

MOS ESTIMATES REPORT: MOS PERIODS MARCH 2018, APRIL 2018 & MAY 2018

Prepared By: Gas System Operations

Version No: 1

Status: FINAL

Date: Select the publication date

Disclaimer

Purpose - This document has been prepared for the sole purpose of the short term trading market ('STTM') in accordance with rule 397 of the National Gas Rules (STTM rules).

No Reliance – This document contains data provided by third parties and might contain conclusions or forecasts and the like that rely on that data. While all reasonable care was taken in the preparation of this document, any use of this document is entirely at your risk. You should verify and check the accuracy, completeness, reliability and suitability of this document for any use to which you intend to put it and seek independent expert advice before using it, or any information contained in it.

No Warranty - Neither AEMO, nor any of AEMO's advisers, consultants or other contributors to this document (or their respective associated companies, businesses, partners, directors, officers or employees), make any representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of the information contained in this document.

No Liability - To the maximum extent permitted by law, neither AEMO, nor any of its advisers, consultants or other contributors to this document (or their respective associated companies, businesses, partners, directors, officers or employees), shall have any liability (whether arising from negligence or otherwise) in respect of any use of the information (including any reliance on its currency, accuracy, reliability or completeness) contained in this document.

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: March 2018, April 2018 and May 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 March from 2013 to 2017; April from 2013 to 2017; and May 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 March 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	18,174	7,510	11,641	1,170	8,299
MOS decrease	24,415	16,360	7,184	9,977	14,952

Figure 1 – Curves of daily MOS quantities

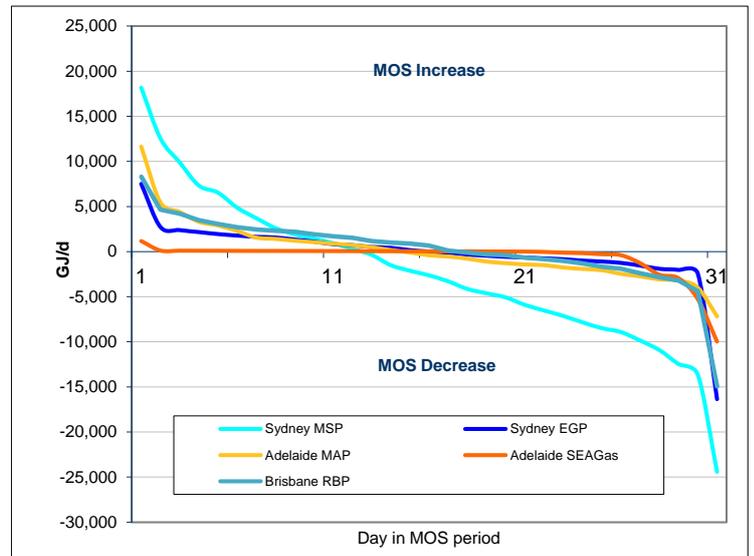


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	18,174	7,510	11,641	1,170	8,299
95%	11,229	2,556	4,923	108	4,419
75%	2,253	1,450	1,305	70	2,248
50%	-2,637	0	-414	32	664
25%	-7,499	-923	-1,846	-151	-1,188
5%	-13,068	-2,238	-3,604	-4,116	-3,795
Minimum	-24,415	-16,360	-7,184	-9,977	-14,952
Mean	-2,252	-149	57	-673	200
Std deviation	8,491	3,560	3,356	2,098	3,837
% days positive	39%	52%	45%	65%	55%
% days negative	61%	48%	55%	35%	45%

Figure 2 – Distribution of daily MOS quantities

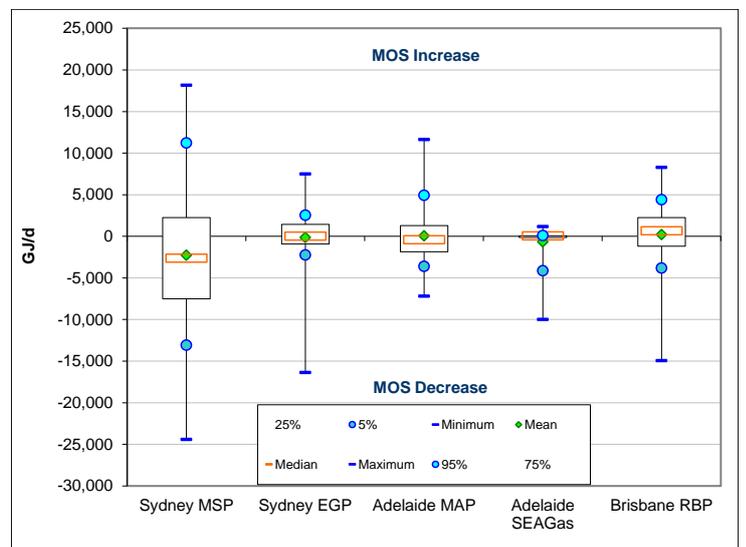


Table 3 – Daily MOS quantities (GJ/d) for March 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	18,174	7,510	11,641	1,170	8,299
1	12,556	2,728	5,445	116	4,639
1	9,902	2,385	4,400	99	4,198
1	7,326	2,162	3,306	93	3,489
1	6,537	1,941	2,893	90	3,049
1	4,865	1,777	2,285	78	2,692
1	3,699	1,638	1,547	75	2,458
1	2,594	1,561	1,406	72	2,309
1	1,912	1,338	1,203	68	2,186
1	1,447	1,105	1,046	64	1,907
1	923	825	875	57	1,694
1	304	716	716	52	1,530
1	-363	517	491	46	1,161
1	-1,508	421	165	38	991
1	-2,128	166	-105	35	878
1	-2,637	0	-414	32	664
1	-3,307	-125	-551	28	107
1	-4,153	-327	-789	20	-119
1	-4,629	-461	-1,111	15	-302
1	-5,091	-580	-1,288	8	-408
1	-5,918	-657	-1,429	-2	-663
1	-6,541	-753	-1,506	-39	-834
1	-7,143	-848	-1,767	-125	-1,049
1	-7,854	-999	-1,924	-176	-1,326
1	-8,494	-1,103	-2,068	-294	-1,686
1	-8,932	-1,256	-2,474	-403	-1,895
1	-9,872	-1,553	-2,748	-1,290	-2,396
1	-10,928	-1,912	-3,084	-2,570	-2,837
1	-12,482	-2,035	-3,208	-2,955	-3,203
1	-13,653	-2,440	-3,999	-5,276	-4,387
1	-24,415	-16,360	-7,184	-9,977	-14,952

MOS Period April 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	20,462	4,020	10,439	454	8,778
MOS decrease	19,779	8,174	11,025	10,688	8,821

Figure 1 – Curves of daily MOS quantities

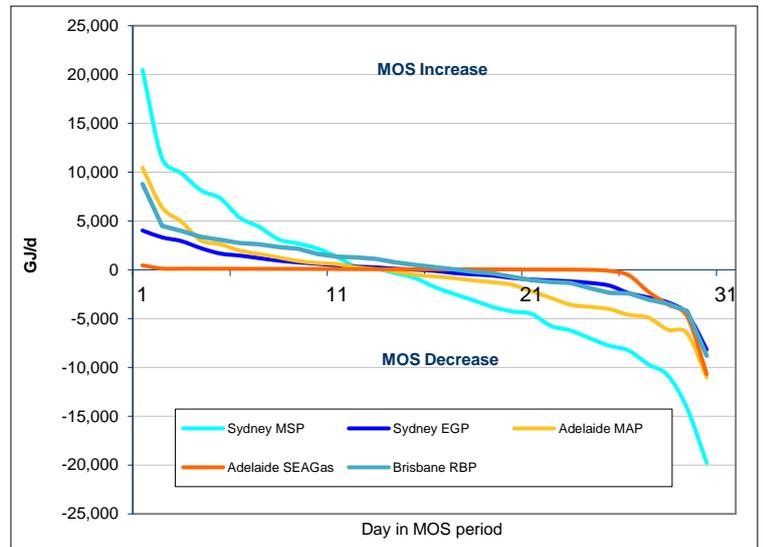


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	20,462	4,020	10,439	454	8,778
95%	10,729	3,147	5,737	113	4,248
75%	3,002	887	1,174	89	2,288
50%	-1,301	-53	-595	54	392
25%	-6,105	-1,167	-3,407	13	-1,326
5%	-12,682	-3,996	-6,344	-4,218	-3,892
Minimum	-19,779	-8,174	-11,025	-10,688	-8,821
Mean	-1,138	-324	-705	-668	306
Std deviation	8,150	2,405	4,132	2,212	3,220
% days positive	43%	50%	43%	77%	57%
% days negative	57%	50%	57%	23%	43%

Figure 2 – Distribution of daily MOS quantities

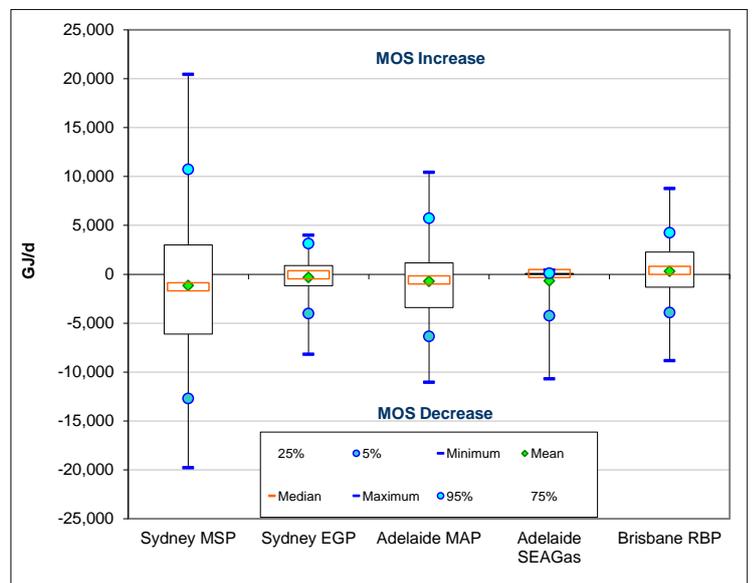


Table 3 – Daily MOS quantities (GJ/d) for April 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	20,462	4,020	10,439	454	8,778
1	11,416	3,321	6,405	119	4,476
1	9,890	2,934	4,920	106	3,970
1	8,141	2,210	2,999	103	3,370
1	7,313	1,657	2,609	102	3,064
1	5,341	1,451	1,967	97	2,732
1	4,394	1,189	1,615	94	2,598
1	3,108	932	1,267	90	2,333
1	2,684	754	896	86	2,151
1	2,160	606	691	82	1,625
1	1,314	447	576	71	1,347
1	277	319	235	65	1,269
1	86	243	62	60	1,103
1	-357	103	-168	56	762
1	-848	4	-512	54	506
1	-1,754	-109	-678	53	277
1	-2,460	-337	-857	50	40
1	-3,120	-479	-1,098	48	-208
1	-3,813	-595	-1,279	39	-372
1	-4,271	-843	-1,541	31	-710
1	-4,530	-999	-2,209	21	-1,076
1	-5,758	-1,095	-2,877	19	-1,241
1	-6,221	-1,191	-3,584	11	-1,354
1	-7,024	-1,349	-3,801	-14	-1,896
1	-7,784	-1,622	-4,033	-119	-2,378
1	-8,283	-2,397	-4,622	-565	-2,426
1	-9,690	-2,837	-4,897	-2,249	-3,042
1	-10,815	-3,345	-6,135	-3,549	-3,487
1	-14,209	-4,529	-6,515	-4,765	-4,223
1	-19,779	-8,174	-11,025	-10,688	-8,821

MOS Period May 2018

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	16,087	7,399	11,082	346	7,519
MOS decrease	23,970	9,676	5,137	11,922	10,703

Figure 1 – Curves of daily MOS quantities

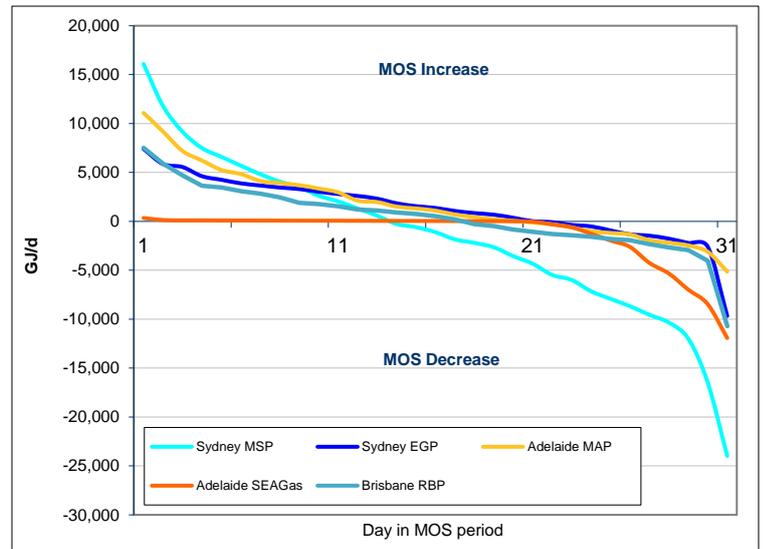


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	16,087	7,399	11,082	346	7,519
95%	10,476	5,706	8,187	120	5,304
75%	3,795	3,381	3,809	75	2,172
50%	-1,102	1,370	1,096	39	536
25%	-6,567	-438	-811	-933	-1,494
5%	-14,236	-2,399	-2,790	-7,724	-3,485
Minimum	-23,970	-9,676	-5,137	-11,922	-10,703
Mean	-1,558	1,276	1,672	-1,360	328
Std deviation	8,357	3,230	3,640	2,970	3,366
% days positive	42%	68%	65%	65%	55%
% days negative	58%	32%	35%	35%	45%

Figure 2 – Distribution of daily MOS quantities

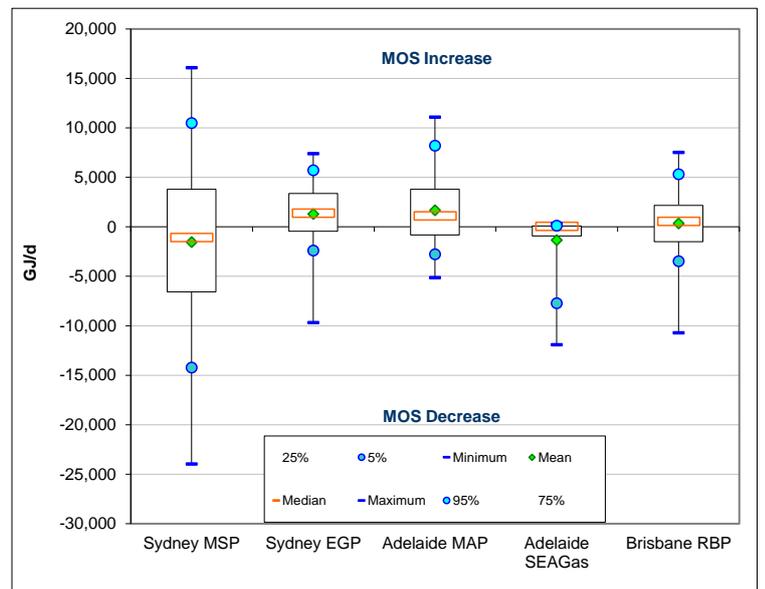


Table 3 – Daily MOS quantities (GJ/d) for May 2018

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	16,087	7,399	11,082	346	7,519
1	11,788	5,858	9,176	134	5,908
1	9,163	5,555	7,198	106	4,699
1	7,497	4,618	6,218	100	3,645
1	6,593	4,248	5,253	92	3,471
1	5,694	3,886	4,834	86	3,096
1	4,820	3,665	4,132	82	2,844
1	4,062	3,460	3,918	77	2,443
1	3,528	3,302	3,700	72	1,901
1	2,618	3,027	3,356	68	1,771
1	2,038	2,794	2,967	65	1,540
1	1,321	2,596	2,111	58	1,203
1	583	2,322	1,972	52	1,109
1	-271	1,846	1,505	46	911
1	-593	1,555	1,316	41	745
1	-1,102	1,370	1,096	39	536
1	-1,844	1,063	701	32	207
1	-2,199	845	439	21	-272
1	-2,646	682	204	18	-494
1	-3,555	369	62	9	-846
1	-4,330	16	-126	-25	-1,068
1	-5,477	-81	-296	-315	-1,301
1	-5,988	-361	-620	-607	-1,412
1	-7,145	-514	-1,002	-1,258	-1,576
1	-7,922	-927	-1,186	-1,956	-1,798
1	-8,672	-1,324	-1,339	-2,611	-1,933
1	-9,552	-1,466	-1,924	-4,247	-2,332
1	-10,348	-1,771	-2,184	-5,330	-2,660
1	-11,992	-2,208	-2,465	-6,979	-2,934
1	-16,479	-2,590	-3,115	-8,469	-4,036
1	-23,970	-9,676	-5,137	-11,922	-10,703