required Market Participants have completed industry testing for the upgraded reallocations web portal.	15-May-2020	15-May-2020	Provisional	Content of Market Trials TBD
L2-S8	Market Trials for reallocations	All AEMO internal development work has completed for Settlements stream	13-Mar-2020	[13-Mar-2020]	Firm	
L2-S9	UAT completed (internal)	All Market Participants who will receive Wholesale settlement invoicing are ready for market trials.	30-Nov-2020	30-Nov-2020	Provisional	Content and timing of Market Trials TBD
L2-S10	Market Trial preparation completed by participants	AEMO has deployed all relevant software to the 5MS pre-Production environment and is ready to deliver the agreed Market Trial scenarios.	30-Nov-2020	[30-Nov-2020]	Provisional	Content and timing of Market Trials TBD
L2-S11	Market Trial preparation completed by AEMO	AEMO has deployed reallocation software to the PROD environment and 5-minute reallocation requests are enabled.	30-Nov-2020	[30-Nov-2020]	Provisional	
L2-S12	Reallocations go Live	Software deployed into the 5MS Staging environment for Estimations and Prudentials.	01-Apr-2020	[01-Apr-2020]	Firm	
L2-S13	Market Trials conclude	All relevant Market Participants have passed the Market Trial for Settlements	31-May-2021	[31-May-2021]	Provisional	Content and timing of Market Trials TBD

Reallocations Web UI walkthrough

Pierre Fromager

Reallocations Web UI

- Number of trading interval rows multiplied by 6 – total will be 288
 - Introducing bulk edit, condensed view, grid view (\$ & MWh only)
 - Offering search facility
 - Ability to download and upload to and from CSV file format
 - Improved authorisation confirmation
 - Authorising party can now reject a submitted reallocation
 - Selection of a calendar for applicable Public holidays
 - Reverse or duplicate a reallocation
- Introducing warning dates (EADD WD and EPDD WD), 2 days prior to due date; this will be used in alerts
 - Alerts are included for Staging Environment drop 1, but may be delayed due to testing impact
 - Two new alerts: changes to reallocations and warning dates

1.0.0 Reallocation Landing Page

MMS

Reallocation - Iraak Sun Farm

Create reallocation

Upload

Public holidays

Market Info

Settlements

Active period 20/06/2009 - 20/06/2019

Settlements

38
Reallocations

1
Awaiting your
authorisation

3
About to expire

5
Awaiting
counterparty

30
Authorised

1
Expired

1
Cancelled/
Rejected

Settlements Direct

View Prudentials 1-10 of 22 results

Reallocation

Payment Nomination

View/ Create PM Offset

Counterparty v Creator v Region v More v

Export CSV

SRA

Intermittent generation

Data Interchange

Reallocation ID	Counterparty	Last change	Profile	Agreement type	Ex Post due date	Region	Day type	Agreement	Actions
20170803.RS022 Creator: Riaotallab	Riaotallab	9/12/2017	<input type="checkbox"/> All days <input type="checkbox"/> Business <input type="checkbox"/> Non-Business	<input type="checkbox"/> \$ (Dollar) <input type="checkbox"/> MWh (Energy) <input type="checkbox"/> SWAP	9/12/2017	NSW	Business	\$	Authorise
20170803.RS123 Creator: Iraak Sun Farm	Riaotallab	9/12/2017	<input type="checkbox"/> Current <input type="checkbox"/> Future <input type="checkbox"/> Finished	<input type="checkbox"/> CAP <input type="checkbox"/> FLOOR	9/12/2017	NSW	Business	\$	Authorise
20170803.RS657 Creator: Iraak Sun Farm	Riaotallab	9/12/2017			9/12/2017	NSW	Business	\$	Authorise
20170803.RS762 Creator: Riaotallab	Riaotallab	9/12/2017 03:15			9/12/2017	NSW	Business	MWh	Authorise
20170803.RS987 Creator: Riaotallab	Riaotallab	9/12/2017 03:15			9/12/2017	NSW	Business	\$	Reverse
20170803.RS812 Creator: AES	AES	9/12/2017 03:15			9/12/2017	NSW	Business	MWh	Reverse

2.0.0 View Reallocation – Grid view

- MMS
- Market Info
- Settlements
- Settlements
- Settlements Direct
- View Prudentials
- Reallocation**
- Payment Nomination
- View/ Create PM Offset

Reallocation details 20190801.RS001

○ Awaiting your authorisation
 ○ Reallocation expiring on 9 Aug 2019

Authorise

Reject ⋮
 Export
 Duplicate

Counterparty	AGLE	Your role	Credit
Creator	AGLE	Region	Queensland(QLD)
Agreement type	SWAP	Day type	Business days
Public holiday calendar	Calendar 1		
Start date	20/07/2019	End date	22/07/2019
Ex Post due date	09/08/2019	Ex Ante due date	30/07/2019
Last changed	29/08/2019 22:50		
Total MWh	5,000 MWh	Total Nominated price	\$ 4,000
Your reference	AGL wk 30 Business		



- SRA
- Intermittent generation
- Data Interchange

MWh (Energy)	Trading Interval	:00	:05	:10	:15	:20	:25	:30	:35	:40	:45	:50	:55
Nominated price	00:	10	100	30	0	0	0	0	0	0	0	110	110
	01:	100	100	20	0	0	0	0	0	0	0	0	80
	02:	0	0	20	0	0	0	0	0	0	0	0	80
	03:	0	0	25	0	0	0	0	0	0	0	0	75
	04:	0	0	25	0	0	0	0	0	0	0	0	75
	05:	100	100	30	0	0	0	0	0	0	0	110	110

2.0.0 View Reallocation – List view

- MMS
- Market Info
- Settlements
- Settlements
- Settlements Direct
- View Prudentials
- Reallocation**
- Payment Nomination
- View/ Create PM Offset
- SRA
- Intermittent generation
- Data Interchange

Reallocation details 20190801.RS001

○ Awaiting your authorisation ○ Reallocation expiring on 9 Aug 2019

Authorise
Reject
⋮

Export

Duplicate

Counterparty	AGLE	Your role	
Creator	AGLE	Region	
Agreement type	SWAP	Day type	
Public holiday calendar	Calendar 1		
Start date	20/07/2019		
Ex Post due date	09/08/2019		
Last changed	29/08/2019 22:00		
Total MWh	5,000 MWh		
Your reference	AGL wk 30 Business		

Authorise reallocation 20190801.RS001

To authorise this reallocation, please confirm the correct values below

Counterparty	AGLE ACTEWAGL ADVANCE ✓
Total MWh	4000 200 1200 ✓
Agreement type	\$ (Dollar) MWh (Energy) SWAP ✕

Your reference (optional)

Reject reallocation

Are you sure? Rejecting this reallocation will be authorised

Your reference (optional)

Yes, Cancel reallocation
Not now

120 Rows

Trading Interval	MWh	Strike price
00:05	100	100.00
00:10 - 01:20	100	50.00
01:25 - 04:00	10	0
04:05 - 17:15	0	0
17:20 - 17:45	100	100.00
17:45 - 18:00		

I
⋮

3.0.0 Create Reallocation – Grid - Energy

MMS

Create reallocation

Create

Discard

Upload

Download template
Clear all

Market Info

Your role
 Credit Debit
 Counterparty

Settlements

Start date

 End date

Settlements

Region

 Agreement type

 Day type

 Public holiday calendar

Settlements Direct

View Prudentials

Reallocation

Payment Nomination

View/ Create PM Offset

Reference (optional)

Quick-fill

Preview

SRA

Total Energy: 2,000 MWh

Intermittent generation

Data Interchange

Trading Interval	:00	:05	:10	:15	:20	:25	:30	:35	:40	:45	:50	:55
00:		100	30	0	0	0	0	0	0	0	110	110
01:	100	100	20	0	0	0	0	0	0	0	0	80
02:	0	0	20	0	0	0	0					
03:	0	0	25	0	0	0	0					
04:	0	0	25	0	0	0	0					
05:	100	100	20	0	0	0	0					

Confirm reallocation creation

There is a contract that underpins this reallocation. You confirm to create this reallocation. 1

2 Yes, Confirm

3.0.0 Create Reallocation – Grid – Nominated Price

MMS

Create
Discard
Upload
⋮

Create reallocation

Market Info

Settlements

Settlements

Settlements Direct

View Prudentials

Reallocation

Payment Nomination

View/ Create PM Offset

Your role
Credit Debit

Counterparty
AES

Start date
20/06/2019

End date
20/06/2019

Region
QLD

Agreement type
SWAP

Day type
Business days

Public holiday calendar
Calendar 1

Reference (optional)

Quick-fill
Preview

Total energy: 2,000 MWh Total Nominated price: \$5,000

MWh (Energy) Nominated price	Trading Interval	:00	:05	:10	:15	:20	:25	:30	:35	:40	:45	:50	:55
00:			100	30	0	0	0	0	0	0	0	110	110
01:		100	100	20	0	0	0	0	0	0	0	0	80
02:		0	0	20	0	0	0	0	0	0	0	0	80
03:		0	0	25	0	0	0	0	0	0	0	0	75
04:		0	0	25	0	0	0	0	0	0	0	0	75
05:		100	100	30	0	0	0	0	0	0	0	110	110
06:		100	100	20	0	0	0	0	0	0	0	0	80
07:		0	0	20	0	0	0	0	0	0	0	0	80
08:		0	0	25	0	0	0	0	0	0	0	0	75
09:		0	0	25	0	0	0	0	0	0	0	0	75

4.0.0 Create Reallocation – Quick fill example

MMS

Create reallocation

Create Discard Upload

Market Info

Settlements

Settlements

Settlements Direct

View Prudentials

Reallocation

Payment Nomination

View/ Create PM Offset

SRA

Intermittent generation

Data Interchange

Your role: **Credit** Debit

Counterparty: BigGen3

Start date: 20/06/2019 End date: 20/06/2019 Ex Ante due date: 10 Sep 2019

Region: Calendar 1

Day type: Business days

Reference (optional)

Total energy: 2

MWh (Energy)
Nominated price

Trading Interval												
00:												
01:												
02:	0	0	20	0	0	0	0	0	0	0	0	80
03:	0	0	25	0	0	0	0	0	0	0	0	75
04:	0	0	25	0	0	0	0	0	0	0	0	75
05:												

Quick-fill reallocation

Enter values for columns you want to quick-fill

Select time interval	MWh
01:00 - 23:00	No change 0

+ Add

Done

Quick-fill Preview

Reallocations Web UI

Seeking feedback from SWG on the interface:

- Any questions?
- Views or suggested improvements?

Settlements & Billing Technical Specifications

Pierre Fromager

Settlements & Billing Technical Specifications

- 5 minute trading intervals imply that Settlements will need to process approximately six times the volume of data provided by Dispatch and Metering
- A new data item called 'IntervalLength' is introduced to the Data Model, set to 30 until 30/6/21 and changing to 5 on 1/7/21
 - Settlement uses this to determine the granularity to use for a specific day. This allows for a seamless transition week
- Mandatory Restrictions are no longer considered by Settlements

Tech Spec – Global Settlements

GS introduces a new UFE calculation

- UFE was assigned to the FRMP responsible for a local area
- It is now allocated to all market participants within a distribution network
- Metering will provide 'NMI Net' sums of customer energy (i.e. net of generated energy at a NMI level)
- Distribution network is defined using NMI classifications

- The SR report includes DME and UFEA
- Settlement Data Extract file – includes DME and UFEA
- Local Area UFE Data Extract file – new report

Tech Spec – Billing & Invoicing: what's changing

Billing

- Changes to the application structure, including building a central 'engine', which completes the critical calculations and can be certified
- Payment calculation is separated to a distinct application
- 5MS does not directly impact Billing since it aggregates daily values. Billing should work seamlessly during transition week
- Mandatory restrictions and smelter reduction line items are dropped

Invoicing

- AEMO will make presentation changes to Settlement statements. These will be effective from release and occur prior to the commencement date
 - This will include new document production system with mail-merge functionality
- SR report includes DME and UFEA

Tech Spec – Data Model

- Data model – new fields:
 - SetLocalAreaEnergy: Provide UFE, TME, ADME, etc for an LA.
 - SetLocalAreaTNI: Ditto for a TCP
- Data model – changes to fields:
 - SetMarketFees: new columns 'FeeRate' and 'FeeUnits', for additional details on how the fee was derived.
 - SetCPData & BillingCPData: Adding DME and UFEA

Tech Spec – feedback

- Question
 - Does the technical specification provide enough information for participant system change needs?

Break (10 mins)

Dispatch Stream update

Hamish McNeish

Systems Workstream – Dispatch and Operations

Current as at 30-08-2019

5 MINUTE SETTLEMENT SYSTEMS TRACKING	TIMING									
	Internal HLIA	Focus/Group	SWG Engagement	External HLIA	Draft Tech Spec	Final Tech Spec	User Guides	SMS Staging	Preprod	Production
DISPATCH and OPERATIONS										
PACKAGE 1 - Bidding FTP and API										
Transition	Aug-18	Oct-18	Aug-18	Nov-18	Dec-18	2-Apr-19	31-Oct-19	29-Nov-19	Nov-20	Mar-21
Bidding Data Model	Aug-18	-	Sep-18	Mar-19	Dec-18	2-Apr-19	31-Oct-19	29-Nov-19	Nov-20	Mar-21
Bidding Format	Aug-18	-	Sep-18	Nov-18	Dec-18	2-Apr-19	31-Oct-19	29-Nov-19	Nov-20	Mar-21
PACKAGE 2 - Bidding Web UI										
Bidding Web UI and APIs	Aug-18	Nov-18	Dec-18	Jan-19	Mar-19	31-Jul-19	31-Oct-19	29-Nov-19	Nov-20	Mar-21
PACKAGE 3 - Dispatch, Pre-dispatch and PASA										
Dispatch	Aug-18	-	Oct-18	Nov-18	Oct-18	2-Apr-19	-	29-Nov-19	Nov-20	Mar-21
Predispatch P30/7DAY	Aug-18	-	Oct-18	Nov-18	Oct-18	2-Apr-19	-	29-Nov-19	Nov-20	Mar-21
Predispatch P5	Nov-18	Oct-18	Nov-18	TBC	TBC	TBC	-	TBC	Nov-20	May-21
ST and PD PASA	Aug-18	-	Oct-18	Nov-18	Oct-18	2-Apr-19	31-Oct-19	29-Nov-19	Nov-20	Mar-21
PACKAGE 4 - Pricing and Miscellaneous										
Trading Price / Price Revision	Aug-18	-	Feb-19	Nov-18	Mar-19	31-Jul-19	-	15-May-20	Nov-20	May-21
Administered Pricing and CPT	Aug-18	-	Feb-19	Dec-18	Mar-19	31-Jul-19	-	15-May-20	Nov-20	May-21
Suspension Pricing	Sep-18	-	Feb-19	Dec-18	Mar-19	31-Jul-19	-	15-May-20	Nov-20	May-21
Negative Residue Management	Sep-18	-	Feb-19	Dec-18	Jun-19	31-Jul-19	-	15-May-20	Nov-20	May-21
RERT	Oct-18	-	-	-	-	-	-	-	-	-
PACKAGE 5 - Full Data Model										
Full Data Model	Sep-18	Ongoing	Ongoing	Apr-19	Ongoing	31-Jan-20	16 Mar 20	29-Nov-19	Nov-20	May-21

Alignment with Staging deployment

Level 2 Milestones - Dispatch

Current as at 30-08-2019

Key Milestones (Program)						
ID	Milestone	Description	Target Date	Expected Date	Status	Comments
L2-D1	Final technical specifications for Package 1 published by AEMO	Technical Specification for changes to Dispatch, Pre-dispatch P30/7DAY, ST PASA, Bidding Data Model and Bidding Format as a result of 5MS and GS available to Participants.	2-Apr-2019	2-Apr-2019	Complete	
L2-D2	Final technical specifications for Package 2 published by AEMO	Technical Specification for changes to the Bidding Web UI and APIs as a result of 5MS and GS available to Participants.	31-Jul-2019	31-Jul-2019	Complete	
L2-D3	Software drop for Packages 1,2 & 3 in 5MS Staging Environment	Software deployed into the 5MS Staging environment for Dispatch, Predispatch P30/7DAY, ST PASA, Bidding Data Model and Bidding Format, Bidding Web UI and APIs and Predispatch P5.	29-Nov-2019	29-Nov-2019	[Firm]	
L2-D4	Development completed (internal)	Software deployed into the 5MS Staging environment for RERT, Trading Price / Price Revision, Administrated Pricing and CPT, Suspension Pricing, Negative Residue Management, data model for Dispatch	31-May-2020	31-May-2020	[Firm]	
L2-D5	Software drop for Package 4 in 5MS Staging Environment	All AEMO internal development work has completed for the Dispatch stream	15-May-2020	15-May-2020	[Firm]	
L2-D6	UAT completed (internal)	All AEMO internal UAT has completed for the Dispatch stream	30-Nov-2020	30-Nov-2020	[Firm]	
L2-D7	Market Trial preparation completed by participants	All Market Participants who are required to submit 5MS bids and offers are ready for market trials	30-Nov-2020	[30-Nov-2020]	Provisional	Content and timing of Market Trials TBD
L2-D8	Market Trial preparation completed by AEMO	AEMO has software deployed to pre-production environment and is ready to deliver the agreed Market Trail scenarios	30-Nov-2020	[30-Nov-2020]	Provisional	Content and timing of Market Trials TBD
L2-D9	5-min bidding phased go live begins	Participants can begin submitting 5-min bids to the market	01-Apr-2021	[01-Apr-2021]	Provisional	
L2-D10	Market Trial concludes	Market Trial scenarios related to dispatch have been completed	31-May-2021	[31-May-2021]	Provisional	Content and timing of Market Trials TBD
L2-D11	30-min bidding no longer accepted by AEMO	All Wholesale Market Participants now submitting five-minute bids and offers to AEMO	01-Jul-2021	01-Jul-2021	Mandatory	
L2-D12	Final technical specifications for Package 4 published by AEMO	Technical Specification for changes to Pricing (and Miscellaneous) as a result of 5MS and GS available to Participants.	31-Jul-2019	31-Jul-2019	Complete	
L2-D13	Final technical specifications for Package 5 published by AEMO	Technical Specification for changes to the full data model as a result of 5MS and GS available to Participants.	31-Jan-2020	31-Jan-2020*	[Firm]	

Staging environment

Systems Presentation

Retail – functionality available in Staging

Jim Agelopoulos

Retail – functionality available in Staging

Objectives

- Allow MDPs to confirm the connectivity of their test environments with the AEMO 5MS Staging Environment.
- Allow MDPs to confirm that MTRD CSV MDFF created by their systems for Market Settlements are able to pass new AEMO validations (30 min and 5 min).
- Allow MDPs to validate FTP hokey pokey protocol for MTRD exchange with the NEMMCO participant ID.

Retail – functionality available in Staging

Scope of functionality

- Manage hokey pokey message exchange for MTRD Transactions through their Participant inbox and outbox.
- Allow MDPs to send through the FTP protocol 5 and 30 minute MTRD Meter Data Notification in the MDFF meter reads format to AEMO.
- AEMO shall perform validations, and generate and return to the initiating MDP (via the FTP protocol) the following business documents and business signals, upon receipt of the MTRD Meter Data Notification:
 - a Hub Acknowledgment as a .ac1 file.
 - an ase:MessageAcknowledgement/@status="Accept" as a standalone .ack file acknowledgement.
 - an ase:MessageAcknowledgement/@status="Reject" as a standalone .ack file acknowledgement.
 - a bundled ase:MessageAcknowledgement/@status="Accept" and ase:TransactionAcknowledgement/@status="Reject" and as an .ack file acknowledgement
 - an ase:TransactionAcknowledgement/@status="Accept" as a standalone .zip file message
 - an ase:TransactionAcknowledgement/@status="Reject" as a standalone .zip file message
 - an ase:TransactionAcknowledgement/@status="Partial" as a standalone .zip file message

Retail – functionality available in Staging

Assumptions/Constraints

- Only message exchange for MTRD Meter Data Notification where the <To> Participant ID is 'NEMMCO' shall be supported
- Connectivity is only via AEMO's MarketNet
- Only the FTP protocol preference is supported
- Only the r38 schema for MTRD Meter Data Notification shall be supported
- Only NEM12 MTRD shall be supported
- Only one transaction per MTRD message shall be supported
- Standing Data shall be static and shall consist of a Production data snapshot
- B2M CATS, NMID, and MDM transactions (inclusive of RM reports) shall not be supported
- B2B message exchange shall not be supported

Reallocations APIs – functionality able to be tested in Staging

Mark Hillaby

Reallocations – functionality available in Staging

Objectives

- Allow participants to test submitting reallocation requests to AEMO from their systems via APIs
- Allow participants to use the new Reallocations Web UI and provide feedback

Reallocations – functionality available in Staging

Reallocations

- Submit, authorise and view reallocations via Web UI
- Submit or authorise a reallocation via APIs and receive acknowledgement
- Retrieve reallocations via APIs
- Retrieve support information (regions, calendars, participants) via APIs

Restrictions

- APIs may only be accessed from the internet.

Reallocations – functionality available in Staging

5min vs 30 min reallocations

Both the Web UI and the APIs will handle both 5 and 30min reallocations:

- Reallocations spanning before the Commencement Date (1/7/2021) will expect and provide 48 intervals (i.e. 30min).
- Reallocations spanning after the Commencement Date will expect and provide 288 intervals (i.e. 5min).
- Reallocations will be rejected if they span across the Commencement Date.

Reallocations APIs – functionality available in Staging

- New set of APIs to submit, authorise, search and retrieve reallocations.

Core	Support
<ul style="list-style-type: none">• submitReallocation• authoriseReallocation• cancelReallocation• getReallocation• getReallocations	<ul style="list-style-type: none">• getAgreementTypes• getCalendar• getCalendars• getParticipants• getProfileTypes• getReallocationSteps• getRegions• getMarketPriceCap

- Uses JSON files for input and output
- Messaging – errors and acknowledgements

Bidding - functionality able to be tested in Staging

Hamish McNeish

Bidding - functionality available in Staging

Objectives

- Allow participants to test submitting 5-minute bids to AEMO from their systems via FTP and/or APIs
- Allow participants to use the new Bidding Web UI and provide feedback
- Allow participants to receive and test the new Bidding Data Model reports (including Data Model database scripts)

Bidding - functionality available in Staging

Bidding

- Submit and view 5-minute bids via Web UI
- Submit 5-minutes bids via FTP and receive acknowledgement
- Submit 5-minute bids via API and receive acknowledgement
- Retrieve bids via APIs
- Receive data model 5-minute bidding reports
- **Restrictions**
 - APIs will be internet accessible only
- **For Discussion:**
 - Web UI and FTP for Submit 30-minute bids – these would be copied to 5-minute bids
 - Existing 30-minute bidding data model reports

Bidding - functionality available in Staging

Dispatch / 30-minute Pre-dispatch / 5-minute Pre-dispatch / PASA

- Will use 5-minute bids
- Receive existing data model reports
- **Not Included:**
 - 5-minute pre-dispatch FSIP
 - 7-day pre-dispatch
 - Mandatory Restrictions won't be exercised

Bidding APIs

- Detailed in the EMMS Dispatch Technical Specification
- New set of APIs to submit, and retrieve Bids.

Core	Support
<ul style="list-style-type: none">• submitBids	<ul style="list-style-type: none">• getBids• getBid• getSubmissions• getSubmission

- A Submission is a collection of Bids – relating to the FTP file or API submitBids request
- Uses JSON files for input and output

Readiness Working Group update

Greg Minney

Readiness Workstream Update

RWG #3 held 27th August

- Review of interim readiness reporting and participants risks
- Staging Environment arrangements
- Approach to metering transition

Draft Market Readiness Strategy

- Distributed for consultation 30th August
- Comments due 20th September

Interim Readiness Reporting Survey #2

- Distributed 2nd September
- Responses due 13th September

Interim Readiness Reporting # 1

– key findings

- While there is strong management awareness of 5MS / GS requirements and participants have commenced activities to establish 5MS & GS programs, few have well established programs.
- 5MS programs are further advanced relative to GS.
 - Almost all participants have at least a small degree of overlap between their GS and 5MS IT program; half of respondents have fully integrated programs.
- In general, Metering Services Providers' programs are the least progressed. Relative to other participant categories, this could be a result of Metering Package 2 still under consultation, and the increased scope and complexity of the required changes
- Availability of internal resources and complexity of upgrading systems are the most common participant concerns
- Participants highlighted the dependency of their program development on AEMO artefacts and delivery timing. A few participants noted some uncertainty in scope as Metering Package 2 is still under consultation.
- Most respondents have commenced engagement with vendors, however this engagement is not well advanced

Readiness papers - timelines

Draft as at 30-08-2019

Item	RWG engagement	Draft paper	Consultation	Comments due	Final paper	Previously advised final paper date
Market readiness strategy	Jun 19	30 Aug	3 weeks	20 Sep	30 Oct	29 Nov
Industry test and market trial strategy	Jul 19	30 Sep	4 weeks	28 Oct	29 Nov	31 Oct / 28 Feb
Transition and go-live strategy	Jul 19	30 Sep	4 weeks	28 Oct	29 Nov	31 Jan
Industry readiness reporting plan	Sep 19	31 Oct	3 weeks	21 Nov	13 Dec	31 Jan
Metering service provider accreditation update plan	Oct 19	30 Nov	Dec / Jan	31 Jan	13 Mar	31 Mar

The "final paper" dates are under consideration as level 2 program milestones

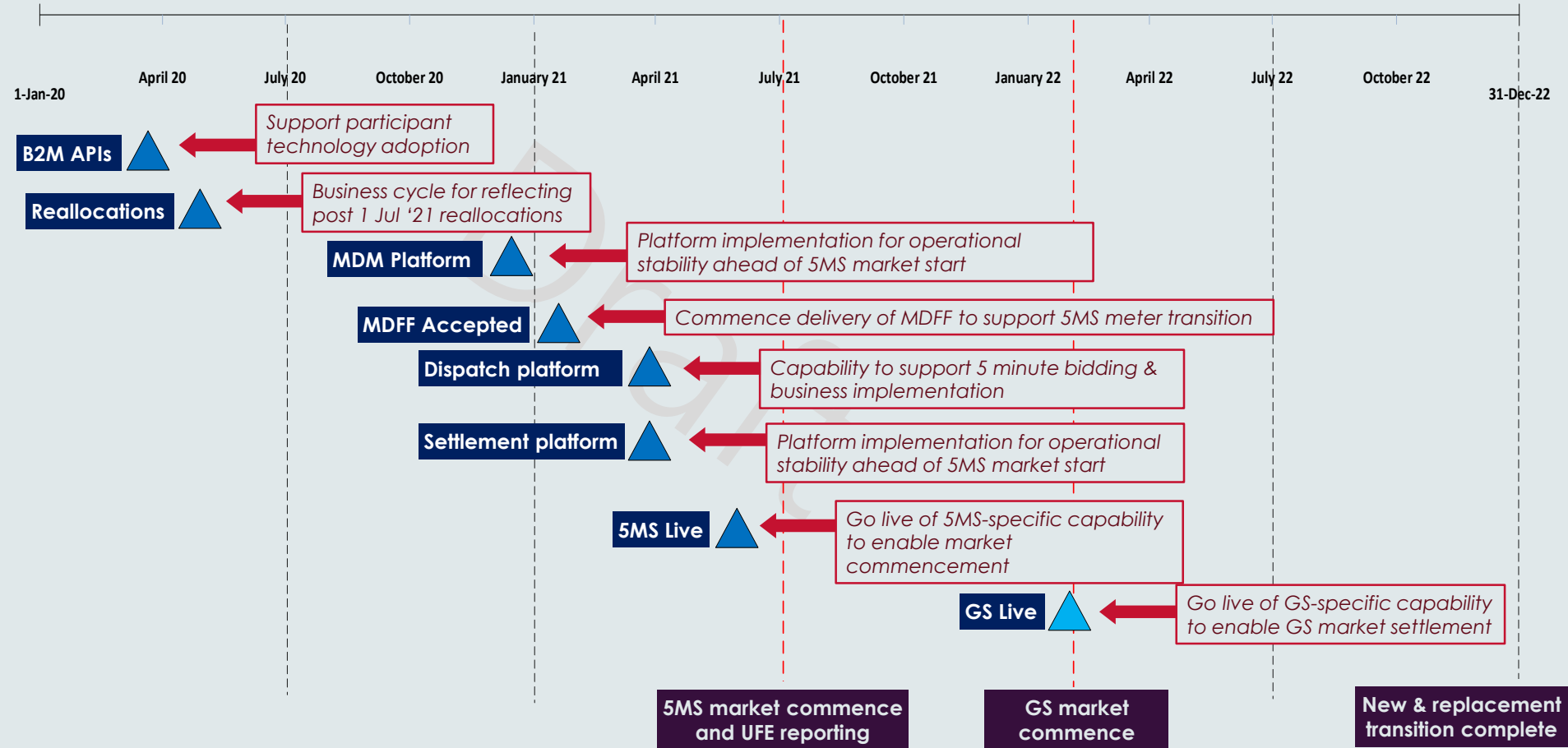
Transition Focus Group update

Greg Minney

Background / context

- Transition Focus Group #1 was held on 30th August
- Agenda:
 - Transition Approach for 5MS/GS
 - Testing Principles for 5MS/GS
 - Metering Transition
- 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

Staged transition – system implementations



- Transition Objectives for Five Minute Settlement (5MS) & Global Settlement (GS):**
- Meet mandated dates
 - Support uninterrupted NEM operation during transition period
 - Minimise risks for go-live and market start
 - Introduce certainty for project planning purposes

5MS Metering installation requirements

Metering Type	Requirement	Date
Types 1, 2, 3 and 7	<ul style="list-style-type: none"> Must be capable of recording and providing, as well as configured to record and provide, five-minute trading interval energy data. 	By 1 July 2021
Subset of Type 4*	<ul style="list-style-type: none"> Must be capable of recording and providing, as well as configured to record and provide, five-minute trading interval energy data. 	By 1 July 2021
Types 4, 4A and 5	<ul style="list-style-type: none"> All new or replacement metering installations (other than type 4A metering installations) installed from 1 December 2018 must be capable of recording and providing data, as well as 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, as well as configured to record and provide, five-minute trading interval energy data. 	By 1 Dec 2022

Note:

AEMO may grant an exemption where either a type 1, 2, 3 or subset* of type 4 meter falls short of storing 35 days of metering data (i.e. 30-34 days), if it is reasonably satisfied that the Metering Provider is able to otherwise satisfy the requirements of Chapter 7.

* 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • NEM12 interval metering data to be: <ul style="list-style-type: none"> • Delivered at the register level (E, B, Q and K) <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Metering data that must be sent to AEMO: <ul style="list-style-type: none"> • 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 datastream standing data

Metering Type	Requirement	Date
Types 1, 2, 3 and 7	<ul style="list-style-type: none"> Net datastreams (N1) must be converted to Register level datastreams (E1, B1, etc.) 	By 1 July 2021
Subset of Type 4*	<ul style="list-style-type: none"> Net datastreams (N1) must be converted to Register level datastreams (E1, B1, etc.) 	By 1 July 2021
Types 4, 4A and 5	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Where an update is required to a CNDS record, the net datastream record is to be inactivated and any new active datastream 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. <ul style="list-style-type: none"> Datastreams must be established in a manner that ensures they are not included in market settlements. 	From 1 July 2021
Basic Meters	<ul style="list-style-type: none"> 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 their associated standing data are created in MSATS
- NMI Classification Code updates, for affected existing NMIs, to reflect the new code requirements

NMI Classification Code	Description
BULK	<i>Connection point where a transmission network connects to a distribution network - also termed 'Bulk Supply Point'</i>
DWHOLSAL	<i>Distribution network connection point where energy is directly purchased from the spot market by a Market Customer</i>
NCONUML	<i>Non-contestable unmetered load</i>
NREG	<i>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.</i>
WHOLESALE	<i>Transmission network connection point where energy is directly purchased from the spot market by a Market Customer</i>
XBOUNDRY	<i>Connection point where a distribution network connects to another to distribution network</i>

Metering transition approach

- Definition of the Activities, SubActivities for Metering Transition
- Identification of timeframes, responsibilities and dependencies for delivery
- Identification of cross participant impacts e.g. timing of metering updates, delivery of 5 minute B2B data
- 2nd TFG will be held on 23rd September to continue definition of metering transition approach and impacts on other participants programmes of work

Industry engagement structure

Monica Morona

Engagement objectives

Objectives

- Two-way discussion as a key focus
- Provide forums for AEMO and industry stakeholders to engage in detailed discussions on specific matters or issues.
- Enable risks and issues to be identified by Industry and included in Program implementation and readiness considerations.
- To match the industry challenges with the right expertise at the right time
- To optimise working group and focus group resourcing

Background

- To date the 5MS/GS program has run focus groups on metering, dispatch and settlement.
- These have predominantly dealt with specific functional issues.

Approach to managing engagement

- Seek feedback from industry to confirm focus areas e.g. testing and transition.
- Use focus groups to undertake cross-program discussions, coordination and “problem solving” for program implementation.
 - Groups will need to be adaptive.
- Structure meeting agendas to ensure discussion topics are grouped in a way that is targeted to specific participant types
 - Minimise ‘downtime’ in focus group meetings and enable attendees to manage their diaries and travel.
- Unknown areas will emerge that will also require focus groups, need to be flexible and responsive
 - e.g. settlement reconciliation workshop
- What does this mean for existing focus groups?
 - Review current working group and focus group set-up
 - Options to improve effectiveness – ie. shift from current workstream based approach to issues based.
 - Incorporating working group feedback.
- **AEMO will be seeking industry feedback / suggestions for:**
 - Working Group and Focus Group structure
 - Key topic areas for focus and information
 - Methods of engagement

SWG – Information from members

- Systems Workstream will have an increasing number of questions for SWG members over the next few months as the system build continues
 - eg. Retail stream as the MDM build progresses
- Turn around for seeking responses for SWG will need to be more rapid than SWG meetings.
- Approach:
 - One email per week to SWG members with inquiries
 - Provide a formatted table for responses from SWG members
 - Responses will be collated and provided to the SWG monthly meetings

Forward meeting plan

Sammy Wainrit

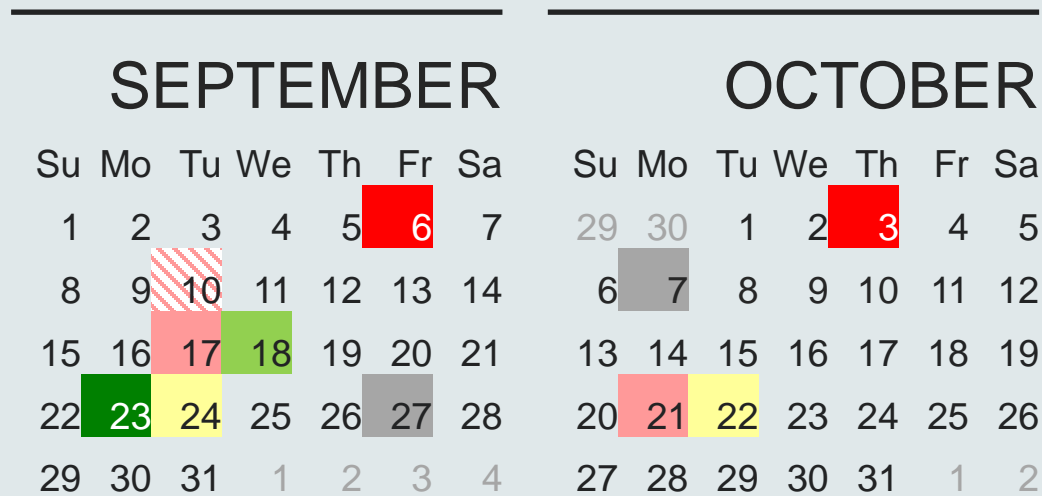
Proposed upcoming SWG meeting content

Date	Meeting	Proposed content
Mon, 21 Oct 2019	SWG #15	<ul style="list-style-type: none"> • Technical Specifications <ul style="list-style-type: none"> • Metering: MSATS & SLPs - MSATS and MDFF/MDMF final specifications [feedback review] • Metering: B2M via API and MSATS report changes final specifications [feedback review] • Reallocations final specification [feedback review]
Fri, 22 Nov 2019	SWG #16	<ul style="list-style-type: none"> • Reallocations testing in Staging update • Dispatch Bidding API set in Staging • Settlements Package 3 – Prudentials & Estimate draft tech spec run through • Dispatch Package 1, 2 & 3 – user guides

Upcoming meetings

Meetings and forum dates:

<http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement>



Forums/Working Groups
Executive (EF)
Program Consult. (PCF)
Procedures (PWG)
Systems (SWG)
Readiness (RWG)

Focus Groups
Dispatch
Metering
Settlements
Reconciliation
Transition
Other
Information Sessions

National Public Holiday
State Public Holiday

Current as at 30 08 2019

General questions

Sammy Wainrit