Significant price variation report

1 January 2023 high MOS payments Sydney Short Term Trading Market

May 2023

AUSTRALIAN ENERGY REGULATOR

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Contents

1 Obligation

The Australian Energy Regulator (AER) regulates energy markets and networks under national legislation and rules in eastern and southern Australia (known as the National Energy Market), as well as networks in the Northern Territory. Its functions include:

- monitoring wholesale electricity and gas markets to ensure energy businesses comply with the legislation and rules, and taking enforcement action where necessary;
- setting the amount of revenue that network businesses can recover from customers for using networks (electricity poles and wires and gas pipelines) that transport energy;
- regulating retail energy markets in Queensland, New South Wales, South Australia, Tasmania (electricity only), and the ACT;
- operating the Energy Made Easy website, which provides a retail price comparator and other information for energy consumers;
- publishing information on the performance of energy markets, including the annual State of the Energy Market report and biennial effective competition report, to assist stakeholders and the wider community.

In accordance with the National Gas Rules (the Rules), the AER is required to publish a report whenever there is a significant price variation (SPV) in the Victorian Declared Wholesale Gas Market (DWGM) or Short Term Trading Markets (STTM). The AER has published guidelines setting out what constitutes a SPV event.[1]

Outcomes that constitute a SPV in the STTM include when market operator service **(MOS)** service payments exceed $250 000.[2] On the 1 January gas day in the Sydney hub, the MOS service payments reached $3,180,558, exceeding the $250 000 threshold.

[1] Under Rule 355 of Part 19 of the National Gas Rules (Gas Rules), the AER is required to identify and report on any significant price variations (SPVs) in the DWGM. The Victorian SPV reporting triggers are published in the DWGM Significant Price Variation Guideline.

Under Rule 498 of Part 20 of the Gas Rules, the AER is required to identify and report on any significant price variations (SPVs) in the STTM. The STTM reporting triggers are published in the STTM Significant Price Variation Guideline.

[2] There are two kinds of payments which relate to MOS; service payments (which cover the cost of providing the service) and commodity payments (which cover the cost of the actual gas). This report relates to MOS service payments.

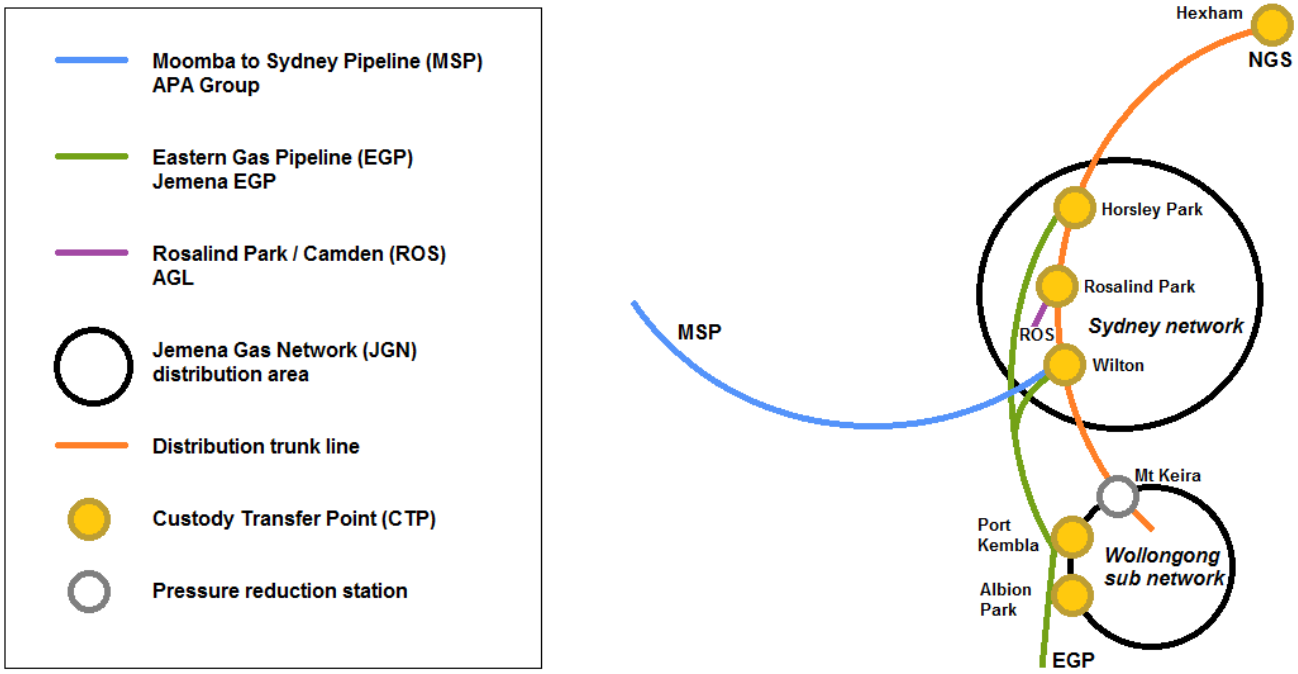
2 The Sydney STTM hub

Figure 1 illustrates the connection points of the Sydney hub.

There are two pipelines that can provide MOS to Sydney; the Eastern Gas Pipeline **(EGP)** and the Moomba to Sydney Pipeline **(MSP)**.

Sydney also sources gas from the Rosalind Park/Camden facility **(ROS)** and the Newcastle gas storage facility **(NGS)**. The Malabar **(MAL)** connection point was also recently added to the hub to connect a biomethane gas production facility to the distribution network.[3]

Figure 1 The Sydney hub



[3] STTM Procedure changes to incorporate the new receipt point became effective from 12 January 2023.

3 Background – Market Operator Service (MOS)

MOS, also known as balancing gas, is required to manage everyday pipeline deviations. A pipeline deviation occurs when there is a difference between the total quantity of gas nominated by the pipeline's shippers and the quantity of gas physically delivered. There are two kinds of pipeline deviations; positive (when more gas is delivered) and negative (when less gas is delivered, being 'parked' upstream of the hub on a pipeline). Market participants pay for both the service cost and pay (or get paid) for the commodity cost of the gas.[4]

When actual gas flows are higher than final nominations, the difference is allocated as increase MOS. When actual gas flows are lower than final nominations, the difference is allocated as decrease MOS.

In Sydney, there are two pipelines that can provide MOS, the Eastern Gas pipeline (EGP) and the Moomba to Sydney pipeline (MSP).

AEMO publishes, amongst other things, an estimate of the maximum quantities of increase and decrease MOS likely to be required for a given gas day.

Participants are requested to provide monthly MOS offers which specify the:

- type of MOS (increase or decrease)
- price (up to $50/GJ)
- quantity
- transmission pipeline

When MOS is required, the offers are allocated in merit order (i.e., from lowest price to highest price) until the required quantity is met.

If an increase MOS offer is used, gas is moved from the transmission pipeline to the STTM hub. If a decrease MOS offer is used, gas is stored on the transmission pipeline (instead of flowing to the STTM hub).

If the quantity of required MOS exceeds the amount of offers, overrun MOS provides the excess. The occurrence of overrun MOS is relatively rare as there is usually sufficient MOS offers available.[5] However, overrun MOS was required on 1 January, driven by unique circumstances impacting upstream pipeline operations on the Eastern Gas Pipeline.

[4] Increase MOS is provided to the hub from gas stored on the pipeline. Participants who own this gas are compensated for this service through commodity payments.

Decrease MOS requires the use of capacity on the pipeline to store gas which could not be delivered to the hub. Participants who receive this commodity pay for the gas through commodity charges.

For both increase and decrease MOS, participants are paid for providing the service through MOS service payments. Participants are paid as bid according to the MOS offers they have available in each month's MOS stack (up to the MOS Cost Cap of $50/GJ).

[5] Overrun is priced at the highest priced MOS price step in the applicable MOS stack when the requirement is greater than AEMO's estimate. When the requirement is less than AEMO's estimate, overrun is priced at the weighted average cost of the service (capped at MOS cost cap of $50/GJ) determined by the cost of MOS in the stack.

4 Summary

On 1 January, Sydney's MOS service payments set a record high of $3,180,558 as a result of sudden pipeline nomination changes unanticipated before the gas day interacting with existing pipeline pressure constraints.

High MOS allocation requirements on the day were driven by upstream pressure issues on the Eastern Gas Pipeline **(EGP)** which necessitated gas to be injected into the Sydney distribution network to reduce pressure levels for safety purposes. As nominating EGP participants rolled over to a new contract period on 1 January, a significant decline in supply nominations to the Sydney STTM hub compelled Jemena to increase flows to connection points along the pipeline to manage a continuing pressure constraint impacting the northern section of the pipeline and lowering allowable pressures on that section (this followed a flood in April 2022).

The combined pressure restriction and 55 TJ reduction in participant nominations occurred at a time of low demand during the holiday period, leading to a pressure build up that would have led to a pressure breach if left unmanaged. Working with EGP shippers, Jemena was unable to sufficiently increase flows throughout the day to system points upstream of the Short Term Trading Market **(STTM)**.[6] This led to STTM market deliveries being increased at the Wilton and Horsley Park connection points beyond original nominations, or in other words MOS.

Due to the resultant low level of supply renominations between the Moomba to Sydney Pipeline **(MSP)** and the EGP, large MOS increase quantities allocated on the EGP (overflows of gas) were counteracted by similar amounts of decrease MOS (parking of gas) on the MSP to balance total supply to Sydney, which inflated service costs.

The total MOS allocations accrued to 53.5 TJ of increase MOS on the EGP and 62.8 TJ of decrease MOS on the MSP. These levels were well in excess of the 35.5 TJ and 40 TJ quantities of offers available on the respective pipelines, leading to a total of 40.8 TJ of MOS being allocated as overrun. As the overrun on each facility also exceeded the estimated maximum requirements for the month of January, they were priced at the same level as the highest cost offers in the MOS stack for each pipeline.

Table 1 MOS service payment quantities and cost breakdown

Facility	MOS type	MOS stack allocation (TJ)	MOS overrun allocation (TJ)	MOS cost (pay-as-bid)	Overrun cost	Total cost
EGP	Increase	35.5	18.002	$595,811	$876,685	$1,472,496
MSP	Decrease	40	22.813	$567,412	$1,140,650	$1,708,062
Total		**75.5**	**40.815**	**$1,163,223**	**$2,017,335**	**$3,180,558**

[6] Upstream connection points on the northern section of the pipeline include offtakes at Bombaderry/Nowra, Tallawarra power station, and Visy industries (north of the STTM.

5 Analysis

5.1 MOS service payments

On 1 January 2023 in the Sydney market, there were large counteracting MOS allocations on both pipelines serving the Sydney market. On the Eastern Gas Pipeline **(EGP)**, there was an increase MOS allocation of 53.5 TJ driven by higher than scheduled supply. Counteracting this, the Moomba to Sydney Pipeline **(MSP)** had a decrease MOS allocation requirement of 62.8 TJ. The net decrease requirement (9.3 TJ) was driven by participant over forecast demand in the hub.

The 1 January high MOS service payment in the Sydney hub was the first instance of service costs exceeding the reporting threshold since October 2020, with the last occurrence in the Sydney hub on 7 November 2016. Prior to this event, MOS overrun has only been allocated in the STTM hubs on 10 occasions. Due to the unique circumstances on 1 January driving large overrun requirements, the $3,180,558 service cost was more than double that of the previous record.[7]

5.2 Counteracting MOS requirements

The counteracting MOS resulted from a significant increase in gas deliveries into the Sydney hub on the EGP to reduce operational pressure on the pipeline for safety purposes. This occurred in response to a landslide triggered by heavy rain in April 2022, affecting the escarpment around Kembla Heights and Mount Kembla. Continuing constraints applied to manage pipeline pressure levels following the landslide impacted upstream pressure on the northern section of the pipeline.[8]

The pipeline was operating in free flow mode at the time, with 3 midline compressors offline, limiting operational control of upstream gas flows. Reduced receipts from supply were unable to assist in pressure reduction due to being located too far south, and the lack of pressure control meant gas in the northern section needed to be delivered above nominated levels or vented to prevent a pressure breach.[9] With limited renominations unable to sufficiently reduce pressure levels, EGP gas injections were increased at the flow-controlled Wilton and Horsley Park connection points (allocated as increase MOS).[10]

This consequently pressured out scheduled gas deliveries on the MSP and resulted in a large quantity of gas being parked on the pipeline as decrease MOS. Over forecast demand in the distribution network further added to the decrease MOS allocations on the MSP. These forecast errors were the cumulative result of numerous participants' demand deviations, which under normal circumstances would have had a far less substantial impact to the rise in MOS service costs. Relative to other gas days, the forecast deviation of under 10 TJ was not unusually high.

Similar issues were managed internally by Jemena over the following days, with higher gas usage at Tallawarra power station helping to reduce pressure levels.[11] The Australian Energy Market Operator released a Market Notice on 4 January, requesting shippers to redirect deliveries from

7 The previous record MOS service cost occurred in Sydney on the 22 March 2011 gas day, reaching $1,426,254.

8 Potential infrastructure stress increases from pipeline movement following the landslide drove the application of pressure restrictions to mitigate safety and pipeline integrity concerns. This did not impact capacity but limited pressure levels from usual operating conditions at 14.95 megapascals, which was reduced to 10.5 megapascals.

9 Venting gas presents a fire and explosion hazard, with controlled supply increases preferable to limit safety concerns.

10 Jemena cannot direct supply through the pressure-controlled system points at Albion and Port Kembla, which operate in response to demand.

11 Subsequent gas days after 1 January saw Tallawarra power station increase generation levels above initial forecasts which assisted in reducing gas levels flowing through the northern section of the EGP.

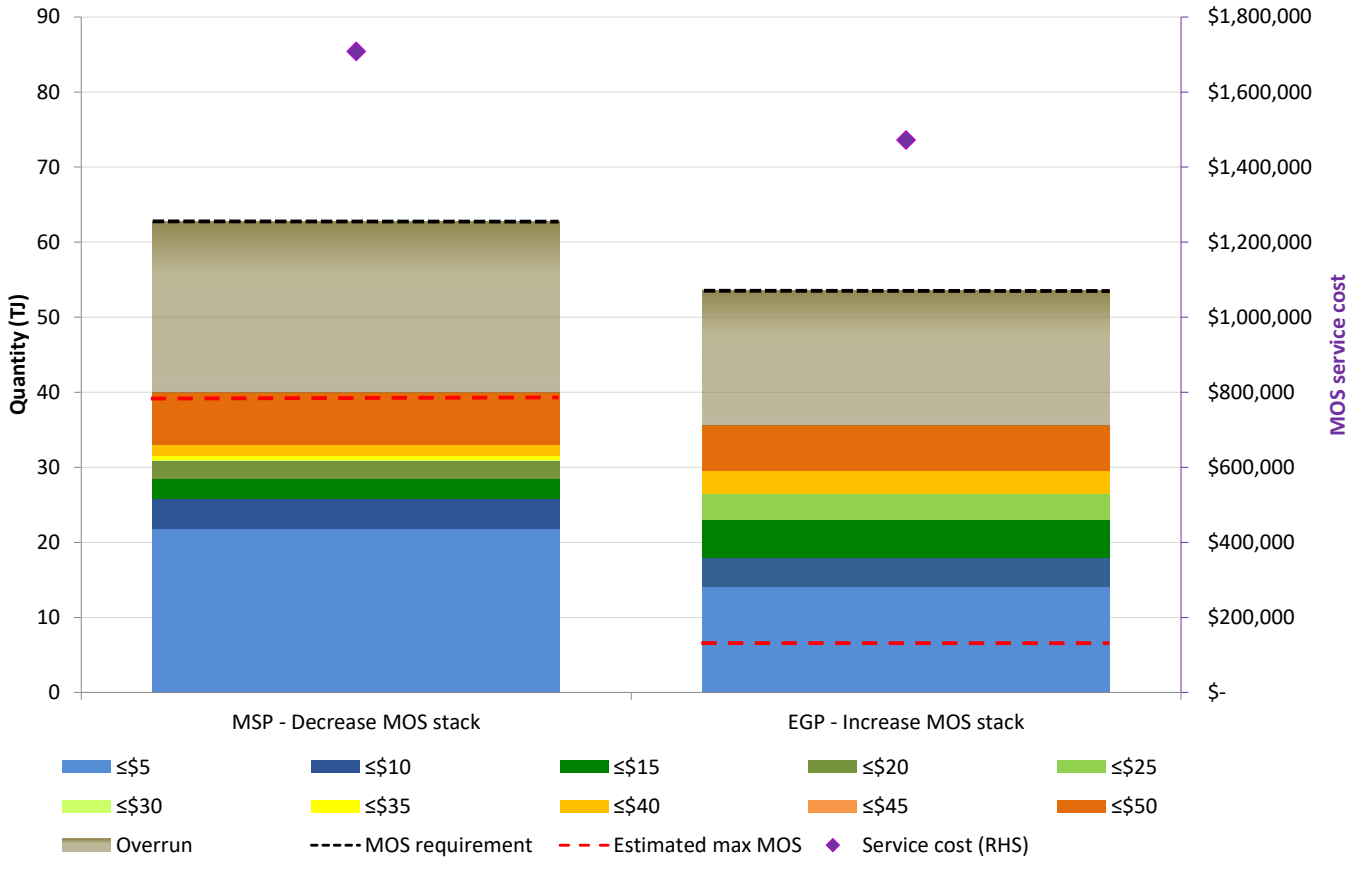
other STTM points to the EGP, albeit at a lower level of 20 TJ. However, on 1 January no information was provided to AEMO to inform participants through a Market Notice.[12]

5.3 Overrun MOS requirements

MOS overrun was required on both the EGP and MSP on this day. When market requirements lead to MOS being allocated above the total quantity of MOS available in the MOS stack, the additional MOS is allocated as overrun MOS. There was an overrun increase MOS requirement of 18 TJ on the EGP and overrun decrease MOS requirement of 22.8 TJ on the MSP. As this was exceeded AEMO's estimated maximum quantity of 39.2 TJ (MSP decrease MOS stack) and 6.6 TJ (EGP increase MOS stack), the overrun quantity was priced at the maximum price in each stack. On this day, $2,017,335 of the total MOS payment of $3,180,558 was attributable to overrun MOS service costs.

Figure 2 illustrates the price ranges of MOS offer costs for the MSP decrease MOS stack and the EGP increase MOS stack, displaying the estimated maximum service requirements for the month of January 2023 calculated by AEMO. The figure also shows the total cost of MOS service payments that accrued on each pipeline, and the quantities allocated as overrun MOS above the total available MOS offers available.

Figure 2 MOS stacks and allocation requirements for 1 January



[12] On 1 January, the decision to increase Wilton and Horsley Park deliveries occurred at a time that limited Jemena's ability to provide wider notice and receive a response from market participants.

6 Conclusions

As a result of the high amount of MOS required on the day, MOS service cost accrued to a level comparable to nearly a quarter of the total cost for MOS services in Sydney across the preceding year.[13]

In compiling information for this report, the AER has not detected at this stage any non-compliance with the rules. Rather, the event seems to have occurred because of one off changes in delivery profiles into the Sydney STTM because of end of year recontracting. This event appears to have been difficult to foreshadow - changed long-term contracting positions could for example have been swapped to day ahead capacity auction nominations – and so the results of the expiry of one contract on overall nominations is likely to have been difficult to forecast in advance. The AER welcomes any feedback participants may have on the information provided in this report.

[13] For comparison, around 6.4 PJ of gas was traded in Sydney at a volume weighted average price of $12.63/GJ, equating to over $81 million dollars in commodity costs. Hence, the high MOS service costs of over $3 million added just under 4% of the total commodity cost scheduled across the month of January.

7 Appendices

7.1 Appendix A – MOS (additional information)

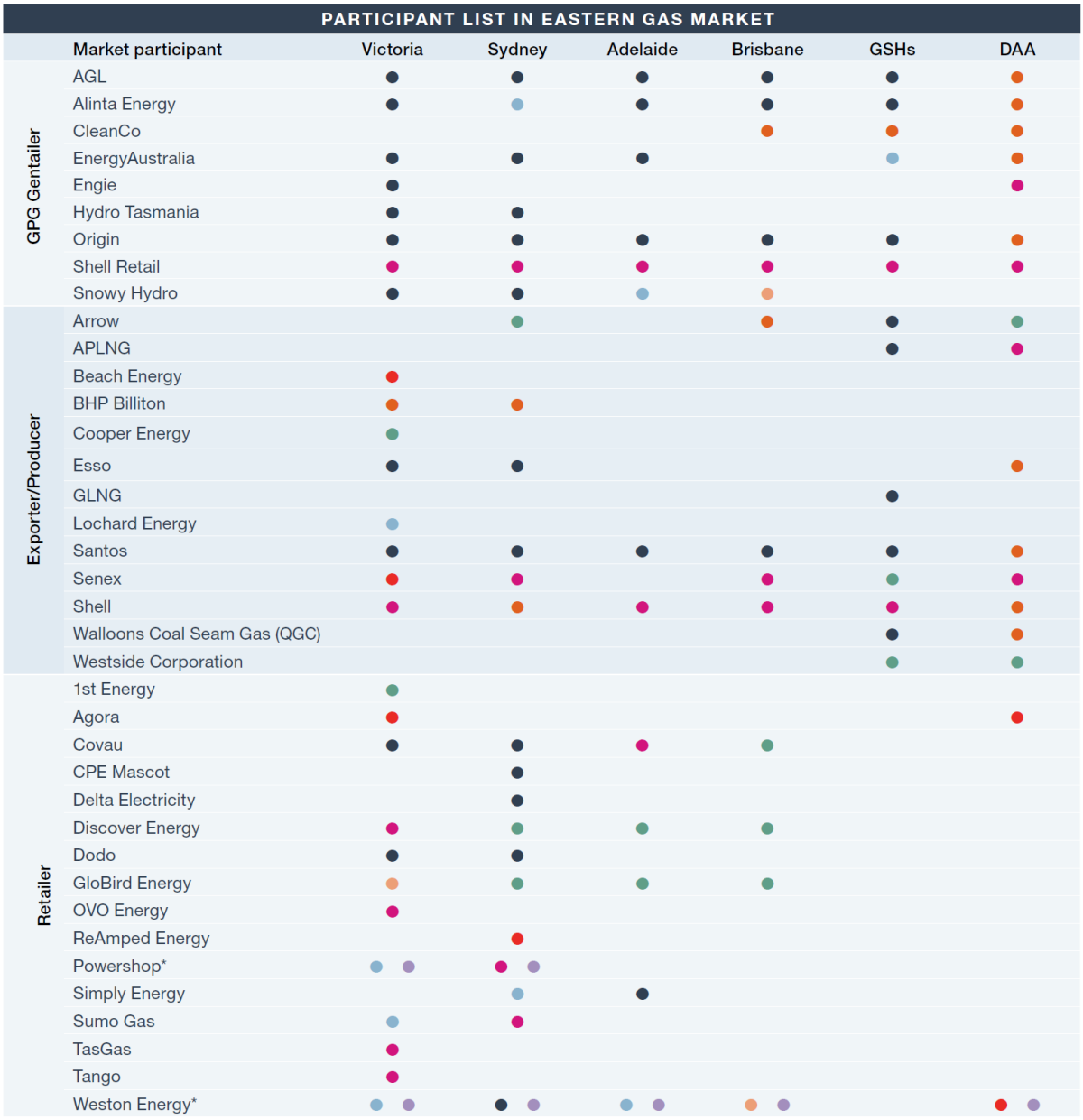
7.1.1 Service costs

The MOS service cost is determined by the price offered and reflects the cost of providing the service. This may include contractual or non-contractual components of providing MOS offers, such as park and loan services, storage costs, opportunity costs and risk abatement. If a participant's increase or decrease MOS offer is used on a gas day, they will receive a payment equal to the price of the relevant MOS offer multiplied by the quantity used. Throughout this report this is referred to as the MOS service payment, as it is the amount paid to participants for the service provided.

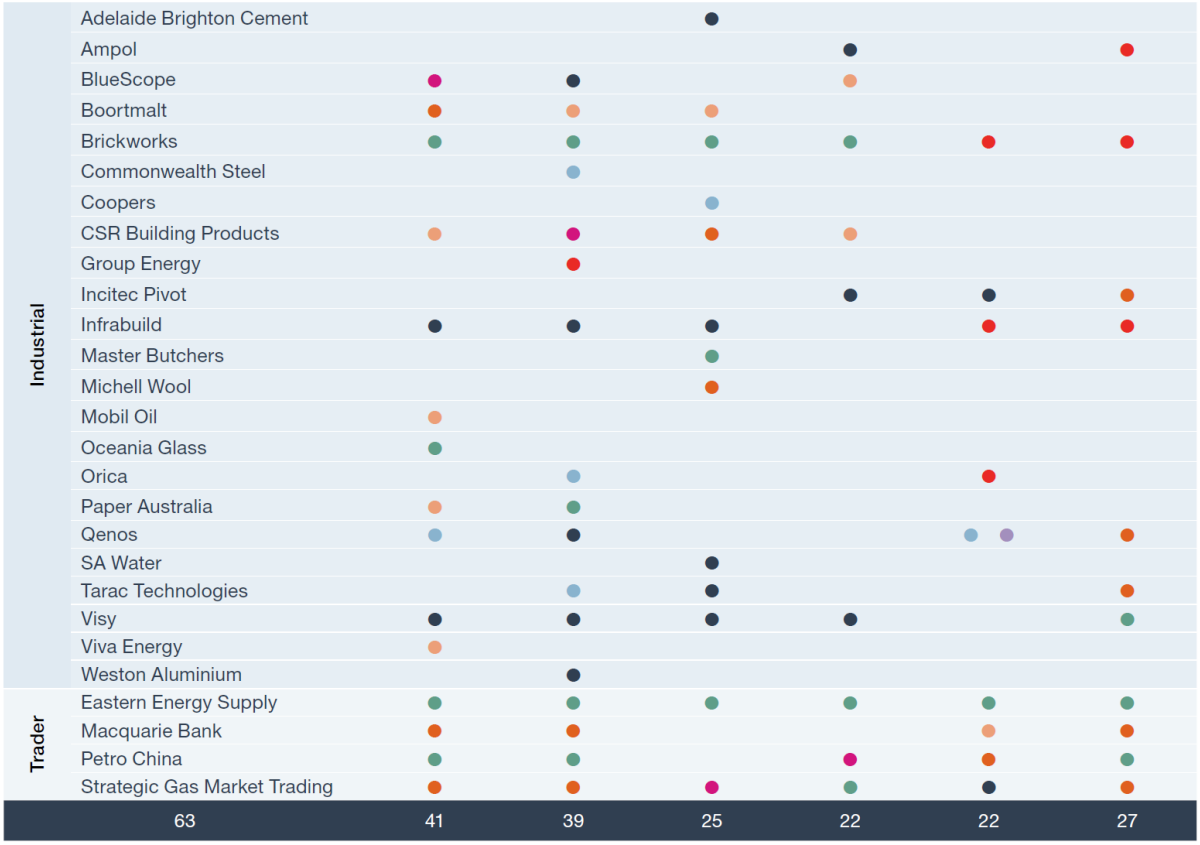
7.1.2 Commodity costs

The cost of the actual gas supplied (increase) or absorbed (decrease) is paid (in the case of increase MOS) or charged (in the case of decrease MOS) at the ex-ante price two days after the gas day when the MOS was needed (the D+2 price). This allows for MOS providers to place bids and offers on the following gas day (D+1) to restore MOS gas on the D+2 gas day to manage risks associated with price uncertainty. In the case of increase MOS, participants will receive a payment for the physical quantity of gas supplied, referred to as the commodity payment. In the case of decrease MOS, they will receive a charge for the gas they have procured from the market, referred to as the commodity charge.

7.2 Appendix B – Gas participant list



PARTICIPANT LIST IN EASTERN GAS MARKET							
	Market participant	Victoria	Sydney	Adelaide	Brisbane	GSHs	DAA
GPG Gentailer	AGL	●	●	●	●	●	●
	Alinta Energy	●	●	●	●	●	●
	CleanCo				●	●	●
	EnergyAustralia	●	●	●		●	●
	Engie	●					●
	Hydro Tasmania	●	●				
	Origin	●	●	●	●	●	●
	Shell Retail	●	●	●	●	●	●
	Snowy Hydro	●	●	●	●		
Exporter/Producer	Arrow		●		●	●	●
	APLNG					●	●
	Beach Energy	●					
	BHP Billiton	●	●				
	Cooper Energy	●					
	Esso	●	●				●
	GLNG					●	
	Lochard Energy	●					
	Santos	●	●	●	●	●	●
	Senex	●	●		●	●	●
	Shell	●	●	●	●	●	●
	Walloons Coal Seam Gas (QGC)					●	●
	Westside Corporation					●	●
Retailer	1st Energy	●					
	Agora	●					●
	Covau	●	●	●	●		
	CPE Mascot		●				
	Delta Electricity		●				
	Discover Energy	●	●	●	●		
	Dodo	●	●				
	GloBird Energy	●	●	●	●		
	OVO Energy	●					
	ReAmped Energy		●				
	Powershop*	● ●	● ●				
	Simply Energy		●	●			
	Sumo Gas	●	●				
	TasGas	●					
	Tango	●					
	Weston Energy*	● ●	● ●	● ●	● ●		● ●



Note: For Victoria, Adelaide, Sydney, Brisbane and the GSH the year represents when participants commenced trading. For the DAA the year represents when participants registered.

* Weston Energy's authorisation to trade in the gas markets was revoked on 24 May 2022.
* Click Energy was acquired by AGL, ERM and Powershop were acquired by Shell (Shell Retail), O-I International was acquired by Visy.
* Arrow also operates the Braemar 2 power station.
* Simple Energy is the retail arm of Engie, who own and operate gas generation assets in South Australia.
* ICAP Brokers is also active in the GSH, but does not trade gas commodities (trade facilitior).