

MOS ESTIMATES REPORT: MOS PERIODS JUNE 2018, JULY 2018 & AUGUST 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: June 2018, July 2018 and August 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.¹

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.² This means they are derived using the actual daily MOS allocation quantities for the periods June from 2013 to 2017; July from 2013 to 2017; and August 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.

¹ AEMO, *Methodology for determining MOS estimates*, Available at: http://www.aemo.com.au/Gas/Short-Term-Trading-Market-STTM/Market-operations/Market_Operator_Service.

² AEMO, *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.³

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,⁴ 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.

³ 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.

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

MOS Period June 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	23,466	10,349	19,734	147	7,278
MOS decrease	27,935	4,168	8,687	21,049	10,911

Figure 1 – Curves of daily MOS quantities

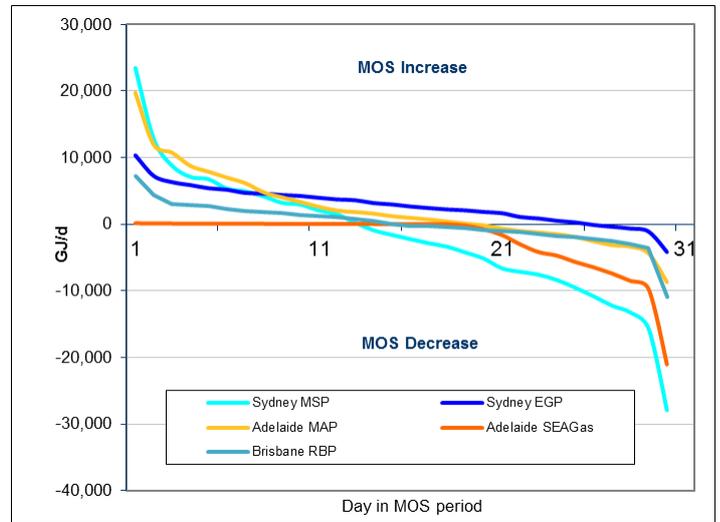


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	23,466	10,349	19,734	147	7,278
95%	10,999	6,840	11,407	110	3,828
75%	3,942	4,548	4,599	62	1,809
50%	-1,923	2,822	1,093	20	-99
25%	-7,472	923	-1,183	-3,897	-1,455
5%	-14,581	-897	-3,923	-9,172	-3,335
Minimum	-27,935	-4,168	-8,687	-21,049	-10,911
Mean	-1,872	2,836	2,245	-2,408	21
Std deviation	9,708	2,885	5,646	4,612	3,129
% days positive	43%	83%	63%	60%	50%
% days negative	57%	17%	37%	40%	50%

Figure 2 – Distribution of daily MOS quantities

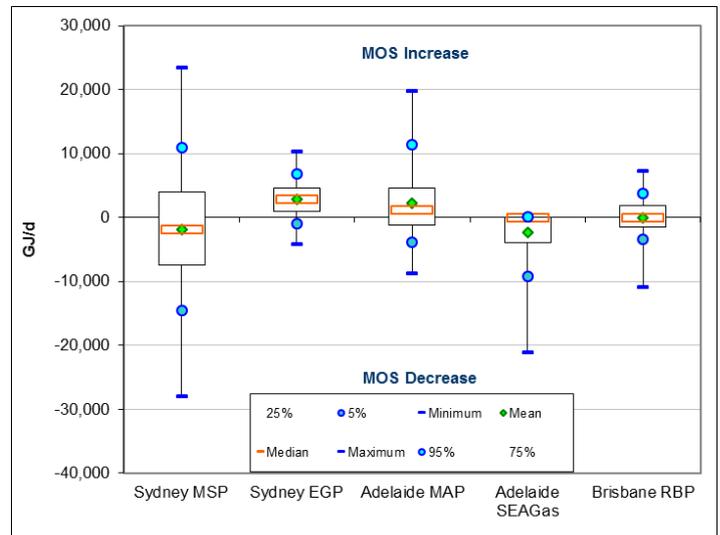


Table 3 – Daily MOS quantities (GJ/d) for June 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	23,466	10,349	19,734	147	7,278
1	12,808	7,259	11,945	114	4,444
1	8,789	6,328	10,750	104	3,074
1	7,114	5,879	8,770	97	2,917
1	6,758	5,403	7,881	86	2,655
1	5,343	5,177	6,998	81	2,257
1	4,949	4,713	6,170	69	2,001
1	4,182	4,599	4,786	64	1,869
1	3,222	4,394	4,037	55	1,630
1	2,949	4,248	3,351	52	1,395
1	2,084	3,980	2,632	45	1,285
1	1,500	3,729	2,052	37	1,003
1	221	3,603	1,830	28	706
1	-916	3,179	1,598	25	404
1	-1,604	2,978	1,214	21	82
1	-2,242	2,666	972	18	-280
1	-2,852	2,428	713	16	-329
1	-3,364	2,225	411	1	-490
1	-4,240	2,089	88	-191	-606
1	-5,143	1,851	-154	-752	-887
1	-6,619	1,659	-656	-1,624	-1,099
1	-7,148	1,093	-1,025	-3,033	-1,244
1	-7,580	866	-1,236	-4,185	-1,525
1	-8,384	518	-1,504	-4,720	-1,751
1	-9,532	276	-1,905	-5,673	-1,942
1	-10,827	-111	-2,550	-6,464	-2,179
1	-12,224	-373	-3,133	-7,393	-2,516
1	-13,251	-643	-3,360	-8,497	-2,966
1	-15,670	-1,104	-4,383	-9,724	-3,637
1	-27,935	-4,168	-8,687	-21,049	-10,911

MOS Period July 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	16,053	12,315	13,929	2,022	6,314
MOS decrease	28,839	3,462	11,412	15,100	6,774

Figure 1 – Curves of daily MOS quantities

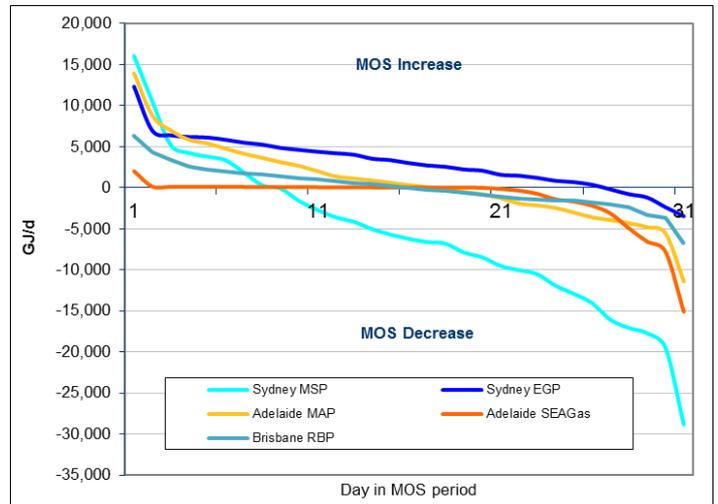


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	16,053	12,315	13,929	2,022	6,314
95%	7,867	6,670	7,895	140	3,857
75%	104	5,063	3,384	85	1,522
50%	-6,219	3,004	333	30	-57
25%	-11,232	1,031	-2,299	-1,073	-1,465
5%	-18,602	-1,774	-5,170	-7,175	-3,495
Minimum	-28,839	-3,462	-11,412	-15,100	-6,774
Mean	-5,863	3,045	644	-1,313	30
Std deviation	9,349	3,178	4,852	3,301	2,517
% days positive	26%	84%	55%	65%	48%
% days negative	74%	16%	45%	35%	52%

Figure 2 – Distribution of daily MOS quantities

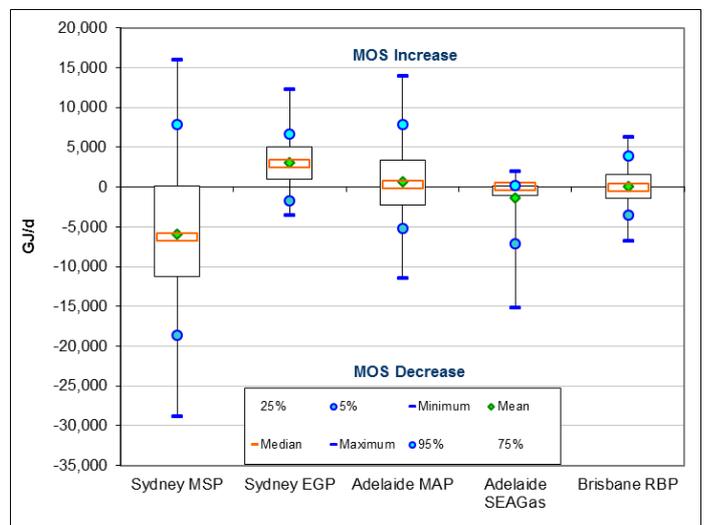


Table 3 – Daily MOS quantities (GJ/d) for July 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	16,053	12,315	13,929	2,022	6,314
1	10,518	6,946	8,794	147	4,302
1	5,216	6,394	6,996	132	3,411
1	4,239	6,194	5,847	111	2,550
1	3,792	6,121	5,403	101	2,234
1	3,347	5,848	4,773	99	1,960
1	1,853	5,498	4,140	97	1,716
1	298	5,262	3,651	88	1,638
1	-91	4,863	3,116	81	1,406
1	-1,598	4,619	2,669	74	1,161
1	-2,706	4,399	2,027	68	1,000
1	-3,594	4,210	1,389	63	778
1	-4,147	4,028	1,137	52	589
1	-5,050	3,540	897	42	422
1	-5,702	3,371	615	33	163
1	-6,219	3,004	333	30	-57
1	-6,608	2,721	67	24	-222
1	-6,810	2,555	-151	21	-362
1	-7,883	2,234	-508	17	-563
1	-8,470	2,088	-795	0	-804
1	-9,513	1,587	-1,257	-143	-1,041
1	-10,037	1,476	-1,906	-345	-1,258
1	-10,528	1,212	-2,144	-735	-1,406
1	-11,936	850	-2,454	-1,411	-1,523
1	-12,919	686	-3,022	-1,672	-1,566
1	-14,062	365	-3,599	-2,189	-1,774
1	-16,081	-199	-3,926	-3,131	-2,033
1	-17,079	-782	-4,299	-4,938	-2,331
1	-17,718	-1,185	-4,797	-6,556	-3,276
1	-19,486	-2,364	-5,543	-7,793	-3,714
1	-28,839	-3,462	-11,412	-15,100	-6,774

MOS Period August 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	20,346	10,914	17,141	890	11,859
MOS decrease	21,807	3,899	10,860	13,425	7,133

Figure 1 – Curves of daily MOS quantities

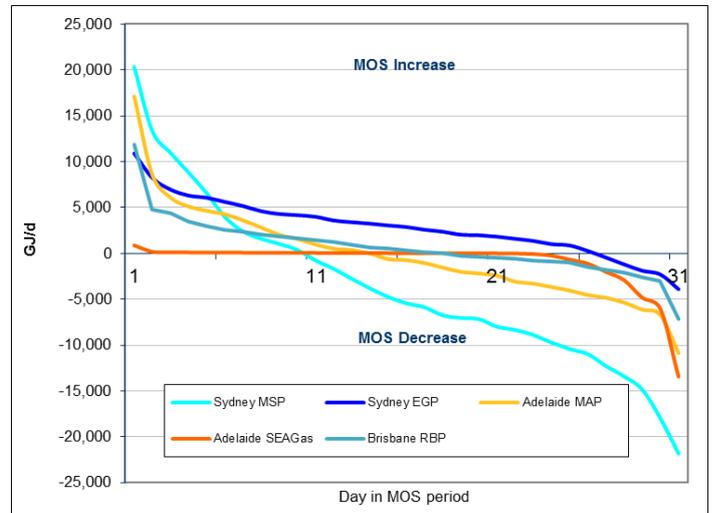


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	20,346	10,914	17,141	890	11,859
95%	12,153	7,606	7,318	164	4,630
75%	1,323	4,460	2,437	77	1,965
50%	-5,426	2,889	-726	32	386
25%	-9,303	1,194	-3,471	-148	-823
5%	-16,404	-2,085	-6,410	-5,424	-2,799
Minimum	-21,807	-3,899	-10,860	-13,425	-7,133
Mean	-3,651	2,868	-167	-936	675
Std deviation	9,287	3,151	5,291	2,756	3,153
% days positive	32%	84%	42%	71%	58%
% days negative	68%	16%	58%	29%	42%

Figure 2 – Distribution of daily MOS quantities

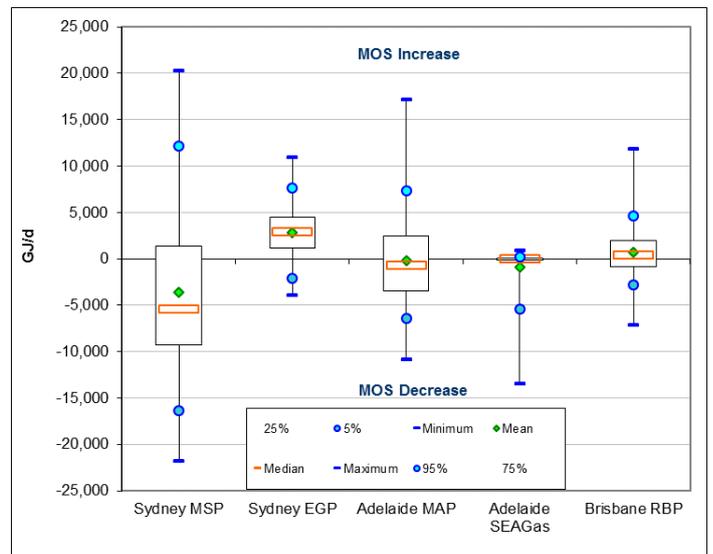


Table 3 – Daily MOS quantities (GJ/d) for August 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	20,346	10,914	17,141	890	11,859
1	13,337	8,243	8,539	187	4,819
1	10,968	6,968	6,096	141	4,440
1	8,817	6,314	5,126	112	3,513
1	6,553	6,075	4,648	101	2,960
1	3,968	5,623	4,274	91	2,527
1	2,397	5,172	3,611	87	2,388
1	1,605	4,613	2,832	79	2,071
1	1,041	4,307	2,042	74	1,858
1	379	4,175	1,582	72	1,645
1	-762	4,002	973	66	1,449
1	-1,679	3,595	528	59	1,202
1	-2,776	3,410	382	56	947
1	-3,814	3,254	-12	48	656
1	-4,747	3,055	-614	36	540
1	-5,426	2,889	-726	32	386
1	-5,866	2,592	-1,041	30	140
1	-6,736	2,379	-1,539	28	77
1	-7,021	2,051	-1,993	24	-301
1	-7,156	1,991	-2,174	19	-398
1	-7,984	1,834	-2,419	12	-466
1	-8,337	1,602	-3,072	1	-611
1	-8,885	1,368	-3,284	-63	-735
1	-9,720	1,021	-3,657	-233	-911
1	-10,419	871	-4,044	-665	-1,019
1	-10,974	275	-4,529	-1,113	-1,474
1	-12,274	-440	-4,823	-2,008	-1,806
1	-13,402	-1,191	-5,351	-2,915	-2,106
1	-14,838	-1,880	-6,120	-4,818	-2,554
1	-17,970	-2,289	-6,699	-6,029	-3,044
1	-21,807	-3,899	-10,860	-13,425	-7,133