

MOS ESTIMATES REPORT: MOS PERIODS; JUNE 2016, JULY 2016 & AUGUST 2016

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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 2016, July 2016 and August 2016.

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 MOS quantities for these periods are based on 'Method 3'.² This means they are derived using the actual daily MOS allocation quantities for the periods June 2011, 2012, 2013, 2014, 2015; July 2011, 2012, 2013, 2014, 2015; and August 2011, 2012, 2013, 2014, 2015; for the following STTM pipelines:

- Moomba to Sydney Pipeline (MSP) and Eastern Gas Pipeline (EGP) – these supply gas to the Sydney STTM hub; and
- Moomba to Adelaide Pipeline (MAP) and SEA Gas pipeline (SEA) – these 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, as stated under Method 2 in the methodology.

Brisbane hub

The Brisbane STTM hub commenced operations on 1 December 2011. Therefore The MOS quantities for this period 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

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 v3.0*, 2014; p.22.

³ *Methodology for determining MOS estimates v3.0*, 2014; p.18.

pipeline that supplies gas to the Brisbane STTM hub are derived using the actual daily MOS allocation quantities for the periods June 2012, 2013, 2014, 2015; July 2012, 2013, 2014, 2015; and August 2012, 2013, 2014, 2015.

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 June 2016

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	23,466	7,712	19,734	147	7,278
MOS decrease	34,633	2,723	7,023	21,049	12,474

Figure 1 – Curves of daily MOS quantities

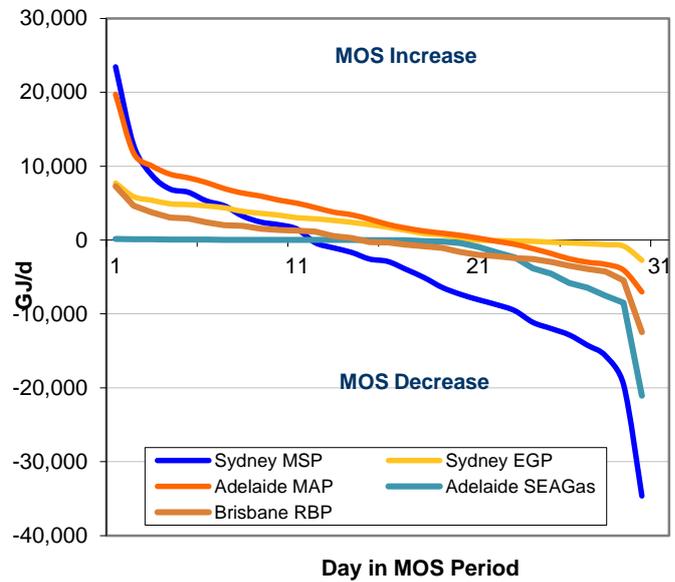


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	23,466	7,712	19,734	147	7,278
95%	10,999	5,657	10,974	107	4,231
75%	3,056	3,824	6,257	33	1,832
50%	-2,723	1,913	2,468	-1	-303
25%	-9,350	-99	-476	-2,174	-2,370
5%	-17,852	-727	-3,730	-8,070	-4,918
Minimum	-34,633	-2,723	-7,023	-21,049	-12,474
Mean	-3,333	2,034	3,127	-2,089	-409
Std deviation	10,946	2,465	5,523	4,401	3,660
% days positive	37%	67%	70%	50%	47%
% days negative	63%	33%	30%	50%	53%

Figure 2 – Distribution of daily MOS quantities

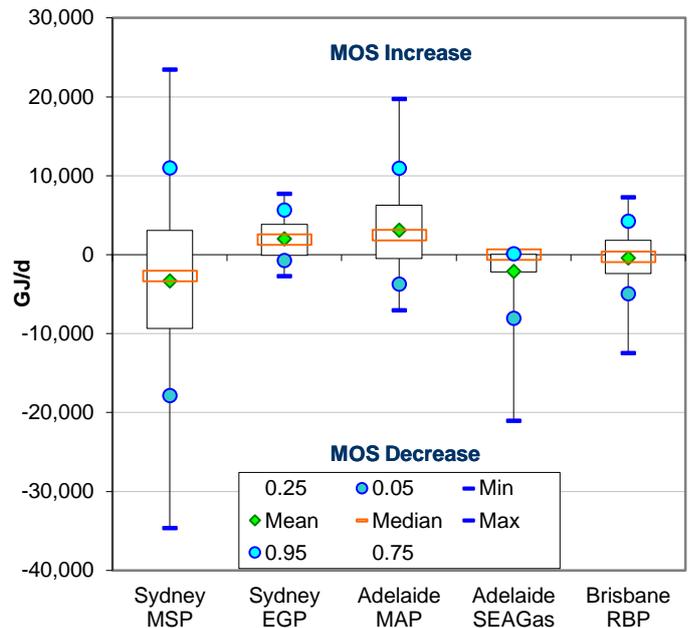


Table 3 – Daily MOS quantities (GJ/d) for June 2016

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	23,466	7,712	19,734	147	7,278
1	12,808	5,875	11,742	114	4,649
1	8,789	5,390	10,035	98	3,719
1	6,916	4,909	8,915	85	3,065
1	6,491	4,805	8,431	57	2,917
1	5,316	4,627	7,785	47	2,407
1	4,646	4,363	6,960	42	2,011
1	3,260	3,891	6,358	35	1,931
1	2,445	3,623	5,954	28	1,534
1	2,084	3,374	5,401	25	1,375
1	1,500	3,031	4,985	21	1,285
1	-345	2,886	4,400	16	1,164
1	-1,040	2,666	3,787	9	556
1	-1,654	2,407	3,422	5	291
1	-2,561	2,089	2,816	1	-280
1	-2,884	1,737	2,119	-2	-326
1	-3,953	1,330	1,622	-9	-606
1	-5,067	903	1,214	-130	-827
1	-6,404	721	930	-212	-1,067
1	-7,331	293	640	-390	-1,600
1	-8,071	-7	250	-911	-1,989
1	-8,739	-61	-171	-1,651	-2,179
1	-9,553	-111	-578	-2,348	-2,433
1	-11,140	-157	-1,166	-3,803	-2,584
1	-11,972	-276	-1,826	-4,563	-2,966
1	-12,831	-373	-2,534	-5,816	-3,475
1	-14,233	-474	-3,001	-6,464	-3,922
1	-15,670	-612	-3,292	-7,547	-4,235
1	-19,638	-821	-4,088	-8,497	-5,476
1	-34,633	-2,723	-7,023	-21,049	-12,474

MOS Period July 2016

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	19,349	6,363	13,929	165	6,314
MOS decrease	33,198	3,462	8,067	15,100	11,400

Figure 1 – Curves of daily MOS quantities

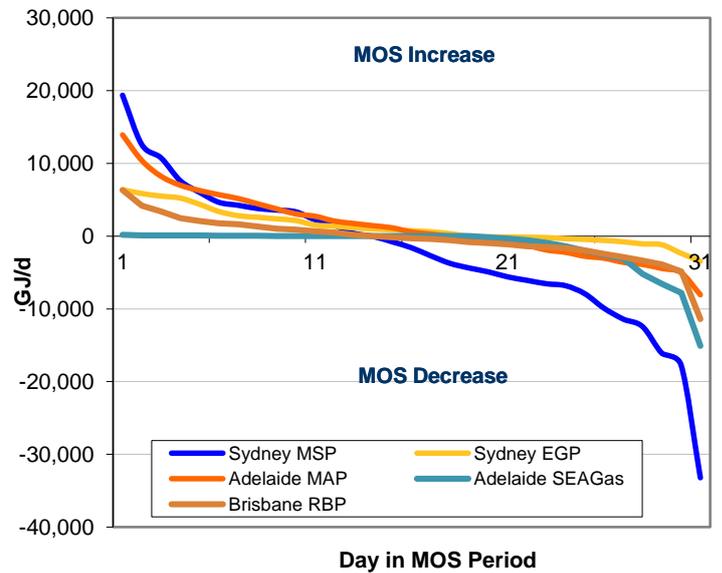


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	19,349	6,363	13,929	165	6,314
95%	11,654	5,670	9,315	102	3,787
75%	3,687	2,474	4,104	32	1,169
50%	-1,599	730	576	1	-306
25%	-6,680	-278	-2,069	-1,164	-1,561
5%	-16,900	-1,780	-4,737	-7,175	-4,374
Minimum	-33,198	-3,462	-8,067	-15,100	-11,400
Mean	-2,321	1,197	1,298	-1,449	-426
Std deviation	10,009	2,397	4,807	3,252	3,120
% days positive	42%	58%	58%	52%	45%
% days negative	58%	42%	42%	48%	55%

Figure 2 – Distribution of daily MOS quantities

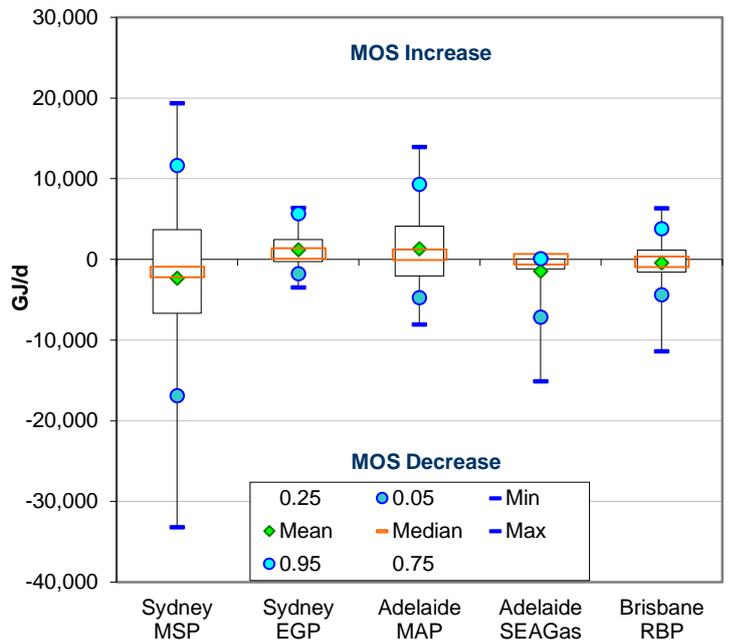


Table 3 – Daily MOS quantities (GJ/d) for July 2016

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	19,349	6,363	13,929	165	6,314
1	12,568	5,848	10,401	104	4,163
1	10,739	5,492	8,229	100	3,411
1	7,594	5,217	6,996	97	2,457
1	6,009	4,362	6,271	84	2,064
1	4,643	3,378	5,700	60	1,785
1	4,239	2,804	5,175	46	1,634
1	3,792	2,583	4,456	34	1,337
1	3,582	2,365	3,751	29	1,000
1	3,333	2,125	3,048	23	879
1	2,228	1,514	2,734	11	691
1	1,466	1,359	2,072	8	473
1	393	1,116	1,743	7	198
1	-40	990	1,436	3	23
1	-786	850	1,141	2	-182
1	-1,599	730	576	1	-306
1	-2,706	587	284	-1	-386
1	-3,744	336	14	-3	-563
1	-4,383	-38	-100	-6	-804
1	-4,920	-96	-598	-143	-963
1	-5,605	-129	-786	-345	-1,117
1	-6,080	-167	-1,257	-540	-1,388
1	-6,546	-202	-1,906	-917	-1,477
1	-6,814	-355	-2,231	-1,411	-1,645
1	-7,918	-458	-2,770	-2,014	-1,974
1	-9,916	-597	-3,036	-2,567	-2,459
1	-11,404	-782	-3,599	-3,113	-2,873
1	-12,435	-1,074	-3,893	-5,195	-3,361
1	-16,081	-1,197	-4,446	-6,556	-3,879
1	-17,718	-2,364	-5,027	-7,793	-4,868
1	-33,198	-3,462	-8,067	-15,100	-11,400

MOS Period August 2016

Table 1 – Maximum MOS quantities (GJ)

	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
MOS increase	20,346	7,610	17,141	193	7,953
MOS decrease	31,707	3,899	8,877	13,425	7,384

Figure 1 – Curves of daily MOS quantities

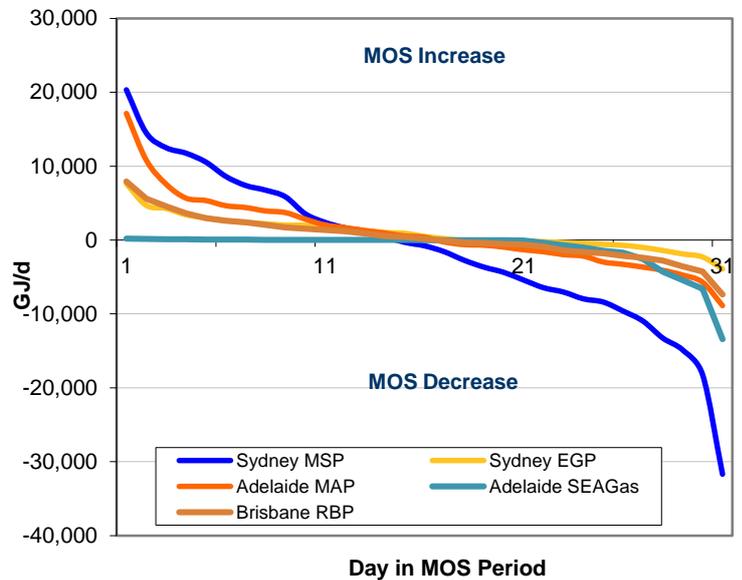


Table 2 – Summary statistics of daily MOS quantities

	Summary statistics GJ/d				
	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
Maximum	20,346	7,610	17,141	193	7,953
95%	13,510	4,480	9,197	118	5,065
75%	6,315	2,107	3,835	35	1,886
50%	-774	491	382	1	148
25%	-7,498	-386	-2,073	-857	-1,514
5%	-16,573	-2,085	-5,228	-6,009	-3,921
Minimum	-31,707	-3,899	-8,877	-13,425	-7,384
Mean	-1,284	904	971	-1,184	297
Std deviation	10,738	2,279	5,121	2,837	3,022
% days positive	45%	55%	52%	55%	52%
% days negative	55%	45%	48%	45%	48%

Figure 2 – Distribution of daily MOS quantities

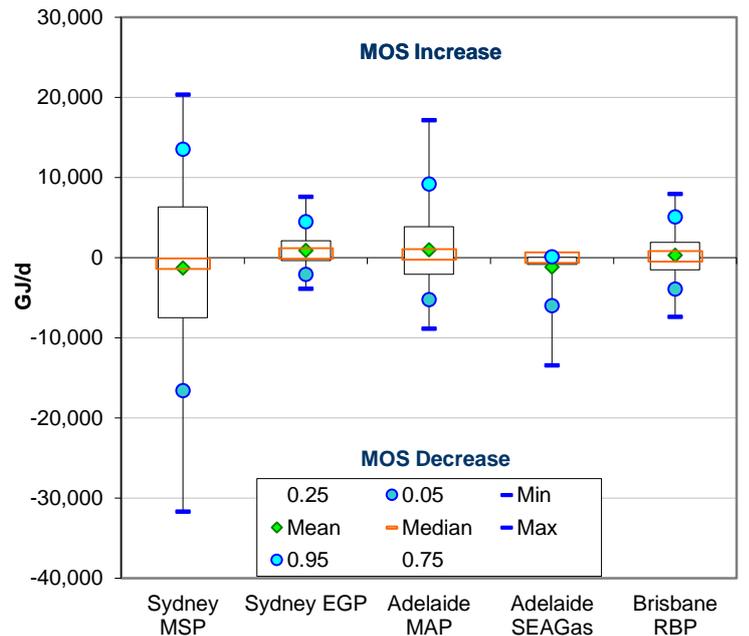


Table 3 – Daily MOS quantities (GJ/d) for August 2016

No of days	Sydney MSP	Sydney EGP	Adelaide MAP	Adelaide SEAGas	Brisbane RBP
1	20,346	7,610	17,141	193	7,953
1	14,511	4,691	10,824	133	5,586
1	12,508	4,270	7,569	103	4,544
1	11,765	3,408	5,672	93	3,604
1	10,561	3,000	5,353	87	2,959
1	8,629	2,612	4,656	74	2,601
1	7,395	2,386	4,404	64	2,386
1	6,764	2,200	3,948	37	2,048
1	5,866	2,014	3,721	32	1,724
1	3,555	1,985	2,832	28	1,532
1	2,397	1,648	2,042	25	1,378
1	1,656	1,529	1,674	19	1,202
1	1,219	1,276	1,292	10	898
1	449	1,021	954	7	540
1	-299	909	561	4	393
1	-774	491	382	1	148
1	-1,578	187	-265	0	-59
1	-2,734	-51	-614	-2	-325
1	-3,666	-75	-694	-4	-418
1	-4,378	-153	-957	-9	-559
1	-5,426	-181	-1,321	-83	-636
1	-6,454	-221	-1,580	-347	-898
1	-7,040	-332	-1,972	-691	-1,405
1	-7,956	-440	-2,174	-1,023	-1,623
1	-8,395	-574	-2,974	-1,439	-1,805
1	-9,614	-714	-3,284	-1,713	-2,139
1	-10,974	-1,006	-3,657	-2,590	-2,406
1	-13,279	-1,406	-4,095	-4,283	-2,786
1	-14,894	-1,880	-4,740	-5,434	-3,580
1	-18,251	-2,289	-5,716	-6,583	-4,261
1	-31,707	-3,899	-8,877	-13,425	-7,384