

5MS/GS Transition Focus Group

10:00am – 4:00pm Friday 30 August 2019

AEMO Office:

AEMO Melbourne Office – Level 22, 530 Collins St, Melbourne, VIC 3000 Face-to-face only

This slide pack was developed for the Transition Focus Group meeting. This version of the slides has been annotated with notes from the meeting. These additional notes are on new slides that have a yellow background.

Agenda

NO	TIME	AGENDA ITEM	RESPONSIBLE					
Preli	Preliminary Matters							
1	10:00am - 10:15am	Welcome, Introduction and General Housekeeping	Greg Minney (AEMO)					
Matt	Matters for noting							
2	10:15am – 10:25am	Role of the transition focus group	Emily Brodie (AEMO)					
Matt	Matters for discussion							
3	10.25am – 11:25am	5MS and GS transition	Greg Minney (AEMO)					
	BREAK 11:25am – 11:30am							
4	11:30am – 12:30pm	5MS and GS Strategy for industry testing and market trials	Tui Grant (AEMO)					
	LUNCH 12:30pm – 1:15pm							
5	1:15pm – 3:15pm	5MS and GS metering transition	Greg Minney and Blaine Miner (AEMO)					
6	3:15pm – 3:30pm	General Business and Next Steps	Greg Minney (AEMO)					



Attendees

Attendee	Organisation
Snehal Jogiya	ERM Power
Justin Stute	Mondo
Linda Brackenbury	Plus ES
Dale O'Donnell	Tango
Jon Ham	EnergyAustralia
Stephen Wilson	Aurora
Stephanie Lommi	Alinta
Paul Greenwood	Vector
Alice Forsythe	Pacific Hydro
Owen Self	Stanwell
Greg Szot (morning)	Citipower/Powercor
Mark Pilkington (afternoon)	Citipower/Powercor
David Woods	SAPN
Jonathon Briggs	Metering Dynamics

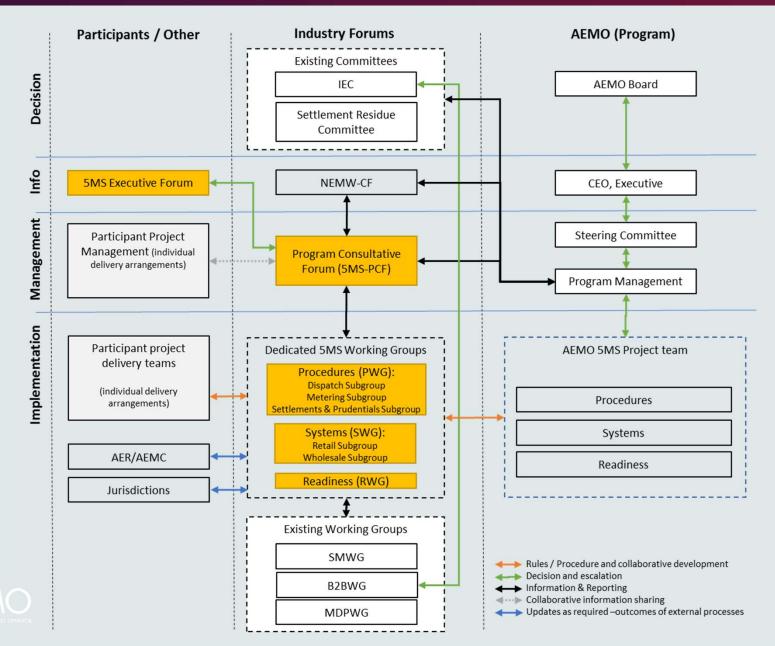
Attendee	Organisation
Terry Lodge	Ergon/Energex
Pieter Wijtzes	AGL
Fergus Stuart	Origin
Con Michaildes	AusNet Services
Rajiv Balasubramanian	Jemena
Dino Ou	Endeavour
Jeff Roberts	EvoEnergy
Greg Minney	AEMO
Blaine Miner	AEMO
Emily Brodie	AEMO
Craig Shelley (afternoon)	AEMO
David Ripper (afternoon)	AEMO
Tui Grant (morning)	AEMO
Vishnu Vijayan (morning)	AEMO

Role of the transition focus group

Emily Brodie



Program engagement structure



TFG objectives

- Through the TFG, AEMO will engage with the industry to:
 - Develop the transition approach to implementing 5MS and GS. This will involve trade-offs between positions to best meet overall transition objectives
 - Understand, and where reasonable accommodate, key industry concerns
 - Collaborate on the development of the Transition and Go-Live Strategy and detailed transition plans
 - Ensure that transitional considerations are captured in program timelines as readiness activities.
- Terms of reference for the TFG have been distributed and will be posted on AEMO's website soon at:
 - https://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement

TFG Scope

- 5MS and GS transition-related issues, industry-wide dependencies and planning
- Contributions to the Transition and Go-Live Strategy and detailed transition plans
- Identifying transition-related risks and issues, and escalate to the PCF, RWG or SWG to manage as appropriate.
- The TFG is not a decision-making group. Escalation of any contentious matters will be via AEMO's program and the Executive Forum.



TFG expectations

- Be prepared to participate in discussion and provide detailed responses to matters under consideration. Where an issue has been identified, propose alternative solutions.
- Have authority to consider focus group matters and provide official views and commitments on behalf of their business.
- Have a thorough understanding of the NEM and the 5MS/GS program and reflect <u>industry-wide</u> impacts throughout TFG discussions.
- Provide focus group outcomes back into their business.



Next steps

- TFG input will be considered for the following strategies:
 - Industry testing and market trials strategy
 - Transition and go-live strategy

ltem	RWG engagement	TFG engagement	Draft paper	Consultation	Comments due	Final paper	Previously advised final paper date
Industry test and market trial strategy	Jul-19	Aug-19	30-Sep	4 weeks	28-Oct	29-Nov	31-Oct / 28-Feb
Transition and go- live strategy	Jul-19	Aug-19	30-Sep	4 weeks	28-Oct	29-Nov	31-Jan



5MS/GS transition

Greg Minney



Session objectives

- Progress the joint development of the 5MS and GS transition approach
- Confirm the adoption of a staged transition approach as the basis for 5MS and GS implementation
- Understand the impacts of the proposed transition approach on participants' programs
- Enable participants to progress their project planning and scoping
- Capture actions, considerations, risks and issues relating to the proposed approach



Context and background (1)

- Power of Choice program was implemented with a "big bang" approach
- For 5MS and GS, industry has consistently flagged a preference for a phased implementation that avoids a big bang implementation
- The mandated dates for 5MS and GS commencement assume a level of preparatory activity e.g. 5MS metering transition



Context and background (2)

- Individual workstreams (systems, procedures) within the 5MS/GS program have proposed transitional approaches for key areas
- Transition Strategy consolidates those individual approaches, in-line with the transition objectives, to formalise an overall program-level approach
 - Present this as a Strawperson
- Our challenge:
 - Develop transition plan that considers industry positions into an integrated whole that best meets the transition strategy principles



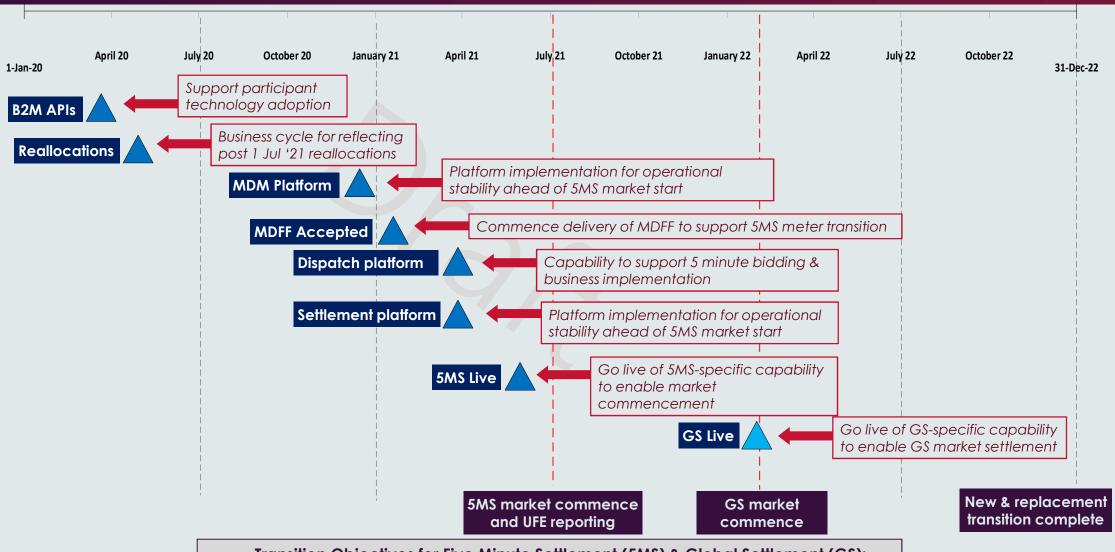
Transition Principles

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



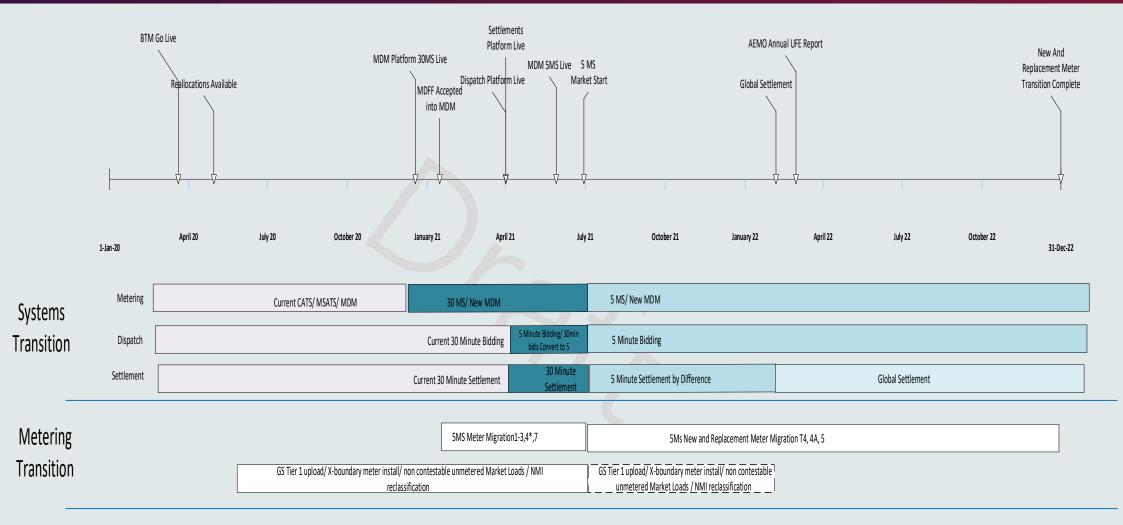
Staged transition – system implementations



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

Market systems and metering transition

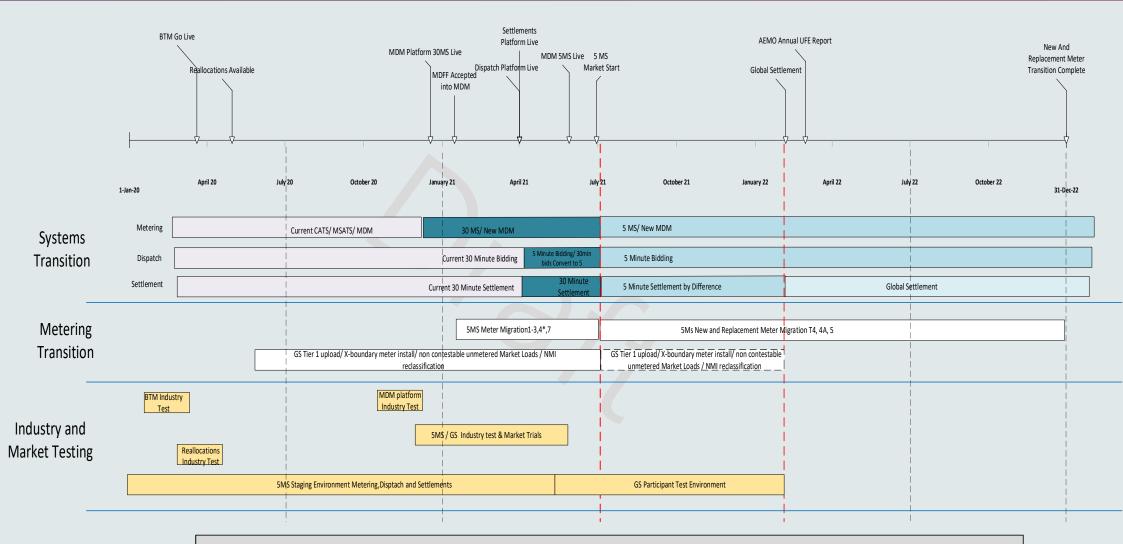




Phased Implementation of platforms:

- Operational stabilisation on a 30-minute settlement basis
- Provides capability required to support 5MS and GS metering transition and metering data population

Industry testing and market trials





- Market trials and industry testing to support the phased introduction of capability
- Market trial required where major functional change affecting multiple participants is necessary to be trialled (trials are high effort and resource intensive for all involved)
- Targeted industry testing utilised where possible

Participant impact by release (indicative only)

Participant type	B2M	Reallocations	MDM Platform	MDFF Acceptance	Settlement Platform	Dispatch Platform	5MS Go Live	GS Go Live
Retailer	Impact only if utilising B2M APIs	Capability to establish post 1/7/2021 reallocations	 MDM platform upgrade some MSATS Browser and RM Report Changes 	, , , , , , , , , , , , , , , , , , , ,		upgrade implemented		GS financial Settlement
Metering Service Provider	Impact only if utilising B2M APIs		MDM platform upgrade some MSATSBrowser and RM Report Changes	granularity			- All interval Meters delivered in MDFF format for Settlement	
Generator		Capability to establish post 1/7/2021 reallocations		 5 minute data summarised to 30 minute for settlement Potential B2B delivery of 5 minute data 		upgrade implemented	All 5MS capability liveUFE Reporting implemented	
Network Service Provider	Impact only if utilising B2M APIs		 MDM platform upgrade some MSATS Browser and RM Report Changes 	summarised to 30 minute for settlement - Potential B2B delivery	• Leve	el of impact of ea endent on Partic	ipant type and	



Level of participant impact also drives
 Industry Test and Market Trials approach

Points for discussion

- Staged framework to be used as basis for transition
- Implications of staged transition approach on participant programs
- Platform delivery ("like for like") ahead of market commencements
- Transition support required for conversion of 'new and replacement' meters to 5-minute metering data by Dec 2022
- Managing data delivery dependencies for retailers and DNSPs, including timing of meter conversions
- Readiness criteria and reporting to reflect stage of transition



NOTES: 5MS/GS transition (1)

- AEMO presented the 5MS/GS strawperson as a starting point for discussions
- Much discussion around benefits and drawbacks of a phased transition versus a 'big bang':
 - Phased transition reduces go-live risks compared with a big-bang, but can bring forward costs for businesses who would otherwise choose a later implementation
 - Need to balance of the reduction in cutover risk with potential increase the complexity of testing and delivery programs
 - Need a window to complete activities that must be implemented "by" the mandated dates
 - Participant flexibility is important, but implementation will be challenging for participants if they are *required* to meet dates that are earlier than necessary, particularly where there are participant to participant relationships/dependencies
 - Need to avoid running parallel processes at same time/grandfathering processes e.g. during the POC implementation, new connections added complexity.



NOTES: 5MS/GS transition (2)

- Some attendees noted that the new MDM platform was scheduled for introduction over a summer period. In particular, attendees were concerned about the risk of defects flowing through to Settlement Invoices at a time when the market traditionally experiences volatility.
- Participants also noted that:
 - this risk existed no matter when AEMO introduced the new platform
 - AEMO should provide transparency around its MDM testing to give participants confidence that the testing was appropriate (scope) and effective (results)
- AEMO responded that this timing was being proposed as it balances the time required for development, AEMO testing and for participants to:
 - Prepare and transition metering installation types 1-3* and 7 to 5-minute data
 - Prepare to deliver tier 1 basic meter data to AEMO
 - Include non-contestable unmetered loads in MSATS
- Action: AEMO to consider approaches to providing industry with confidence around the new MDM go-live e.g. AEMO providing an indication of its testing and proving plans and results. These results would be assessed against appropriate readiness criteria for MDM implementation.

NOTES: 5MS/GS transition (3)

- A member raised the risk of a retailer winning a customer who already had a 5-min capable meter but where the retailer wasn't ready to accept 5-min meter data. This customer transfer scenario was noted as a potential industry risk.
- Participants discussed the need to have clarity between MDPs, retailers and DNSPs around:
 - the timing of metering transitions
 - agreement on the granularity of the data in the B2B files provided
- Action: AEMO to include this customer transfer scenario as an industry risk to be discussed at RWG
- Action: AEMO to adjust table showing "participant type by release" to include:
 - B2B column to show impact to B2B
 - metering coordinator participant type row (see slide above)



NOTES: 5MS/GS transition (4)

- Participants noted that:
 - in the period 1/7/21 to 1/12/2022 there was a significant volume of meters to be transitioned to 5-min reads
 - this requires visibility of MSP / DNSP rollout plans for planning and volume management purposes
- A level of contingency planning for key readiness scenarios would be required as part readiness management of transition, with a risk assessment against each drop included



Strategy for industry testing and market trials

Tui Grant



Session objectives

- Review and confirm proposed testing types for each go-live.
- Confirm testing windows for each go-live.
- To discuss the proposed implementation approach in terms of testing and test effort.
- To plan participant engagement in formal testing working groups based on proposed testing types.

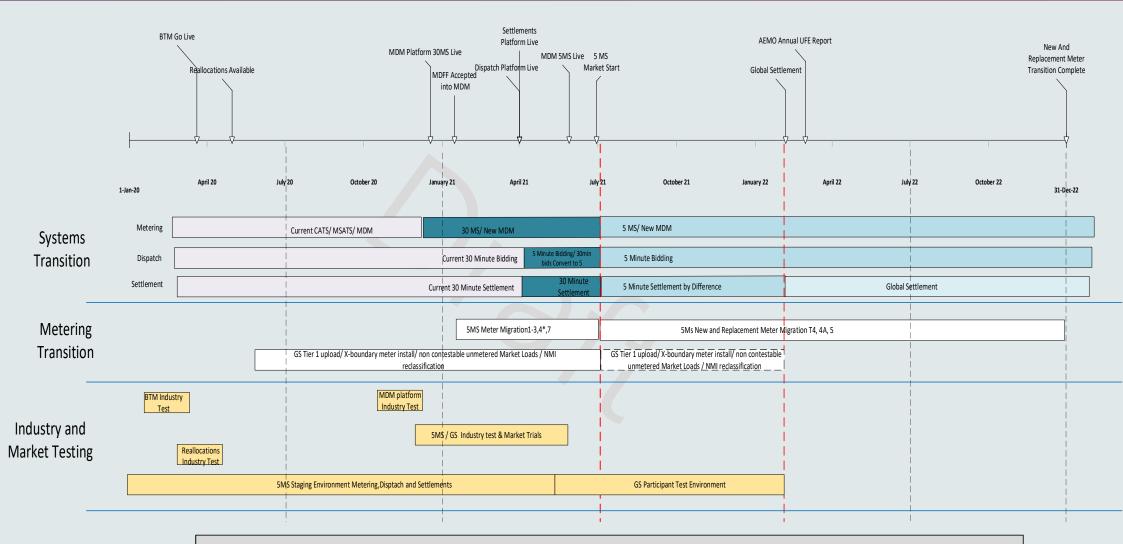


Points for discussion

- Proposed testing for each of the software go-live dates
- Participant effort and input related to each of the proposed testing phases
- Scope definition of each test phase



Industry testing and market trials





- Market trials and industry testing to support the phased introduction of capability
- Market trial required where major functional change affecting multiple participants is necessary to be trialled (trials are high effort and resource intensive for all involved)
- Targeted industry testing utilised where possible

5MS AEMO - Testing

- When changes are introduced into Production, AEMO currently conducts three main types of testing with the Industry:
 - Industry Testing
 - Invitation Industry Testing
 - Market Trials
- In addition, AEMO will make the pre-production system available for participants to perform bi-lateral testing at any time



5MS Industry testing approach

- Changes deployed into Pre Prod before deployment into Production will be communicated to participants and available for participants to test/verify on an informal basis.
 - No formal tracking of testing or results will be provided prior to the changes being deployed to Production
 - Provides an opportunity for participants to perform basic testing and become familiar with new screens, API's, verify ACK's on submission of 5 minute NEM12 files, etc.
- AEMO will provide support and defects investigation during this period to any participant requiring assistance.



5MS Invitation industry testing

- AEMO will make changes available in Pre Prod environment for participants to test.
- However, for invitation industry testing:
 - AEMO will reach out to participants who are in a position to test their solutions with changes deployed into Pre Prod
 - Specific testing will be agreed and executed during this period and only reported between parties involved and AEMO
 - Any participant may use and test in Pre Prod during this period without formal communication to AEMO
- AEMO will provide support and defects investigation during this period to any participant requiring assistance



5MS Market trials

- Market Trials are a series of scenarios that validate outcomes across all market participants, including AEMO
 - Scenarios are defined, allocated and agreed to by parties prior to execution. Results are reported to all parties taking part in the market trials
 - Provides an opportunity for participants to test their changes with AEMO and verify outcomes
 - Provides an opportunity for participants to use data generated from other participants to test their changes and verify outcomes
 - Participants can test the new AEMO systems with existing market rules i.e. 30minute reads
 - Participants can also test the new AEMO systems with the new rules i.e. 5minute settlement
- AEMO will provide support and defects investigation during this period to any participant requiring assistance



NOTES: Strategy for industry testing and market trials (1)

- Discussions on the 5MS staging environment which will:
 - provide early access to pieces of functionality as it becomes available
 - be supported via AEMO help desk
 - not necessarily be aligned with pre-prod functionality.
- The 5MS staging environment code drops are:
 - <u>not consistent</u> with proposed testing schedule
 - <u>not consistent</u> with when software is going live
 - expected to be completed by July 2020
- Settlement test scenarios will:
 - be available but not tailored to each business
 - be developed with input from the Testing focus group
 - allow participants to verify the look and feel of invoices



NOTES: Strategy for industry testing and market trials (2)

- Industry Testing cycles were discussed: how they differ and how participants are selected for each of them.
- AEMO indicated that the Testing focus group will do a "deep dive" into draft Test Strategy, planning sessions and reporting.* Testing focus group will be stood up in next couple of months.
- Participants were concerned that the MDM market trials are planned for after the MDM go-live. AEMO responded that:
 - An industry testing opportunity is available to participants when the MDM solution is in Pre-Prod before go-live.
- Participants wanted to have visibility of the results of AEMO testing of MDM solution – see also slide 21 above
- Action: AEMO to provide Staging Release Definition through RWG packs
- Action: AEMO to send Market Trials Test Strategy to TFG as well as RWG



5MS/GS metering and metering data transition

Greg Minney and Blaine Miner



Session agenda

- 1. Session objectives
- 2. Refresher on 5MS and GS metering *and* metering data obligations
- 3. Proposed metering and metering data transition approach
- 4. Workshop on metering *and* metering data transition activities
- 5. Next steps



Session objectives

- Share and discuss AEMO's proposed metering transition plan (MTP) approach and framework
- Discuss and confirm the type and level of detail expected to be captured in AEMO's MTP (versus participant program plans)
- Commence the population of the required MTP content
- Capture actions, considerations, risks and issues
- Confirm next steps



Refresher on 5MS and GS metering and metering data obligations

Blaine Miner



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

Note:

AEMO may grant an exemption where 1 type 1, 2, 3 or subset of type 4 meter is not quite capable of storing 35 days of metering data (i.e. 30-34 days) if it is reasonably satisfied that the Metering Provider will be 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

Торіс	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 datastream standing data

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

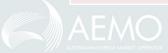


5MS/GS: MSATS standing data - general

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



NOTES: Refresher on 5MS/GS metering and metering data obligations

AEMO presented the key 5MS and GS obligations associated with the metering workstream. Discussion centred around:

- The replacement and installation of 5-min capable meters, including:
 - The different risk profiles associated with the successful implementation of type 1-3 meters vs the type 4 and 4A meters
 - The need for transparency regarding MP's work plans
 - MPs mentioned that their work plans needed to commence ASAP and that while transparency and communication to AEMO and Industry was important, getting the meters installed was the priority
- The introduction of new MSATS codes e.g. NMI Classification codes
 - One member mentioned that the transition plan needs to consider a participant's ability to process the CR notifications and not just when AEMO would introduce them
 - AEMO asked if the processing of the CR COM notification was the most important aspect from a systems perspective: Participants responded yes.

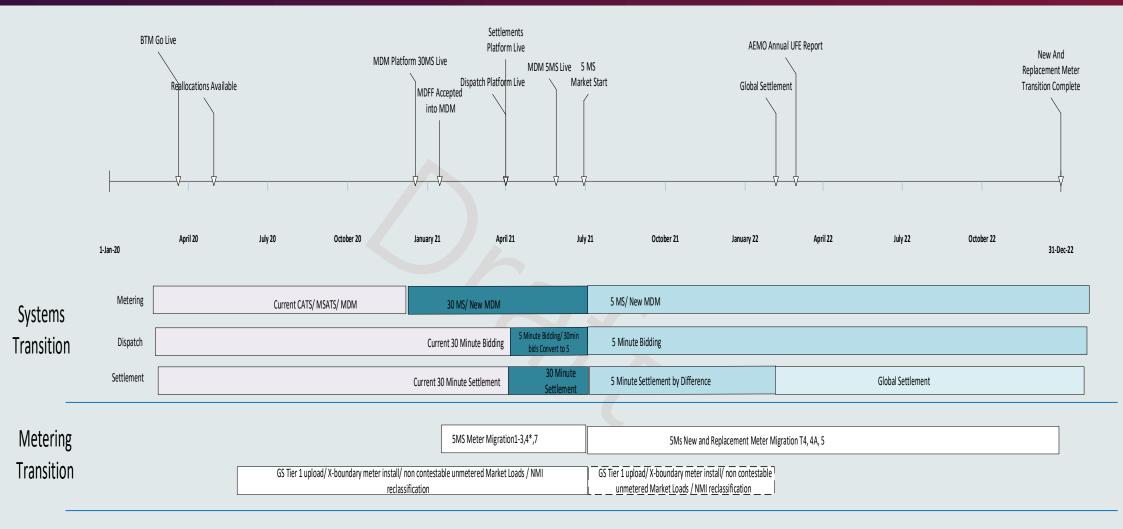


Proposed metering and metering data transition approach

Greg Minney and Blaine Miner



With this in mind.....



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Phased Implementation of platforms:

- Operational stabilisation on a 30-minute settlement basis
- Provides capability required to support 5MS and GS metering transition and metering data population

Proposed approach to metering transition workshop

Discuss/verify metering transition plan content, including:

- 'Categories'
- 'Sub-categories'
- 'Activities'
 - Activity details to include:
 - Description
 - Responsible owner
 - Dependencies
 - Impacted parties
 - Transition timings (start and/or stop)
 - Rule/procedure requirement timings
 - Additional considerations and comments



Proposed high level categories

- Proposed MTP Categories are:
 - Meter installation/reconfiguration/replacement
 - Metering data delivery
 - MSATS standing data updates
 - Metering accreditation updates



Proposed sub-categories (1)

- Meter installation/reconfiguration/replacement
 - Type 1-3, subset of 4 meters
 - New and replacement Type 4 meters
 - New and replacement Type 4A meters
 - New and replacement VIC AMI meters
- Metering data delivery
 - Type 1-3, subset of 4 meters
 - New and replacement Type 4 meters
 - New and replacement Type 4A meters
 - New and replacement VIC AMI meters
 - Type 7 unmetered loads
 - Non-contestable unmetered loads (NCULs)
 - Tier 1 basic/accumulation meters
 - Meter data delivery to AEMO (MDMF and MDFF)



Proposed sub-categories (2)

- MSATS standing data updates
 - Type 1-3, subset of 4 meters
 - E.g. Transition from Net to Register level datastreams and meter installation type code cleanse
 - New and replacement Type 4 meters
 - New and replacement Type 4A meters
 - New and replacement VIC AMI meters
 - Cross Boundary Scenarios
 - NCULs
 - NMI Classification Code Updates
 - LR and FRMP Participant Relationship Updates
 - VIC TUOS Datastream Type Updates
 - Tier 1 Basic Meter/NMIs
- Metering accreditation updates
 - MP Accreditation Updates
 - MDP Accreditation Updates



NOTES: Proposed metering and metering data transition approach

- Members were comfortable with the proposed framework but suggested the following changes:
 - Additional subcategories regarding:
 - Generation and TNIs
 - "Pre-existing" type 4 and 4A (not new/replace) i.e. meters installed prior to 1 Dec 2018 and 1 Dec 2019 respectively
 - Cross boundary scenarios
- Action: AEMO to update the framework to include the items suggested by the TFG



Workshop on metering and metering data transition activities

Greg Minney and Blaine Miner



Underlying activities

And now for the **fun** part... bring on the activities ©

... we will now refer to the spreadsheet that accompanies this meeting pack





NOTES

- AEMO worked through the first subcategory with the group to 'test' the proposed framework
- AEMO asked for the TFG to provide any additional feedback regarding the framework in the next 2 weeks
- AEMO to schedule the next TFG meeting ASAP
- Action: TFG to provide additional feedback on the metering transition framework
- Action: AEMO to schedule the next TFG meeting, focussing on the metering transition



General Business and Next Steps

Blaine Miner



General Business and Next Steps

- Workshop outcomes and actions to be circulated
- Next TFG



Actions summary

Topic	Action	Responsibility	Due date
5MS/GS transition	AEMO to consider approaches to providing industry with confidence around the new MDM go-live e.g. AEMO providing an indication of its testing and proving plans and results. These results would be assessed against appropriate readiness criteria for MDM implementation.	AEMO	November RWG meeting
	AEMO to include customer transfer scenario as an industry risk to be discussed at RWG	AEMO	September RWG meeting
	AEMO to adjust table showing "participant type by release" to include: • B2B column to show impact to B2B • metering coordinator participant type row	AEMO	September RWG meeting
Strategy for industry testing and market trials	AEMO to provide Staging Release Definition through RWG packs	AEMO	Ongoing
	AEMO to send Market Trials Test Strategy to TFG as well as RWG	AEMO	30/09/2019
Proposed metering transition approach	AEMO to update the framework to include the items suggested by the TFG	AEMO	Sept TFG meeting
	TFG to provide additional feedback on the metering transition framework	TFG	16 Sep 19
	AEMO to schedule the next TFG meeting, focussing on the metering transition	AEMO	Complete (23 Sep)

Thank you for your attendance and participation!



