

# MOS ESTIMATES REPORT: MOS PERIODS DECEMBER 2017, JANUARY 2018 & FEBRUARY 2018

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## 1. Introduction

MOS (Market Operator Service) estimates provide a guide of the largest daily increase and decrease MOS quantities that market participants may reasonably expect for each STTM pipeline. The MOS estimate is based on historical data and therefore does not limit the quantity of MOS that may be experienced in the future.

The MOS estimates also determine the value of any overrun MOS. If the MOS estimate (increase or decrease) for an STTM pipeline exceeds the total quantity of MOS offered for that pipeline (increase or decrease respectively), then any overrun MOS is paid at the weighted average price within the relevant MOS stack. Otherwise, if the total quantity of MOS offered for an STTM pipeline exceeds the MOS estimate then overrun MOS is paid at the highest priced offer within the stack.

In accordance with rule 397 of the National Gas Rules (STTM Rules), AEMO publishes MOS increase and decrease estimates for each STTM pipeline prior to the commencement of each monthly MOS period. In determining the MOS estimates for each MOS period, AEMO must use the data specified in Section 5.2 (b) of the STTM Procedures.

## 2. The MOS period

MOS periods are defined in section 5.1 of the STTM Procedures. The MOS estimates contained in this document relate to MOS periods: December 2017, January 2018 and February 2018.

The MOS quantities for each STTM pipeline and each gas day are as determined in accordance with the published methodology for determining MOS estimates.<sup>1</sup>

### Sydney, Adelaide and Brisbane hubs

The Sydney and Adelaide STTM hubs commenced operations on 1 September 2010, while the Brisbane STTM hub commenced operations on 1 December 2011. Therefore the MOS estimate quantities are based on 'Method 3' for year 6 + of an STTM hub.<sup>2</sup> This means they are derived using the actual daily MOS allocation quantities for the periods December from 2012 to 2016; January from 2013 to 2017; and February from 2013 to 2017; for the following STTM pipelines:

- Moomba to Sydney Pipeline (MSP) and Eastern Gas Pipeline (EGP) – these pipelines supply gas to the Sydney STTM hub; and
- Moomba to Adelaide Pipeline (MAP) and SEA Gas pipeline (SEA) – these pipelines supply gas to the Adelaide STTM hub.
- Roma to Brisbane Pipeline (RBP) – the sole pipeline that supplies gas to the Brisbane STTM hub.

The input data collected from the previous years was combined to create a larger and more representative sample of MOS allocations.

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<sup>1</sup> Available at: <http://www.aemo.com.au/en/Gas/Wholesale-Gas-Markets/Short-Term-Trading-Market/Market-Operator-Service-MOS>.

<sup>2</sup> *Methodology for determining MOS estimates, pg 22*

## Explanation of MOS quantities and summary statistics

Positive MOS quantities indicate the requirements for increase MOS, whereas negative MOS quantities indicate the requirements for decrease MOS.<sup>3</sup>

STTM Rule 397(1)(a) requires AEMO to publish its estimate of the maximum quantity of MOS (by way of increase and decrease) likely to be required on any gas day in the relevant MOS period. This is provided in Table 1 below.

STTM Rule 397(1)(b) requires AEMO to publish its estimate of the range of daily quantities of MOS likely to be required, together with the number of gas days in the MOS period to which each of those estimated quantities applies. This is provided in the following tables and charts:

- Table 2 shows summary statistics of MOS quantity distributions, including the means, standard deviations, 5 and 95 percentile of the distributions, range and inter-quartile range,<sup>4</sup> and the proportions of days in the MOS period with positive and negative MOS quantities.
- Table 3 shows the daily MOS quantities sorted in descending order and the number of day(s) associated with each estimated quantity.
- Figure 1 displays the curves of daily MOS quantities sorted in descending order from the highest to the lowest values.
- Figure 2 shows the Box plots which provide a graphical summary of the data and are useful tools for comparing the MOS increase and decrease quantities of the different STTM pipelines.

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<sup>3</sup> Note MOS increase and decrease offers must comply with the requirements in section 5.4(b)(ii) and section 5.4(c)(ii) of the STTM Procedures, and should be greater than zero for the purpose of creating the MOS stacks.

<sup>4</sup> The inter-quartile range is the range of values between the first (25%) and third quartiles (75%) of the distributions.

### MOS Period December 2017

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
<b>MOS increase</b>	17,180	4,512	8,093	242	10,460
<b>MOS decrease</b>	28,638	16,031	7,245	9,204	9,929

Figure 1 – Curves of daily MOS quantities

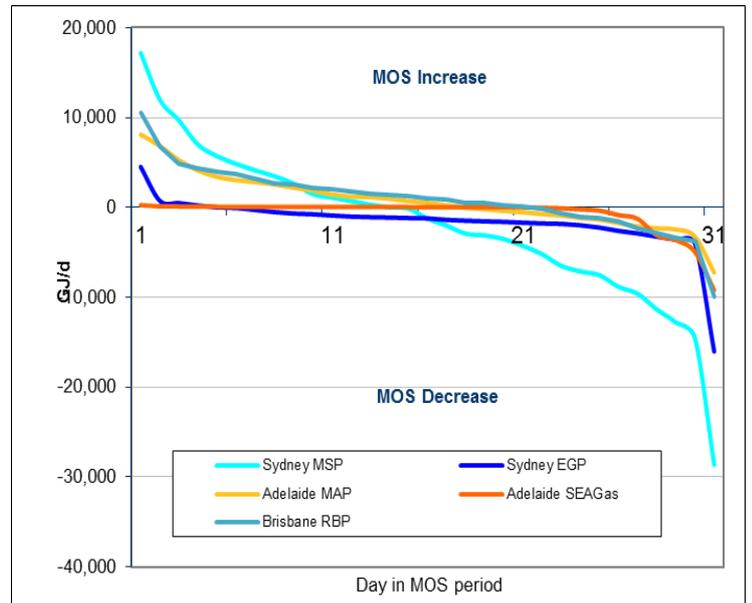
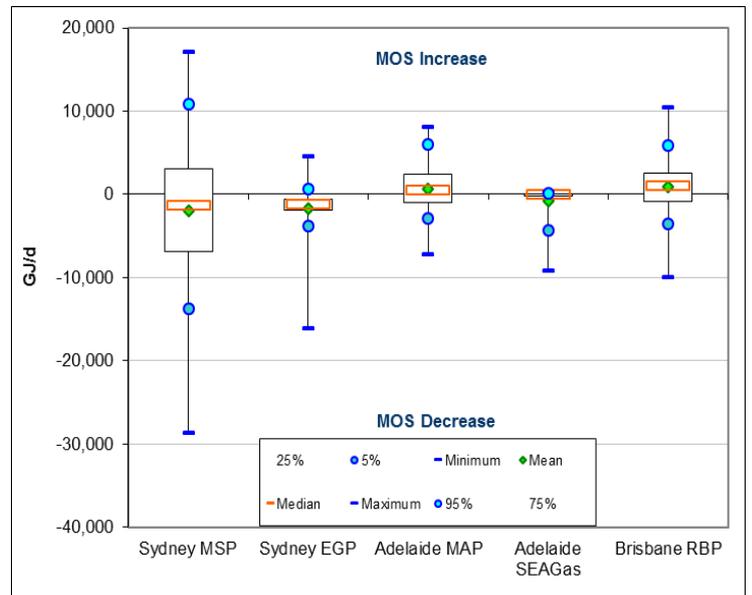


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	17,180	4,512	8,093	242	10,460
95%	10,830	594	6,045	110	5,821
75%	3,058	-609	2,374	56	2,605
50%	-1,250	-1,222	500	32	1,004
25%	-6,816	-1,913	-1,047	-167	-855
5%	-13,675	-3,818	-2,866	-4,310	-3,585
Minimum	-28,638	-16,031	-7,245	-9,204	-9,929
Mean	-1,913	-1,647	702	-729	928
Std deviation	8,737	3,085	3,047	1,988	3,594
% days positive	45%	13%	55%	68%	68%
% days negative	55%	87%	45%	32%	32%

Figure 2 – Distribution of daily MOS quantities



**Table 3 – Daily MOS quantities (GJ/d) for December 2017**

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	17,180	4,512	8,093	242	10,460
1	11,991	719	6,844	115	6,832
1	9,668	469	5,245	104	4,810
1	6,971	205	4,099	75	4,336
1	5,696	-1	3,394	70	3,942
1	4,826	-72	3,032	64	3,715
1	4,110	-297	2,811	61	3,231
1	3,471	-528	2,561	57	2,684
1	2,645	-690	2,186	55	2,525
1	1,485	-764	1,885	54	2,157
1	1,089	-908	1,425	50	1,979
1	705	-1,023	1,190	46	1,744
1	293	-1,089	1,148	41	1,521
1	0	-1,128	973	38	1,399
1	-132	-1,187	695	34	1,197
1	-1,250	-1,222	500	32	1,004
1	-2,027	-1,390	211	27	850
1	-2,924	-1,484	-44	21	539
1	-3,113	-1,557	-187	13	462
1	-3,522	-1,609	-403	9	264
1	-4,282	-1,706	-541	3	35
1	-5,215	-1,790	-746	-46	-169
1	-6,506	-1,838	-916	-103	-659
1	-7,125	-1,987	-1,178	-231	-1,050
1	-7,550	-2,250	-1,354	-356	-1,201
1	-8,841	-2,621	-1,745	-867	-1,560
1	-9,617	-2,901	-2,116	-1,271	-2,294
1	-11,347	-3,250	-2,315	-3,109	-2,872
1	-12,794	-3,591	-2,462	-3,645	-3,391
1	-14,556	-4,044	-3,270	-4,974	-3,778
1	-28,638	-16,031	-7,245	-9,204	-9,929

### MOS Period January 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	14,098	2,165	14,130	1,558	9,163
MOS decrease	40,396	18,655	10,895	19,723	10,489

Figure 1 – Curves of daily MOS quantities

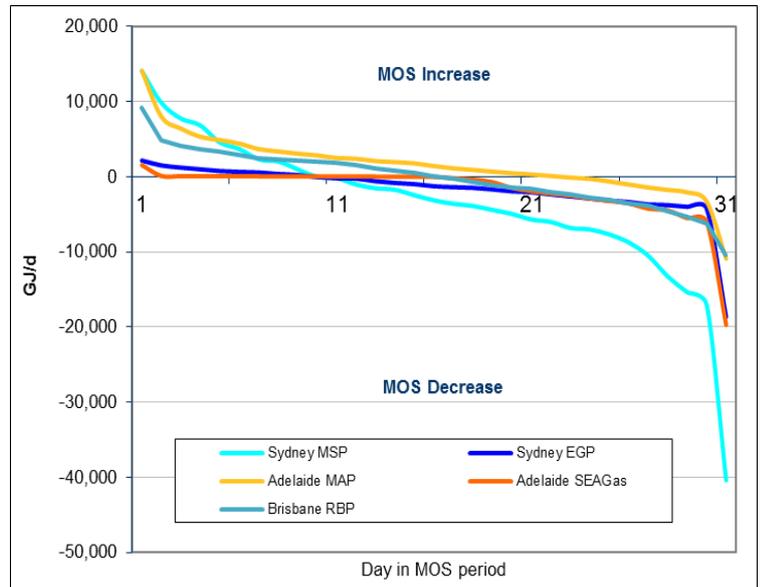


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	14,098	2,165	14,130	1,558	9,163
95%	8,824	1,378	7,228	110	4,455
75%	1,523	314	3,239	61	2,302
50%	-3,133	-1,256	1,433	-6	89
25%	-6,908	-2,752	-188	-2,685	-2,587
5%	-16,214	-4,127	-2,673	-5,765	-5,782
Minimum	-40,396	-18,655	-10,895	-19,723	-10,489
Mean	-3,648	-1,701	1,636	-1,824	-212
Std deviation	9,789	3,612	4,108	3,837	3,848
% days positive	32%	29%	71%	48%	52%
% days negative	68%	71%	29%	52%	48%

Figure 2 – Distribution of daily MOS quantities

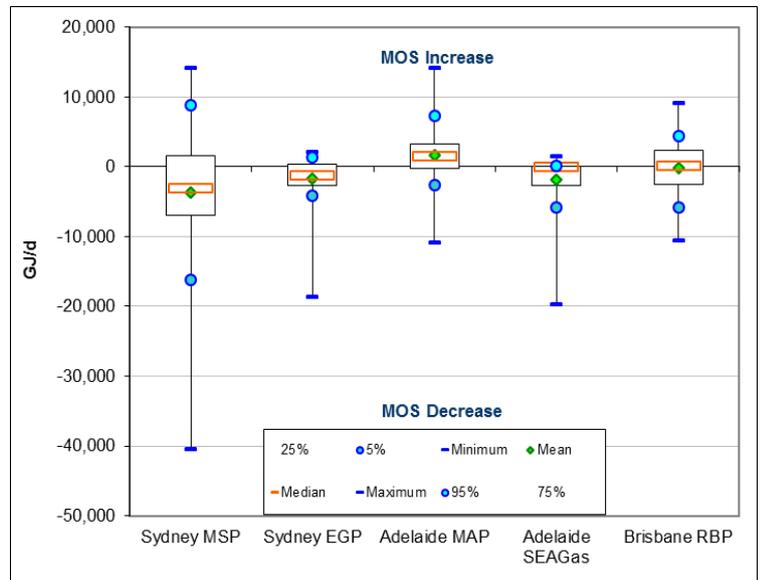


Table 3 – Daily MOS quantities (GJ/d) for January 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	14,098	2,165	14,130	1,558	9,163
1	9,872	1,521	8,029	117	4,820
1	7,776	1,234	6,427	103	4,090
1	6,841	1,006	5,331	90	3,691
1	4,591	776	4,905	83	3,314
1	3,704	657	4,427	75	2,854
1	2,336	572	3,694	66	2,504
1	2,042	386	3,388	63	2,376
1	1,003	241	3,089	58	2,227
1	0	-36	2,847	56	2,004
1	-180	-198	2,512	51	1,823
1	-1,019	-240	2,403	43	1,565
1	-1,521	-584	2,104	31	1,098
1	-1,726	-810	1,964	12	756
1	-2,452	-970	1,790	1	578
1	-3,133	-1,256	1,433	-6	89
1	-3,585	-1,377	1,130	-180	-271
1	-3,879	-1,469	930	-350	-705
1	-4,409	-1,672	687	-716	-1,115
1	-4,934	-1,924	483	-1,491	-1,370
1	-5,684	-2,054	317	-1,911	-1,653
1	-6,015	-2,342	113	-2,229	-2,029
1	-6,807	-2,609	-105	-2,489	-2,353
1	-7,008	-2,896	-271	-2,881	-2,820
1	-7,670	-3,168	-621	-3,211	-3,134
1	-8,736	-3,349	-1,014	-3,535	-3,518
1	-10,510	-3,674	-1,418	-4,232	-3,893
1	-13,258	-3,768	-1,745	-4,464	-4,614
1	-15,358	-3,990	-2,066	-5,504	-5,264
1	-17,069	-4,264	-3,279	-6,026	-6,299
1	-40,396	-18,655	-10,895	-19,723	-10,489

### MOS Period February 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
<b>MOS increase</b>	17,286	7,095	9,854	235	6,718
<b>MOS decrease</b>	24,902	12,228	6,256	12,396	9,517

Figure 1 – Curves of daily MOS quantities

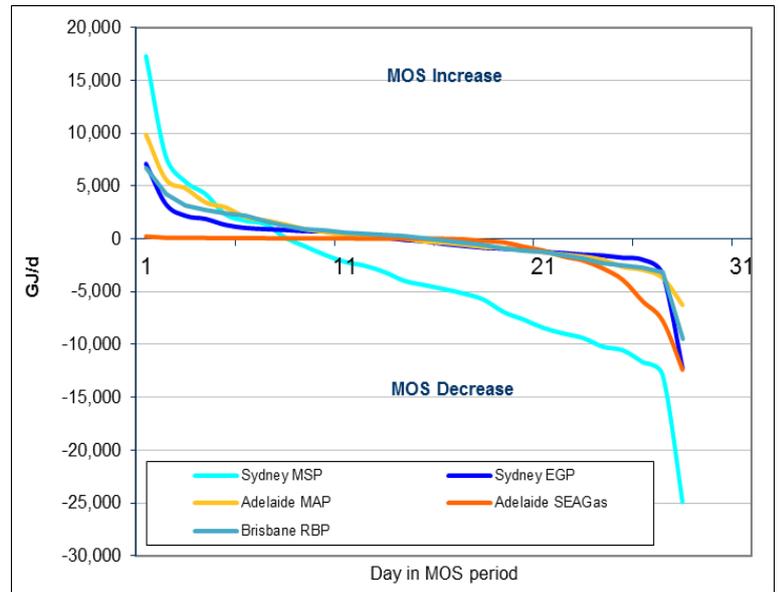


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	17,286	7,095	9,854	235	6,718
95%	6,940	2,897	5,328	102	3,850
75%	442	859	1,465	55	1,315
50%	-4,174	-165	-110	13	155
25%	-8,560	-1,258	-1,313	-1,245	-1,358
5%	-12,462	-2,873	-3,428	-7,103	-2,990
Minimum	-24,902	-12,228	-6,256	-12,396	-9,517
Mean	-3,765	-301	304	-1,353	-12
Std deviation	7,804	3,054	3,118	2,914	2,902
% days positive	29%	46%	50%	57%	54%
% days negative	71%	54%	50%	43%	46%

Figure 2 – Distribution of daily MOS quantities

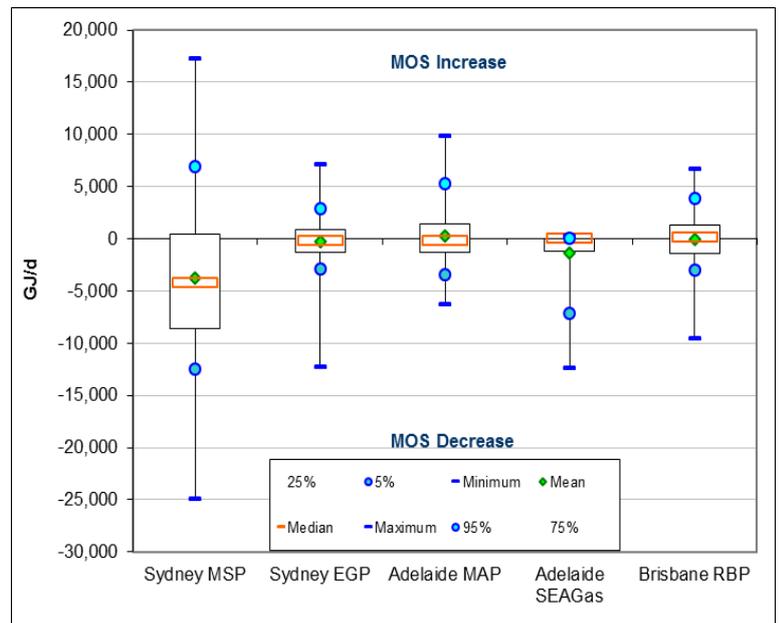


Table 3 – Daily MOS quantities (GJ/d) for February 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	17,286	7,095	9,854	235	6,718
1	7,779	3,285	5,629	108	4,221
1	5,382	2,175	4,768	92	3,161
1	4,236	1,884	3,443	84	2,738
1	2,310	1,316	2,985	74	2,373
1	1,718	1,033	2,081	66	2,199
1	1,397	922	1,756	59	1,710
1	124	838	1,368	53	1,183
1	-704	733	924	50	945
1	-1,508	698	647	43	788
1	-2,167	459	394	38	586
1	-2,538	262	290	27	468
1	-3,142	133	153	23	336
1	-3,975	-98	31	16	277
1	-4,373	-232	-250	9	33
1	-4,752	-475	-369	4	-128
1	-5,181	-666	-549	-40	-362
1	-5,761	-836	-762	-196	-579
1	-6,925	-934	-870	-328	-859
1	-7,636	-1,026	-1,090	-739	-1,149
1	-8,427	-1,232	-1,260	-1,105	-1,279
1	-8,957	-1,338	-1,472	-1,664	-1,596
1	-9,386	-1,491	-1,674	-2,041	-1,900
1	-10,210	-1,582	-1,989	-2,798	-2,339
1	-10,550	-1,788	-2,656	-3,886	-2,505
1	-11,671	-1,978	-2,933	-5,916	-2,731
1	-12,888	-3,355	-3,694	-7,742	-3,130
1	-24,902	-12,228	-6,256	-12,396	-9,517