

20 March – 26 March 2011

## Preface

As part of its monitoring roles for the National Gas Market Bulletin Board (Bulletin Board) and the Declared Wholesale Gas Market (Victorian Gas Market), the AER publishes a weekly gas market report. Part A of the report looks at gas usage and flows of registered facilities in southern and eastern Australia (as reported on the Bulletin Board). Part B provides a summary of operational and market data in the Victorian Gas Market.

The AER is responsible for monitoring and enforcing compliance with Part 20 of the National Gas Rules that authorise and govern conduct in the Short Term Trading Market (STTM). The STTM is a market for the wholesale trading of natural gas at defined hubs between pipelines and distribution systems, and began operation on 1 September 2010. With initial hubs of Sydney and Adelaide, additional hubs are intended for the future. Each hub is scheduled and settled separately, but all hubs operate under the same rules. Part C provides a summary of operational and market data in the STTM.

The Victorian Gas Market lies between the two STTM hubs and shares common production sources with the Adelaide and Sydney hubs. Participation in the Victorian Gas Market and the STTM hubs occurs on the basis of a different set of market rules and requires contractual arrangements with different pipeline owners. Participants operate in only those markets where they have production, gas and pipeline contracts. The larger number of retailers participating in the Victorian gas market reflects the increased number of retailers in Victoria. Some key differences between the STTM and the Victorian Gas Market are set out at the start of Part C.

This report will evolve over time and the nature of information presented may change. The AER welcomes feedback on the report from interested parties. Feedback can be sent to [aer inquiry@ aer.gov.au](mailto:aer inquiry@ aer.gov.au), with the subject title 'Comments on weekly gas report'.

## Summary

Average daily prices in the Victorian market and the Sydney and Adelaide hubs are shown in figure 1.

**Figure 1: Average daily price (\$/GJ) – All gas markets**

20 Mar – 26 Mar	Victorian market*	STTM Sydney hub**	STTM Adelaide hub**
<b>Average Price</b>	2.89	2.57	3.69

\*weighted average daily imbalance price

\*\*ex ante market price

## STTM Gas Markets (Adelaide and Sydney)

Figure S3 shows average ex ante and ex post prices in the Sydney hub were lower than for the previous week and the financial year-to-date average price. The ex post price on 24 March gas day was set at a record low of \$0.0001/GJ (see below *Sydney hub – 24 March gas day*). This was partially caused by Jemena submitting incorrect allocation data for the Eastern Gas Pipeline (EGP) but mainly driven by shippers renominating large quantities of gas to the Sydney hub at the \$0/GJ price band. On the same day the ex ante price was set at \$0.49/GJ.

Conversely, figure S4 shows average weekly ex ante and ex post prices in the Adelaide hub were higher than for the previous week and the financial year-to-date average price.

Pipeline allocations (deliveries to the hub) exceeded network allocations (usage at the hub) by approximately 45 TJ in Sydney on the Tuesday 22 March gas day (as shown in figure S5). Figure S19 shows there were positive deviations on the EGP, the Moomba to Sydney Pipeline (MSP) and the Rosalind Park facility (ROS) on 22 March. Pressure problems in the Sydney hub also contributed to these deviations, as discussed under *Sydney hub – 22 March gas day*.

#### *Sydney hub – 22 March gas day*

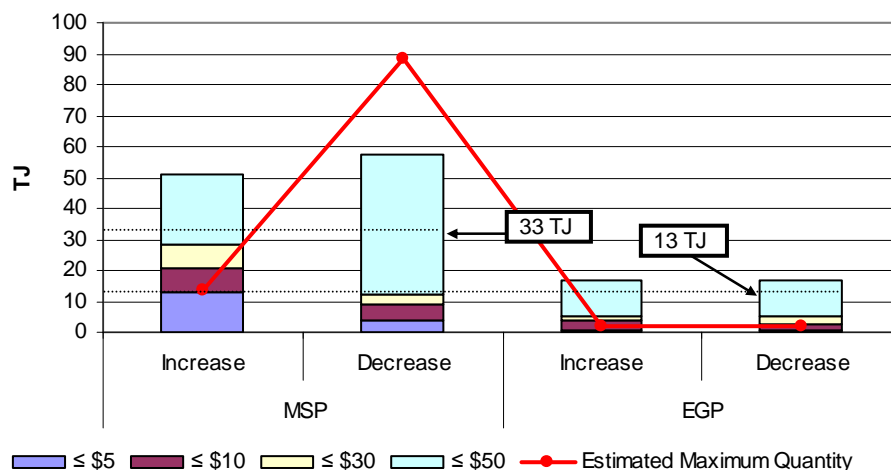
Pressure problems in the Sydney hub on 22 March led to reduced pipeline deliveries into the hub and the lowest *network* allocation amount for the week at 200 TJ (compared with 240 TJ on 21 March and 232 TJ on 23 March). Linepack within the hub was used to meet demand.

However, pipeline allocations to Sydney on the day were around 245.7 TJ (close to the scheduled amount of 247 TJ), which resulted in a total of 45 TJ in positive deviations at the Sydney hub for the 22 March gas day. This was due to a combination of deliveries on the pipelines being exceeding scheduled quantities, and consumption at the hub being lower than forecast demand. The responsible participants were paid for these positive deviations based on the ex post price of \$3.38/GJ.

Figure S17a shows deviations on 22 March gas day in Sydney led to Market Operator Service (MOS) decrease requirements of 13 TJ and 33 TJ on the EGP and MSP respectively. This resulted in MOS payments of \$1.4m to shippers, the largest since market start. These payments are based on the current MOS bid stack for the Sydney hub, as shown in figure 2.

However, shippers only had to pay a total of \$22 000 in MOS commodity charges for this gas on 22 March, because charges are based on the day+2 ex ante price, which was \$0.49/GJ on 24 March (see below: *Sydney hub – 24 March gas day*).

**Figure 2: MOS stack – Sydney STTM hub (1 March to 30 May)**



Source: <http://www.aemo.com.au> INT 665

#### *Sydney hub – 24 March gas day*

The ex ante price for the 24 March gas day was \$0.49/GJ. Based on Jemena submitting an allocation amount of 102.56 TJ on the EGP, the ex post price was set at \$0.0001/GJ. However, the allocation amount was found to be incorrect, causing Jemena to submit a revised allocation amount of 120.56 TJ. This revised allocation amount was, however submitted after the 11 am

deadline on 25 March. Therefore, deviation payments to shippers were calculated using the ex post price of \$0.0001/GJ. Figure 3 shows that had the allocation amount of 120.56 TJ been used, the ex post would have been \$0.49/GJ.

**Figure 3: EGP allocation data and ex ante/ex post prices**

<b>24 March gas day</b>	<b>Actual</b>	<b>If revised</b>
EGP allocation amount (TJ)	102.56	120.56
Ex ante price (\$/GJ)	0.49	0.49
Ex post price (\$/GJ)	0.0001	0.49

Source: <http://www.aemo.com.au> INT 651, 657, 658

Positive deviations are paid to participants at the lower of the ex ante and ex post price, while negative deviations are charged to participants at the higher of the two prices. For the 24 March gas day, therefore, deviation payments were lower than they would otherwise have been (calculated at \$0.0001/GJ instead of \$0.49/GJ) for participants who delivered more (or withdrew less) than they were scheduled for. However, deviation charges were the same as they would have been, because the ex ante price was also \$0.49/GJ.

Unlike the case for setting the ex post price, the revised allocation amount of 120.56 TJ was able to be used in calculating deviation quantities. This is because AEMO uses the most up-to-date allocation data for calculating deviation quantities and charges, which in this case was submitted prior to the next day's 11 am deadline. These are then published at 4 pm.

The AER is working closely with all participants to ensure robust systems and processes for the provision of STTM data. The AER also intends to undertake a series of audits beginning in the second half of 2011 to assess pipeline operator compliance with STTM obligations.

### **Victorian Gas Market**

This week's average price of \$2.89/GJ was slightly lower than the previous week (\$3.01/GJ). This may have been due to Iona returning to full operation from 19 March, meaning there was more gas available at relatively low prices (see Figure V4). Figure V1 shows more participants were scheduled to inject and withdraw from Iona this week than the previous week.

Figure V3 shows average daily injections from Iona this week at 45 TJ (compared to 2 TJ the previous week) following its return to full operation from 19 March. Injections from other sources were lower than the previous week. Planned maintenance at Longford resulted in reduced production capacity of around 500 TJ/day, which represents half the plant's normal maximum nameplate capacity. AEMO issued a -6 TJ demand override on Friday 25 March in response to market participant demand forecasts being around 11 TJ higher than AEMO forecasts (see Appendix A5).

### **National Gas Market Bulletin Board**

Figure N4 shows total average daily gas production across the Bulletin Board was the same as the previous week. Total average daily demand was slightly higher than the previous week, while total gas used for electricity generation was slightly lower than the previous week. Production from the Otway region was higher than the previous week because the Iona facility returned to operation. This higher production led to higher pipeline flows and helped to meet higher demand in Victoria and South Australia. In contrast, less demand in NSW/ACT and Tasmania saw lower production from the Eastern Victorian region.

There were no instances of missing bulletin board data this week.

# Part A: National Gas Market Bulletin Board

## Overview of pipeline and production flows

Figure N1 sets out the average daily pipeline flows into each key demand region across the National Gas Market. A list of pipeline facilities for each demand region is provided in Figure A1 of the Appendix.

**Figure N1: Average daily pipeline flows (TJ) into each demand region**

Average daily flows	NSW	ACT	VIC	SA	TAS	QLD		
						Brisbane	Mt Isa	Gladstone
<b>20 Mar – 26 Mar</b>	326	8	429	248	42	138	87	109
Financial Year-to-date 2010-11*	376	20	583	287	45	167	94	108
Financial Year-to-date 2009-10**	364	19	550	282	39	170	85	71

\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

Source: National Gas Market Bulletin Board <http://www.gasbb.com.au>

Figure N2 provides the average daily amount of gas used for GPG (gas-powered generators) in each state.

**Figure N2: Average daily gas (TJ) used by gas-powered generators in each state**

Average daily gas for GPG usage^	NSW	VIC	SA	TAS	QLD
<b>20 Mar – 26 Mar</b>	76	25	136	28	126
Financial Year-to-date 2010-11*	88	27	169	30	154
Financial Year-to-date 2009-10**	83	42	165	23	165

^Estimated values based on application of implied heat rates for generators within the demand region sourced from ACIL Tasman's 2009 Final Report 'Fuel resource, new entry and generation costs in the NEM'

\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

Source: <http://www.aemo.com.au>

Notes: Data for each state collected on the following basis:

1. NSW - Smithfield Energy, Uranquinty, Hunter Valley GT, Colongra and Tallawarra power stations.
2. VIC - Laverton North, Valley Power, Jeeralang A, Jeeralang B, Somerton, Bairnsdale, and Newport power stations.
3. SA - Dry Creek GT, Hallet, Pelican Point, Torrens Island, Mintaro, Osborne, Ladbroke Grove, and Quarantine power stations.
4. TAS - Tamar Valley power stations.
5. QLD - Braemar 1, Braemar 2, Roma, Oakey, Barcaldine, and Swanbank power stations.

Figure N3 sets out the daily average flows from production and storage facilities from each production zone across the National Gas Market. A list of production/storage facilities for each zone is provided in Figure A2.

**Figure N3: Daily average production flows (TJ) for each production zone**

Average daily flows	Roma (QLD)	Eastern Victoria	Otway Basin (VIC)	Moomba (SA/QLD)
<b>20 Mar – 26 Mar</b>	503	597	244	201
Financial Year-to-date 2010-11*	533	756	260	278
Financial Year-to-date 2009-10**	453	660	280	276

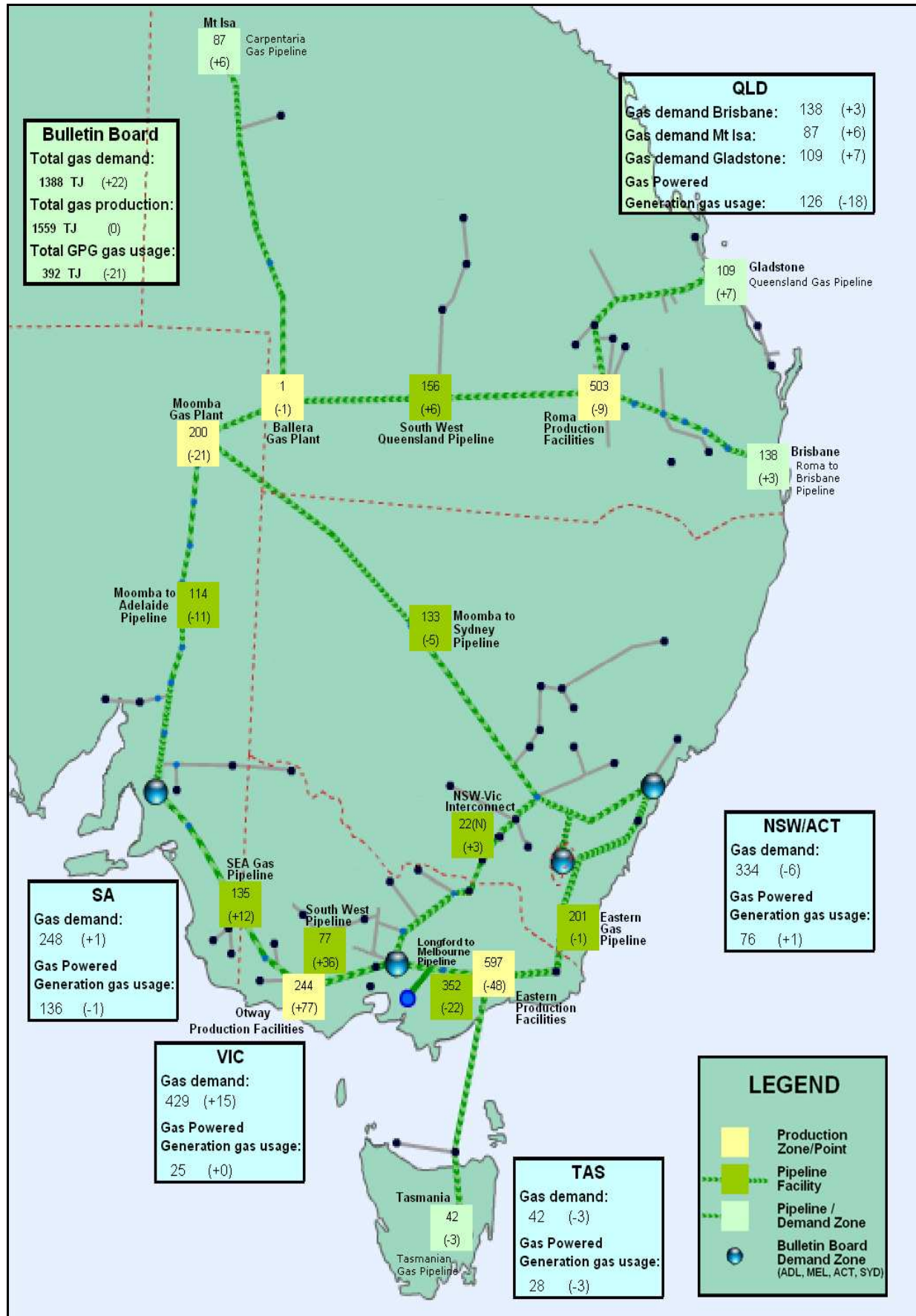
\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

Source: National Gas Market Bulletin Board <http://www.gasbb.com.au>

Figure N4 shows the changes in average daily pipeline and production flows compared to the previous week, as well as the gas demand and GPG usage of gas in each region.

**Figure N4: Gas production/consumption and pipeline flows (TJ) (changes from the previous week are shown in brackets)**

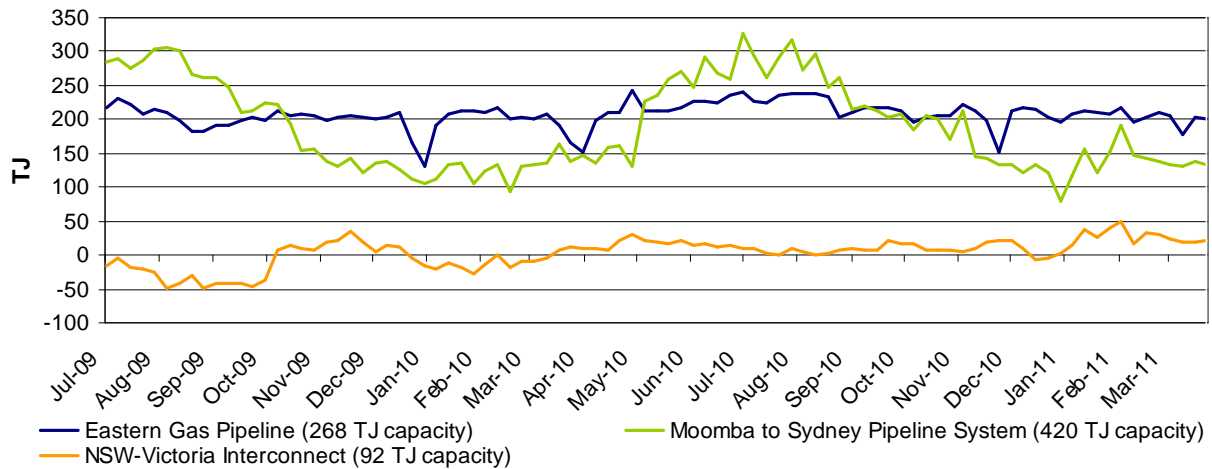


Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>  
 Notes: Direction of aggregate daily flows along the NSW-Vic Interconnect indicated on map by S (South) or N (North). Numbers in brackets indicate a change in average daily flow from the previous week.

## Gas flows into demand regions

The figures below provide the average daily flows into each of the demand regions served by multiple pipelines and supply sources.

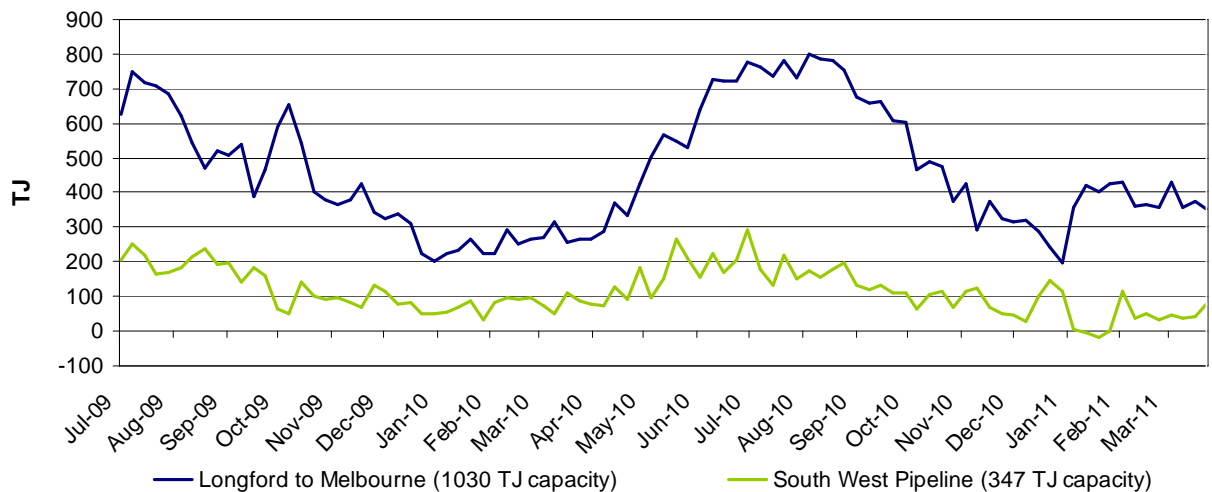
**Figure N5: Average daily flows (TJ) into NSW/ACT demand region**



Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>

Notes: Negative flows on the NSW-Victoria Interconnect represent flows out of NSW into VIC.

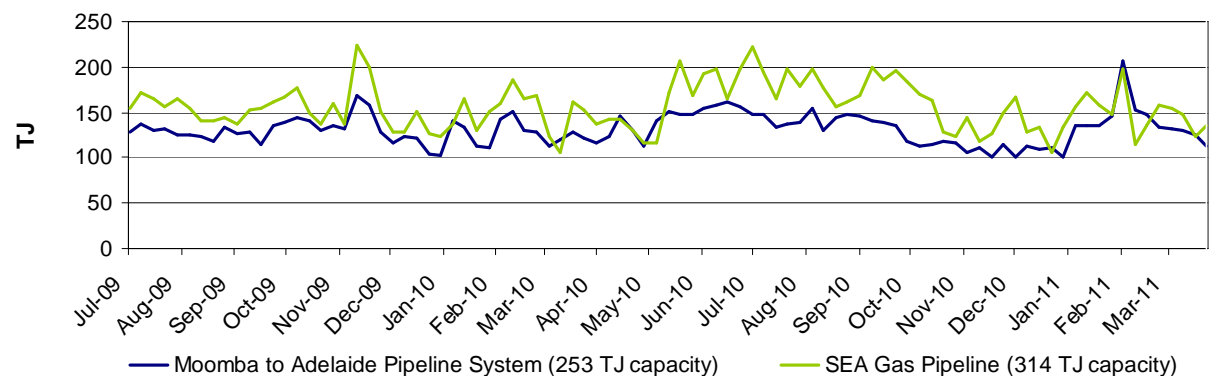
**Figure N6: Average daily flows (TJ) into VIC demand region**



Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>

Notes: Negative flows on the South West Pipeline represent flows out of the VPTS and back into storage at Iona.

**Figure N7: Average daily flows (TJ) into SA demand region**



Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>

## Part B: Victorian Gas Market

### Participation in the market

Figure V1 shows participant bids submitted at the start of the gas day (6 am) at injection and withdrawal points on the Victorian Declared Transmission System (DTS). The orange shaded boxes indicate that the participant submitted bids at that location on at least one occasion during the week. An “S” indicates that some of this nominated gas was scheduled into the gas market, while “NS” indicates that none of the gas was scheduled. Green shading indicates where a change has occurred from the previous week.

Bids are scheduled in price merit order — this means injection bids which are less than the market clearing price will be scheduled, while withdrawal bids which are greater than the market clearing price will be scheduled into the market.

**Figure V1: Injection and withdrawal point bids in the VIC Gas Market<sup>^</sup>**

Market Participant	Participant type	No. of injection / withdrawal bid points	Injection bids in the VPTS									Withdrawal bids in the VPTS			
			BassGas	Culcairn	IONA	LNG	Longford	SEA Gas	VicHub	Otway	Culcairn	IONA	SEA Gas	VicHub	
AETV Power	Trader	1								NS					S
AGL (Qld)	Retailer	1				NS									
AGL	Retailer	4			NS	NS	S			NS			S		
Aurora Energy	Retailer	1					S								
Ausgrid	Retailer	2					S			NS					
Aust. Power & Gas	Retailer	3			NS	NS	S						S		
Coogee Energy	Transmission Customer	1					S								
Country Energy	Transmission Customer	1		NS											
Energy Australia	Retailer	2					S			NS					
Essential Energy	Transmission Customer	1		S											
International Power	Transmission Customer	1											NS		
Lumo Energy	Retailer	3		NS		NS				S					
Lumo Energy	Trader	2			NS					NS			S		NS
Origin (Vic)	Retailer	5	S	NS	S	NS	S					S	NS		
Origin (Uranquinty)	Trader	1					S								
Red Energy	Retailer	1					S								
Santos	Retailer	1								S					
Simply Energy	Retailer	4			S	NS	S	NS					S		
TRU Energy	Retailer	4			S	NS	S			NS			NS		NS
Visy Paper	Distribution Customer	2					S					S			

<sup>^</sup>Bids taken from 6 am data for each gas day during the current week.

Source: <http://www.aemo.com.au> (INT131)

## Market Prices

Figure V2 displays volume-weighted average daily imbalance prices, compared to the 2010-11 financial year-to-date average and the 2009-10 financial year-to-date equivalent as well as daily imbalance prices for each day during the current week.

The daily average market price is a volume weighted imbalance price taking account of trading amounts at five times through the gas day — 6 am, 10 am, 2 pm, 6 pm and 10 pm.

**Figure V2: Imbalance Weighted Prices (\$/GJ)**

	20 Mar – 26 Mar	13 Mar – 19 Mar	2010-11 Financial YTD*	2009-10 Financial YTD**
<b>Average daily price</b>	2.89	3.01	2.09	1.65

20 Mar – 26 Mar	Sun	Mon	Tue	Wed	Thu	Fri	Sat
<b>Daily price</b>	2.87	3.04	2.95	2.52	2.63	3.16	3.06

\*Average daily imbalance weighted average price from 1 July 2010 to the current week (inclusive)

\*\*Average daily imbalance weighted average price from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

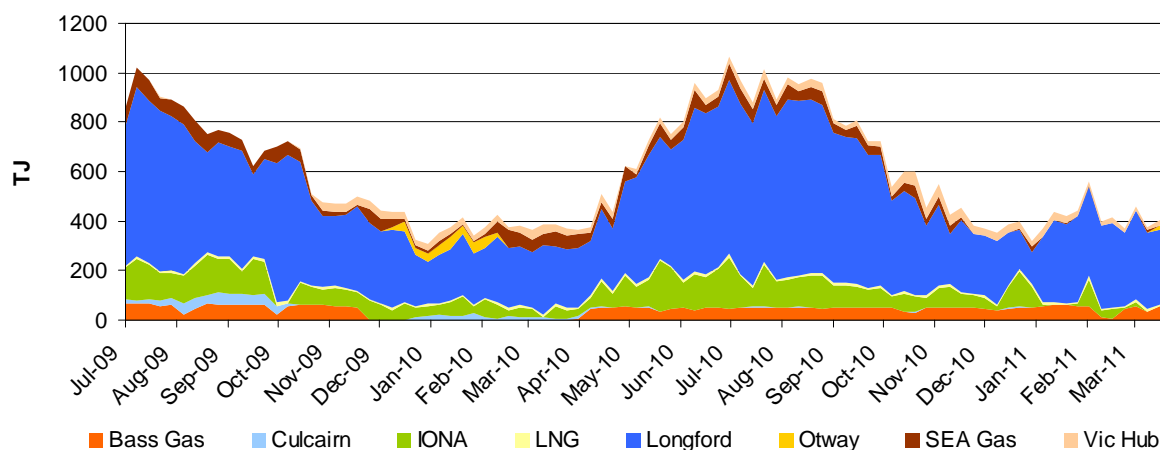
Source: <http://www.aemo.com.au> (INT 041)

## System Injections

Figure V3 shows the average daily injections into the DTS for the current and previous week, compared with the 2010-11 and 2009-10 equivalent financial year-to-date daily averages.

**Figure V3: Average daily flows (TJ) from Injection Points on the DTS**

Injection Point:	20 Mar – 26 Mar	13 Mar – 19 Mar	2010-11 Financial YTD*	2009-10 Financial YTD**
<b>Culcairn</b>	0	0	1	17
<b>Longford</b>	291	303	417	367
<b>LNG</b>	11	9	9	8
<b>IONA</b>	45	2	67	77
<b>VicHub</b>	16	19	29	17
<b>SEAGas</b>	2	1	23	42
<b>Bass Gas</b>	47	53	47	30
<b>Otway</b>	0	16	0	9
<b>TOTAL</b>	<b>412</b>	<b>403</b>	<b>594</b>	<b>567</b>



\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

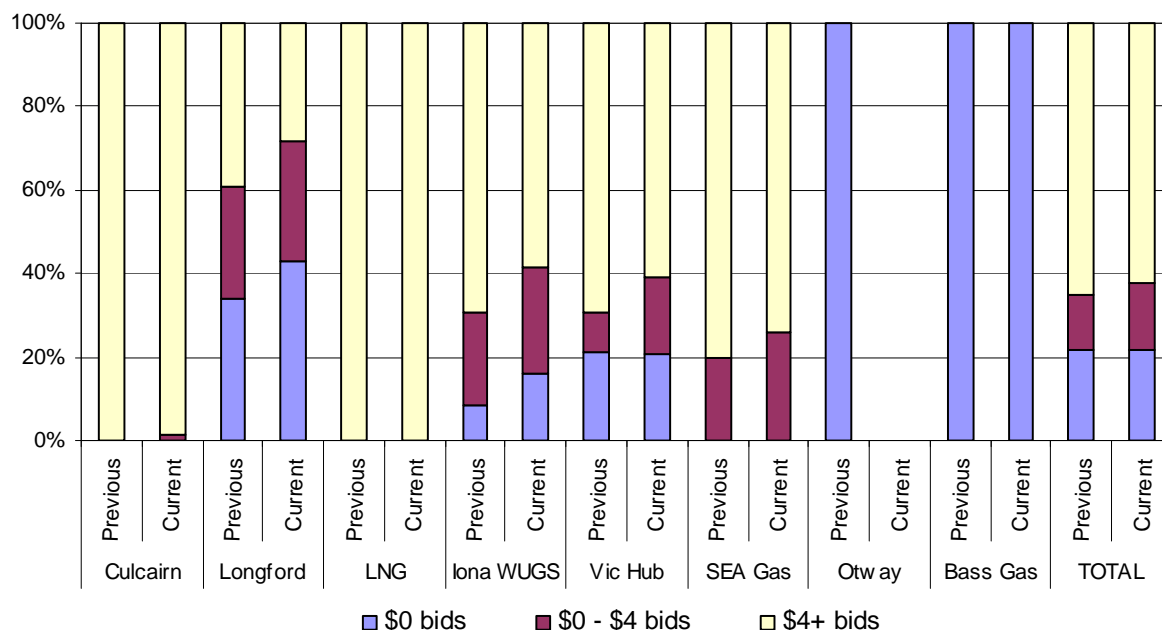
Source: <http://www.aemo.com.au> (INT 150)



## Bidding Activity

Figure V4 compares the price structure of gas bid at each of the injection points on the DTS, within three price bands of \$0/GJ, \$0/GJ to \$4/GJ, and \$4/GJ and above, for the current week and for the previous week.

**Figure V4: Price structure of bids by injection points**



Source: <http://www.aemo.com.au> (INT 131) - bids submitted for the 6am schedule on each day of the week.

Notes: Figures in the table are rounded off the nearest round number (TJ); the maximum allowable bid is \$800/GJ.

Figure V5 provides a table of injection points on the DTS where market participants submitted intra-day renominations, for each day of the week.

**Figure V5: Intra-day rebidding of gas injections**

Injection Point:	Sun	Mon	Tue	Wed	Thu	Fri	Sat
<b>Culcairn</b>		Essential Energy	Essential Energy		Essential Energy		
<b>Longford</b>		AGL TRU Ausgrid	AGL Origin TRU Ausgrid	AGL Origin TRU Ausgrid	AGL TRU	AGL TRU	AGL TRU
<b>LNG</b>							
<b>Iona</b>	Origin TRU Simply	Origin TRU Simply Lumo	Origin TRU	Origin TRU	Origin TRU Simply	Origin TRU	Origin TRU Simply
<b>VicHub</b>	AETV TRU EA Lumo Ausgrid	TRU Lumo	AETV Lumo	AETV Ausgrid	AETV Lumo	AETV TRU Lumo	AETV TRU Lumo
<b>SEAGas</b>			Simply	Simply			Simply
<b>Bass Gas</b>				Origin			

Source: <http://www.aemo.com.au> (INT 131)

Notes: Origin = Origin Energy | AGL = AGL Sales | TRU = TRUenergy | Simply = Simply Energy | AETV = AETV Power | APG = Australian Power & Gas | CE = Country Energy | Lumo = Lumo Energy (formerly Victoria Electricity) | AGL (QLD) = AGL Sales (Queensland) | Red = Red Energy |

## System withdrawals

Figure V6 shows the average daily gas usage on the DTS for the current and previous week, compared with the 2010-11 and 2009-10 equivalent financial year-to-date daily averages.

**Figure V6: Average daily withdrawals (TJ) from system demand zones on the DTS**

<b>System withdrawal zone:</b>	<b>20 Mar – 26 Mar</b>	<b>13 Mar – 19 Mar</b>	<b>2010-11 Financial YTD*</b>	<b>2009-10 Financial YTD**</b>
<b>Ballarat</b>	15	14	24	21
<b>Geelong^</b>	89	92	90	79
<b>Gippsland</b>	32	31	43	45
<b>Melbourne</b>	227	232	387	371
<b>Northern</b>	56	53	62	51
<b>TOTAL</b>	<b>418</b>	<b>421</b>	<b>606</b>	<b>567</b>

^Data presented also includes withdrawals for the Western system withdrawal zone or Western Transmission System (WTS).

\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

Source: <http://www.aemo.com.au> (INT 150).

## Part C: STTM MARKET DATA

### What is the STTM?

The STTM is a market for the trading of natural gas at the wholesale level at defined hubs between pipelines and distribution systems. Currently the STTM has two hubs: Sydney and Adelaide. The AER first commenced reporting on the STTM in September. The report deliberately contains a significant amount of information on the STTM. It is envisaged that over time as readers become familiar with the market, the amount of information will be reduced, while being mindful not to compromise the quality of the report.

Although the STTM and Victorian gas markets (discussed in Part B of this report) are both spot markets for gas, there are a number of key differences. Some of these differences are listed in the table below.

Key area of difference	Victoria Gas Market	STTM
<b>AEMO role</b>	<ul style="list-style-type: none"> <li>Wholesale market operator,</li> <li>Retail market operator,</li> <li>Transmission pipeline system operator</li> </ul>	<ul style="list-style-type: none"> <li>Wholesale market operator,</li> <li>Retail market operator</li> </ul>
<b>Scheduling</b>	<ul style="list-style-type: none"> <li>On the day scheduling comprising five pricing and operating schedules at set times. Ad hoc schedules if required.</li> <li>Day ahead and 2-Day ahead schedules (forecast data only).</li> </ul>	<ul style="list-style-type: none"> <li>Day ahead market schedules</li> <li>Shippers may vary from their market schedules when they nominate to pipeline operators</li> <li>2-Day ahead and 3-Day ahead schedules (forecast data only).</li> </ul>
<b>Market Price</b>	<ul style="list-style-type: none"> <li>Five ex ante prices for imbalances set on the day</li> <li>Ex ante prices in subsequent schedules after the 6am schedule apply to deviations</li> <li>Market price is for commodity only. Transportation is charged separately by pipeline owner</li> </ul>	<ul style="list-style-type: none"> <li>One ex ante market price set the day before the gas day</li> <li>One ex post imbalance price set the day after the gas day</li> <li>Price includes both commodity and delivery to the hub and represents purchase of gas at the hub</li> </ul>
<b>Linepack management (pipeline balancing mechanism)</b>	<ul style="list-style-type: none"> <li>AEMO defines linepack target depending on operational conditions and is generally set seasonally not daily.</li> <li>Linepack account covers costs that includes costs of day to day linepack variations</li> </ul>	<ul style="list-style-type: none"> <li>On the day pipeline balancing through Market Operator Service (MOS), provided by MOS offers from shippers</li> </ul>
<b>Transmission pipeline constraint management</b>	<ul style="list-style-type: none"> <li>Ancillary payments for higher priced gas scheduled that relieves constraints</li> <li>Uplift payments to fund ancillary payments</li> </ul>	<ul style="list-style-type: none"> <li>Capacity payments from shippers with non-firm contracts to shippers with firm contracts if a pipeline is constrained (based on the pipeline capacity price)</li> </ul>

AEMO's website ([www.aemo.com.au](http://www.aemo.com.au)) contains documents that provide further detail on how the STTM works, including a glossary of terms.

### Participation in the market

Figures S1 and S2 show participant supply offers and withdrawal bids submitted in the Sydney and Adelaide STTM hubs. The orange shaded boxes indicate that the participant submitted offers and bids at that location on at least one occasion during the week. An "S" indicates that some of this gas was scheduled into the gas market, while "NS" indicates that none of the gas was scheduled. Green shading indicates where a change has occurred from the previous week.

Offers and Bids are scheduled in price merit order—this means offers that are less than the market clearing price will be scheduled, while withdrawal bids that are greater than the market clearing price will be scheduled into the market.

**Figure S1: Supply Offers and Withdrawal Bids (Sydney Hub)^**

Trading Participant	Participant type	No. of supply offers / withdrawal bid points	Offers			Bids			
			EGP	MSP	ROS	EGP	MSP	ROS	SYD - NET
AETV Power	Shipper	1				S			
AGL Energy Sales & Marketing Limited	STTM User, Shipper	4	S	S	S				S
AGL Wholesale Gas Limited	Shipper	2	S	NS					
Ausgrid	STTM User, Shipper	2	S	S					
Australian Power & Gas Pty Ltd	STTM User, Shipper								
BHP Billiton Petroleum (Bass Strait) PL	Shipper								
BlueScope Steel	STTM User, Shipper	1	S						
Delta Electricity	STTM User, Shipper	2		S					S
Essential Energy	STTM User, Shipper	2	S				S		
Esso Australia Resources Pty Ltd	Shipper								
Lumo Energy (NSW) Pty Ltd	STTM User								
Lumo Energy Australia Pty Ltd	Shipper	1	NS			S			
OneSteel Manufacturing Pty Ltd	STTM User, Shipper	1	S						
OneSteel NSW Pty Ltd	STTM User, Shipper	1	S						
Origin Energy LPG Limited	STTM User, Shipper								
Origin Energy Retail Ltd	STTM User, Shipper	1		S					
Santos Direct Pty Ltd	STTM User, Shipper	1	S						
TRUenergy Pty Ltd	STTM User, Shipper	2	S	S		S			
Tyco Water	STTM User								

^Offers and bids taken from the (D-1) ex ante schedule

^STTM Users also submit price-taker bids to satisfy customer demand, which are not included in this table

Source: <http://www.aemo.com.au> INT 651, 659, 668

EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility, SYD-NET=Sydney Hub

**Figure S2: Supply Offers and Withdrawal Bids (Adelaide Hub)^**

Trading Participant	Participant type	No. of supply offers / withdrawal bid points	Offers		Bids		
			MAP	SEAGAS	MAP	SEAGAS	ADL - NET
AGL South Australia Pty Limited	STTM User,Shipper	1	S				
AGL Wholesale Gas (SA) Pty Ltd	Shipper	2	S	S			
Adelaide Brighton Cement Ltd	STTM User,Shipper	1	S				
Lumo Energy (SA) Pty Ltd	STTM User						
Lumo Energy Australia Pty Ltd	Shipper						
OneSteel Manufacturing Pty Ltd	Shipper						
Origin Energy Retail Ltd	STTM User,Shipper	2	S	S			
Pelican Point Power Limited	Shipper						
Simply Energy	STTM User,Shipper	2	S	NS	NS		
TRUenergy Pty Ltd	STTM User,Shipper	2	NS	S			

^ Offers and bids taken from the (D-1) ex ante schedule

^^ STTM Users also submit price-taker bids to satisfy customer demand, which are not included in this table

Source: <http://www.aemo.com.au> INT 651, 659, 668

MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline, ADL-NET=Adelaide Hub

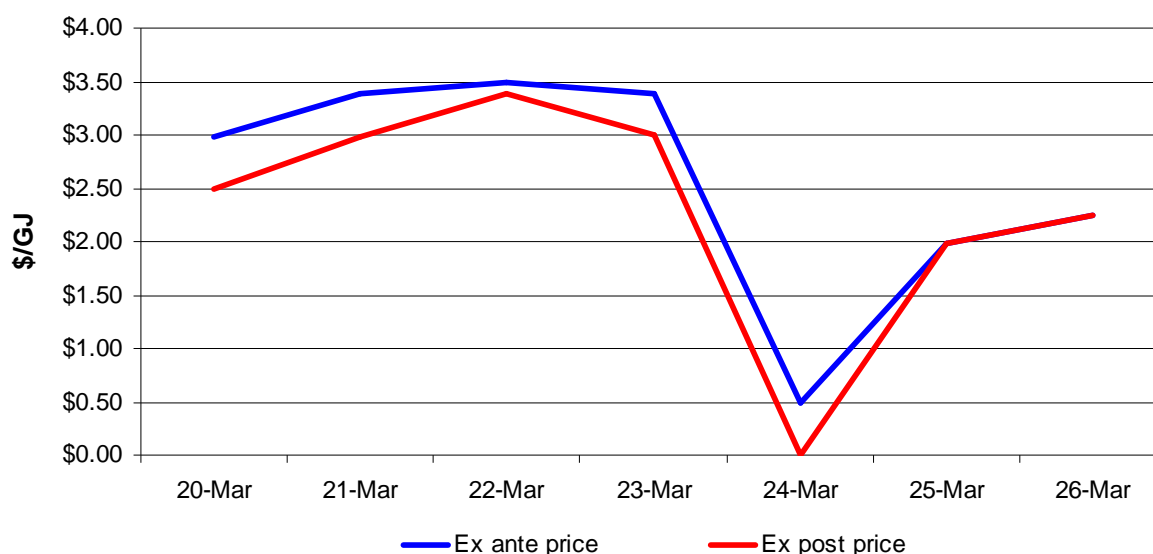
### Ex ante and Ex post Market Prices

Figures S3 and S4 show ex ante and ex post prices at the Sydney and Adelaide Hubs. Differences between the ex ante and ex post price may arise where there are significant differences between price taker bids (demand forecasts) for the hub and actual demand in the hub. When this occurs, this leads to more or less gas being scheduled in the ex post market and a divergence between the ex ante and ex post prices.

**Figure S3: Ex ante vs Ex post Price - Sydney Hub (\$/GJ)^**

	20 Mar – 26 Mar	13 Mar – 19 Mar	2010-11 Financial YTD*
Ex ante price	2.57	3.23	2.58
Ex post price	2.30	3.13	6.03

\*Financial Year to date figures exclude market trial data (year-to-date from 1 September 2010)

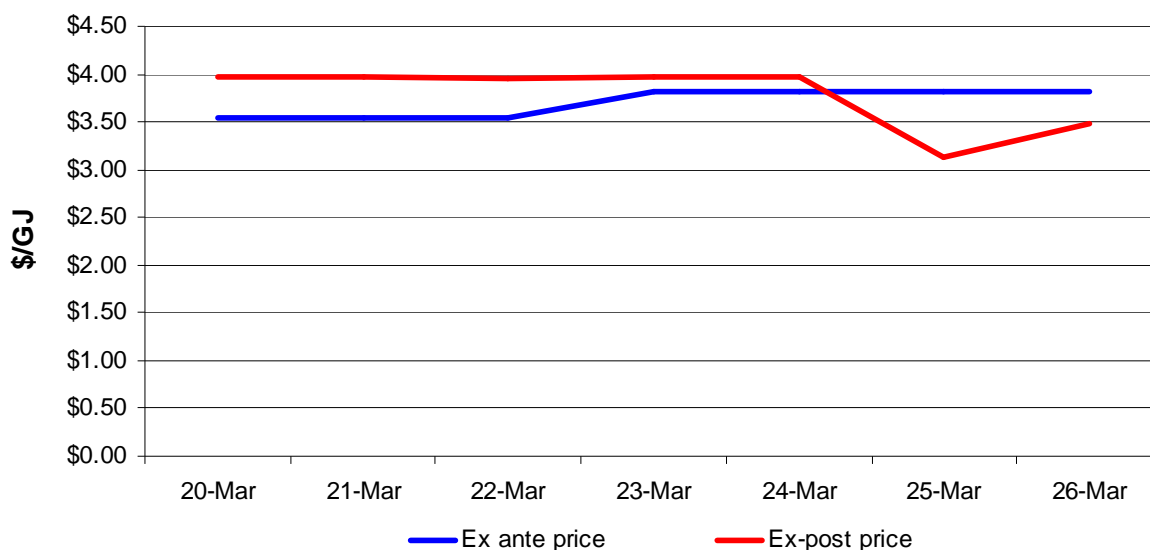


Source: <http://www.aemo.com.au> INT 651, 657

**Figure S4: Ex ante vs Ex post Price - Adelaide Hub (\$/GJ)**

	20 Mar – 26 Mar	13 Mar – 19 Mar	2010-11 Financial YTD*
Ex ante price	3.69	3.51	2.89
Ex post price	3.78	3.75	3.02

\* Financial Year to date figures exclude market trial data (year-to-date from 1 September 2010)



Source: <http://www.aemo.com.au> INT 651, 657

### Scheduled gas

“Firm” and “non-firm” gas is scheduled to the STTM hubs. Firm capacity describes a facility contract that has the highest haulage priority. Non-firm (as available) capacity refers to facility contracts with lower order priority.

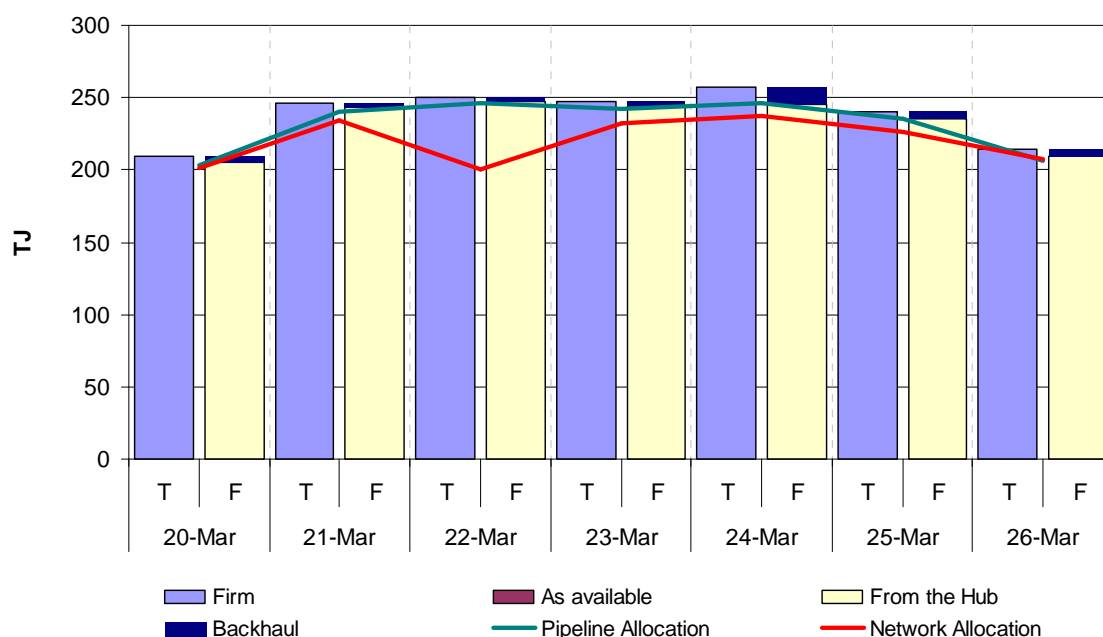
Gas can also be scheduled from the STTM hubs. This happens when Shippers “backhaul” gas from the hub or Users bid to take gas from the hub (including price taker bids).

Figures S5 and S6 show scheduled versus allocated gas at each hub. To understand the figures, the quantities of firm and non-firm gas scheduled via offers to the hub are indicated by the columns marked “T” (or **to** the hub). Firm offers are indicated by light purple shading and as available gas is indicated by maroon shading. Bids to take gas from the hub are indicated by columns marked “F” (or **from** the hub). User bids are indicated by light yellow shading and backhaul is indicated by dark blue shading.

The red line shows network (or in other words hub or demand side) allocations and the green line shows pipeline allocations. Allocations show actual gas flows for the day based on pipeline and network metered data.

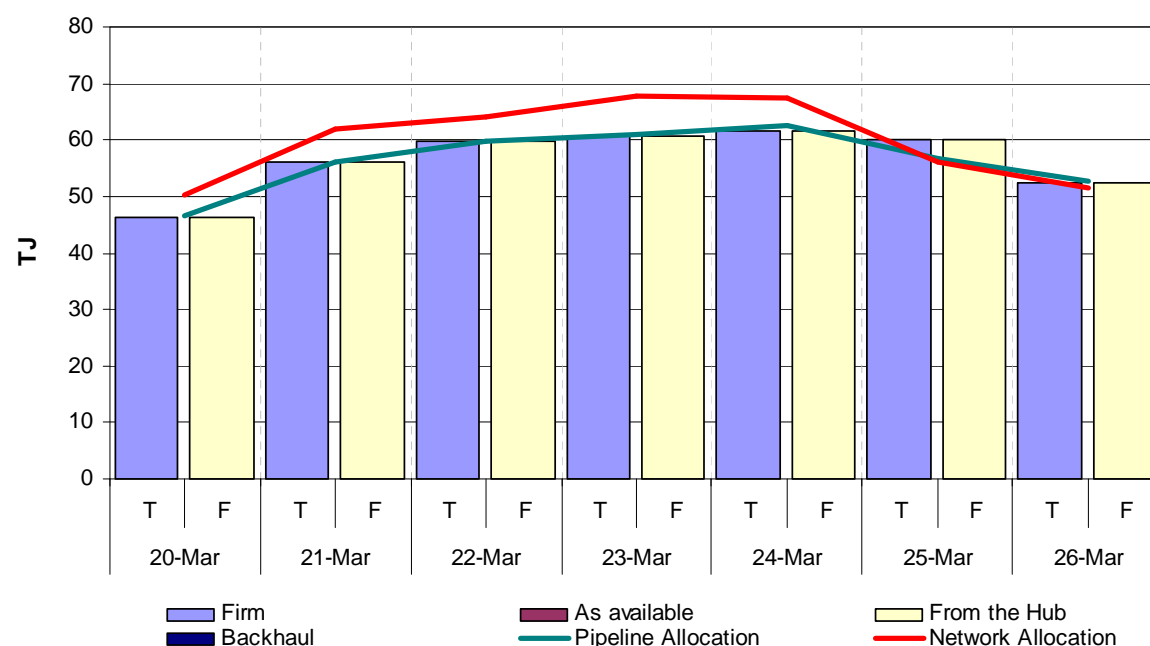
By comparing the level of the red line to the columns marked “F”, it can be shown whether demand (allocation) was higher than scheduled. Similarly, comparing the green line to the columns marked “T” shows how the actual flow of gas (allocation) compared to what was scheduled.

**Figure S5: Allocated vs scheduled ex ante quantity - Sydney Hub (TJ)^**



Source: <http://www.aemo.com.au> INT 651, 652, 658 and 664 (MOS allocations removed)

**Figure S6: Allocated vs scheduled ex ante quantity - Adelaide Hub (TJ)**



Source: <http://www.aemo.com.au> INT 651, 652, 658 and 664 (MOS allocations removed)

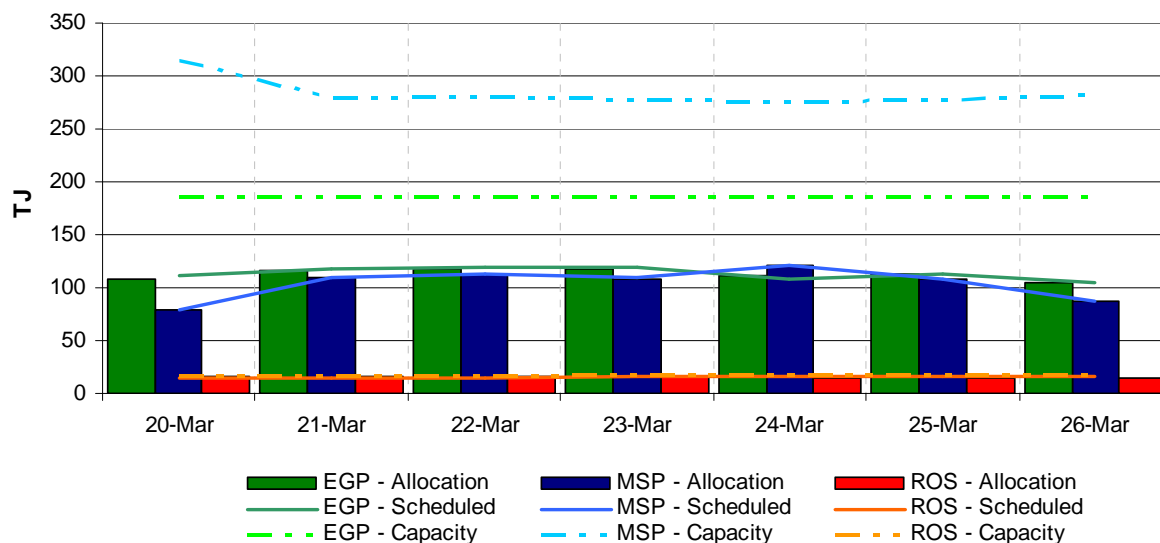
### Pipeline Facility Allocations

A number of pipelines supply the Adelaide and Sydney hubs. Figures S7 and S8 show, for each hub, the allocation (or actual flow) of gas to each of the pipeline facilities supplying the hub, the quantity of gas scheduled (ex ante) on the pipeline and the capacity of the pipeline.

For a gas day, the pipeline operator delivers gas to the hub, and users withdraw gas from the hub. However, the quantities delivered to or withdrawn from the hub may not, and generally will not, match with the ex ante schedules. In addition, during the day, as gas requirements become better known, and if permitted by their contracts, shippers may renominate quantities (“intraday nominations”) with their pipeline operators.

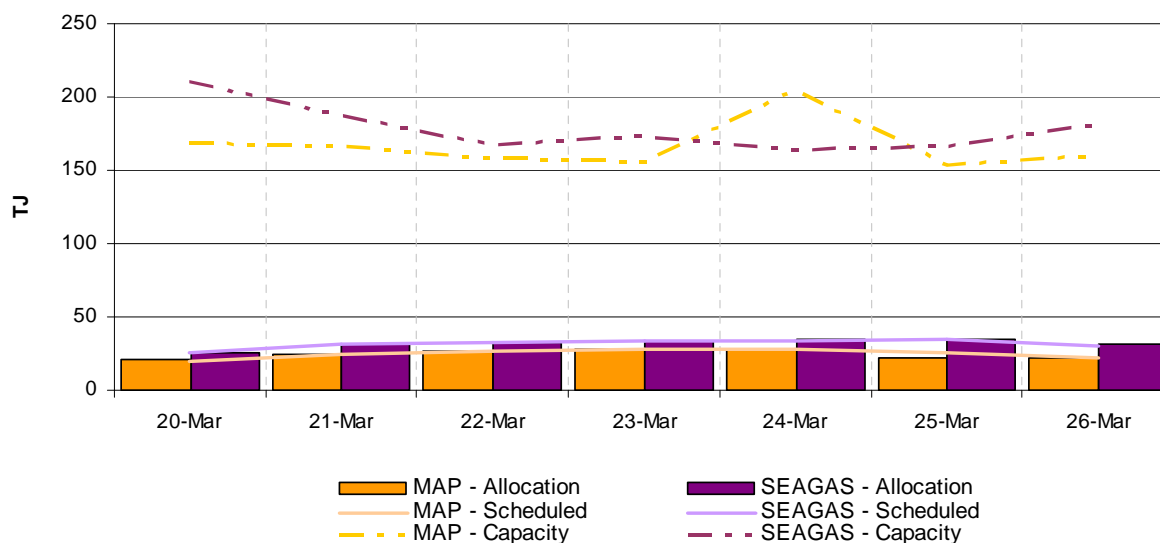
Differences between the amount of gas scheduled and what was actually allocated can result in variations between the ex ante and ex post price, as the ex post price is related to the offers actually allocated while ex ante is related to the offers scheduled.

**Figure S7: Allocated vs scheduled pipeline quantities - Sydney Hub (TJ)**



Source: <http://www.aemo.com.au> INT 652, 653, 658 and 664 (MOS allocations removed)  
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park production facility

**Figure S8: Allocated vs scheduled pipeline quantities - Adelaide Hub (TJ)**



Source: <http://www.aemo.com.au> INT 652, 653, 658 and 664 (MOS allocations removed)  
MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

## Offers and Bids

Trading Participants submit offers to sell gas into an STTM hub and withdrawal bids to take gas from a hub. Figures S9 and S11 show for the Sydney and Adelaide hubs respectively, total offers within various price bands for the current week compared to the previous week for each of the pipeline facilities.

Figures S10 and S12 show for the Sydney and Adelaide hubs respectively, total bids within various price bands for the current week compared to the previous week for each of the pipeline facilities and the hubs themselves (NETSYD1 and NETADL1).

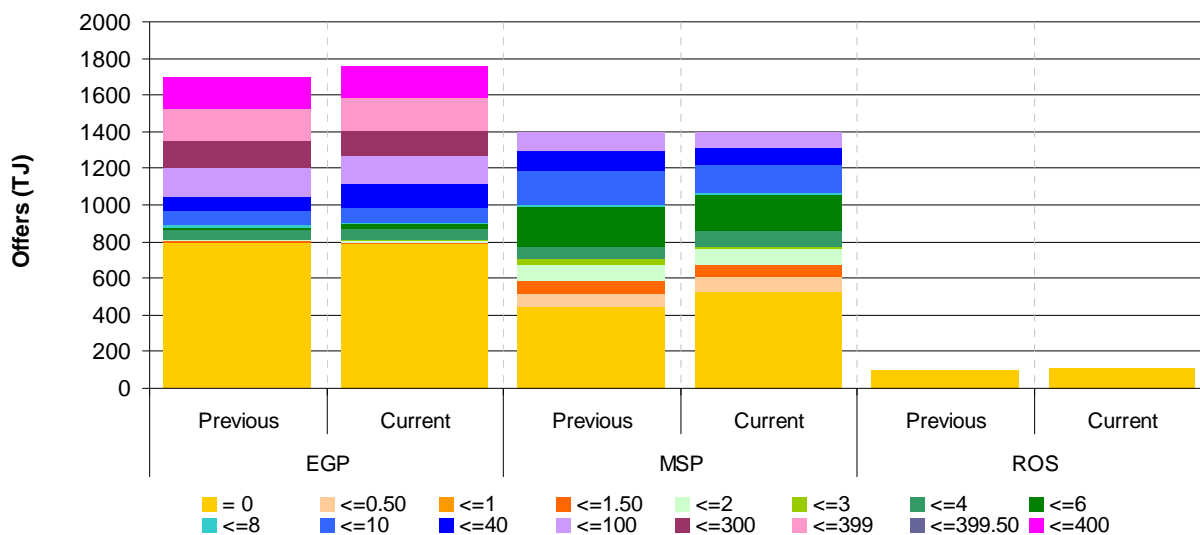
These figures also include information on price-taker bids. A price-taker bid is a bid for a quantity of gas that the user will accept at any price. Only STTM users are able to place price-taker bids, that is, to purchase gas at any price. These bids (which represent customer demand



forecasts) must be submitted on a daily basis. Price-taker bid data is read against the right-hand-side axis.

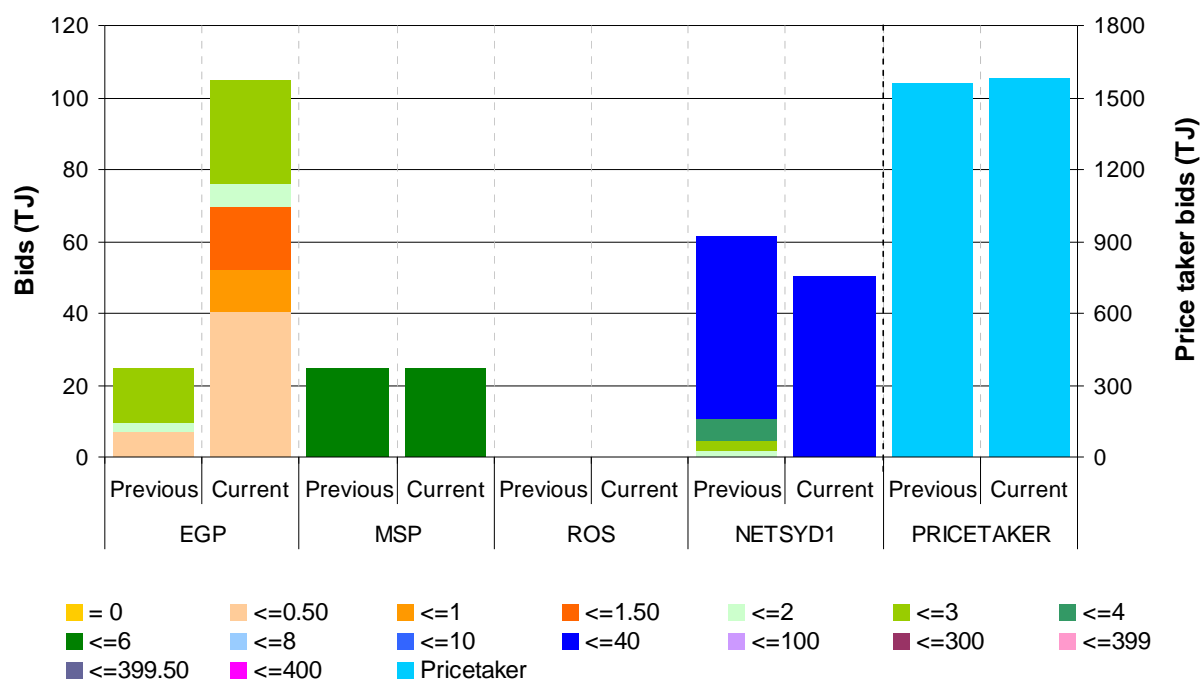
Because scheduling is price-driven, offers for lower-priced gas are scheduled ahead of offers for higher-priced gas and bids for higher-priced gas are scheduled ahead of bids for lower-priced gas.

**Figure S9: Total weekly Sydney hub offers (TJ) within price bands (\$/GJ)**



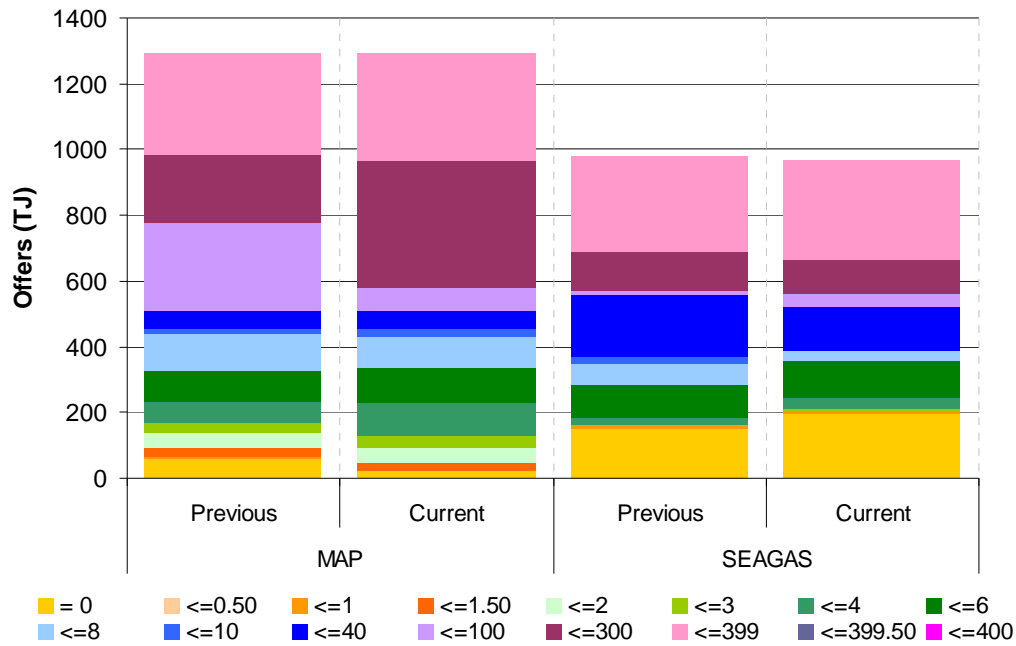
Source: <http://www.aemo.com.au> INT 652, 659  
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility

**Figure S10: Total weekly Sydney hub bids (TJ) within price bands (\$/GJ)**



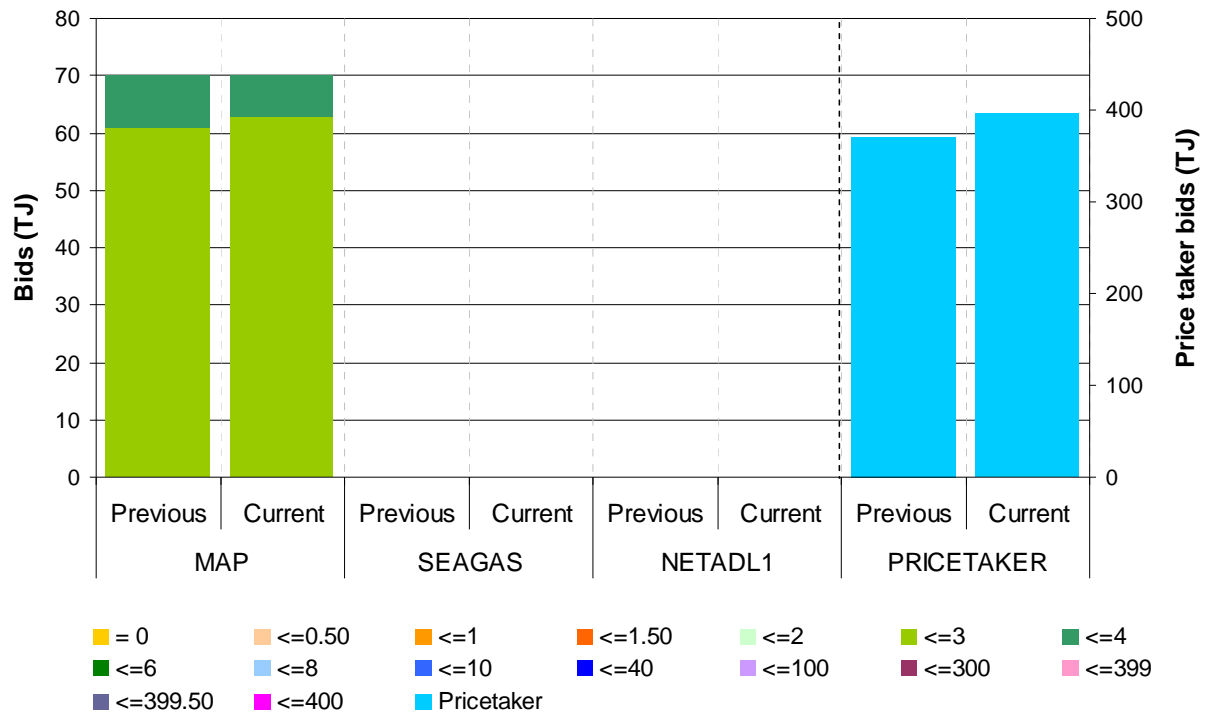
Source: <http://www.aemo.com.au> INT 652, 659  
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility, NETSYD1=Sydney Hub

**Figure S11: Total weekly Adelaide hub offers (TJ) within price bands (\$/GJ)**



Source: <http://www.aemo.com.au> INT 652, 659  
 MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

**Figure S12: Total weekly Adelaide hub bids (TJ) within price bands (\$/GJ)**



Source: <http://www.aemo.com.au> INT 652, 659  
 MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline, NETADL1=Adelaide Hub

**Re-offers and re-bids**

In the STTM, offers and bids must first be submitted three days before the gas day (D-3), leading to an initial provisional price and schedule for the gas day. Re-offers and re-bids are then allowed for the D-2 schedule and finally for the D-1 “ex ante” schedule.

Re-offers and re-bids can lead to significant changes between D-3 and D-2 provisional prices and the ex ante price. Figures S13, S14, S15 and S16 show the participants that made inter-day re-offers and re-bids at the hubs for the different pipeline facilities.

**Figure S13: Inter-day resubmission of offers at Sydney Hub**

Pipeline	Schedule	Sun	Mon	Tue	Wed	Thu	Fri	Sat
EGP	D-3 to D-2	BluSc EA SANTOS		EA	EA	EA OneStl(NSW)	EA Lumo Energy Australia Pty Ltd TRU	EA TRU
	D-2 to D-1	SANTOS	EA SANTOS	BluSc EA	BluSc EA Lumo Energy Australia Pty Ltd OneStl(NSW) SANTOS	AGL(WG) BluSc EA Lumo Energy Australia Pty Ltd SANTOS TRU	BluSc EA SANTOS TRU	BluSc EA Lumo Energy Australia Pty Ltd SANTOS TRU
MSP	D-3 to D-2	AGL(ESM) EA Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) EA TRU	AGL(ESM) Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) Origin TRU
	D-2 to D-1	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) EA TRU	AGL(ESM) Origin TRU	AGL(ESM) AGL(WG) Delta EA TRU	AGL(ESM) EA Origin TRU	AGL(ESM) EA Origin TRU
ROS	D-3 to D-2				AGL(ESM)			
	D-2 to D-1							

Source: <http://www.aemo.com.au> INT 659

BluSc= BlueScope Steel | Country= Country Energy | Origin=Origin Energy Retail Ltd | TRU= TRUenergy Pty Ltd |

AGL(WG)= AGL Wholesale Gas Limited | EA=EnergyAustralia | OneStl(NSW)= OneSteel NSW Pty Ltd |

SANTOS= Santos Direct Pty Ltd | AGL(ESM)= AGL Energy Sales & Marketing Pty Ltd | Lumo = Lumo Energy Australia Pty Ltd |

EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility

**Figure S14: Inter-day resubmission of bids at Sydney Hub**

Pipeline	Schedule	Sun	Mon	Tue	Wed	Thu	Fri	Sat
EGP	D-3 to D-2	Lumo Energy Australia Pty Ltd			Lumo Energy Australia Pty Ltd	Lumo Energy Australia Pty Ltd	Lumo Energy Australia Pty Ltd TRU	
	D-2 to D-1			Lumo Energy Australia Pty Ltd	Lumo Energy Australia Pty Ltd	Lumo Energy Australia Pty Ltd TRU		Lumo Energy Australia Pty Ltd
MSP	D-3 to D-2							
	D-2 to D-1							
NETSYD1	D-3 to D-2							
	D-2 to D-1							
ROS	D-3 to D-2							
	D-2 to D-1							

Source: <http://www.aemo.com.au> INT 659

Country= Country Energy | AETV = Aurora Energy Tamar Valley | Country= Country Energy | TRU= TRUenergy Pty Ltd |

EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility, NETSYD1=Sydney Hub

## Inter-day resubmission of offers at Adelaide Hub

Pipeline	Schedule	Sun	Mon	Tue	Wed	Thu	Fri	Sat
MAP	D-3 to D-2	ABC AGL(SA) Origin Simply	AGL(SA) Origin Simply	AGL(SA) Origin Simply	AGL(SA) Origin Simply	ABC AGL(SA) Origin Simply	ABC AGL(SA) Origin Simply	AGL(SA) Origin Simply
	D-2 to D-1	ABC AGL(SA) Origin Simply	ABC AGL(SA) Origin Simply	ABC Origin Simply	ABC AGL(SA) Origin Simply	ABC AGL(SA) Origin Simply	ABC AGL(SA) Origin Simply	ABC AGL(SA) Origin Simply
SEA-GAS	D-3 to D-2	AGL(WGSA) Origin TRU	Simply TRU	Origin Simply TRU	Origin Simply TRU	TRU	Origin TRU	Origin TRU
	D-2 to D-1	TRU	Origin	Origin TRU	TRU	Origin TRU	Origin TRU	Origin TRU

Source: <http://www.aemo.com.au> INT 659

ABC= Adelaide Brighton Cement Ltd | AGL(WGSA)= AGL Wholesale Gas (SA) Pty Ltd | Origin=Origin Energy Retail Ltd |

Simply= Simply Energy | TRU= TRUenergy Pty Ltd | AGL(SA)= AGL South Australia Pty Limited |

MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

**Figure S15: Inter-day resubmission of bids at Adelaide Hub**

Pipeline	Schedule	Sun	Mon	Tue	Wed	Thu	Fri	Sat
MAP	D-3 to D-2							
	D-2 to D-1							
NETADL1	D-3 to D-2							
	D-2 to D-1							
SEA-GAS	D-3 to D-2							
	D-2 to D-1							

Source: <http://www.aemo.com.au> INT 659

Simply= Simply Energy

## Market Operator Service

The Market Operator Service (MOS) is a daily mechanism for allocating balancing gas provided by pipelines to maintain pressures at receipt points. This balancing gas is the difference between what was scheduled by a pipeline operator (the pipeline schedule) and the actual quantities of gas that flowed on a pipeline on the day.

MOS offers are made by participants who have contracts with pipeline facilities to “park” gas (on the pipeline) or “loan” gas (from the pipeline). Based on these contracts, two types of MOS are offered: increase offers to increase flows on a pipeline to a hub; and decrease offers to decrease flows on a pipeline to a hub. Where a pipeline deviation<sup>1</sup> occurs on a gas day and there is a requirement for MOS from a MOS provider (either an increase or decrease offer), the MOS provider is paid according to their MOS offer price (the MOS service payment).

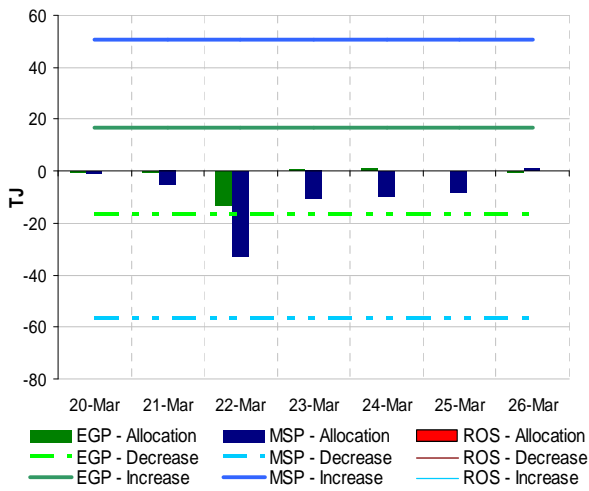
In addition, where this MOS service is required, AEMO pays or charges the MOS provider for the MOS gas allocation on the gas day at the ex ante market price two days after the gas day, which covers the cost of restoring its inventory of MOS gas (the MOS commodity payment or charge). The MOS provider can then choose to submit bids or offers for the gas it needs to replace or run down its MOS gas allocation on the gas day.

Figure S17a and S18a show quantities of MOS allocated on a daily basis compared to total MOS increase and decrease offers (from potential providers) on each pipeline at each hub. MOS allocations are shown by the columns in these figures; whereas total MOS increase and

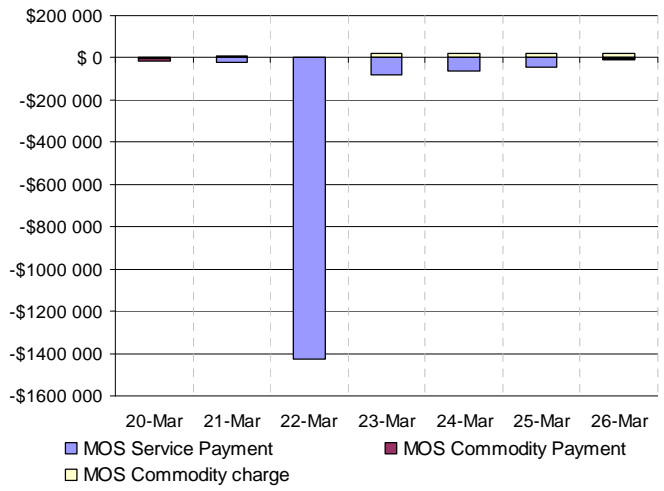
<sup>1</sup> Deviations occur when the gas flowed on pipelines into hubs on a gas day differ from the modified market schedule, or when gas taken out of the hub is different to the schedule.

decrease offers on each pipeline are shown by horizontal lines (as indicated in the legend). Figures S17b and S18b show MOS service payments and MOS commodity payments or charges. Payments fall below the horizontal axis and charges are displayed above the axis.

**Figure S17a: Sydney MOS allocations**



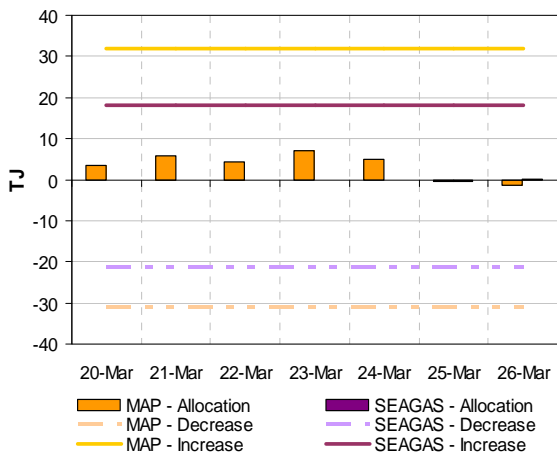
**Figure S17b: Sydney MOS payments/charges**



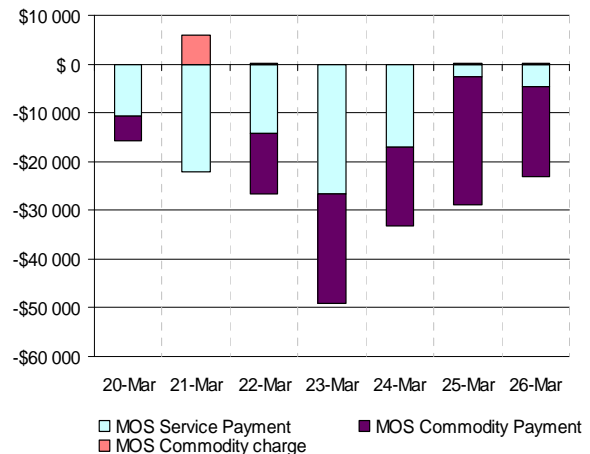
Source: <http://www.aemo.com.au> INT 663, 664, 665

EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility

**Figure S18a: Adelaide MOS allocations**



**Figure S18b: Adelaide MOS payments/charges**



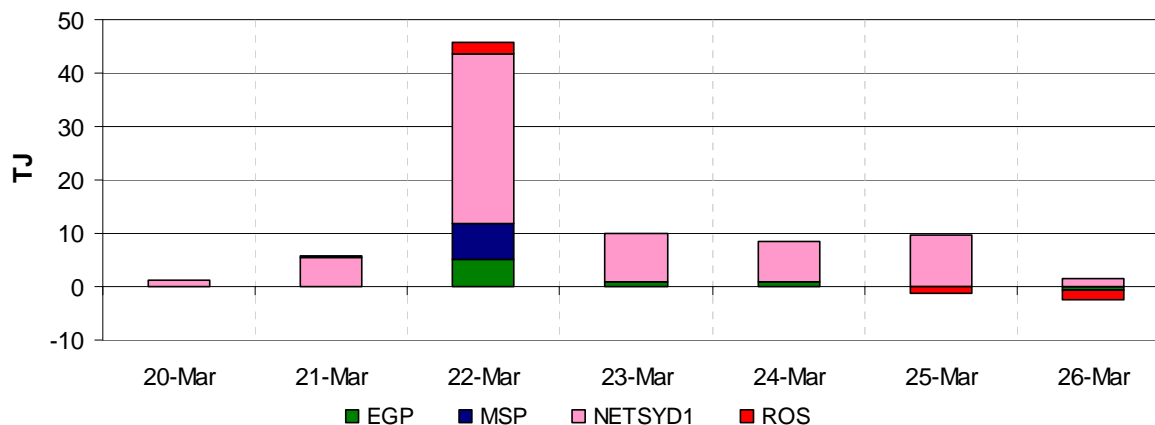
Source: <http://www.aemo.com.au> INT 663, 664, 665

MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

## Deviations

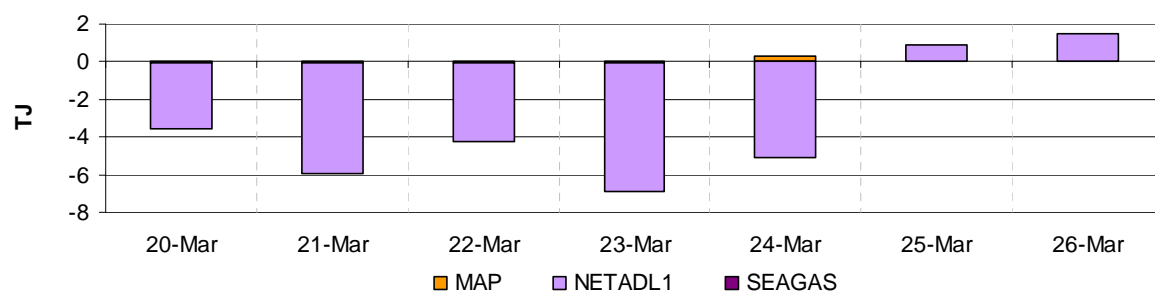
Deviations occur when the gas flowed on pipelines into hubs on a gas day differ from the modified market schedule, or when gas taken out of the hub is different to the schedule. The most likely reason for deviations is where participants incorrectly forecast the demand of customers within the hub. As discussed previously, figures S5 and S6 show allocated quantities versus scheduled. Where they differ, there is a deviation. Net deviations may lead to requirements for MOS services. Figures S19 and S20 show net deviations at the STTM hubs.

**Figure S19: Net Deviations – Sydney Hub**



Source: <http://www.aemo.com.au> INT652

**Figure S20: Net Deviations – Adelaide Hub**



Source: <http://www.aemo.com.au> INT652

### Market Schedule Variations

When a shipper deviates from the ex ante schedule, it can submit a “market schedule variation” (MSV) to AEMO. The variation must be matched by an opposite variation from either another shipper or a user. Market schedule variations allow shippers to adjust their schedules in line with their pipeline allocations and so avoid deviation charges. A variation can include flows from the hub, which must also be matched with variation of flows to the hub.

Variations that cause a change in withdrawals at the hub attract a variation charge (but no deviation charge), which is designed to encourage more accurate day-ahead forecasting. The variation charge has a sliding scale such that the bigger the variation, the bigger the charge. However, variations that do not change the demand at the hub are exempt. Figures S21 and S22 show MSV quantities and charges at the STTM Hubs.

**Figure S21: Average Daily Market Variations - Sydney Hub**

	20 Mar – 26 Mar	13 Mar – 19 Mar	2010-11 Financial YTD*
Quantity (TJ)	5.58	4.60	3.99
Charges (\$)	146.32	231.17	737.93

\* **Financial** Year to date figures exclude market trial data (year-to-date from 1 September 2010)

Source: <http://www.aemo.com.au> INT663

**Figure S22: Average Daily Market Variations - Adelaide Hub**

	20 Mar – 26 Mar	13 Mar – 19 Mar	2010-11 Financial YTD*
Quantity (TJ)	0.97	0.03	0.77
Charges (\$)	52.05	0.00	23.57

\* **Financial** Year to date figures exclude market trial data (year-to-date from 1 September 2010)

Source: <http://www.aemo.com.au> INT663

# APPENDIX

Figures A1 and A2 display the daily gas flows from each pipeline and production/storage facility in the National Gas Market over the current week. The nameplate capacity or MDQ (Maximum Daily Quantity) for each facility are also provided, along with the proportion of MDQ used on average over the current week and the year to date at each facility. Flow data not provided by bulletin board polling time is indicated by N/A.

**Figure A1: Daily flows (TJ) for pipeline facilities**

Demand zone and pipeline facility	Sun	Mon	Tue	Wed	Thu	Fri	Sat	MDQ (TJ)	YTD average capacity usage (%)	Current week average daily flows	Current YTD average daily flows*	Previous YTD average daily flows**
<b>QLD</b>												
Carpentaria Pipeline	67	74	89	91	95	96	96	119	79	87	94	85
QLD Gas Pipeline	113	109	104	103	105	112	118	142	76	109	108	71
Roma to Brisbane Pipeline	123	153	151	144	146	131	116	219	76	138	167	170
South West QLD Pipeline	160	173	154	151	155	158	143	132	104	156	137	139
<b>NSW/ACT</b>												
Eastern Gas Pipeline	190	205	197	208	210	210	191	268	79	201	211	200
Moomba to Sydney Pipeline	108	142	120	140	154	143	123	420	44	133	185	183
NSW-VIC Interconnect	25	21	23	24	18	19	24	92	16	22	14	-11
<b>VIC</b>												
Longford to Melbourne	298	326	323	364	377	410	369	1030	47	352	488	413
South West Pipeline <sup>^</sup>	31	60	67	97	99	110	73	347	27	77	94	120
<b>SA</b>												
Moomba to Adelaide Pipeline	104	113	131	127	115	101	105	253	51	114	130	129
SEA Gas Pipeline	112	140	150	151	159	137	93	314	50	135	157	153
<b>TAS</b>												
Tasmanian Gas Pipeline <sup>#</sup>	40	47	44	43	40	45	38	129	35	42	45	39

\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

<sup>^</sup>Negative flows represent back-haul flows along the South West Pipeline back into storage at Iona

Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>

Notes: Operational ranges for each pipeline facility range from a minimum of 20 per cent to a maximum of 120 per cent of the respective MDQs. The exceptions are the South West Queensland Pipeline and the NSW-VIC Interconnect which have operational ranges 40 per cent to 120 per cent and 0 to 120 per cent of MDQ respectively.

**Figure A2: Daily flows (TJ) for production / storage facilities compared to operational ranges and use of production/storage capacity**

Production zone production / storage facility	Sun	Mon	Tue	Wed	Thu	Fri	Sat	MDQ (TJ)	YTD average capacity usage* (%)	Current week average daily flows	Current YTD average daily flows*	Previous YTD average daily flows**
<b>Roma (QLD)</b>												
Berwyndale South	89	89	90	88	89	91	92	140	68	90	95	92
Fairview	103	107	120	119	125	130	84	130	89	112	115	113
Kenya Gas Plant	16	18	18	18	19	18	18	160	34	18	55	54
Kincora	13	15	15	15	15	15	15	25	23	15	6	2
Kogan North	10	10	10	10	3	7	10	12	78	9	9	9
Peat	6	6	6	6	6	11	11	15	62	7	9	9
Rolleston	4	9	10	10	10	10	10	30	34	9	10	11
Scotia	29	29	28	29	29	29	26	29	93	29	27	23
Spring Gully	47	47	47	47	47	47	49	69	70	47	48	43
Strathblane	47	47	47	47	47	47	49	69	70	47	48	43
Talooka	28	29	29	28	29	29	29	42	70	29	29	26
Wallumbilla	4	4	4	4	4	4	4	20	35	4	7	11
Yellowbank	11	12	11	11	11	11	11	30	40	11	12	13
Talinga	84	83	83	68	64	64	84	90	70	76	63	4
<b>Moomba (SA/QLD)</b>												
Moomba Gas Plant	187	225	208	199	201	190	193	430	61	200	264	266
Ballera	0	0	0	0	0	0	4	150	9	1	14	10
<b>Eastern (VIC)</b>												
Orbost Gas Plant	48	48	48	48	48	48	48	100	31	48	31	19
Lang Lang Gas Plant	57	57	26	22	52	57	56	70	67	47	47	30
Longford Gas Plant	437	486	487	535	518	554	501	1145	59	503	678	611
LNG Storage Dandenong	0	0	0	0	0	0	0	158	0	0	0	0
<b>Otway Basin (VIC)</b>												
Minerva Gas Plant	45	45	65	50	45	65	60	84	76	54	64	74
Otway Gas Plant	112	132	170	185	173	166	80	205	55	145	112	130
Iona Underground Gas Storage	14	29	40	63	46	73	49	440	19	45	84	76

\*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

\*\*Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>

Notes: Operational ranges for each production and storage facility range from minimum of 0 per cent to a maximum of 120 per cent of the respective MDQs. The exception is the Longford Gas Plant which has a minimum operational range of 20 per cent to 120 per cent of its MDQ.



Figure A3 provides the average minimum and maximum temperatures for each of the demand regions for the current week. The average temperatures for the previous week are also provided. (Note: only the demand regions where temperature is a driver of gas demand are included).

**Figure A3: Average daily temperatures (°C) at each demand region**

Average daily temperatures (°C)		QLD (Brisbane)	NSW (Sydney)	ACT (Canberra)	VIC (Melbourne)	SA (Adelaide)	TAS (Hobart)
<b>20 Mar – 26 Mar</b>	Average min.	20.2	19.0	13.1	15.7	15.5	13.6
	Average max.	30.7	25.8	21.4	22.7	20.8	19.9
<b>13 Mar – 19 Mar</b>	Average min.	21.0	20.0	14.8	15.0	16.5	10.3
	Average max.	28.6	26.3	24.6	23.7	26.3	20.4

Source: <http://www.bom.gov.au/climate/dwo>

Figure A4 shows the market prices at each of the scheduling intervals on each day during the current week. The imbalance weighted average prices for each gas day are also provided.

**Figure A4: Daily Victorian gas market prices (\$/GJ) at each scheduling interval**

<b>20 Mar – 26 Mar</b>	Scheduling Interval					Daily Imbalance Weighted Average Price
	6am	10am	2pm	6pm	10pm	
<b>Sun</b>	2.87	2.87	3.15	2.87	2.83	2.87
<b>Mon</b>	3.05	2.89	2.83	2.51	2.51	3.04
<b>Tue</b>	2.99	2.51	2.00	2.00	2.00	2.95
<b>Wed</b>	2.52	2.81	2.57	2.51	2.01	2.52
<b>Thu</b>	2.59	2.52	2.99	3.48	3.80	2.63
<b>Fri</b>	3.15	3.49	3.40	2.99	3.40	3.16
<b>Sat</b>	3.00	3.50	3.58	3.66	3.85	3.06

Source: <http://www.aemo.com.au> (INT 041).

Figure A5 compares the market participants and market operator demand forecasts and each of the scheduling intervals on each gas day during the current week. Total actual demand for each gas day is also provided, along with the total demand override (if any) from AEMO.

**Figure A5: Daily demand forecasts (TJ) and daily demand overrides (TJ)**

Gas Day	Demand Forecasts (TJ)	Schedule					Total Demand Override (TJ)
		1	2	3	4	5	
20-Mar	MP:	316	316	316	316	316	0
	AEMO:	299	284	285	282	297	
	MP as % of AEMO	106	111	111	112	106	
21-Mar	MP:	399	399	398	398	399	0
	AEMO:	398	399	398	398	395	
	MP as % of AEMO	100	100	100	100	101	
22-Mar	MP:	417	402	402	402	402	0
	AEMO:	422	384	387	386	385	
	MP as % of AEMO	99	105	104	104	104	
23-Mar	MP:	429	439	442	439	439	0
	AEMO:	425	426	435	436	434	
	MP as % of AEMO	101	103	102	101	101	
24-Mar	MP:	446	447	450	453	453	0
	AEMO:	435	441	451	474	493	
	MP as % of AEMO	103	101	100	96	92	
25-Mar	MP:	490	501	505	499	492	-6
	AEMO:	492	492	487	480	480	
	MP as % of AEMO	100	102	104	104	103	
26-Mar	MP:	366	364	367	372	372	0
	AEMO:	369	366	402	407	426	
	MP as % of AEMO	99	99	91	91	87	

Source: <http://www.aemo.com.au> (INT 108, INT 126, INT 153)