



Gas market significant price variation report

MOS service payments

25 June 2013, Adelaide STTM

© Commonwealth of Australia 2013

This work is copyright. Apart from any use permitted by the Copyright Act 1968, no part may be reproduced without permission of the Australian Competition and Consumer Commission. Requests and inquiries concerning reproduction and rights should be addressed to the Director Publishing, Australian Competition and Consumer Commission, GPO Box 3131, Canberra ACT 2601.

Inquiries about this document should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001
Tel: (03) 9290 1444
Fax: (03) 9290 1457
Email: AERInquiry@aer.gov.au

AER reference: 51673 / D13/134960

Contents

Executive summary	4
1 Background	5
1.1 The AER's reporting role	5
1.2 Adelaide hub.....	5
2 Winter 2013 in the Adelaide hub	7
3 The 25 June 2013 gas day.....	11

Executive summary

On the 25 June 2013 gas day in the Adelaide Short Term Trading Market (**STTM**) gas hub (**Adelaide hub**) 41 TJ of market operator service (**MOS**) was required. This resulted in a MOS service payment of \$252 727. This was the highest MOS payment over winter 2013.

On 25 June, a day of high hub demand, there was a record high amount of gas flow scheduled on the South East Australia Gas pipeline (**SEA Gas**) at the same time as low gas flows scheduled on the Moomba to Adelaide pipeline (**MAP**). On the day, 19.7 TJ more gas than was nominated on the MAP flowed through to the Adelaide hub as increase MOS. At the same time, 21 TJ of nominated gas, which couldn't be delivered into the distribution network, was effectively parked on the SEA Gas pipeline.

The large requirement for MOS on the day was caused by the SEA Gas pipeline not being able to deliver its nominated quantity of gas into the Adelaide distribution network. On this day, two physical issues significantly affected SEA Gas and MAP deliveries and increased MOS requirements.

Firstly, the Elizabeth zone (part of the distribution network) is completely isolated from the SEA Gas pipeline. This means demand within the Elizabeth zone can only be serviced by the MAP. Secondly, the AER understands that pressure differences between the delivery points and within the distribution network may limit the ability of the SEA Gas pipeline to supply parts of the distribution network (particularly towards the Taperoo part of the network).

These two factors appear to increase the requirement for MOS as the ratio of gas flows scheduled on the SEA Gas relative to the MAP increases, especially on days of high hub demand. In accordance with market participant offers, more gas was scheduled into the distribution network on the SEA Gas pipeline relative to the MAP during the 2013 winter period, particularly from late June to early August. Discussions with industry have indicated this may be due to the different costs of gas from the two pipelines. We understand gas from gas sources serviced by the MAP (primarily Moomba) is relatively higher than the Victorian gas sources serviced by the SEA Gas pipeline. The higher price of Moomba gas may be influenced by the expected gas exports from Gladstone.

AEMO has previously reported that hourly flow profiles nominated by shippers on the SEA Gas pipeline may lead to counteracting MOS. AEMO has noted that when hourly deliveries from SEA Gas lag behind demand, the MAP then supplies the shortfall. However, we note that hourly profiling on the SEA Gas pipeline had a comparatively minimal impact on the MOS requirement on 25 June 2013.

Related to the issues we have identified, Envestra (the owner of the Adelaide distribution network) has indicated to the AER that it plans to finalise a review of its network by December 2013. This review will assist in understanding the physical design issues affecting the Adelaide hub. Envestra noted it will be modelling the consequences of opening the valve which currently prevents gas from the SEA Gas pipeline going into the Elizabeth zone. Engineering staff will be evaluating whether the SEA Gas pipeline could provide the entire gas supply to the Adelaide hub if necessary.

This report concludes that on 25 June 2013, the large MOS requirement was driven by the isolation of the Elizabeth zone, and the difficulty in SEA Gas servicing the Taperoo part of the distribution network. We consider it may be beneficial for Envestra to investigate both these issues as part of its review.

Finally, on the basis of information currently available, the AER has not found any evidence of contraventions of the National Gas Rules (**Gas Rules**) on 25 June 2013.

1 Background

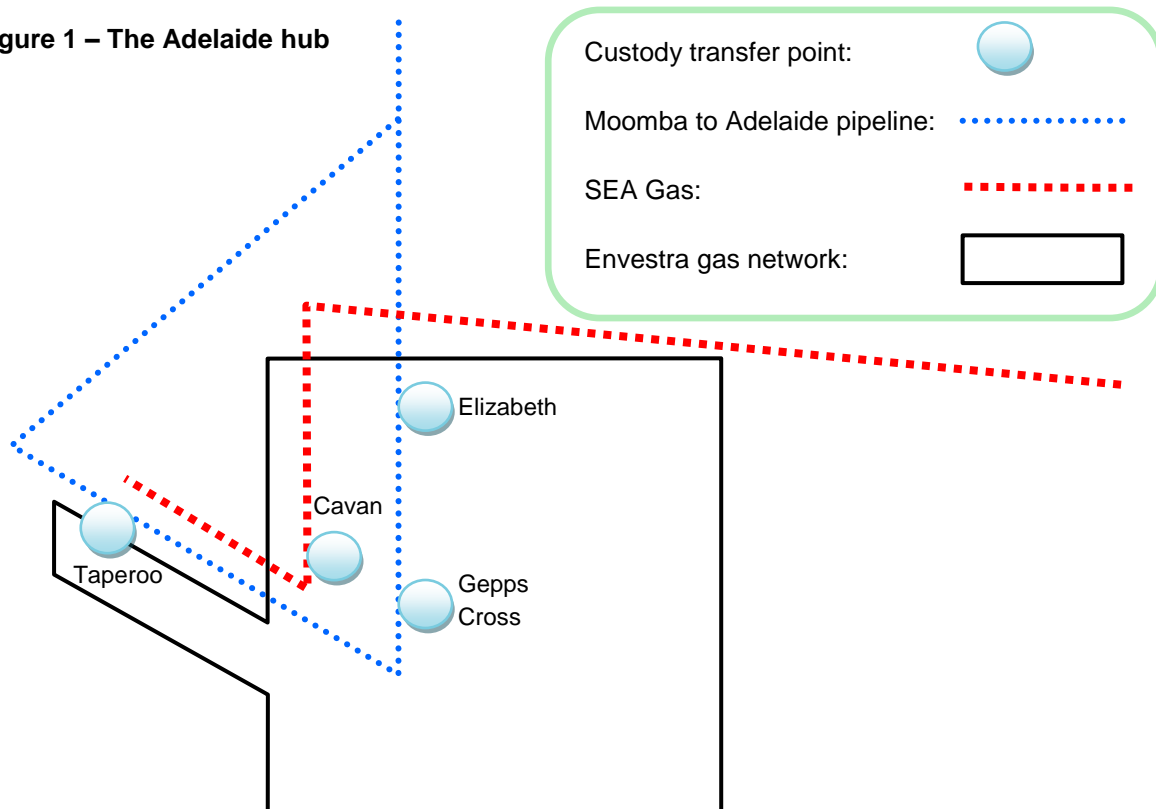
1.1 The AER's reporting role

This Significant Price Variation (**SPV**) report is published by the AER in accordance with the requirements under Rule 498(1)(b) of Part 20 of the National Gas Rules (**Gas Rules**).¹ 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. One of the thresholds relates to MOS, and requires the AER to prepare a report when MOS service payment are in excess of \$250 000. For the 25 June 2013 gas day, the MOS service payment in the Adelaide hub was \$252 727.

1.2 Adelaide hub

The Adelaide hub started operation on 1 September 2010.² The Adelaide hub is comprised of the custody transfer points (often referred to as delivery points) where the transmission pipelines meet the distribution network. There are two transmission pipelines that service the distribution network; the Moomba to Adelaide Pipeline (**MAP**) and the South East Australia Gas Pipeline (**SEA Gas pipeline**). The SEA Gas pipeline has one custody transfer point, located at Cavan. The MAP has three custody transfer points, located at Elizabeth, Gepps Cross, and Taperoo respectively. The distribution network is owned by Envestra. Figure 1 below illustrates the MAP and the SEA Gas pipeline, their respective custody transfer points and the Adelaide distribution network.

Figure 1 – The Adelaide hub

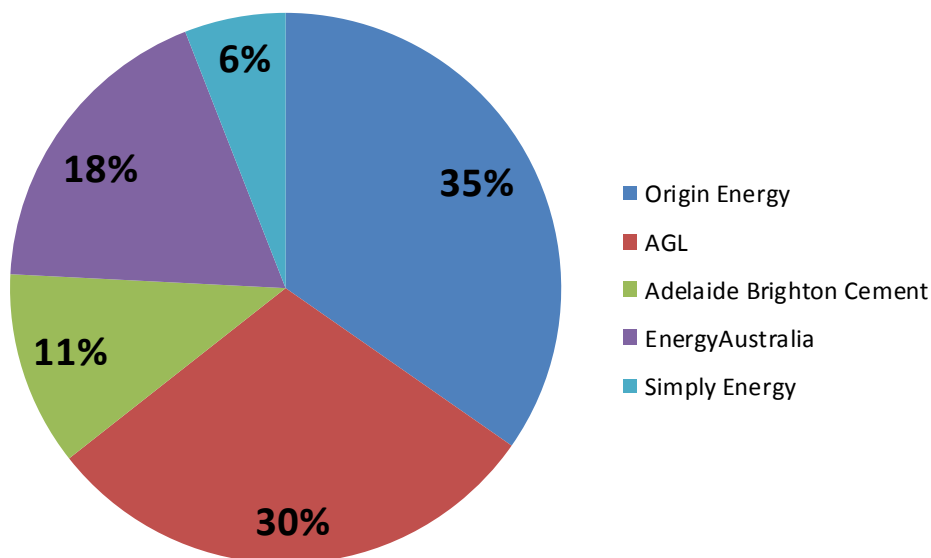


¹ Under Rule 490(1)(a), the AER is to monitor that trading participants activity meet obligations under Part 20 of the Gas Rules.

² At the same time, a hub in Sydney also commenced. A hub in Brisbane joined the STTM on 1 December 2011.

There are 6 trading participants operating in the Adelaide hub. Five of these participants ship gas to Adelaide using the MAP and the SEA Gas pipeline. They participate in the hub to meet their demand and to buy or sell small amounts of imbalance gas.³ Figure 2 shows, for 25 June, the proportion of forward haul scheduled to the Adelaide hub for each of the participants.⁴

Figure 2 – Participation in the Adelaide hub - proportion of gas scheduled (25 June)



Data: AEMO Market data (www.aemo.com.au): INT 651, 659

Four of these participants (Adelaide Brighton Cement, AGL, Energy Australia, and Origin) offered MOS on 25 June 2013 and throughout the winter period. Attachment A provides an explanation of MOS, and how trading participant offers and demand forecasts (price taker bids) can influence the amount of MOS required.

³ Offers scheduled for each Shipper generally represent for each STTM Shipper/User around 90 per cent to 110 per cent of demand. That is, participants endeavour to take limited net positions as net sellers or net buyers through their demand forecast as STTM Users and gas offers as STTM Shippers. For example STTM Shipper A might submit a demand forecast of 20 TJ but also submit offers scheduled of 18 TJ in which case it will be a net buyer for 2 TJ. Alternatively it may have 22 TJ of offers scheduled, in which case it will be a net seller 2TJ of gas.

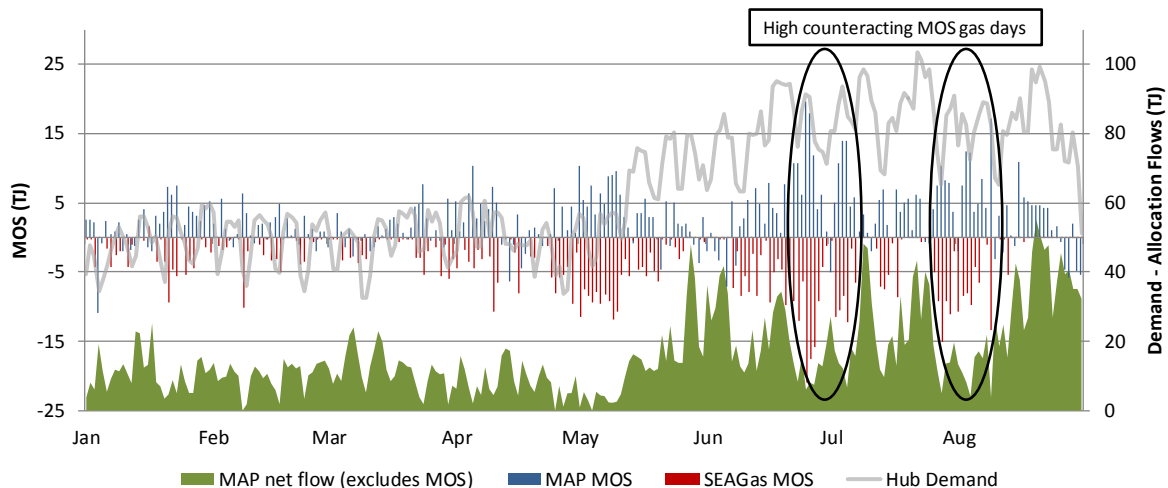
⁴ This is publicly available information whereas demand forecasts are confidential. Another participant, Alinta Energy, also participates in the STTM but does not offer gas into the market. On occasion it buys small amounts of gas (typically less than one or two TJ from the market) as a pure net buyer.

2 Winter 2013 in the Adelaide hub

As shown in Figure 3, there have been clusters of days throughout winter 2013 where counteracting MOS has occurred. Counteracting MOS in the Adelaide hub is defined for this report as the occurrence of MOS on a gas day where the MAP injects more gas than nominated (increase MOS) at the same time that the SEA Gas pipeline delivers a similar TJ amount less gas than nominated (decrease MOS). Theoretically, the main cause of MOS should be inaccurate demand forecasts.⁵ However, as explained below, we consider counteracting MOS in Adelaide this winter was mainly caused by physical design issues affecting the Adelaide network. When MOS is used, there is a cost, which is paid for by market participants. This could result in undesirable outcomes, as participants may end up incurring charges due to physical network issues not reflected in design of the STTM rather than their demand forecasting accuracy.

Generally counteracting MOS has occurred in the Adelaide hub when scheduled MAP net flows (ex ante scheduled forward haul minus backhaul), reflecting MAP nominations, were low and demand within the distribution network was relatively high. On a number of the top ten high MOS quantity days in winter 2013 (see Figure 4 below), nominations of gas on MAP were even lower than scheduled flows and this accentuated to some degree counteracting MOS outcomes.

Figure 3 – Counteracting MOS in the Adelaide hub 1 January 2013 to 30 August 2013*



* 'MAP net flow (excluding MOS)' and 'Hub Demand' are represented on the secondary axis to the right
Data: AEMO Market data (www.aemo.com.au): INT 658, 664

Figure 4 below shows the top ten MOS days during winter 2013 in Adelaide. For the majority of these days, the levels of increase MOS on the MAP are similar to the levels of decrease MOS on the SEA Gas pipeline (i.e. counteracting MOS). By comparison, the difference between forecast and actual hub demand, reflecting the accuracy of demand forecasting, is small.

⁵ The market design, including the allocations of the cause of MOS to costs, did not consider that MOS might be required because one pipeline may not be able to deliver all gas nominated to meet hub demand unless another pipeline delivered a certain amount of gas. In other words, the market assumes that all gas could be supplied from SEA Gas or all gas from MAP to the Adelaide hub.

Figure 4 – Top ten MOS days in Adelaide during winter 2013 (TJ unless stated)⁶

Date	Total MOS quantity	Ranking of MOS quantity *	MOS service payment	MAP MOS	SEA Gas MOS	MAP Net flow Scheduled (Nominated) **	SEA Gas net flow Scheduled (Nominated)**	Hub demand Forecast (actual) ***
25/06/2013	41	#1	\$252,727	20	-21	7 (6)	87 (87)	93 (91)
26/06/2013	35	#2	\$182,736	18	-17	13 (8)	77 (82)	90 (91)
9/08/2013	31	#3	\$135,507	17	-13	4 (4)	75 (75)	79 (82)
27/06/2013	28	#5	\$111,956	12	-16	17 (7)	72 (74)	89 (78)
5/07/2013	26	#6	\$92,400	14	-12	17 (7)	73 (77)	90 (85)
28/07/2013	26	#8	\$98,491	10	-15	7 (5)	63 (65)	70 (65)
23/06/2013	23	#9	\$72,509	11	-12	12 (8)	69 (69)	81 (76)
4/07/2013	22	#10	\$68,180	14	-8	12 (12)	76 (76)	88 (94)
4/08/2013	22	#11	\$65,904	12	-10	10 (4)	65 (66)	75 (72)
3/07/2013	21	#13	\$63,825	11	-11	14 (14)	74 (74)	88 (88)

* From market start – September 2010 to end August 2013

** Excludes MOS. Scheduled net flows with nominations in brackets. For example, even though 13 TJ was scheduled on 26 June, only 8 TJ was nominated on MAP. (Scheduled flows are from AEMO's INT report 652; Nominations have been taken from allocations data, understood to reflect final nominations from AEMO's INT report 658)

*** Scheduled hub demand with allocations in brackets. For example, forecast demand on 26 June was 1 TJ lower than the volume nominated. This number represents the scheduled demand and allocated demand published by AEMO through AEMO's INT report 652 and 658

Data: AEMO Market data (www.aemo.com.au): INT 652, 658, 663, 664

As shown in the third column, winter 2013 gas days had the highest 3 total MOS quantity days on record for the Adelaide hub. The factors that led to counteracting MOS in Adelaide over winter 2013 appear independent of demand forecasting accuracy, as the amounts of MOS are much higher than differences between forecast and actual hub demand. In fact, on 25 June, demand was only over forecast by around 1.4 per cent or 1.3 TJ.

In the past two years AEMO, the AER and industry have investigated and consulted on any likely physical or behavioural aspects driving counteracting MOS in the Adelaide hub.

AEMO's 2012 '[STTM operational review and demand hubs review - final report](#)' set out AEMO's view on the causes of counteracting MOS in Adelaide.⁷ The report noted that the primary cause of counteracting MOS was the hourly flow profile nominated by shippers on the SEA Gas pipeline. When

⁶ The 4th highest MOS quantity since the commencement of the Adelaide STTM occurred on 28 November 2011 and saw 29 TJ of MOS required (MAP +15 TJ, SEA Gas -14 TJ) when scheduled flows to the hub were 5 TJ on MAP and 45 TJ on SEA Gas.

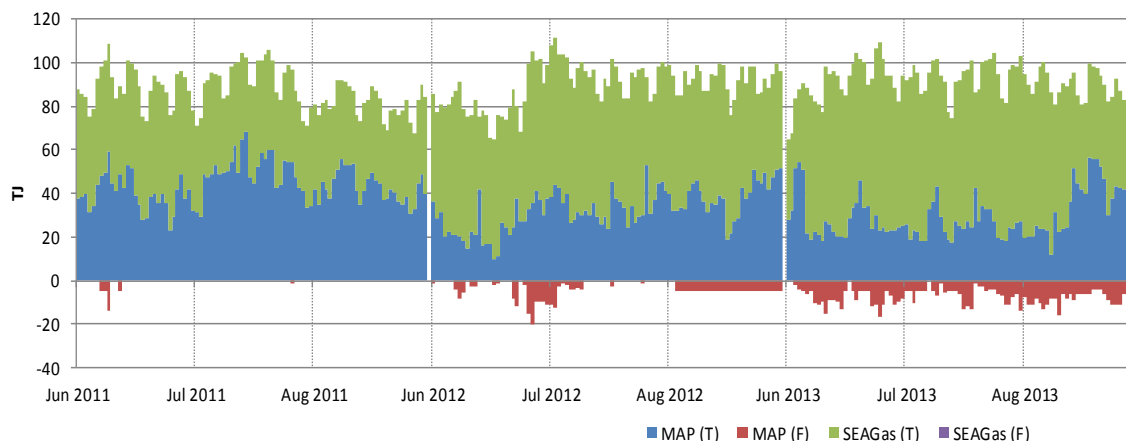
⁷ <http://www.aemo.com.au/Gas/Market-Operations/Short-Term-Trading-Market/Review-of-Short-Term-Trading-Market>

hourly deliveries from SEA Gas lag behind the demand, the MAP then supplies the shortfall. The report also noted that the isolation of the Elizabeth zone was a secondary contributor.

We have reviewed patterns of gas scheduling and pipeline flows for this winter, discussing with participants and AEMO, to determine if counteracting MOS outcomes this winter reflected previous AEMO findings.

Compared to when AEMO considered counteracting MOS, the composition of gas flows to the Adelaide hub has changed. Figure 5 below illustrates the gas flows on the MAP and the SEA Gas pipeline for three winter periods; June–August 2011, June–August 2012, and June–August 2013. Flows marked "T" (meaning 'to the hub') reflect gas flows from the respective pipeline to the Adelaide distribution network. These quantities include forward haul (physical deliveries from the pipeline into the distribution network) and backhaul (notional gas flows away from the distribution network). Flows marked "F" (meaning 'from the hub') reflect backhaul only. From late June to early August 2013, on a sustained basis, scheduled flows on the SEA Gas pipeline and net flows on the MAP ('to' minus 'from') were at a record high in the case of the SEA Gas pipeline and a record low in the case of the MAP. This reflected in part that a number of participants increased backhaul on the MAP (see Attachment B also). Trading participants reported in general that higher costs of gas at Moomba were one factor influencing less flows on MAP and more flows on the SEA Gas pipeline.

Figure 5 –Scheduled gas on the SEA Gas pipeline and the MAP (winter 2011/12/13)*



*'T' represents flows to the hub on a pipeline, 'F' represents flows from the pipeline (notional backhaul).

Data: AEMO market data (www.aemo.com.au): INT 651 and 659 reports

The AER also consulted with AEMO, Envestra, SEA Gas and Epic (the owner of the MAP), on MOS outcomes this winter. In particular, the AER considered 30 days of SEA Gas pipeline and MAP flow and pressure data from 15 June to 15 July 2013 to determine if, and to what extent, demand at the Elizabeth zone was contributing to counteracting MOS.

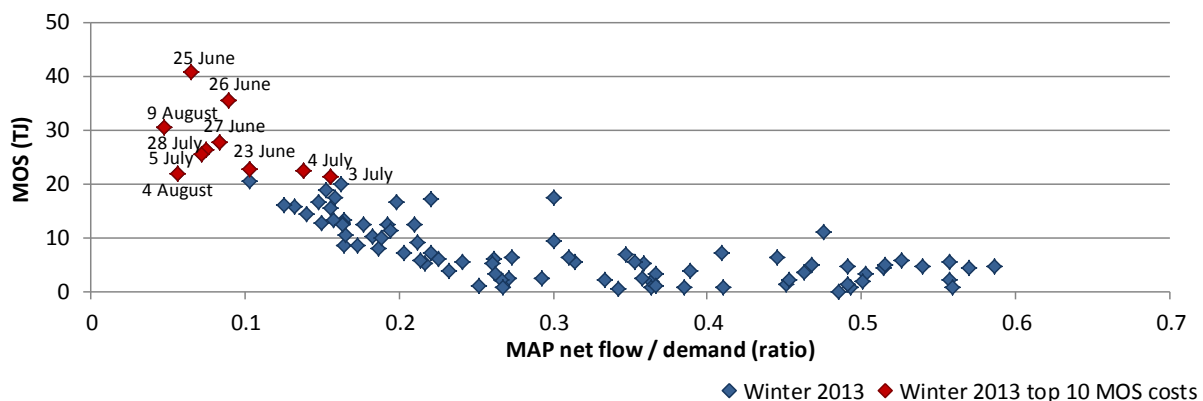
We understand from Envestra that for several years, including the 2013 winter period, the Adelaide network has been operated such that a valve which could enable gas to be delivered from the SEA Gas pipeline into the Elizabeth part of the network has been closed. The valve has been shut for operational requirements. This review has found that the isolation of the Elizabeth zone, at least for the 25 June gas day, may have been the single biggest contributor to counteracting MOS. It follows that on any high demand day at Elizabeth of around 15 TJ, that if nominations on MAP are near zero,

Elizabeth zone isolation must be a big contributor to counteracting MOS.⁸ Based on the 30 days of data, the isolation of the Elizabeth zone from the SEA Gas pipeline appears to be a key contributor to counteracting MOS this winter.

Secondly, based on this data, pressure differences between the delivery points, and within the distribution network, may be limiting the ability of the SEA Gas pipeline to supply parts of the distribution network (particularly towards the Taperoo part of the network). Previously this had not been identified. It was described to the AER that gas provided by the SEA Gas pipeline (through its Cavan delivery point) will gradually lose pressure as it moves through the distribution network towards the geographically distant Taperoo part of the network. Before the gas reaches Taperoo, the pressure of this gas will fall to a level that meets the pressure of gas provided by the MAP's Taperoo delivery point. This prevents the SEA Gas sourced gas, from moving any further beyond this balancing point. This results in the demand from the Taperoo part of the network being serviced by the MAP rather than gas from Cavan. On days of high scheduled flows on SEA Gas, and low scheduled flows on the MAP, this may result in increase MOS on the MAP, and decrease MOS on the SEA Gas pipeline.

Bearing in mind the Elizabeth issue and Taperoo issues above, the relationship between the high ratio of SEA Gas flows to MAP flows and counteracting MOS is shown through Figure 6 below which plots the ratio of the MAP net flow⁹ on the x-axis for the 2013 winter period. This ratio is plotted against the total volume of MOS requirement from each pipeline providing balancing gas to the hub. The scatterplot shows that as the ratio gets smaller, due to a combination of higher hub demand and low net supply from MAP, the higher the level of MOS required on a given gas day. The highlighted data points represent the gas days with a high cost for MOS shown in Figure 4 above.

Figure 6 – MOS quantities relative to MAP nominated net flows/demand (Adelaide winter 2013)*



Data: AEMO market data (www.aemo.com.au), INT reports 658, 664

⁸ On 8 of the 10 high demand days in figure 4 above, MAP nominations were less than 10 TJ.
⁹ The MAP net flow divided by the actual demand

3 The 25 June 2013 gas day

As noted in section 2 above, low/high net physical flows nominated on the MAP/SEA Gas into the distribution network, coupled with high demand within the distribution network, resulted in a significantly large amount of counteracting MOS on the gas day. These factors are detailed further below.

The ex ante schedule and ex post imbalance price

There was nothing particularly remarkable about the ex ante schedule and ex post schedule for the 25 June day in terms of prices or demand forecasting accuracy. Both the ex ante and ex post price were consistent with longer term price trends at \$4.93/GJ. The prices were the same, indicative that demand was very accurately forecast, with actual demand imbalance in the hub only being 1.3 TJ (around 1.4 per cent) more than scheduled demand.

What was remarkable about this day was the split of scheduled gas for delivery to the Adelaide hub between the MAP and SEA Gas pipeline. The SEA Gas pipeline was scheduled ex ante to supply 86.5 TJ to the Adelaide hub. This was the highest ever ex ante scheduled amount of gas on the SEA Gas pipeline since market start. It was necessary because net scheduled deliveries on the MAP were only 6.56 TJ to meet 93.06 TJ of network demand.¹⁰ Despite the low MAP flow scheduled by AEMO, participants nominated 6.07 TJ (0.5 TJ less).

MOS outcomes

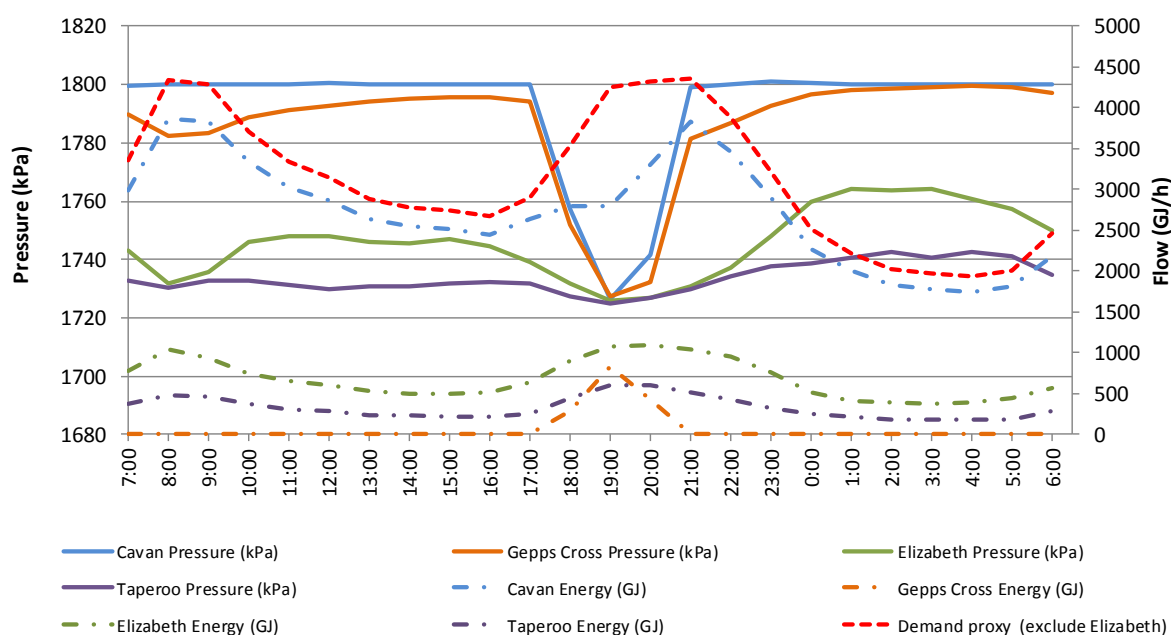
The combination of high nominations on SEA Gas, low nominations on MAP into the Adelaide hub, and the high demand within the distribution network was the key contributor to the large amount of counteracting MOS required on the day. On the gas day, almost 41 TJ of MOS was required. The MAP provided 19.73 TJ of increase MOS, and the SEA Gas pipeline provided 21 TJ of decrease MOS. The MOS quantities on the day for the MAP and the SEA Gas pipeline are the highest quantities ever required by either pipeline in the Adelaide STTM.

Figure 7 below shows flows and pressures at the SEA Gas Cavan delivery point and the MAP Gepps Cross, Taperoo and Elizabeth delivery points. Also included is a demand proxy which shows total demand (excluding Elizabeth) which is the effective demand profile for SEA Gas gas because of its isolation from Elizabeth.¹¹

¹⁰ On MAP, 16.5 TJ of backhaul was scheduled against forward haul offers of 23 TJ.

¹¹ Calculated by summing deliveries at Cavan, Gepps Cross and Taperoo

Figure 7 – 25 June 2013 – flows and pressures at SEA Gas / MAP delivery points¹²



Data provided by SEA Gas and Epic

On 25 June, nominated flows on the MAP to the Adelaide hub were only 6.07 TJ, yet MAP deliveries through the Elizabeth and Taperoo delivery points shown above were 16.4 TJ and 7.9 TJ respectively, exceeding 24 TJ in total.

We consider that at least 10 TJ of increase MOS on the MAP was a consequence of demand in the Elizabeth zone (16.4 TJ) of the network being much higher than total nominated amounts of gas on the MAP to Adelaide (6.2 TJ). The SEA Gas pipeline could not supply this demand due to the isolation of the Elizabeth zone, so the MAP injected gas through its Elizabeth delivery point.

Following discussions at the July AEMO STTM consultative forum, and subsequent discussions with AEMO, we consider that an amount of increase MOS provided by the MAP on this day may have been attributable to the pressure differences between the delivery points, and within the distribution network, limiting the ability of the SEA Gas pipeline to supply parts of the distribution network (particularly towards the Taperoo part of the network). At least 1.7 TJ (the amount Taperoo deliveries exceeded MAP nominations) but as much as 7.9 TJ of increase MOS from the MAP on 25 June was associated with pressure differentials within the distribution network.

Envestra (the owner of the Adelaide distribution network) has indicated to the AER that it plans to finalise a review of its network by December 2013. This review will assist in understanding the physical design issues affecting the Adelaide hub. Envestra noted it will be modelling the consequences of opening the valve which currently prevents gas from the SEA Gas pipeline going into the Elizabeth zone. We understand this valve has been closed for some years for operational reasons. Engineering staff will also be evaluating whether the SEA Gas pipeline could provide the entire gas supply to the Adelaide hub if necessary. We consider it may be beneficial for Envestra as part of its review to consider what the ideal delivery point pressures are for allowing either pipeline to make full delivery to the network.

¹² The following two gas days (26 and 27 June) had large levels of counteracting MOS. These days required the second and fifth largest MOS amounts since market start, respectively. These days followed similar profiles to 25 June.

The total amount of MOS service payments generated for the gas day was \$252 727. Figure 8 below sets out the quantities of MOS provided by participants for both SEA Gas pipeline and MAP and the respective MOS service payments received.

Figure 8 – MOS providers and share of MOS service payments – 25 June 2013

Provider	MAP quantity	Service payment	SEA Gas quantity	Service payment	Service payment total
Energy Australia	+2 400 GJ	\$16 640	-2 500 GJ	\$13 000	\$29 640
Origin	+9 534 GJ	\$61 309	-5 000 GJ	\$51 339	\$112 647
Adelaide Brighton Cement	+1 800 GJ	\$6 377	-1 000 GJ	\$7 690	\$14 067
AGL	+6 000 GJ	\$32 188	-12 549 GJ	\$64 185	\$96 373

Data: AEMO Market data (www.aemo.com.au), INT reports 664, 665

The magnitude of a MOS service payment is determined by the MOS quantity required and the price of MOS offers. If the same quantity of MOS on 25 June 2013 was required using the prices of the MOS offers available for the same day in 2011, the total MOS service payment would have been more than \$675 000. This reflects that winter 2013 average MOS offer prices (from 4 MOS providers for each pipeline) were lower than the MOS offer prices made at market start (when there were 2 MOS providers on each pipeline). The market appears to have reacted to higher levels of MOS, including some counteracting MOS in 2011/12 by purchasing more MOS contracts.

Attachment A - Commodity gas and MOS markets

For the purposes of the report, this attachment provides a simple explanation of the interaction of the primary commodity gas market and the ancillary MOS market for balancing gas amounts. The example below does not include backhaul for simplicity purposes.

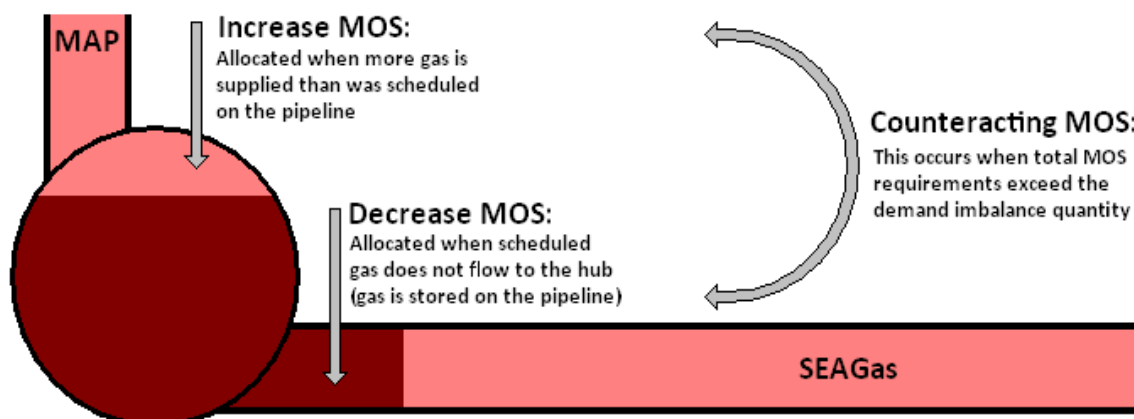
For every gas day, AEMO schedules gas to be delivered to the network to meet network forecast demand (the network is shown as a circle in the diagram below). This means that if the forecast demand of STTM Users was 90 TJ, AEMO would schedule 90 TJ of ex ante pipeline offers of STTM Shippers to deliver gas. The market determines an ex ante price, for example \$3/GJ, based on scheduling gas offers from lowest price to highest price until demand is met. Net sellers receive this ex ante price; net buyers pay this ex ante price.

However, what may happen is that actual demand in the hub is 95 TJ. This new higher demand is used in the setting of an ex post price which may be higher, for example \$3.50/GJ. This price is relevant to a deviation charge or payment. For example, any participant which under-forecast its demand in the hub (its customers used more gas than forecast) pays this higher ex post price as part of a deviation charge. These charges go towards funding Market Operator Services (**MOS**).

MOS, also known as 'balancing gas', is the difference between final nominations by participants on the pipeline (based on forecast demand) and the actual quantities of gas flowed on a pipeline on the gas day. Increase MOS and decrease MOS are supplied based on a MOS offer stack which is entirely separate to the primary market ex ante offer stack. MOS offers must be based on contracts on pipelines to supply increase MOS (loan gas from the pipeline) or decrease MOS (park gas on the pipeline). In the example above, there will be 5 TJ of increase MOS. This increase MOS is the extra flow of gas which entered the hub to ensure the network received a quantity of gas that meets actual demand (95 TJ) rather than forecast demand (90 TJ).

In the Adelaide hub, sometimes increase MOS is provided by the Moomba to Adelaide pipeline at the same time as similar quantities of decrease MOS is provided by the SEA Gas pipeline. This is commonly referred to as 'counteracting MOS'. Counteracting MOS has happened regularly in the Adelaide hub in winter 2013, and also occurred on 25 June. On most days of counteracting MOS there are little differences between forecasts demand in the network and actual demand. Yet, as shown in the diagram below, there is an increase MOS flow on one pipeline at the same time as decrease MOS flows on the other pipeline. Large MOS in the absence of a demand forecast error is an Adelaide outcome which adds to the level of MOS and which wasn't contemplated in the market design (at least in terms of allocating costs to cause).

Figure 9 – Counteracting MOS in the Adelaide hub

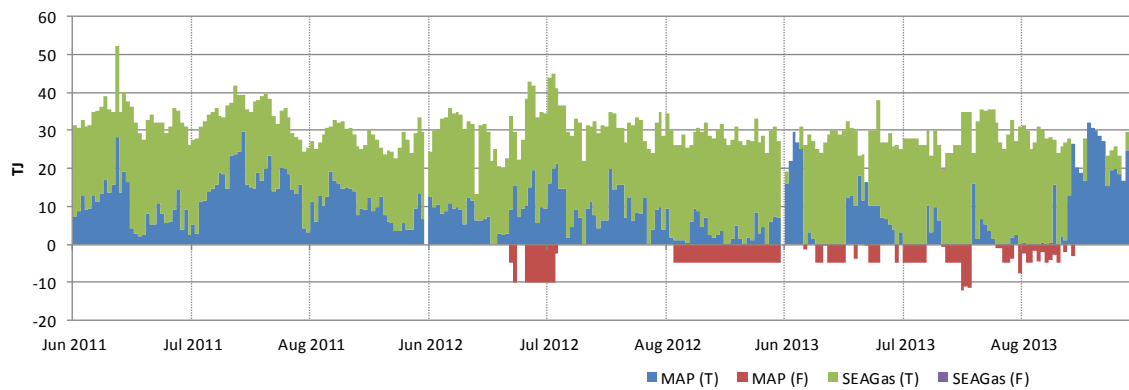


Attachment B - Participation on MAP and SEA Gas

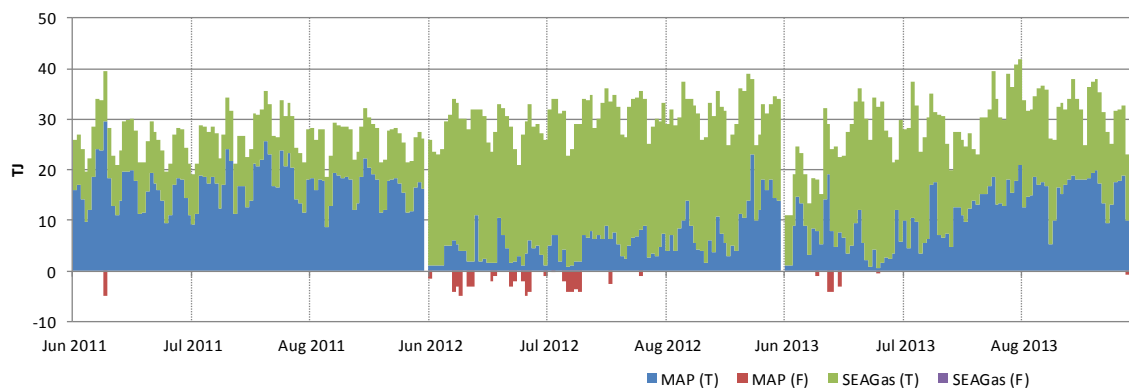
This report has noted low net flows from the MAP into the Adelaide distribution network contributes to counteracting MOS. We have observed that participants nominated less gas into the Adelaide distribution network from the MAP relative to previous years (particularly from late June to early August). This section sets out the scheduled flows for each participant over the winter periods of 2011, 2012, and 2013.

The below figures illustrate the gas flows in the Adelaide STTM from June 2011–August 2013 on an individual participant basis. Flows marked "T" (meaning 'to the hub') reflect gas flows from the respective pipeline to the Adelaide distribution network. These quantities include forward haul (physical deliveries from the pipeline into the distribution network) and backhaul (notional gas flows away from the distribution network). Flows marked "F" (meaning 'from the hub') reflect backhaul only.

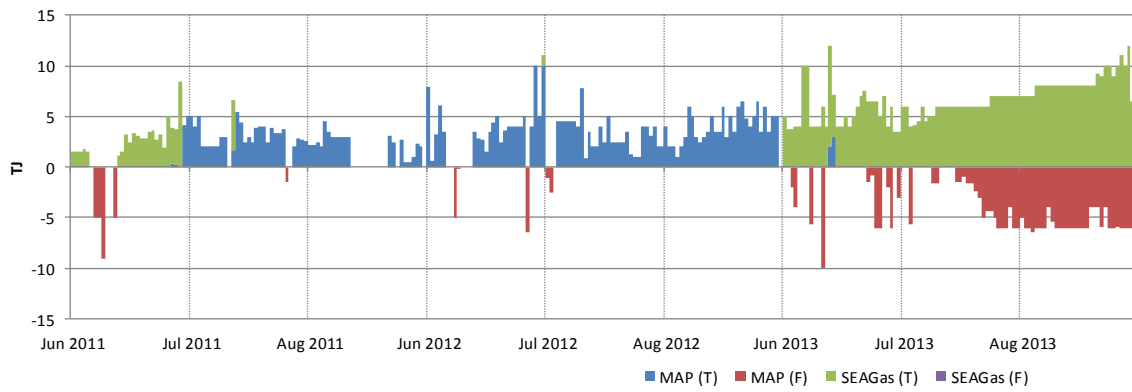
Origin Energy



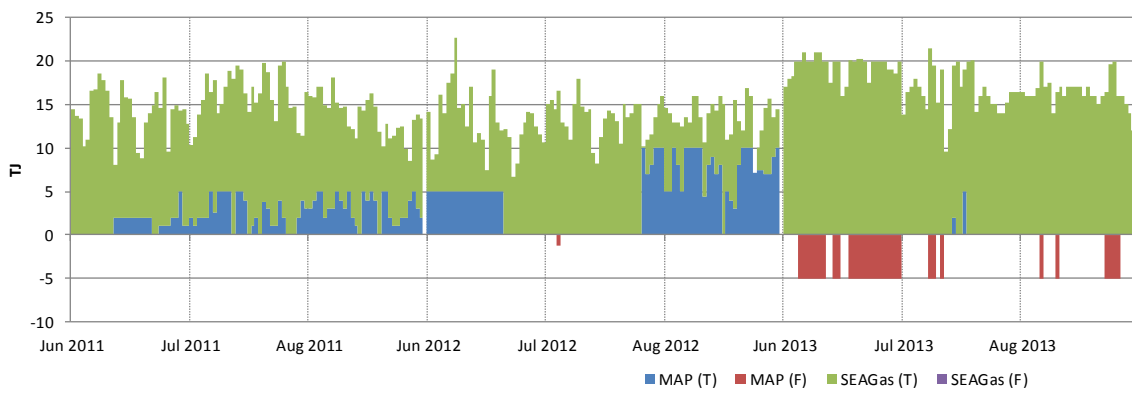
AGL



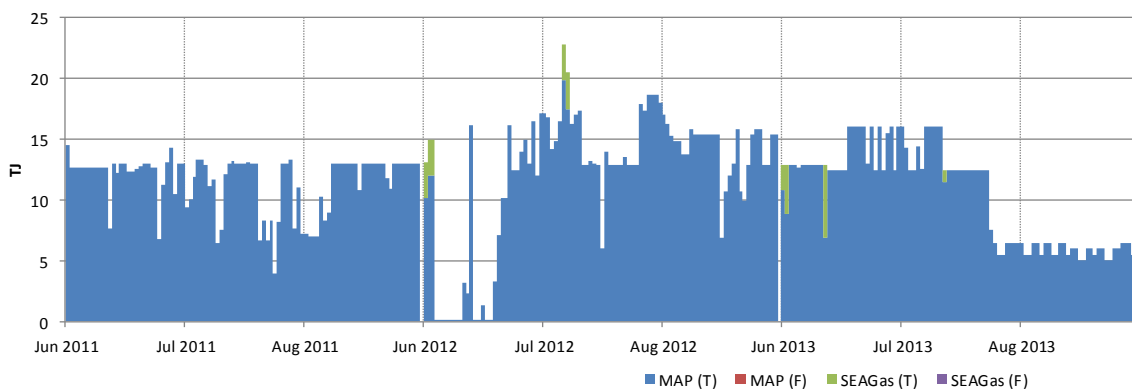
Simply Energy



Energy Australia



Adelaide Brighton Cement



Data: AEMO Market data (www.aemo.com.au): INT 651, 659