

MOS ESTIMATES REPORT: MOS PERIODS DECEMBER 2018, JANUARY 2019 & FEBRUARY 2019

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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 2018, January 2019 and February 2019.

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 December from 2013 to 2017; January from 2014 to 2018; and February from 2014 to 2018; 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 December 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	14,542	8,946	6,844	242	10,460
MOS decrease	28,638	16,031	7,245	9,204	6,700

Figure 1 – Curves of daily MOS quantities

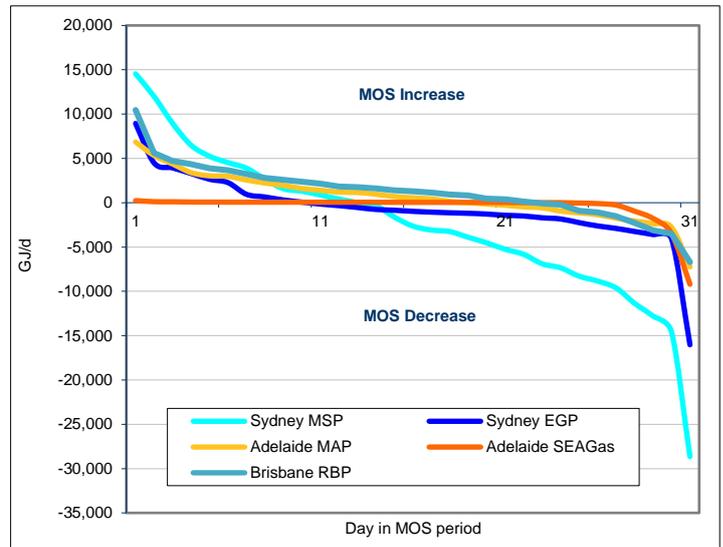


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	14,542	8,946	6,844	242	10,460
95%	10,475	4,209	4,850	110	5,172
75%	2,110	477	2,084	61	2,700
50%	-2,636	-974	554	41	1,287
25%	-7,123	-1,768	-762	7	-143
5%	-13,675	-3,818	-2,572	-2,624	-3,301
Minimum	-28,638	-16,031	-7,245	-9,204	-6,700
Mean	-2,462	-706	635	-465	1,231
Std deviation	8,480	3,918	2,668	1,773	3,115
% days positive	42%	32%	61%	77%	71%
% days negative	58%	68%	39%	23%	29%

Figure 2 – Distribution of daily MOS quantities

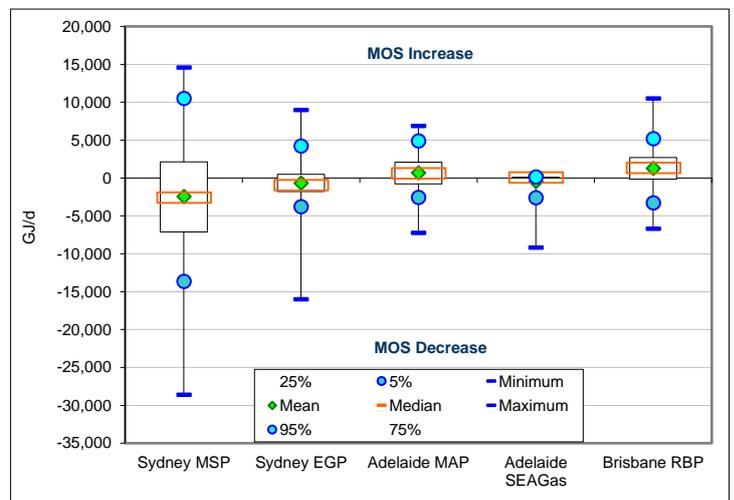


Table 3 – Daily MOS quantities (GJ/d) for December 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	14,542	8,946	6,844	242	10,460
1	11,991	4,488	5,326	115	5,617
1	8,958	3,930	4,374	104	4,727
1	6,489	3,301	3,394	75	4,332
1	5,247	2,645	3,033	70	3,881
1	4,525	2,267	2,971	64	3,673
1	3,902	947	2,561	63	3,231
1	2,645	646	2,217	61	2,807
1	1,574	308	1,951	60	2,593
1	1,289	67	1,599	57	2,354
1	871	-153	1,400	55	2,146
1	423	-331	1,190	54	1,839
1	0	-539	1,148	53	1,744
1	-342	-760	962	50	1,610
1	-1,615	-850	695	45	1,413
1	-2,636	-974	554	41	1,287
1	-3,078	-1,062	425	38	1,127
1	-3,257	-1,137	147	35	943
1	-3,901	-1,194	17	34	803
1	-4,529	-1,282	-151	32	469
1	-5,256	-1,421	-286	29	397
1	-5,829	-1,501	-473	15	126
1	-6,892	-1,702	-578	10	-73
1	-7,353	-1,834	-946	4	-212
1	-8,292	-2,250	-1,146	-41	-918
1	-8,841	-2,621	-1,350	-97	-1,091
1	-9,617	-2,901	-1,745	-272	-1,530
1	-11,347	-3,250	-2,060	-954	-2,294
1	-12,794	-3,591	-2,377	-1,776	-3,114
1	-14,556	-4,044	-2,766	-3,472	-3,488
1	-28,638	-16,031	-7,245	-9,204	-6,700

MOS Period January 2019

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	15,919	5,346	14,130	1,517	9,163
MOS decrease	40,396	18,655	5,893	19,723	10,489

Figure 1 – Curves of daily MOS quantities

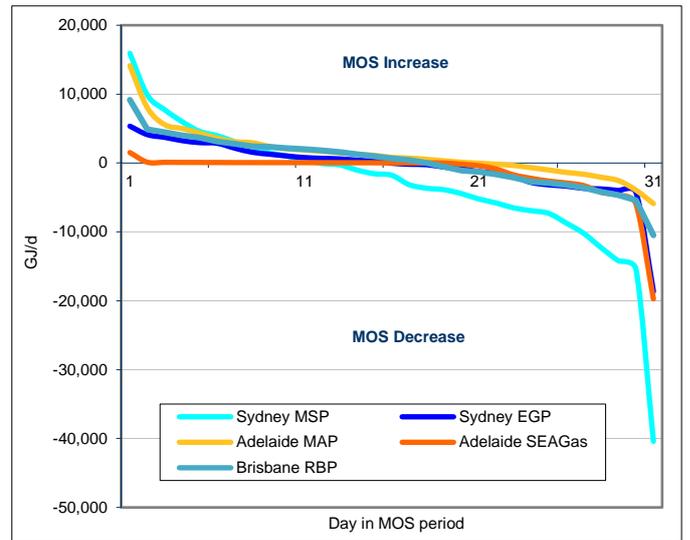


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	15,919	5,346	14,130	1,517	9,163
95%	8,797	3,923	6,796	110	4,686
75%	1,877	1,426	2,678	61	2,374
50%	-1,774	-27	821	22	662
25%	-6,720	-2,388	-525	-1,982	-2,408
5%	-14,808	-4,127	-3,248	-5,300	-5,054
Minimum	-40,396	-18,655	-5,893	-19,723	-10,489
Mean	-3,111	-619	1,336	-1,493	125
Std deviation	9,786	4,220	3,675	3,796	3,794
% days positive	35%	48%	65%	61%	58%
% days negative	65%	52%	35%	39%	42%

Figure 2 – Distribution of daily MOS quantities

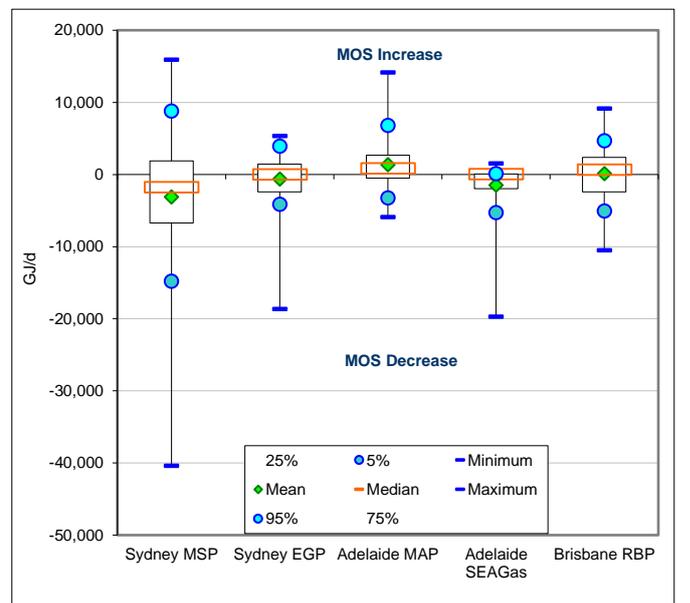


Table 3 – Daily MOS quantities (GJ/d) for January 2019

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	15,919	5,346	14,130	1,517	9,163
1	9,872	4,122	8,029	117	4,892
1	7,721	3,725	5,563	103	4,479
1	5,990	3,244	5,010	90	4,005
1	4,591	2,962	4,334	83	3,663
1	3,983	2,868	3,597	75	3,106
1	3,101	2,165	3,091	66	2,814
1	2,281	1,568	2,947	64	2,424
1	1,473	1,283	2,408	58	2,324
1	1,003	1,018	2,055	56	2,154
1	424	790	1,888	55	2,004
1	-67	679	1,700	50	1,823
1	-251	599	1,495	43	1,584
1	-1,019	412	1,277	39	1,263
1	-1,556	249	1,114	34	981
1	-1,774	-27	821	22	662
1	-3,141	-181	717	20	459
1	-3,658	-240	538	12	5
1	-3,879	-584	317	1	-544
1	-4,442	-810	113	-176	-1,094
1	-5,232	-1,256	-37	-397	-1,293
1	-5,811	-1,464	-176	-889	-1,665
1	-6,516	-1,952	-364	-1,734	-2,096
1	-6,923	-2,823	-685	-2,229	-2,720
1	-7,315	-3,168	-1,014	-2,627	-2,905
1	-8,709	-3,349	-1,363	-2,897	-3,200
1	-10,206	-3,674	-1,629	-3,275	-3,596
1	-12,283	-3,768	-2,066	-4,251	-4,208
1	-14,201	-3,990	-2,558	-4,658	-4,682
1	-15,415	-4,264	-3,937	-5,941	-5,426
1	-40,396	-18,655	-5,893	-19,723	-10,489

MOS Period February 2019

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	17,286	7,095	9,854	423	6,487
MOS decrease	24,902	12,228	8,621	12,396	6,527

Figure 1 – Curves of daily MOS quantities

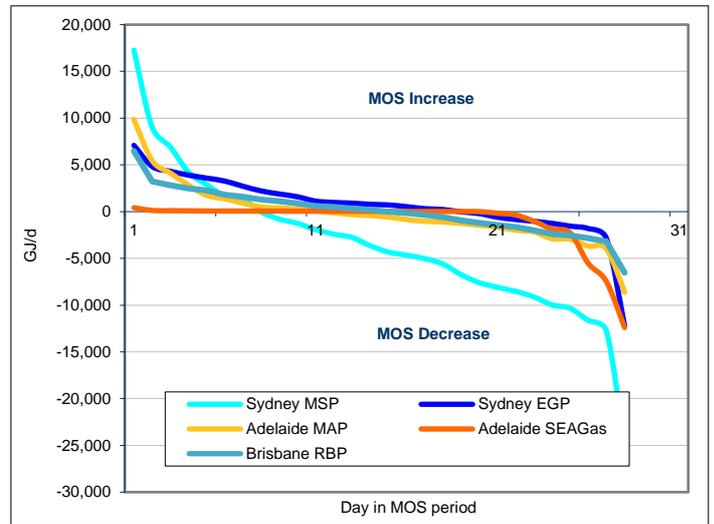


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	17,286	7,095	9,854	423	6,487
95%	8,316	4,659	5,007	120	3,091
75%	326	2,342	602	58	1,363
50%	-3,982	750	-504	30	97
25%	-8,198	-658	-1,745	-214	-1,495
5%	-12,374	-2,488	-3,872	-6,797	-3,066
Minimum	-24,902	-12,228	-8,621	-12,396	-6,527
Mean	-3,522	666	-267	-1,060	-6
Std deviation	7,915	3,383	3,311	2,846	2,485
% days positive	25%	64%	39%	71%	50%
% days negative	75%	36%	61%	29%	50%

Figure 2 – Distribution of daily MOS quantities

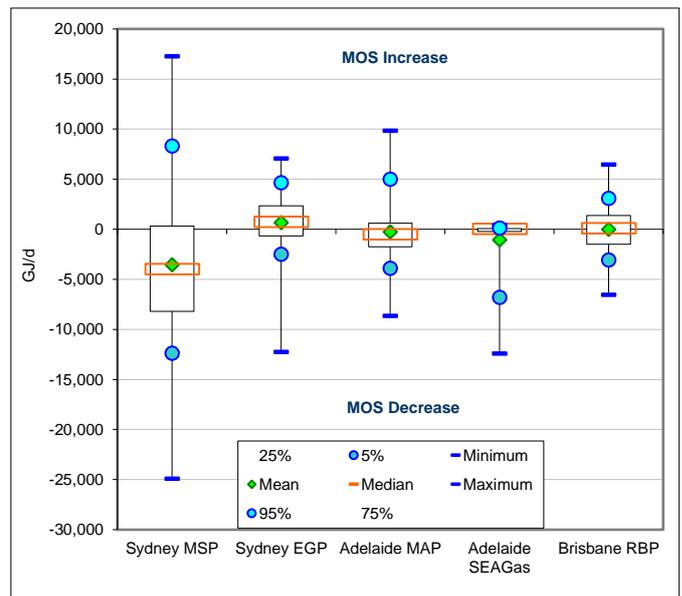


Table 3 – Daily MOS quantities (GJ/d) for February 2019

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	17,286	7,095	9,854	423	6,487
1	9,061	4,840	5,476	129	3,225
1	6,931	4,322	4,137	104	2,841
1	4,236	3,907	2,848	88	2,492
1	2,886	3,589	1,743	75	2,293
1	1,692	3,272	1,368	67	1,793
1	1,370	2,716	905	63	1,604
1	-22	2,218	501	56	1,282
1	-796	1,889	391	53	1,105
1	-1,248	1,592	265	48	887
1	-1,932	1,126	109	44	590
1	-2,408	984	-126	40	492
1	-2,760	907	-317	37	336
1	-3,641	783	-422	32	196
1	-4,322	716	-586	27	-3
1	-4,654	536	-843	26	-154
1	-5,025	319	-1,028	22	-362
1	-5,600	225	-1,112	20	-579
1	-6,733	-24	-1,255	15	-926
1	-7,595	-205	-1,452	8	-1,202
1	-8,091	-597	-1,664	-168	-1,440
1	-8,519	-840	-1,989	-352	-1,659
1	-9,109	-1,026	-2,163	-1,010	-1,974
1	-9,974	-1,251	-2,891	-1,858	-2,405
1	-10,344	-1,550	-2,946	-2,256	-2,525
1	-11,648	-1,804	-3,694	-5,532	-2,855
1	-12,765	-2,857	-3,968	-7,478	-3,179
1	-24,902	-12,228	-8,621	-12,396	-6,527