Gas market significant price variation report

Sydney STTM
7 November 2016

31 March 2017

AUSTRALIAN ENERGY REGULATOR

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Introduction

In accordance with Rule 498(3)(b) of the National Gas Rules **(NGR)**, the AER is required to publish a report whenever there is a significant price variation **(SPV)** in the Victorian wholesale gas market or Short Term Trading Markets **(STTM)**.

In 2012 the AER published a guideline that sets out what constitutes an SPV in the STTM.[1] The guideline provides five different reporting thresholds, one of which is when market operator service **(MOS)** service payments exceed $250,000.[2]

This report details a significant price variation that occurred in the Sydney gas short term trading market (Sydney STTM – or Sydney hub) on 7 November 2016.[3] On this day, the MOS service payments reached $329,793 at the Sydney hub, breaching the AER's $250,000 reporting threshold.

1 Rule 498(2) of the NGR. The AER's SPV reporting thresholds are included at Appendix B.

2 There are two kinds of payments which relate to MOS service payments (which cover the cost of providing the service) and commodity payments (which cover the cost of the actual gas). This report relates to MOS service payments.

3 Adelaide and Brisbane also have short term trading markets.

Summary

This section provides a summary of the main factors that led to the large MOS service payment.

On 7 November 2016, 35.7 TJ of MOS was required, which resulted in MOS service payments of $329,793.

The total MOS quantity was made up of 32.3 TJ of decrease MOS on the MSP and 3.4 TJ of increase MOS on the EGP.

The main factors which led to the large MOS service payments were:

- participants over forecasting demand
- curtailment of gas flows on the EGP

Large over forecast of demand

The market operator schedules gas offers consistent with participant's demand forecasts. As demand was lower on the day than forecast, more gas was delivered than was necessary. This contributed to over 21 TJ of gas being stored on the MSP as decrease MOS.

Curtailment of the EGP

At the beginning of the day, the EGP was scheduled to deliver 192.6 TJ to the Sydney hub.

Some gas deliveries were curtailed over the day on the EGP due to planned and unplanned maintenance.

To alleviate the estimated supply short fall, participants voluntarily increased supply from the MSP by 23.9 TJ. However, flows on the EGP were only reduced by 16.5 TJ. The effect of these renominations was a net increase of flow to the hub of 7.4 TJ.

1 MOS in the Sydney STTM

MOS, also known as balancing gas, is required to manage everyday pipeline deviations.[4] A pipeline deviation occurs when there is a difference between the total quantity of gas nominated by the pipeline's shippers (typically gas retailers) and the quantity of gas physically delivered. There are two kinds of pipeline deviations; positive (when more gas is delivered) and negative (when less gas is delivered).

When actual gas flows are higher than final nominations, the difference is allocated as increase MOS. When actual gas flows are lower than final nominations, the difference is allocated as decrease MOS.

In Sydney, there are two pipelines that can provide MOS: the Eastern Gas pipeline **(EGP)** and the Moomba to Sydney pipeline **(MSP)**.

AEMO publishes, amongst other things, an estimate of the maximum quantities of increase and decrease MOS likely to be required for a given gas day.

Participants are requested to provide MOS offers on a monthly basis which specify the:

- type of MOS (increase or decrease)
- price (up to $50/GJ)
- quantity
- transmission pipeline

When MOS is required, the offers are allocated in merit order (i.e. from lowest price to highest price) until the required quantity is met.

If an increase MOS offer is used, gas is moved from the transmission pipeline to the STTM hub. If a decrease MOS offer is used, gas is stored on the transmission pipeline (instead of flowing to the STTM hub).

If the quantity of required MOS exceeds the amount of offers, overrun MOS provides the excess. The occurrence of overrun MOS is relatively rare as there is usually sufficient MOS offers available.[5] On 7 November overrun MOS was not required.

1.1 The Sydney hub

Figure 1 illustrates the connection points of the Sydney hub.

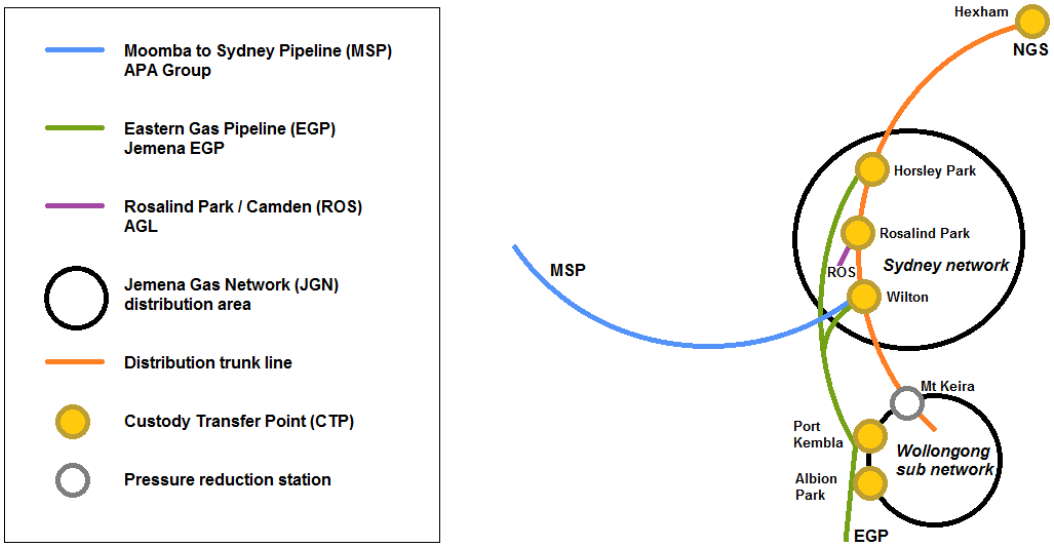
There are two pipelines that can provide MOS to Sydney: the EGP and the MSP.

Sydney also sources gas from the Rosalind Park/Camden facility **(ROS)** and the Newcastle gas storage facility **(NGS)**.

4 MOS, and pipeline deviations, are explained further in the appendix.

5 Overrun is priced at the highest priced MOS price step in the applicable MOS stack when the requirement is greater than AEMO's estimate. When the requirement is less than AEMO's estimate, overrun is priced at the weighted average cost of the service (capped at MOS cost cap of $50/GJ) determined by the cost of MOS in the stack.

Figure 1: The Sydney hub



A number of changes to the Sydney hub from 2015 are identified in the AER's January 2016 significant price variation report.[6] Further information on the dynamics of the Sydney hub is provided in the AER's winter 2016[7] report.

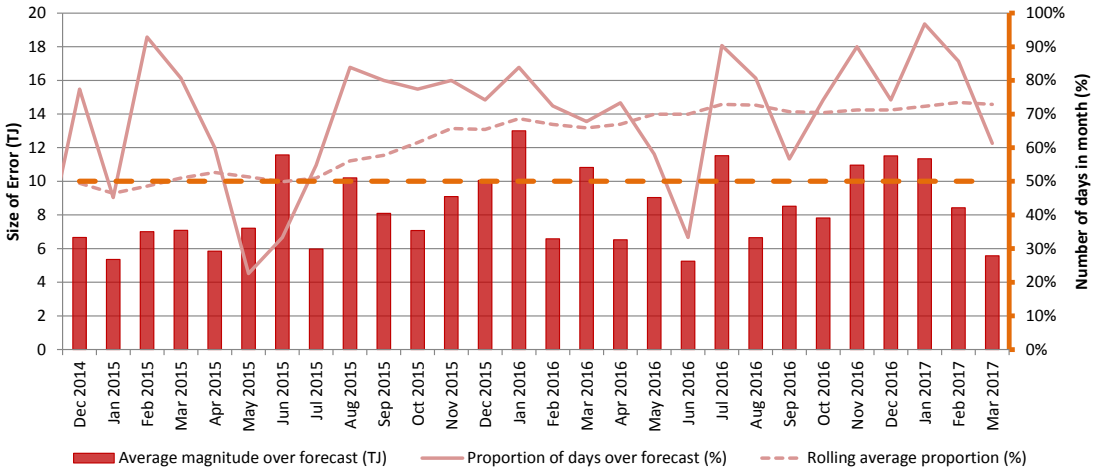
6 https://www.aer.gov.au/wholesale-markets/market-performance/significant-price-variation-report-13-and-23-january-2016-sydney-sttm

7 https://www.aer.gov.au/wholesale-markets/compliance-reporting/significant-price-variation-report-july-august-2016

2 Demand over forecasting trend in Sydney

Participants over forecast demand on the 7 November gas day. A trend towards over forecasting in the Sydney hub was analysed in our significant price variation reporting over winter 2016. Over-forecasting of demand can lead to inefficiencies and additional costs in the gas markets by increasing the need for MOS and the difference between ex-post and ex-ante prices.[8] Figure 2 shows demand was over forecast in Sydney on 90 per cent of the gas days in November 2016 (the solid line) and there has been a consistent trend towards over forecasting for the past 18 months.[9]

Figure 2: Hub forecasting performance metric (since Dec 2014)



The frequency of demand over forecasting is a continuing concern and may indicate a systematic bias in forecasting by one or more participants. This report demonstrates inaccurate demand forecasting can result in significant costs to the market.

8 Our latest observations were reported in our last quarterly compliance report.

9 This chart was first reported in the AER's April–June 2014 Quarterly Compliance Report: https://www.aer.gov.au/wholesale-markets/compliance-reporting/quarterly-compliance-report-april-june-2014

3 The 7 November 2016 gas day

On 7 November 2016, 35.7 TJ of MOS was required, which resulted in MOS service payments of $ 329,793. This is significantly higher than the average cost for MOS services in Sydney of around $54,754 for the 2016–17 financial year-to-date.[10] These costs are funded by market participants and ultimately passed on to consumers.

The total MOS quantity was made up of 32.3 TJ of decrease MOS on the MSP and 3.4 TJ of increase MOS on the EGP.

There was sufficient gas offered in the decrease MOS stack for November on the MSP so overrun MOS was not required.

The main factors which led to the large MOS service payments were:

- participants over forecasting demand
- disproportionate renominations on the MSP and EGP
- counteracting MOS deliveries on the MSP and EGP[11]

3.1 Participants over forecasting demand

The Gas Rules provide that participants must submit offers and bids to AEMO in good faith that reflect their best estimate.[12] AEMO schedules these bids and offers to maximise the value of the bids less the value of the offers subject to a number of considerations such as the physical capabilities of the network.[13] Participants make nominations to the relevant pipelines after taking into account AEMO's schedule. A participant must not make a nomination for the purpose of creating or increasing a pipeline deviation for which MOS may be required.[14]

Demand is influenced by many different factors, some of which have a high level of variability. It is not therefore possible to forecast demand with 100 per cent accuracy all of the time. All gas days will have inaccurate demand forecasts to some extent, usually by a small amount relative to overall consumption.

On 7 November actual demand was lower than forecast. Accordingly, the quantity of gas participants nominated on the pipelines to deliver was higher than necessary. This over forecasting within the Sydney distribution system contributed to over 21 TJ of gas being stored on the MSP as decrease MOS.

10 2015–16 FYTD average calculated at 1 March 2017

11 The net decrease requirement, largely to balance the over forecast demand error in the Sydney distribution system, was 28.9 TJ. However, due to physical constraints in the system, 3.4 TJ of increase MOS was allocated on the EGP. Thus, the equivalent quantity of decrease MOS was provided on the MSP increasing the total cost for the balancing gas services on the day by around $86.582 (compared to 28.9 TJ of decrease MOS provided solely on the pressure controlled MSP). This drove the MOS service cost above the $250,000 reporting threshold.

12 Rule 410(1) of the NGR

13 Rule 405(1) of the NGR

14 Rule 399(6) of the NGR

The absolute error of the poorest three performing forecasters were in order: AGL (12.4 TJ), Energy Australia (5.9 TJ) and Origin (1.8 TJ).[15]

3.2 Disproportionate renominations on pipelines

The scheduled gas supply to the Sydney hub was weighted towards the cheaper supply offers available on the EGP (193 TJ of deliveries into the Sydney hub via the EGP, compared to 31.7 TJ of net supply on the MSP)[16].

Participants were advised on 4-5 November that maximum daily quantities (MDQ) for 7 November were to be curtailed on the EGP. Some participants had inadequate MDQ following the curtailment to meet their expected demand.

In order to ameliorate the associated supply shortfall, participants renominated supply to Sydney from the EGP to the MSP. The major part of the renomination consisted of a reduction in backhaul. The expected curtailment was only partly realised so a greater quantity of gas was renominated onto the MSP than from the EGP.

On the EGP, participants renominations reduced the net supply to the hub by 16.5 TJ. On the MSP, participants increased nominations by 23.9 TJ. This resulted in a net increase of gas flow to the hub of 7.4 TJ. The actual curtailment was less than participants expected by 8.6 TJ, contributing to significantly higher service costs on the day.

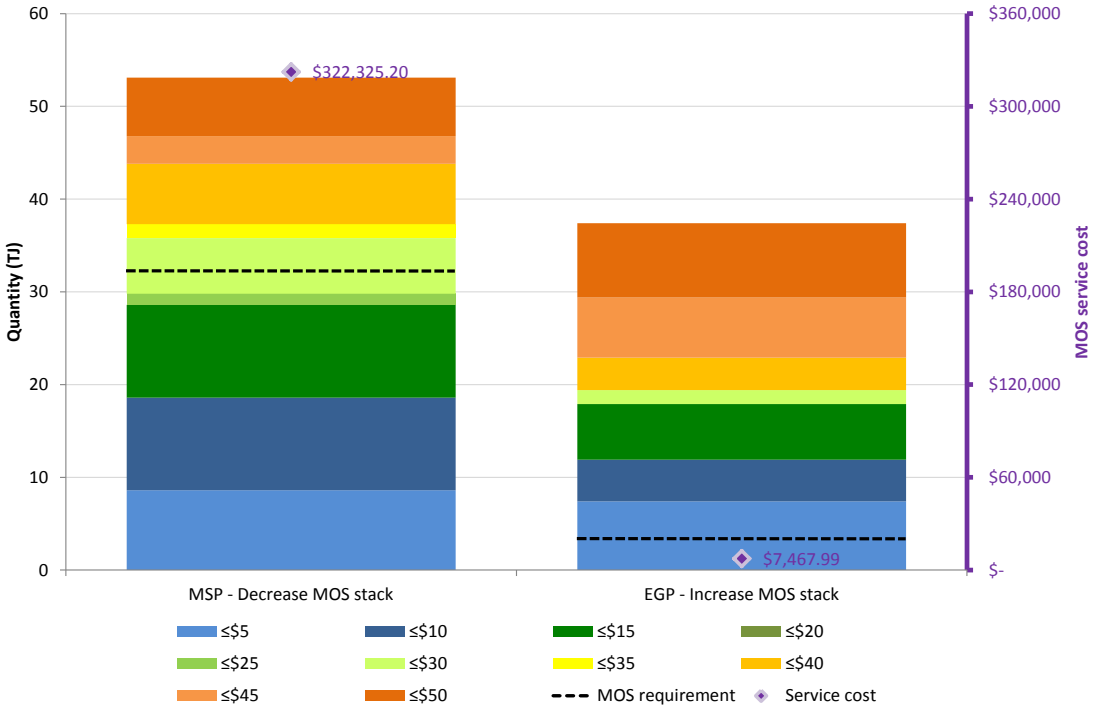
3.3 Market operator service (MOS)

Figure 3 below shows the decrease MOS offers for the MSP and the increase MOS offers for the EGP for the month of November 2016. The dotted black lines show the MOS requirement on the day.

15 Based on preliminary allocations by participants which although likely to be indicative may vary in final allocations

16 This was also influenced by 21.4 TJ of backhaul scheduled on the MSP which diverted some supply upstream of the hub.

Figure 3: MOS stacks for 7 November 2016



On the day, the decrease MOS requirement of 32.3 TJ ($322,325) was provided by the MSP. The amount of increase MOS on the EGP was only 3.4 TJ ($7,468).

More than half of the decrease MOS on the MSP was provided at or below $10/GJ. However, the majority of the cost of the MOS requirement was due to MOS services priced at or above $12/GJ.[17]

17 The last 13.7 TJ of decrease MOS on the MSP required services offered between $12.75/GJ and $26/GJ, accounting for $228,764 of the total service cost on the day.

Appendix A – November MOS costs

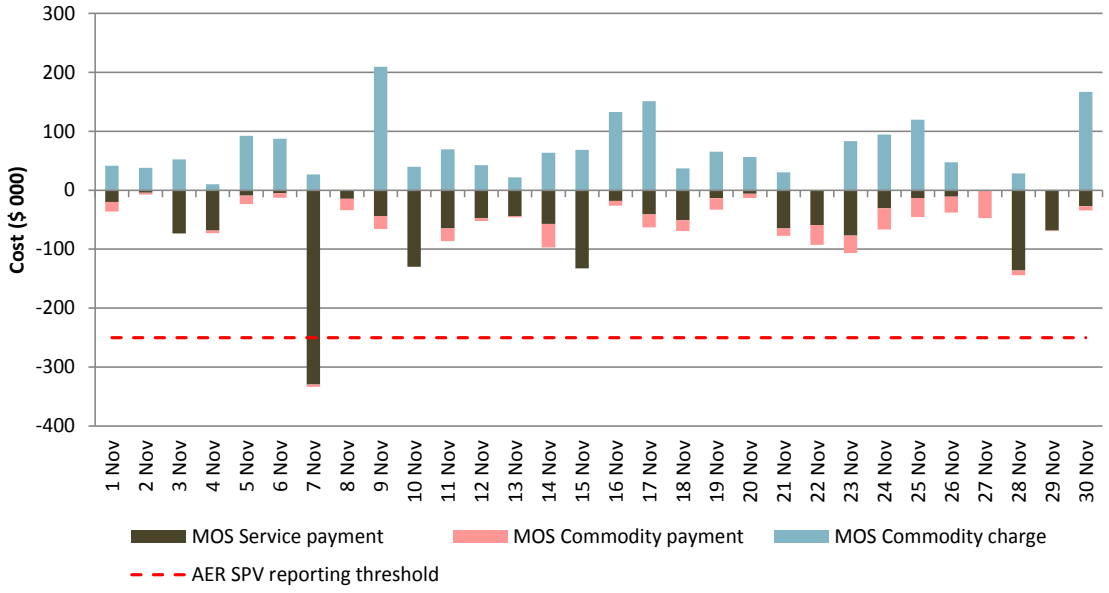
The price paid for MOS consists of two separate components, the service cost and the commodity cost. This SPV report relates to the service cost.

The MOS service cost is determined by the price offered and reflects the cost of providing the service. This may include contractual or non-contractual components of providing MOS offers, such as park and loan services, storage costs, opportunity costs and risk abatement. If a participant's increase or decrease MOS offer is used on a gas day, they will receive a payment equal to the price of the relevant MOS offer multiplied by the quantity used. Throughout this report this will be referred to as the MOS service payment, as it is the amount paid to participants for the service provided.

The commodity cost of the actual gas supplied (increase) or absorbed (decrease) is paid (in the case of increase MOS) or charged (in the case of decrease MOS) at the ex ante price two days after the gas day when the MOS was needed (the D+2 price). This allows for MOS providers to place bids and offers on the following gas day (D+1) to restore MOS gas on the D+2 gas day in order to manage risks associated with price uncertainty.

Figure 4 shows the cost of MOS delivered across the month of November 2016. Commodity payments and charges for each gas day reflect the value of MOS delivered (2 days prior) at the D+2 ex ante price.[18] Payments made to participants for the MOS service or physical gas supplied (commodity) are shown as negative numbers, while charges to participants for the physical gas they have received (parked outside the hub) are shown as positive values.

Figure 4: Sydney MOS payments and charges for November 2016



18 For example, the service payment for the MOS requirement on the 7 November gas day is shown for 7 November in the chart, whereas the commodity payment for decrease MOS (on the MSP) and charge for increase MOS (on the EGP) are displayed on the 9 November gas day in the chart (when the D+2 price is calculated).

Appendix B – AER SPV Reporting Thresholds

Significant Price Variation (SPV) reports for the Short Term Trading Market (STTM) are published by the AER in accordance with the requirements under rule 498(1)(b) of Part 20 of the National Gas Rules.

In accordance with rule 498(2), the AER published an STTM SPV Guideline on 21 December 2012. The guideline sets out a number of thresholds that determine whether or not an SPV has occurred.

The five reporting thresholds set out in the STTM SPV guideline are:

- variations greater than $7/GJ between the D-2 price and ex ante price
- variations greater than $7/GJ between the ex ante and the ex post price
- the ex ante price being greater than three times the 30 day rolling average price and greater than $15/GJ
- the ex post price being greater than three times the 30 day rolling average price and greater than $15/GJ
- MOS service payments exceeds $250,000.

In accordance with rule 354 of Part 19 of the Gas Rules, the AER published a SPV reporting guideline for Victoria's Declared Wholesale Gas Market (DWGM) in June 2010.

The two reporting thresholds set out in the Victorian SPV guideline are when:

- the trade weighted market price published by AEMO on a gas day is more than three times the average price for the previous 30 days and the trade weighted market price is equal to or greater than $15/GJ
- the ancillary payment amount published by AEMO on a gas day is an amount payable or receivable which exceeds $250,000.