

MOS ESTIMATES REPORT: MOS PERIODS DECEMBER 2016, JANUARY 2017 & FEBRUARY 2017

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: December 2016, January 2017 and February 2017.

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 and Adelaide hubs

The Sydney and Adelaide STTM hubs commenced operations on 1 September 2010. 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 2011 to 2015; January from 2012 to 2016; and February from 2012 to 2016; 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.

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

Brisbane hub

The Brisbane STTM hub commenced operations on 1 December 2011. Therefore the MOS estimate quantities are based on 'Method 2' for year 3 to year 6 of an STTM hub.³ This means MOS estimates for the upcoming MOS period for the Roma to Brisbane Pipeline (RBP), the sole pipeline that

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

² *Methodology for determining MOS estimates*, pg 22

³ *Methodology for determining MOS estimates*, pg18

supplies gas to the Brisbane STTM hub, are derived using the actual daily MOS allocation quantities for the periods December from 2011 to 2015; January from 2012 to 2016; and February from 2012 to 2016.

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.⁴

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,⁵ 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.

⁴ 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.

⁵ The inter-quartile range is the range of values between the first (25%) and third quartiles (75%) of the distributions.

MOS Period December 2016

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	17,180	2,784	14,623	479	10,483
MOS decrease	28,638	4,921	6,410	13,914	12,138

Figure 1 – Curves of daily MOS quantities

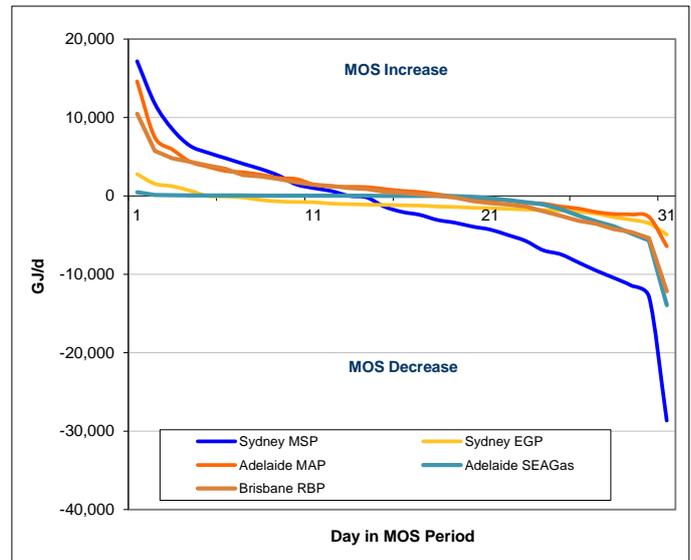


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	17,180	2,784	14,623	479	10,483
95%	10,143	1,401	6,700	110	5,274
75%	3,033	-600	2,507	46	2,340
50%	-2,027	-1,190	655	13	426
25%	-6,321	-1,759	-917	-933	-1,636
5%	-12,150	-3,264	-2,521	-5,222	-4,991
Minimum	-28,638	-4,921	-6,410	-13,914	-12,138
Mean	-1,919	-1,117	1,123	-1,200	196
Std deviation	8,447	1,480	3,712	2,833	4,045
% days positive	42%	16%	58%	58%	58%
% days negative	58%	84%	42%	42%	42%

Figure 2 – Distribution of daily MOS quantities

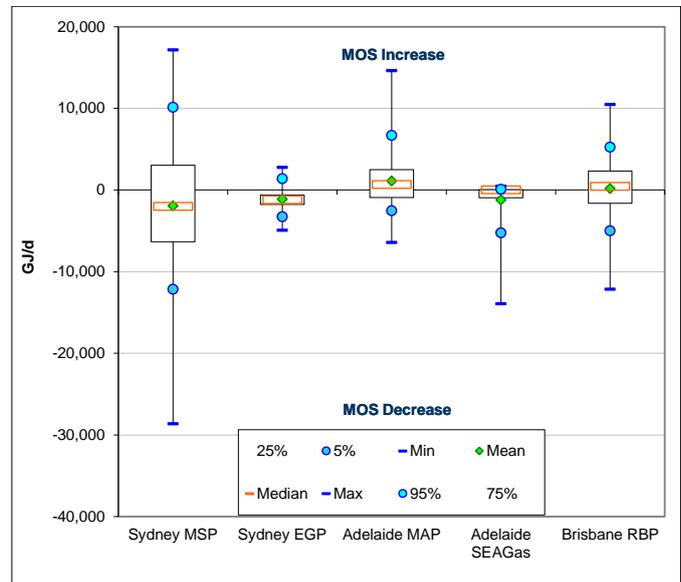


Table 3 – Daily MOS quantities (GJ/d) for December 2016

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	17,180	2,784	14,623	479	10,483
1	11,782	1,560	7,478	115	5,738
1	8,503	1,241	5,921	104	4,810
1	6,394	668	4,374	73	4,366
1	5,526	6	3,741	63	3,899
1	4,826	-62	3,194	57	3,470
1	4,110	-185	3,019	55	2,684
1	3,441	-511	2,717	47	2,499
1	2,624	-690	2,297	44	2,180
1	1,485	-760	2,172	41	1,770
1	1,003	-792	1,470	38	1,441
1	634	-974	1,212	34	1,280
1	24	-1,041	1,169	32	1,024
1	-182	-1,099	1,133	27	895
1	-1,357	-1,137	893	21	549
1	-2,027	-1,190	655	13	426
1	-2,398	-1,222	500	9	194
1	-3,052	-1,342	211	0	35
1	-3,405	-1,401	-91	-14	-183
1	-3,901	-1,499	-252	-112	-634
1	-4,284	-1,562	-473	-295	-918
1	-4,977	-1,634	-561	-530	-1,089
1	-5,723	-1,723	-859	-777	-1,320
1	-6,919	-1,794	-975	-1,089	-1,952
1	-7,440	-1,859	-1,350	-1,665	-2,526
1	-8,479	-2,007	-1,599	-2,499	-3,161
1	-9,512	-2,250	-2,050	-3,241	-3,548
1	-10,439	-2,698	-2,303	-3,864	-4,223
1	-11,432	-3,033	-2,362	-4,770	-4,595
1	-12,868	-3,495	-2,680	-5,674	-5,386
1	-28,638	-4,921	-6,410	-13,914	-12,138

MOS Period January 2017

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	14,098	2,151	14,130	1,558	9,163
MOS decrease	40,396	18,655	10,895	19,723	13,247

Figure 1 – Curves of daily MOS quantities

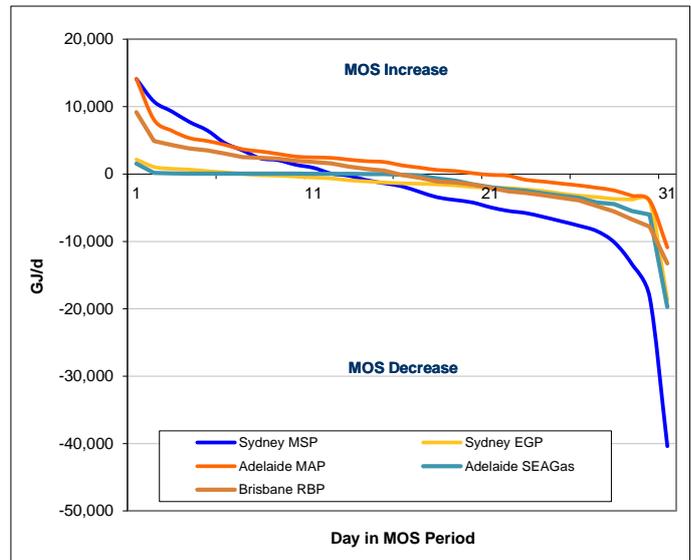


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	14,098	2,151	14,130	1,558	9,163
95%	10,013	912	7,228	118	4,605
75%	2,198	-206	3,173	52	2,334
50%	-1,829	-1,377	1,288	-129	-162
25%	-6,081	-2,407	-987	-2,685	-2,977
5%	-15,818	-3,916	-3,586	-5,765	-7,272
Minimum	-40,396	-18,655	-10,895	-19,723	-13,247
Mean	-2,684	-1,824	1,351	-1,855	-553
Std deviation	9,894	3,484	4,276	3,827	4,391
% days positive	39%	23%	65%	48%	48%
% days negative	61%	77%	35%	52%	52%

Figure 2 – Distribution of daily MOS quantities

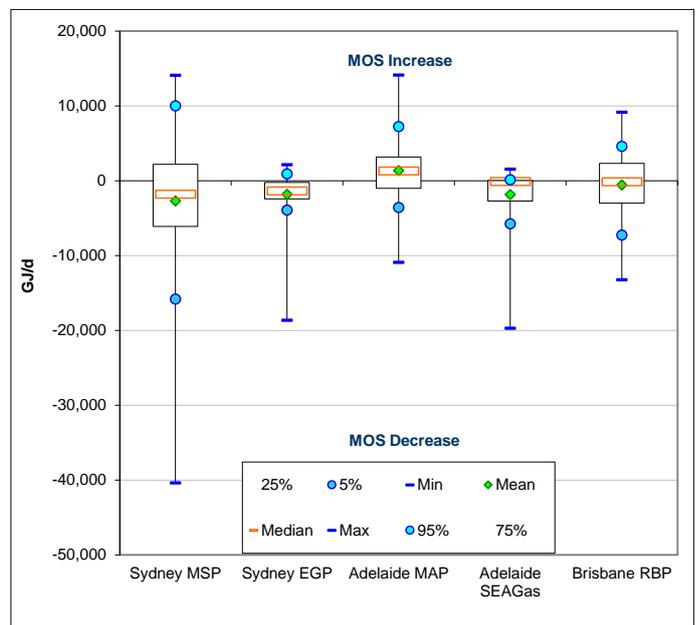


Table 3 – Daily MOS quantities (GJ/d) for January 2017

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	14,098	2,151	14,130	1,558	9,163
1	10,737	1,048	8,029	156	4,892
1	9,289	776	6,427	79	4,317
1	7,721	660	5,331	66	3,789
1	6,475	431	4,905	62	3,517
1	4,591	241	4,334	58	3,037
1	3,506	6	3,672	56	2,512
1	2,336	-171	3,357	55	2,393
1	2,059	-240	2,989	48	2,275
1	1,376	-369	2,588	45	1,963
1	927	-529	2,471	42	1,773
1	76	-655	2,403	37	1,565
1	-251	-926	2,132	25	1,098
1	-905	-1,094	1,908	9	751
1	-1,369	-1,256	1,784	0	494
1	-1,829	-1,377	1,288	-129	-162
1	-2,648	-1,440	953	-224	-544
1	-3,454	-1,541	599	-660	-1,097
1	-3,850	-1,675	452	-984	-1,257
1	-4,228	-1,924	124	-1,524	-1,558
1	-4,934	-2,028	-128	-1,938	-2,029
1	-5,470	-2,085	-248	-2,283	-2,548
1	-5,791	-2,282	-858	-2,489	-2,820
1	-6,371	-2,532	-1,116	-2,881	-3,134
1	-7,008	-2,902	-1,421	-3,211	-3,537
1	-7,670	-3,213	-1,690	-3,535	-3,893
1	-8,453	-3,415	-2,040	-4,232	-4,721
1	-10,132	-3,701	-2,439	-4,464	-5,577
1	-13,386	-3,775	-3,226	-5,504	-6,746
1	-18,250	-4,058	-3,946	-6,026	-7,798
1	-40,396	-18,655	-10,895	-19,723	-13,247

MOS Period February 2017

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	16,623	19,717	9,854	197	6,718
MOS decrease	19,760	11,091	6,256	12,396	9,517

Figure 1 – Curves of daily MOS quantities

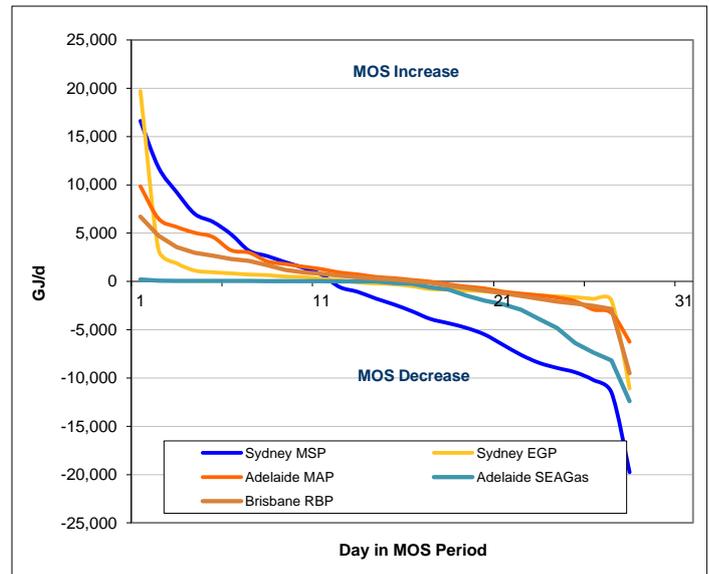


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	16,623	19,717	9,854	197	6,718
95%	10,908	2,795	6,205	83	4,316
75%	2,766	669	2,307	43	1,788
50%	-2,083	-252	405	-82	261
25%	-6,808	-1,249	-1,099	-2,498	-1,278
5%	-11,054	-1,923	-3,148	-7,882	-2,740
Minimum	-19,760	-11,091	-6,256	-12,396	-9,517
Mean	-1,580	135	918	-1,889	186
Std deviation	7,794	4,518	3,321	3,191	2,947
% days positive	39%	43%	57%	50%	57%
% days negative	61%	57%	43%	50%	43%

Figure 2 – Distribution of daily MOS quantities

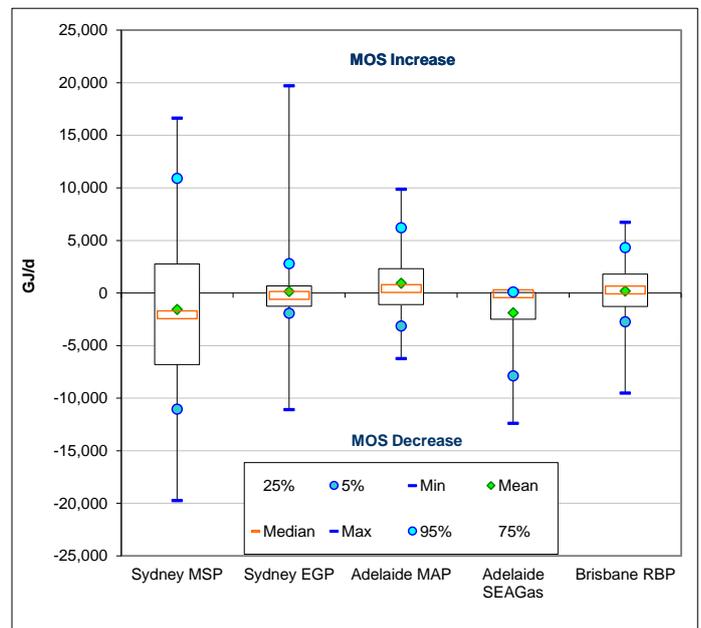


Table 3 – Daily MOS quantities (GJ/d) for February 2017

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	16,623	19,717	9,854	197	6,718
1	11,805	3,285	6,506	91	4,730
1	9,241	1,884	5,646	67	3,546
1	6,993	1,126	5,035	61	2,960
1	6,172	950	4,602	54	2,659
1	4,894	838	3,231	52	2,321
1	3,178	713	2,985	48	2,125
1	2,629	655	2,081	41	1,675
1	1,994	503	1,804	36	1,183
1	1,410	458	1,527	27	945
1	696	263	1,274	22	788
1	-583	133	924	14	586
1	-1,080	-98	731	8	435
1	-1,776	-205	468	2	307
1	-2,390	-298	341	-166	214
1	-3,096	-494	153	-250	33
1	-3,882	-790	-19	-617	-154
1	-4,328	-840	-307	-844	-441
1	-4,816	-934	-532	-1,461	-694
1	-5,497	-1,026	-720	-1,980	-951
1	-6,545	-1,219	-1,047	-2,355	-1,202
1	-7,595	-1,338	-1,255	-2,926	-1,505
1	-8,427	-1,448	-1,432	-3,886	-1,792
1	-8,960	-1,549	-1,664	-4,827	-2,101
1	-9,408	-1,635	-2,049	-6,375	-2,293
1	-10,210	-1,804	-2,915	-7,353	-2,525
1	-11,508	-1,987	-3,274	-8,167	-2,855
1	-19,760	-11,091	-6,256	-12,396	-9,517