

Five-minute settlement and global settlement

December 2020

Market Readiness Report - Round 5

Summary Report

Round 5 Summary

- The fifth readiness survey was administered in November 2020, allowing a shorter period between surveys so that industry members may have an assessment of industry readiness before the end of year holiday period.

- There has been consistent progress with participants project delivery, with the industry on track with capability development and metering transition activities.

- Confirmation of readiness status from one MP/MC with responsibility of essential meters is required for the reporting criteria of all essential industry capabilities to be satisfied.

- No new issues were identified between the fourth and fifth reporting round, however outstanding actions from the previous round remain. These include continuing to monitor the delivery status of a small generator, confirming the readiness status of a MP/MC responsible for essential meters, and assessing the extent that unknown cross boundary meters will be compliant by 1 October 2021.

- The overall AEMO program is on track and trending down. Delivery pressures remain particularly with the Retail workstream. The build for all 5MS and GS functionality is complete across all 3 releases, however development for non-critical items continue for the Retail release. Over the next period, the focus of the program will be on completing the Testing program, and continuing AEMO internal readiness preparation activities for go-live.

- Readiness reporting will resume in 2021, with the sixth round commencing on 2 February 2021. The 2021 reporting schedule will be provided at the latest Readiness Working Group.

5MS GS Essential Industry Capabilities								
Essential capability	Relevant	Reporting		Number of participants				
	participants	criteria met	On Track	At Risk	Late	Not responded	Remediation Plan?	Escalation Required?
Generators and MNSPs are able to submit 5-min offers	Generators / MNSPs	Yes	16	0	1	3	No	No
All essential meters* are able to produce and store 5-min data	MPs	No	9	0	0	1	No	Yes
All essential meters* are able to produce and store 5-min data	MCs	No	11	0	0	1	No	Yes
All essential meters* are able to deliver 5- min metering data	MDPs	Yes	3	0	0	0	No	No
The 5-minute bidding and dispatch solution is deployed, including the web bidding interface	AEMO	Yes	1	0	0	0	No	No
The Metering Data Management (MDM) solution is deployed	AEMO	Yes	1	0	0	0	No	No
The 5-minute settlements solution is deployed	AEMO	Yes	1	0	0	0	No	No

* Essential meters are defined as transmission connected types 1-4 meters

* Please see background section at the start of this report for more information on the reporting criteria for essential industry capabilities

		Actions log - Ro	und 5		
#	# Status Action		Comments		
		AEMO to follow up with non-responding MP/MC with	AEMO to follow up with relevant MP/MC. Escalation required if		
5.1	Open	essential meters to confirm program status and if remediation	there is no response		
		is required			
		AEMO to establish with generator reporting 'late' if a	Generator responding with a 'late' status has noted they expect		
5.2	Open	remediation plan or escalation is required	to be on track in Q1 2021. AEMO will continue to monitor the		
			readiness responses of this participant		
		RWG to consider risk of cross boundary meters not	Discussion at RWG 18 on extent of industry impact		
5.3	Open	appropriately configured by transition end date			
		AEMO to follow up with relevant DNSP on potential risk to	AEMO to follow up with relevant DNSP		
5.4	Open	delivery timelines on MTP subcategories 'S26 - Cross			
		boundary supplies' and 'S29 - NCONUML'			
		Participants to consider impact of late delivery of MTP	Four MPs responded with a 'late' status, however no major		
5.5	Open	subcategory 'S39 – Meter installation type code', and flow on	impact to programs have been flagged. RWG to discuss if further		
		impact to overall programs	action required.		

		Actions log - Ro	und 4
#	Status	Action	Comments
4.1	Closed	AEMO to follow up with relevant MPS and MCs with essential meters to confirm program status and if remediation is required	Followed up with all relevant MPs and MCs. No remediation was required on participant programs. All except one MP/MC responded appropriately in the latest reporting round
4.2	Closed	AEMO to follow up to understand generators responding with a 'late' or 'at risk' status and establish level of remediation expected	Generator that responded with a 'at risk' status reported as 'on track' in the latest round of reporting. Generator that responded with a 'late' status noted that they expect to be on track in Q1 2021
4.3	Closed	RWG to consider impact of potential industry risks (Customer switching go-live, unknown cross boundary meters, vendor access to testing environment)	Risks discussed at RWG 17. AEMO continuing to monitor these risks
4.4	Closed	AEMO to follow up with relevant MC and confirm expected completion date of activity	Meeting held with relevant MC. Now responding as 'on track' in latest round of reporting
4.5	Closed	RWG to consider risk of cross boundary meters not appropriately configured by transition end date	Risks discussed at RWG 17. Discussion continued at RWG 18
4.6	Closed	Participants to consider impact of late delivery of MTP S39, and flow on impact to overall programs	Relevant participants were asked at the RWG to provide further details when responding to the next survey. Four participants are still responding that they are 'late' to complete this activity, however no major impact to programs have been flagged
4.7	Closed	Participants to schedule address accreditation requirements and suitable remediation approach	All participants are reporting as 'on track' for accreditation requirements in the latest round of reporting



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Supplementary Information

Background

To monitor the industry's level of readiness for the various 5MS and GS transitional activities and commencements, AEMO will co-ordinate readiness reporting across the industry in accordance with the Readiness Reporting Plan.¹ NEM participants are invited to submit readiness information on a periodic basis through a Readiness Assessment Questionnaire. The results from these surveys are presented in this Market Readiness Report.

Readiness criteria

Participants' level of readiness will be assessed through general readiness criteria, specific readiness criteria, and also their status against the Metering Transition Plan (MTP).²

Criteria	Overview	Response options	Results presentation
General Readiness	program establishment of	Participants are asked to provide Yes / No responses to a set of program	All Yes and No responses are presented in a bar chart.
Criteria	participant programs.	establishment questions e.g. if funding is secured.	All responses are unweighted.
Specific	Criteria that tracks the	Participants (including AEMO) are asked	Participants' status and progression towards specific criteria are
Readiness Criteria	implementation of specific market commencement	to report their status towards fulfilling these requirements by market	illustrated in a bar chart.
	requirements for each	commencement (on track, at risk or	Each segment of the bar represents 25% progress. The bar will
	participant type. Hence, each participant type will have	late), and also report on progress in 25% increments.	progressively fill with solid colours as the criteria is completed.
	their own set of specific		The bar chart will be coloured red, amber or green based on if the
	readiness criteria		criteria is on track, at risk or late.
	e.g. generators' ability to		
	submit 5 min bids by 1		All responses are unweighted.
	October 2021, retailers ability		
	to receive and reconcile 5		
	minute data.		
Metering	Status monitoring of defined	Participants are asked to provide their	All responses are presented in a bar chart.
Transition Plan	activities in the MTP. The	status towards completing activities by	
Status	MTP outlines the expected	the transition end date for each defined	All responses are unweighted.
	activities, responsibilities,	sub-category in the MTP (Complete, On	
	timeframes, as well as other	track (started), On track (not started), At	
	necessary elements required	risk, Late, n/a).	
	for completion of the 5MS		
	and GS metering transition.	Given that a sub-category has multiple	
		activities supported by various	
		participant types, respondents were only	
		expected to provide status reporting for	
		activities that were relevant to their	
		participant type.	

Participant industry coverage

The approach to gauging industry coverage for each readiness report is described below for each participant type.

Participant type	Industry coverage methodology	Data source
Generator	Generator respondents' capacity / NEM capacity	AER 2019 state of the market report - generation capacity data
Retailer	Retailer respondents' settlement vol. / NEM vol.	AEMO settlement data - 2019 calendar year
MP	MP respondents' total type 1-4 NMIs/ total type 1-4 NMIs	AEMO metering data
MDP	MDP respondents' total type 1-4 NMIs/ total type 1-4 NMIs	AEMO metering data
мс	MC respondents' total type 1-4 NMIs/ total type 1-4 NMIs	AEMO metering data
DNSP	Number of DNSPs survey respondents / Total DNSPs	AER 2019 state of the market report - DNSP data
TNSP	Number of TNSPs survey respondents / Total TNSPs	AER 2019 state of the market report - TNSP data

¹ Readiness documents, including the Industry Readiness Reporting Plan, and Metering Transition Plan can be accessed at: <u>https://www.aemo.com.au/initiatives/major-programs/nem-five-minute-settlement-</u>

program-and-global-settlement/readiness-workstream/key-readiness-documents

Essential industry capabilities for 5MS and GS commencements

The essential minimum capabilities for 5MS and GS commencements are described below for each relevant participant type.

Essential capability	Relevant participant	Reporting Criteria
Generators and MNSPs are able to submit 5-min offers		a) Generators representing >80% of regional load are responding to Industry Readiness Surveys, and;
		b) Generators representing >80% of regional load are reporting 'On-track' to be able to submit 5-minute granularity offers
All essential meters* are able to	MPs	a) 100% of MPs associated to essential metering are responding to Industry Readiness Surveys,
produce and store 5-min data		and;
		b) 100% of MPs associated to essential metering are reporting 'On-track' for all applicable MTP activities
All essential meters* are able to	MCs	a) 100% of MCs associated to essential metering are responding to Industry Readiness Surveys,
produce and store 5-min data		and;
		b) 100% of MCs associated to essential metering are reporting 'On-track' for all applicable MTP activities
All essential meters* are able to deliver	MDPs	a) 100% of MDPs associated to essential metering are responding to Industry Readiness
5-min metering data		Surveys, and;
		b) 100% of MDPs associated to essential metering are reporting 'On-track' for all applicable MTP activities (S01)
The 5-minute bidding and dispatch	AEMO	a) AEMO reporting 'On-track' for all Bidding/Dispatch reporting criteria and milestones
solution, including the web bidding interface is deployed		
The Metering Data Management	AEMO	a) AEMO reporting 'On-track' for all MDM Milestones
(MDM) solution is deployed		
The 5-minute settlements solution is deployed	AEMO	a) AEMO reporting 'On-track' for all Settlement Milestones

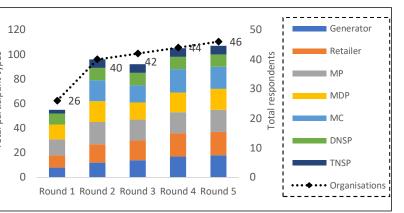
Disclaimer

This market readiness report has been prepared by AEMO at the request of the industry for the purpose of tracking and monitoring the industry's level of readiness for 5MS and GS. This report contains self-reported readiness information provided by participants, and may not be free from errors or omissions. Accordingly, to the maximum extent permitted by law, AEMO makes no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of the information published here; and are not liable (whether by reason of negligence or otherwise) for any statements, opinions or other matters contained in or derived from this information, or any omissions from it, or in respect of a person's use of the information.

Submissions

Strong survey coverage, with 46 respondents representing 93-100% of the industry. Response rate across all participant types provides representative industry coverage.

		Prev.			
	This round	round	∆ (#)	Trend	
Respondents	46	44	2		s
Participant types	107	105	2		participant types
Generator	18	17	1		pant
Retailer	19	19	0	-	Intici
MP	18	17	1		al ba
MDP	17	16	1	≜	Total
МС	18	19	-1	. ▲	
DNSP	10	10	0	-	
TNSP	7	7	0		



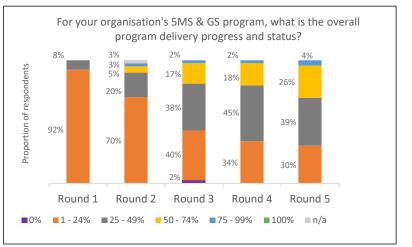
	Industry coverage						
	% Industry coverage	Industry coverage methodology					
Generator	95.2%	Generator respondents' capacity / NEM capacity					
Retailer	94.6%	Retailer respondents' settlement vol. / NEM vol.					
MP	99.9%	MP respondents' total type 1-4 NMIs/ total type 1-4 NMIs					
MDP	100.0%	MDP respondents' total type 1-4 NMIs/ total type 1-4 NMIs					
MC	93.3%	MC respondents' total type 1-4 NMIs/ total type 1-4 NMIs					
DNSP	100%	Number of DNSP survey respondents / Total DNSPs					
TNSP	100%	Number of TNSP survey respondents / Total TNSPs					

#	Торіс	Observation / Actions
1		A total of 46 organisations responded to the fifth round of readiness reporting, representing an even mix of participant types. Response rate across all participant types provides representative industry coverage.
2	Response rate, All participant types	Coverage across the industry for all participant types ranges from 93% to 100%. This exceeds the 80% coverage threshold for reporting against essential criteria.
3	Response rate, All participant types	One MP/MC with responsibility of essential meters did not respond to the survey Action 5.1: AEMO to follow up with non-responding MP/MC with essential meters to confirm program status and if remediation is required.

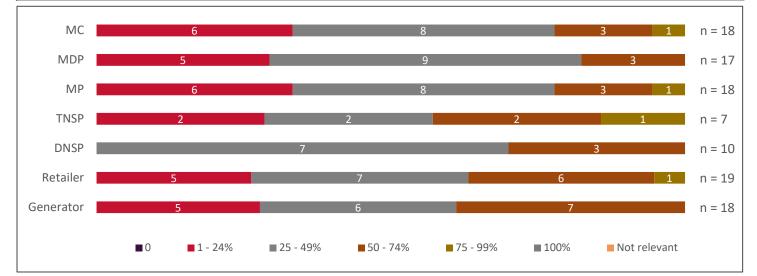
Overall program delivery progression, by reporting round

There has been a slight increase in the proportion of participants that have commenced the testing phase of their program, increasing from 18% to 26% between rounds. All except one respondent noted that they are on track.

	Round 1	Round 2	Round 3	Round 4	Round 5
0%	0%	0%	2%	0%	0%
1 - 24%	92%	70%	40%	34%	30%
25 - 49%	8%	20%	38%	45%	39%
50 - 74%	0%	5%	17%	18%	26%
75 - 99%	0%	3%	2%	2%	4%
100%	0%	0%	0%	0%	0%
n/a	0%	3%	0%	0%	0%
Total	100%	100%	100%	100%	100%



Participants' overall program delivery progression, by participant type - Round 5

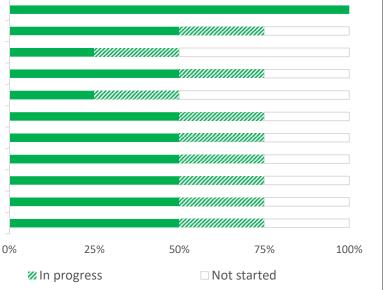


#	Торіс	Observation / Actions
4	Overall Participant Program Progress	There has been a slight increase in the proportion of participants that have commenced the testing phase of their program, increasing from 18% to 26% between rounds. Two thirds of participants are in the scoping and design phase of their programs. Majority of participants are on track to participate in market trials.
5	Overall Participant Program Status	Participants are reporting that their overall program is on track. One generator flagged that their overall program is 'late', noting that they are focusing on other priorities but expect to be on track by Q1 next year Action 5.2 : AEMO to establish with generator reporting 'late' if a remediation plan or escalation is required
6	Raised risks	One DNSP noted a risk of delay in Unknown Cross Boundary meter installations due to delays in AEMO releasing guidelines. Action: RWG to discuss implications of potential industry risk

AEMO Readiness Criteria

Support 5-min reallocations Support standing data processing for GS Switch Local Retailer and FRMP to GLOPOOL Support UFE calculation and publication Support meter data processing for GS 5 min-format invoices to support reconciliation MDM platform upgraded to support 5-min profiling MDM platform upgraded to receive 5 - minute data Changes to settlement calculation Bidding Transition

Complete



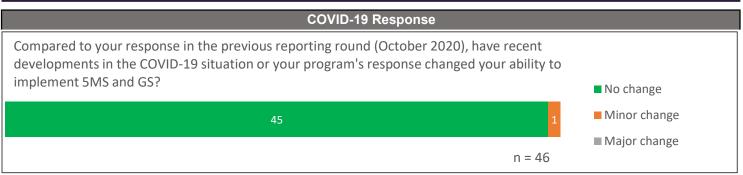
#	Торіс	Observation / Actions
7	AEMO Readiness Criteria	The overall status for the AEMO capability delivery for rule commencement remains green. However, delivery pressures remain particularly with the Retail workstream for the platform go-live at 9th March.
		The build for all 5MS and GS functionality is complete across all 3 releases, however development for non- critical items continue for the Retail release. Over the next period, the focus of the program will be on completing the Testing program, and continuing AEMO internal readiness preparation activities for go-live.

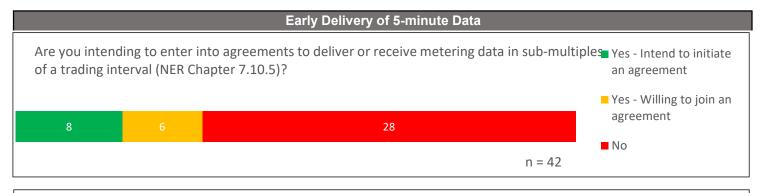
5MS GS Essential Industry Capabilities								
Essential capability	Relevant	Reporting	Number of participants					
	participants	criteria met	On Track	At Risk	Late	Not responded	Remediation Plan?	Escalation Required?
Generators and MNSPs are able to submit 5-min offers	Generators / MNSPs	Yes	16	0	1	3	No	No
All essential meters* are able to produce and store 5-min data	MPs	No	9	0	0	1	No	Yes
All essential meters* are able to produce and store 5-min data	MCs	No	11	0	0	1	No	Yes
All essential meters* are able to deliver 5-min metering data	MDPs	Yes	3	0	0	0	No	No
The 5-minute bidding and dispatch solution is deployed, including the web bidding interface	AEMO	Yes	1	0	0	0	No	No
The Metering Data Management (MDM) solution is deployed	AEMO	Yes	1	0	0	0	No	No
The 5-minute settlements solution is deployed	AEMO	Yes	1	0	0	0	No	No

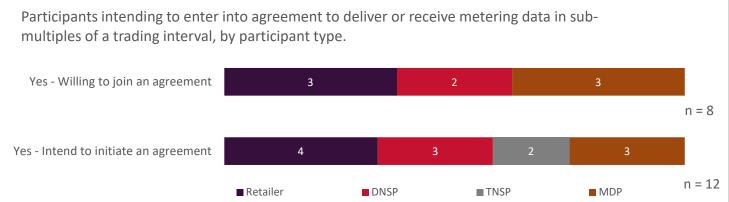
* Essential meters are defined as transmission connected types 1-4 meters

* Please see background section at the start of this report for more information on the reporting criteria for essential industry capabilities

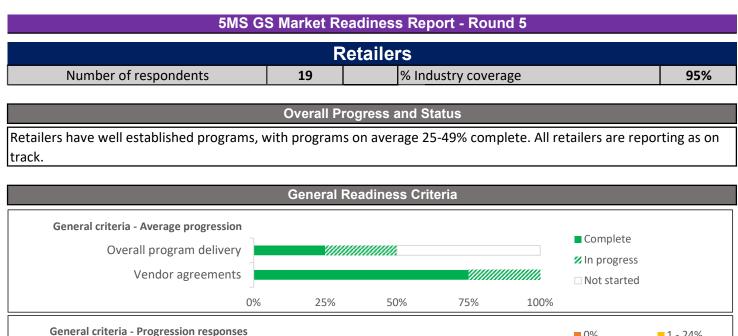
#	Торіс	Observation / Actions
8	Submit 5 min offers, Generators	One generator reported a 'late' status for their readiness to submit 5-min offers, noting that they expect to
		be on track by Q1 next year.
		Action 5.2: AEMO to establish with generator reporting 'late' if a remediation plan or escalation is required
9	Submit 5 min offers, Generators	Three generators that contribute materially (>1%) to the NEM did not respond to the survey, including one
		generator in Queensland that contributes over 10% of load. However, generators that responded in Round
		5 represent over 80% of capacity and load in each NEM region (using 2019 data), therefore satisfying the
		coverage criteria.
10	Essential meters, MP, MC	One MP/MC with responsibility of essential meters did not respond to the survey
		Action 5.1: AEMO to follow up with non-responding MP/MC with essential meters to confirm program status and if remediation is required.

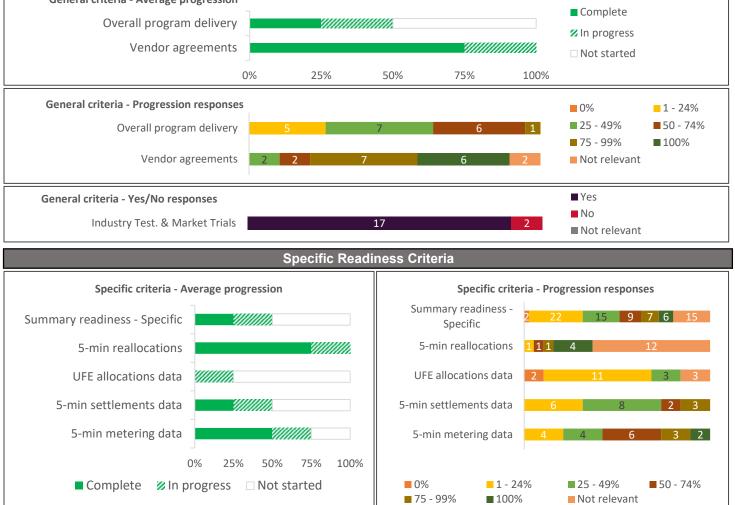




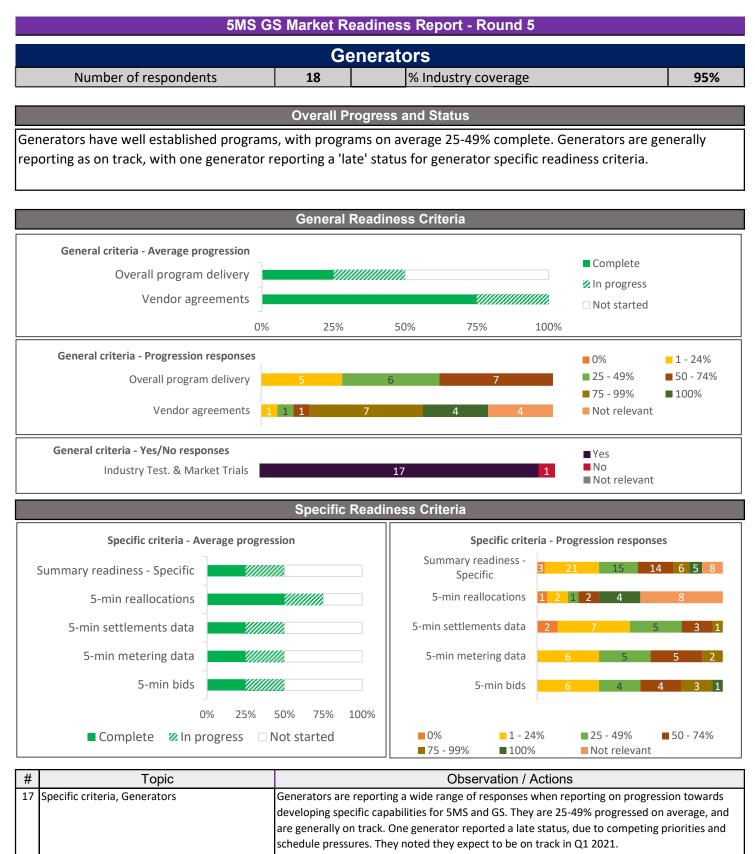


#	Торіс	Observation / Actions
11	COVID-19 Response, All participants	Compared to the previous round of reporting, one participant was experiencing minor changes in their ability to implement 5MS and GS due to COVID-19. The remaining participants reported no change. No impact was noted against overall program progression.
	Early delivery of 5-minute data, (Retailers, DNSPs, TNSPs, MDPs)	The number of participants that intend to initiate an agreement in this round of reporting increased, with two additional retailers reporting that they intend to initiate agreements. A number of participants have noted that they have started discussions to set up agreements. Participants are flagging that Q1 and Q2 2021 is when they expect to initiate or enter into agreements.

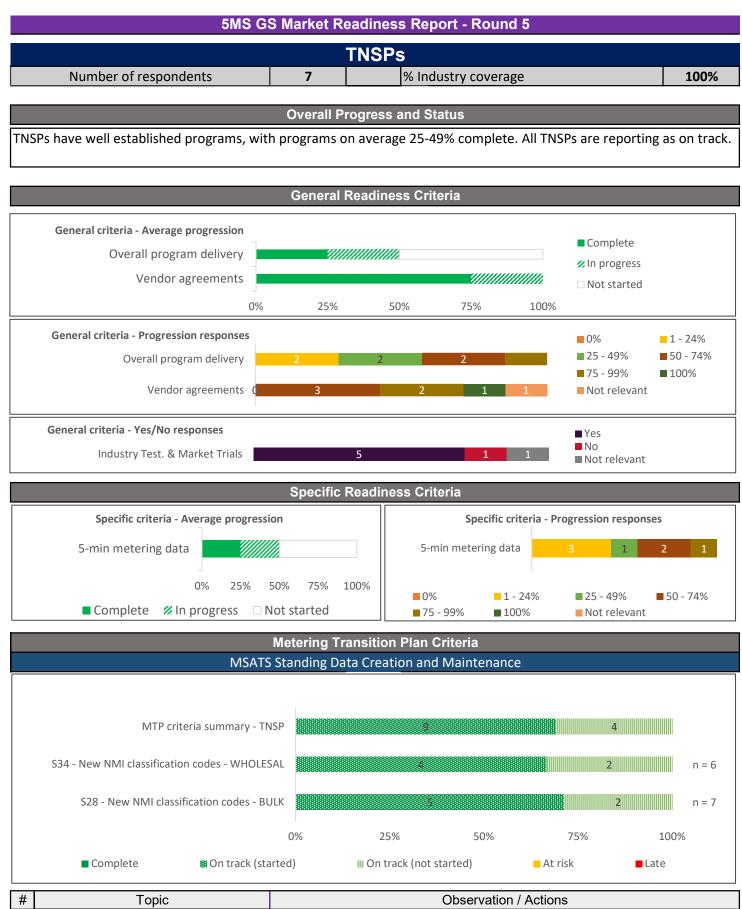




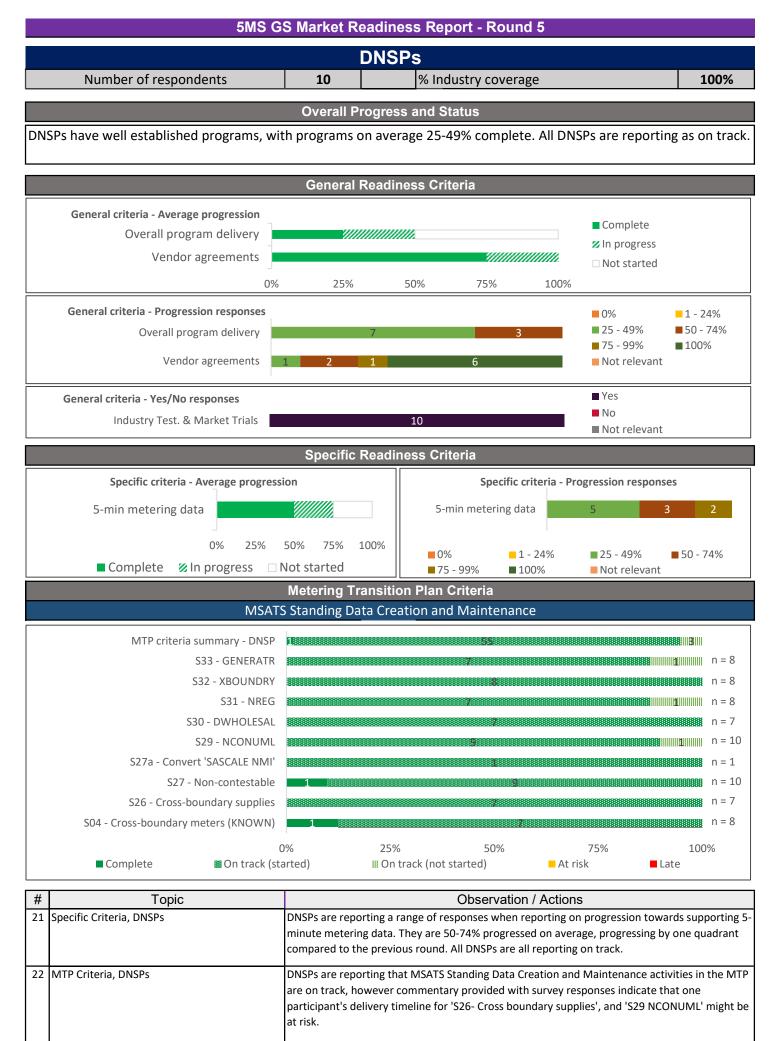
#	Торіс	Observation / Actions
	General criteria (Overall program delivery), Retailers	Retailers are on average 25-49% progressed with their overall 5MS and GS program, with a generally even split between those that were 1-24%, 25-50%, and 50-74% progressed.
14	Specific criteria, Retailers	Retailers are reporting a wide range of responses when reporting on progression towards developing specific capabilities for 5MS and GS. They are 25-49% progressed on average, and are generally on track.
15	Specific criteria, Retailers	The average progression on 5-minute reallocations increased to 75-99% progressed, however the average progression of other retailer specific criteria remains the same.
16	Specific criteria, Retailers	One participant raised a risk of inaccurate UFE information if cross boundary meters are not appropriately configured by the transition end dates. Action 5.3: RWG to consider risk of cross boundary meters not appropriately configured by
		transition end date



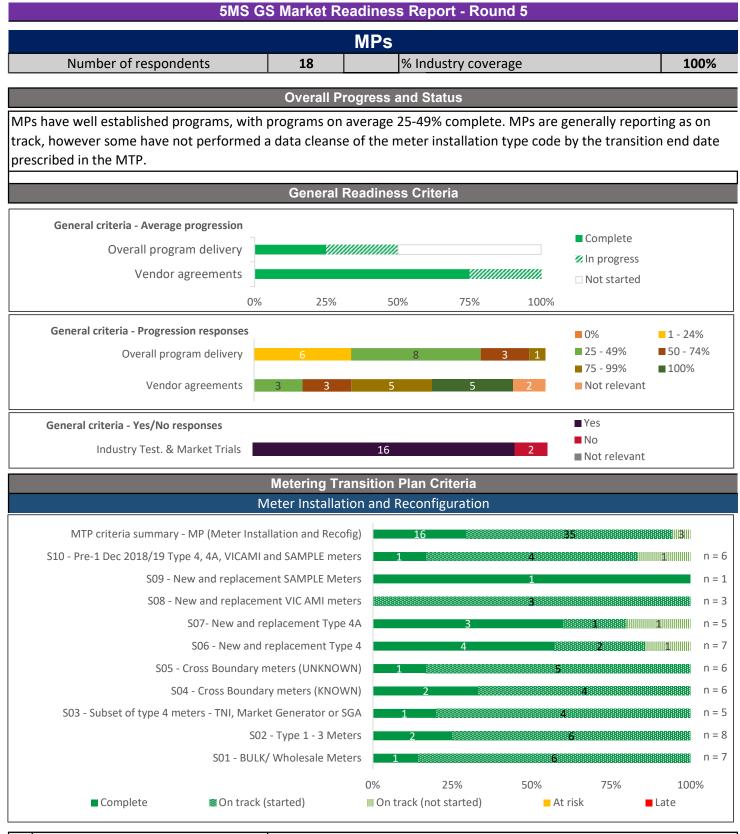
	Action 5.2: AEMO to establish with generator reporting 'late' if a remediation plan or escalation is required
18	The average progression on 5-minute reallocations increased by one quadrant, however the average progression of other generator specific criteria remains the same.



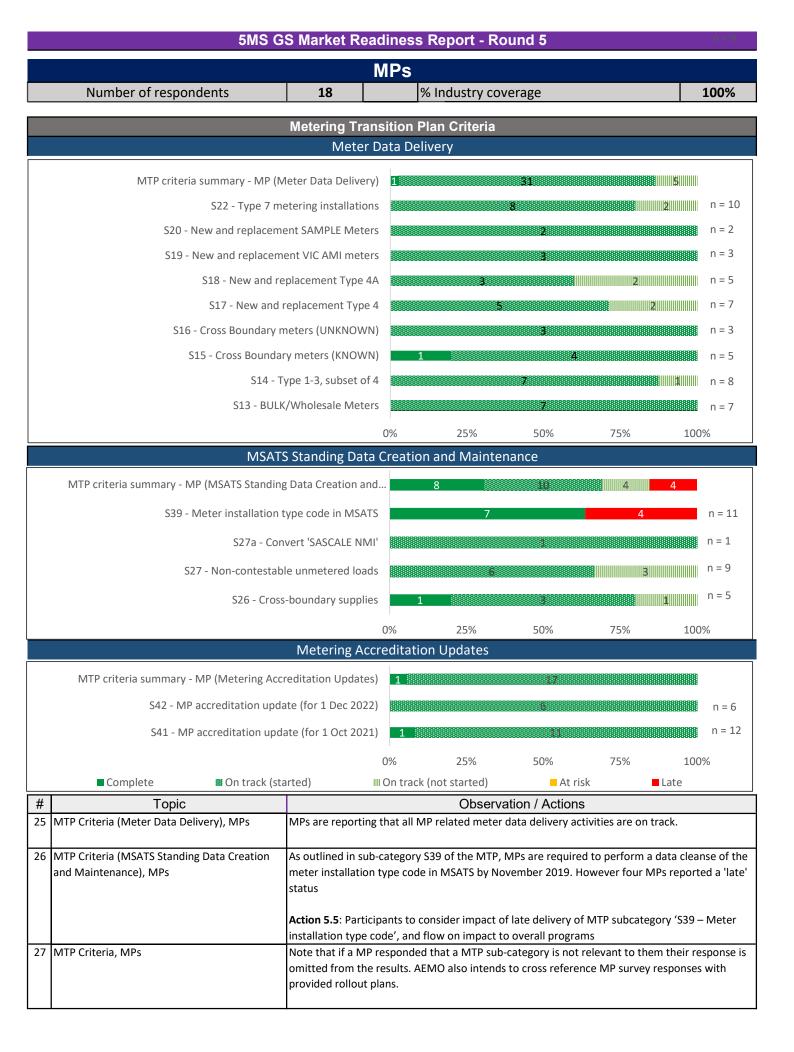
#	Торіс	Observation / Actions
19		TNSPs are reporting a wide range of responses when reporting on progression towards supporting 5-minute metering data. They are 25-49% progressed on average, and are all reporting on track.
20		TNSPs are reporting that MTP activities are all on track. Note if a TNSP responded that a MTP sub-category is not relevant to them their response is omitted from the results.

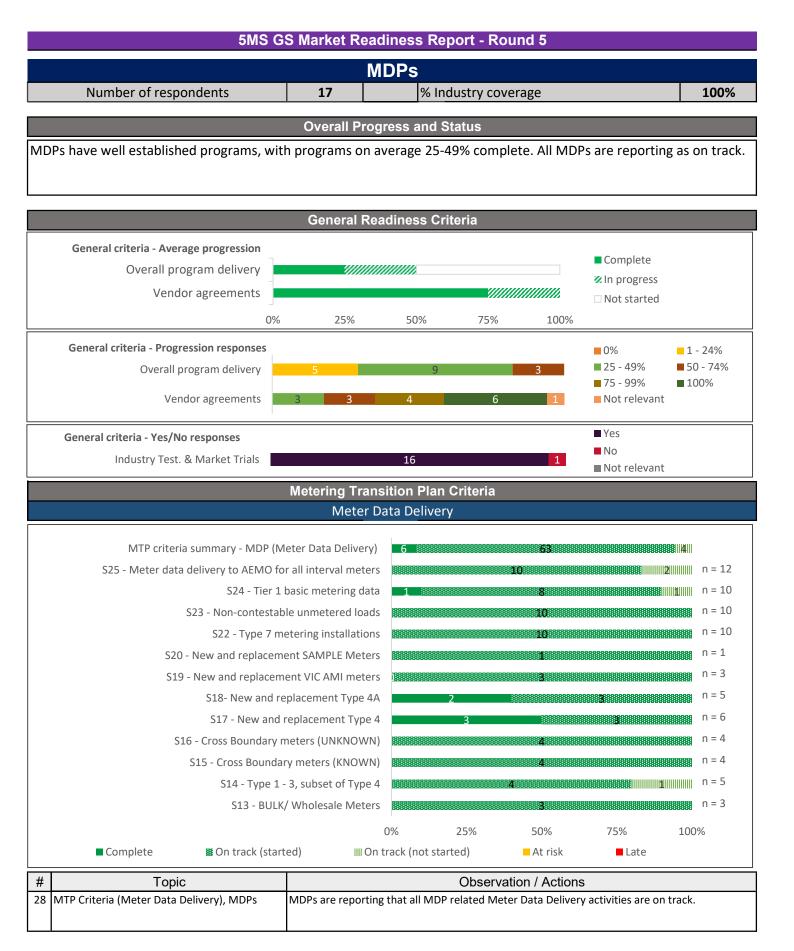


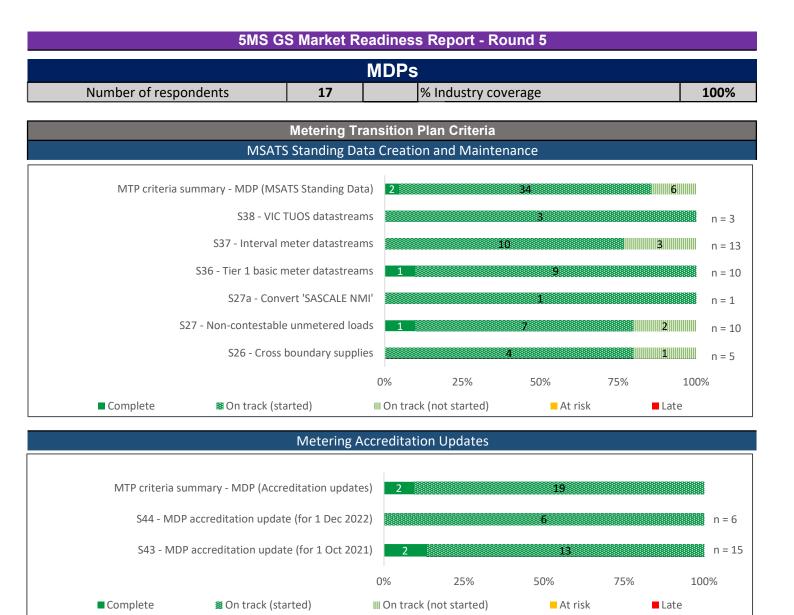
Action 5.4: AEMO to follow up with relevant DNSP on potential risk to delivery timelines on MTP subcategories 'S26 - Cross boundary supplies' and 'S29 - NCONUML'.



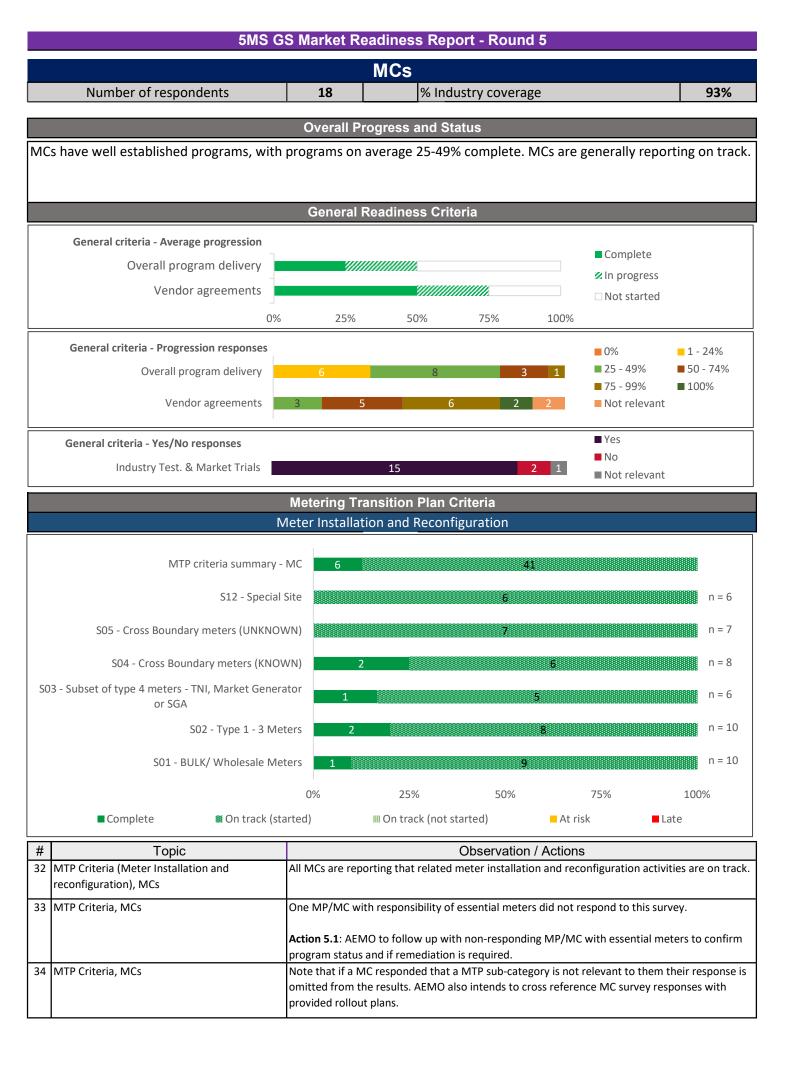
#	Торіс	Observation / Actions
	MTP Criteria (Meter Installation and reconfiguration), MPs	MPs are reporting that all MP related meter installation and reconfiguration activities are on track.
24		One MP/MC with responsibility of essential meters did not respond to this survey. Action 5.1: AEMO to follow up with non-responding MP/MC with essential meters to confirm program status and if remediation is required.







#	Торіс	Observation / Actions
29	MTP Criteria (MSATS Standing Data Creation and Maintenance), MDPs	MDPs are reporting that all MDP related MSATS standing data creation and maintenance activities are on track.
30	MTP Criteria (Metering Accreditation Updates), MDPs	MDPs are reporting that all MDP related metering accreditation update activities are on track.
31	MTP Criteria, MDPs	Note that if a MDP responded that a MTP sub-category is not relevant to them their response is omitted from the results. AEMO also intends to cross reference MDP survey responses with provided rollout plans.



Survey Respondents

All organisations - 46

All organisations - 46
Organisation
AGL
Alcoa
Alinta Energy
АРА
Arrow Energy
Aurora Energy
Ausgrid
AusNet Services
Citipower Powercor United Energy
CleanCo Queensland
CS Energy
Delta Electricity
EEQ - Ergon Energy Queensland
ElectraNet
Endeavour Energy
Energex and Ergon Energy
Energy Australia
ENGIE
ERM Power
Essential Energy
Evoenergy
Flow Power
Hydro Tasmania
Infigen Energy
Intellihub
Jemena
Macquarie Bank
Meridian Energy
Metering Dynamics
Metropolis
Mondo
Origin Energy
PLUS ES
Powerlink
Powermetric
SA Power Networks
SA Water
Secure Meters
Shell Australia
Snowy Hydro
Stanwell
TasNetworks - TNSP
TasNetworks DNSP
TransGrid
Vector Metering
ZEN Energy Retail

Generators - 18

Organisation
AGL
Alcoa
Alinta Energy
АРА
Arrow Energy
CleanCo Queensland
CS Energy
Delta Electricity
Energy Australia
ENGIE
ERM Power
Hydro Tasmania
Meridian Energy
Origin Energy
SA Water
Shell Australia
Snowy Hydro
Stanwell

Retailers - 19

Organisation
AGL
Alinta Energy
Aurora Energy
CleanCo Queensland
CS Energy
Delta Electricity
EEQ - Ergon Energy Queensland
Energy Australia
ENGIE
ERM Power
Flow Power
Hydro Tasmania
Infigen Energy
Macquarie Bank
Meridian Energy
Origin Energy
SA Water
Stanwell
ZEN Energy Retail

Survey Respondents

<u>MPs - 18</u>

Organisation
AusNet Services
Citipower Powercor United Energy
Endeavour Energy
Energex and Ergon Energy
Essential Energy
Evoenergy
Intellihub
Jemena
Metering Dynamics
Metropolis
Mondo
PLUS ES
Powerlink
Powermetric
SA Power Networks
TasNetworks - TNSP
TransGrid
Vector Metering

<u> MDPs - 17</u>

Organisation
AusNet Services
Citipower Powercor United Energy
Endeavour Energy
Energex and Ergon Energy
Essential Energy
Evoenergy
Intellihub
Jemena
Metering Dynamics
Metropolis
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Powermetric
SA Power Networks
Secure Meters
TasNetworks DNSP
Vector Metering

<u>MCs - 18</u>

Organisation
Ausgrid
AusNet Services
Citipower Powercor United Energy
ElectraNet
Endeavour Energy
Evoenergy
Intellihub
Jemena
Metering Dynamics
Metropolis
Mondo
Origin Energy
PLUS ES
Powerlink
Powermetric
TasNetworks - TNSP
TransGrid
Vector Metering

<u>TNSPs - 7</u>

Organisation
Ausgrid
AusNet Services
ElectraNet
Evoenergy
Powerlink
TasNetworks - TNSP
TransGrid

DNSPs - 10

Organisation
Ausgrid
AusNet Services
Citipower Powercor United Energy
Endeavour Energy
Energex and Ergon Energy
Essential Energy
Evoenergy
Jemena
SA Power Networks
TasNetworks DNSP