

26 September – 2 October 2010

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 aerinqury@aer.gov.au, with the subject title 'Comments on weekly gas report'.

Summary

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

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

26 Sep – 2 Oct 2010	Victorian market*	STTM Sydney hub**	STTM Adelaide hub**
Average Price	1.67	2.37	3.54

* weighted average daily imbalance price

** ex ante market price

STTM Gas Markets (Adelaide and Sydney)

Weekly average ex ante and ex post prices fell in Sydney compared to the previous week (see figure S3). While weekly average ex ante prices in Adelaide were similar to the previous week, weekly average ex post prices fell (see figure S4). Compared to the previous week, the average daily quantity of market schedule variations (MSVs) decreased in Sydney this week, but increased in Adelaide (see figures S21 and S22).

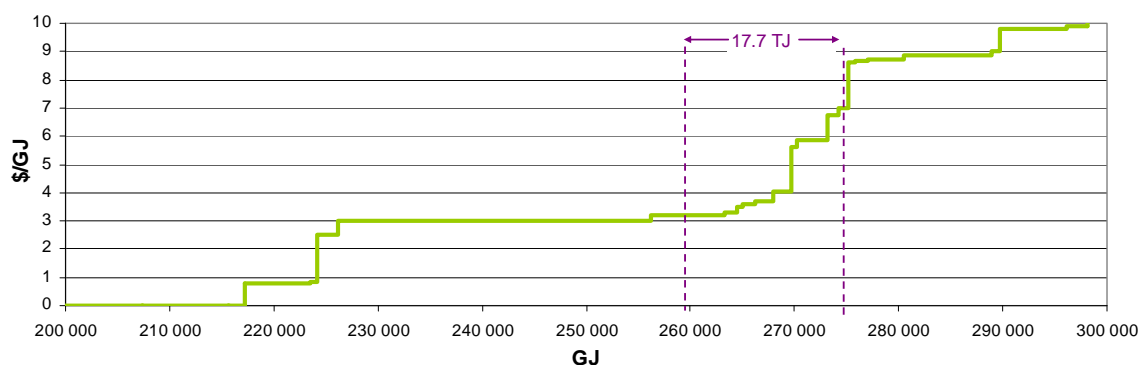
1 October 2010 Sydney Hub

There were some high prices, deviations and market schedule variations in Sydney on 1 October 2010.

While the weekly average ex post prices in Sydney fell this week compared to the previous week, the highest ex post price since the STTM commenced (\$6.98/GJ) occurred in Sydney on 1 October. This price was around \$4/GJ higher than the ex ante price (\$3/GJ). This price difference was the result of:

- high negative deviations in the Sydney network where more gas was used than forecast. Deviations recorded on this day were the highest this week (see figure S19); and
- a steep offer curve above the scheduled volume of 259 TJ as shown in figure 2.

Figure 2: Ex ante offers in the Sydney hub for 1 October



On the day there was a 17.7 TJ (imbalance quantity) since less gas was scheduled than was needed (i.e. the market was “short”). The ex post price calculation included this 17.7 TJ as a “market short bid” to reflect what the ex ante market price would have been had it been included in the original schedule. This caused a movement up the offer curve resulting in an increase in price, as shown in figure 2.

The quantity of market schedule variations for this day, 5.7 TJ, was high in comparison to the weekly average of 2.21 TJ (see figure S21 below). This is consistent with what would be expected since market schedule variations (involving intra day gas renominations) are used to reduce exposure to deviations payable at (high) ex post prices.

Victorian Gas Market

Average prices in Victoria increased compared to the previous week, from \$0.92/GJ to \$1.67/GJ, despite demand remaining similar to the previous week (see figures V2 and V3). The increase in prices coincided with a decrease in \$0/GJ offers (see figure V4). AEMO issued demand overrides of -7 TJ on Sunday, -22 TJ on Friday and -5 TJ on Saturday (see figure A5). A demand point constraint was applied to withdrawals at Culcairn on 29 and 30 September. Directional flow point constraints were applied to injections and withdrawals at Vic Hub on 26 September, 30 September and 2 October.

National Gas Market Bulletin Board

There were no instances of missing flow data on the Bulletin Board this week.

Figure N4 shows changes in gas demand and production and pipeline flows compared to the previous week. Although average daily demand in New South Wales, Victoria and Tasmania was similar to the previous week, it fell in South Australia and Queensland compared to the previous week which led to a slight reduction in total average daily demand compared to the previous week.

Average daily gas powered generation (GPG) gas usage increased slightly in Victoria and New South Wales compared to the previous week, but fell by larger amounts in South Australia and Queensland, which led to an overall reduction in total average daily GPG.

Total average daily production volumes fell slightly compared to the previous week. Although production increased in Ballera by 25 TJ (65 per cent) compared to the previous week, the increase was outweighed by decreases Moomba, the Roma region and Eastern Victoria. In general, pipeline flows were similar to the previous 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	Brisbane	QLD	
							Mt Isa	Gladstone
26 September – 2 October	397	24	714	303	44	164	96	117
Financial Year-to-date 2010-11*	438	42	875	322	48	185	93	104
Financial Year-to-date 2009-10**	432	37	803	284	28	154	89	68

*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
26 September – 2 October	94	7	179	27	138
Financial Year-to-date 2010-11*	81	16	184	32	159
Financial Year-to-date 2009-10**	83	39	150	12	122

[^]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)
26 September – 2 October	521	857	310	317
Financial Year-to-date 2010-11*	560	1004	341	353
Financial Year-to-date 2009-10**	425	823	339	351

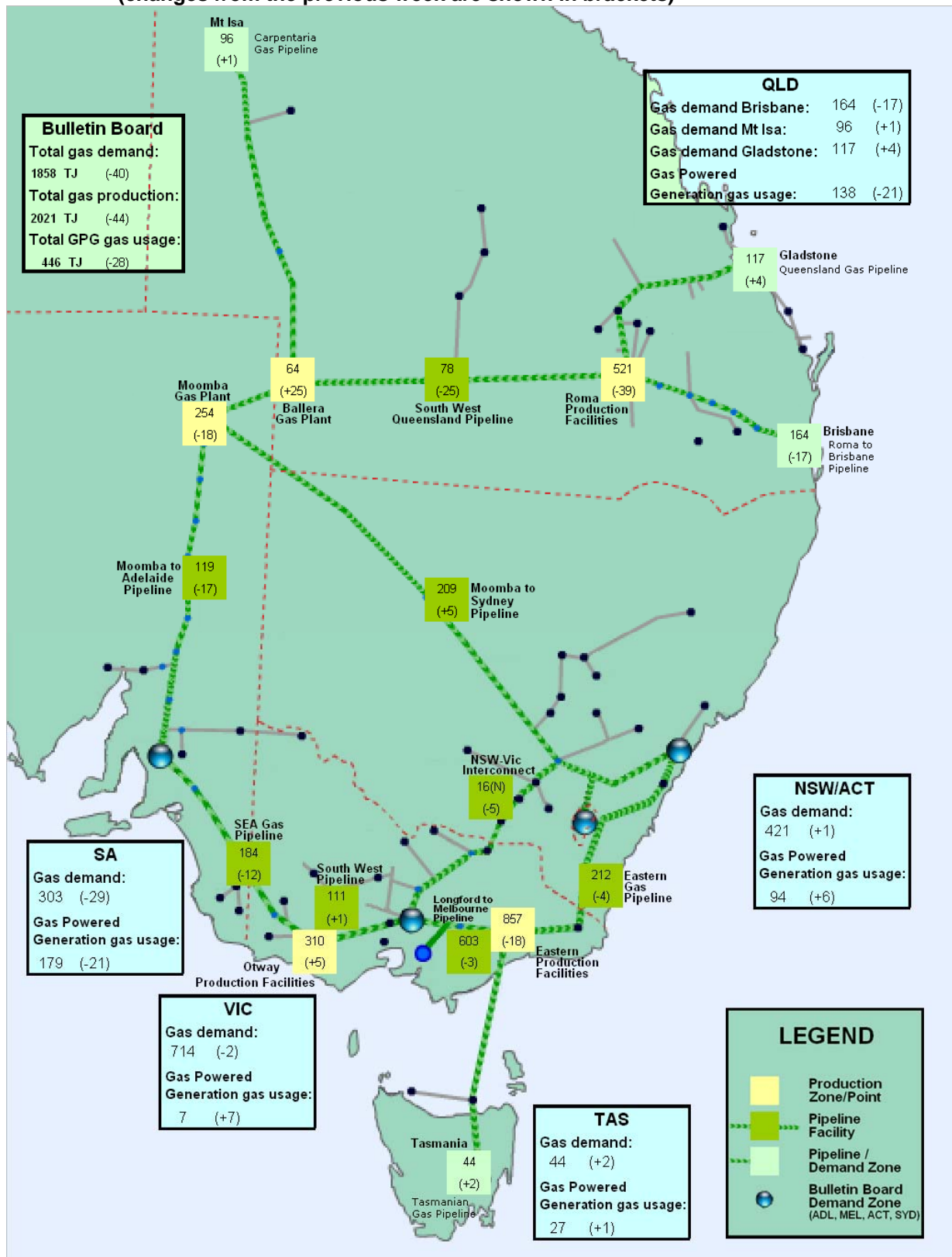
*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

**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)

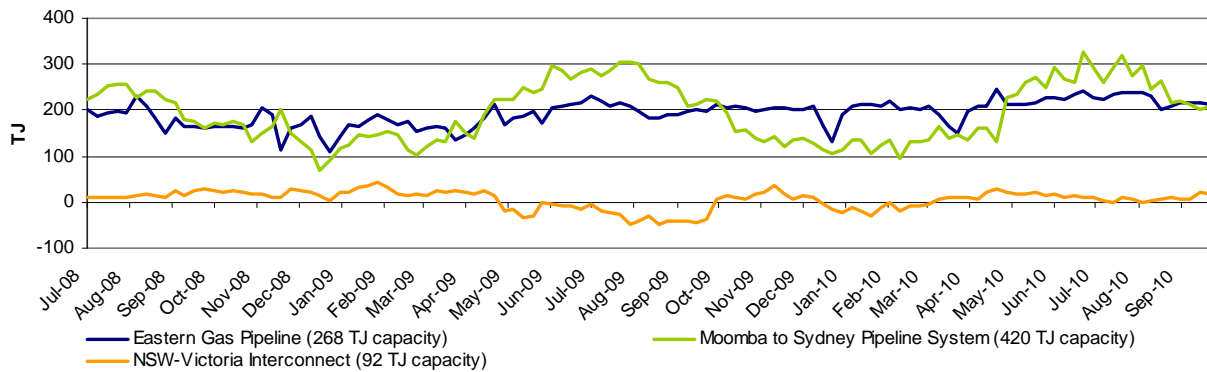


Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>
 Notes: Direction of aggregate daily flows along the NSW-Vic Interconnect indicated on map by S (South) or N (North).
 Numbers in brackets indicate a change in average daily flow from the previous week.

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.

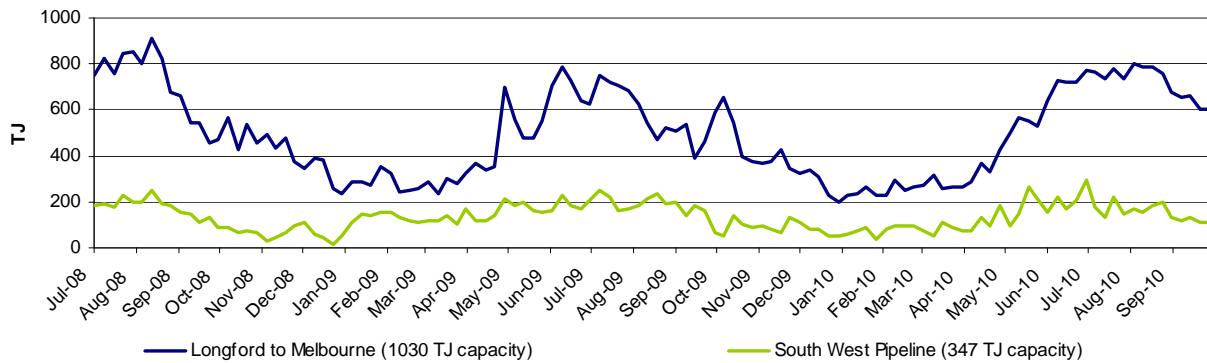
Figure N5: Average daily flows (TJ) into NSW/ACT demand region



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

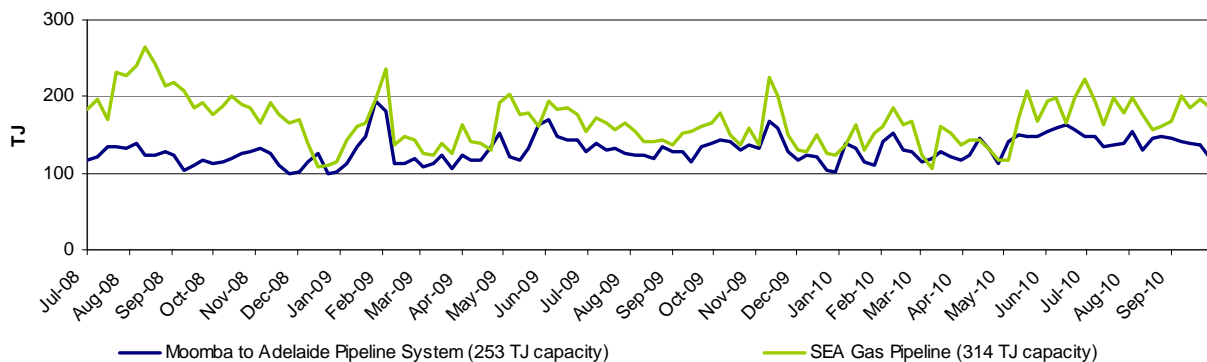
Notes: Negative flows on the NSW-Victoria Interconnect represent flows out of NSW into VIC.

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



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

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[^]

Market Participant	Participant type	No. of injection / withdrawal bid points	Injection bids in the DTS							Withdrawal bids in the DTS				
			BassGas	Culcairn	IONA	LNG	Longford	SEA Gas	VicHub	Otway	Culcairn	IONA	SEA Gas	VicHub
AETV Power	Trader	2							S					S
AGL (Qld)	Retailer	1				NS								
AGL	Retailer	4		NS	NS	NS	S				NS	NS		
Aurora Energy	Retailer	1					S							
Aust. Power & Gas	Retailer	3			S	NS	S					S		
Coogee Energy	Transmission Customer	1					S							
Country Energy	Transmission Customer	1									S			
Energy Australia	Retailer	3			S		S		NS					S
International Power	Transmission Customer	1										S		
Lumo Energy	Retailer	5		NS	S	NS		S	S		NS			
Lumo Energy	Trader	2			NS				S			S		NS
Origin (Vic)	Retailer	6	S	NS	S	NS	S	S			S	S		
Origin (Uranquinty)	Trader	1					S							
Red Energy	Retailer	1					S							
Santos	Retailer	2						S						S
Simply Energy	Retailer	4			S	NS	S	NS						
TRU Energy	Retailer	4			S	NS	S					NS		NS
Visy Paper	Distribution Customer	2					S				S			

[^]Bids taken from 6am 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)

	26 September – 2 October	19 September – 25 September	2010-11 Financial YTD*	2009-10 Financial YTD**
Average daily price	1.67	0.92	2.31	1.72

26 September – 2 October	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Daily price	1.90	0.95	2.18	2.79	2.18	1.90	0.95

*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)

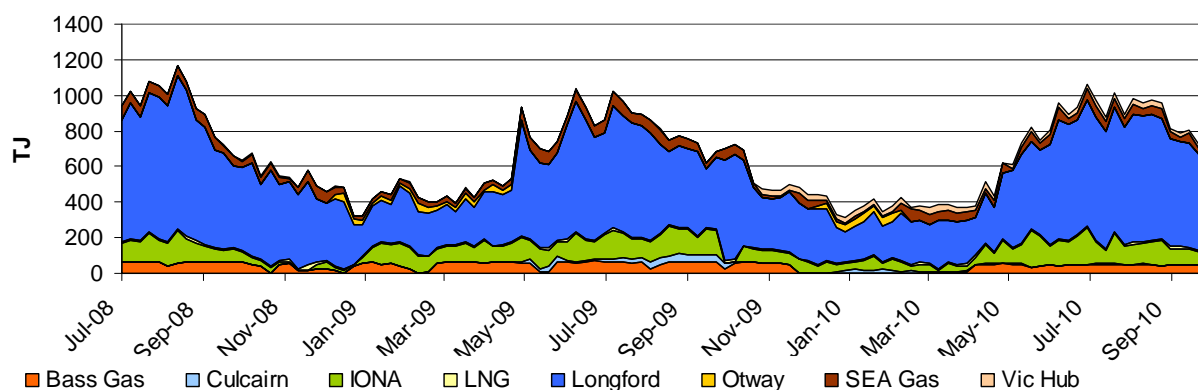
Source: <http://www.aemo.com.au> (INT 041)

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:	26 September – 2 October	19 September – 25 September	2010-11 Financial YTD*	2009-10 Financial YTD**
Culcairn	0	0	1	34
Longford	530	536	646	528
LNG	10	9	9	9
IONA	77	71	108	125
VicHub	24	22	27	1
SEAGas	33	36	46	61
Bass Gas	50	50	50	56
Otway	0	0	0	0
TOTAL	725	724	887	813



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

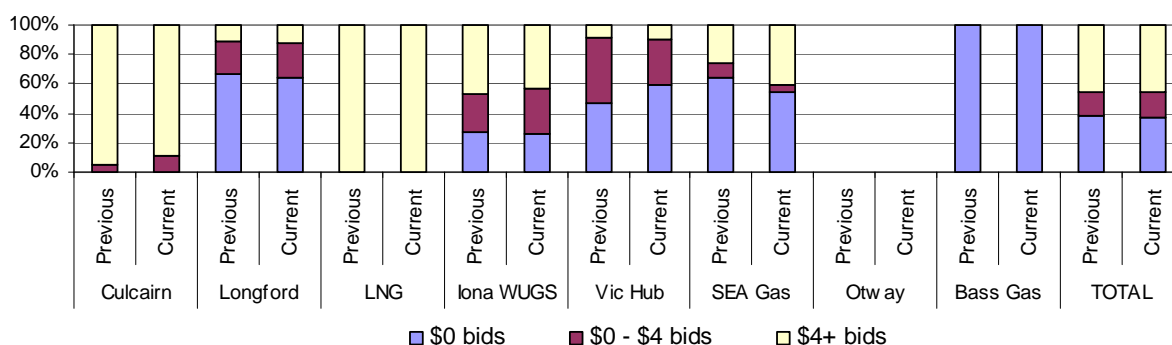
**Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

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 VPTS, 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
Culcairn		Lumo		Lumo			
Longford	AGL Origin TRU	AGL Origin TRU	AGL Origin TRU	AGL Origin TRU	AGL Origin TRU	Origin	TRU
LNG							
Iona	Origin TRU	TRU APG	APG	Origin APG Lumo	TRU Lumo	Origin APG	TRU APG Lumo
VicHub	AETV	AETV Lumo	AETV Lumo	AETV Lumo	AETV	AETV	AETV
SEAGas	Origin Simply Lumo	Simply	Simply	Simply	Simply	Simply	Simply
Bass Gas							

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)

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

System withdrawal zone:	26 September – 2 October	19 September – 25 September	2010-11 Financial YTD*	2009-10 Financial YTD**
Ballarat	31	33	42	37
Geelong[^]	94	84	102	93
Gippsland	49	47	55	54
Melbourne	478	488	610	562
Northern	73	78	82	68
TOTAL	725	729	890	815

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

AEMO's website (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 offer / withdrawal bid points	Offers			Bids			
			EGP	MSP	ROS	EGP	MSP	ROS	SYD - NET
AETV Power	Shipper								
AGL Energy Sales & Marketing Pty Ltd	STTM User, Shipper	4	S	S	S				S
AGL Wholesale Gas Limited	Shipper	2	S	NS					
BHP Billiton Petroleum (Bass Strait) PL	Shipper								
BlueScope Steel	STTM User, Shipper	1	S						
Country Energy	STTM User, Shipper	2	S				S		
Delta Electricity	STTM User, Shipper	1							S
EnergyAustralia	STTM User, Shipper	2	S	S					
Esso Australia Resources Pty Ltd	Shipper								
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	2	S	S					
Santos Direct Pty Ltd	STTM User, Shipper	1	S						
TRUenergy Pty Ltd	STTM User, Shipper	2	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 bids	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	2	S	S			
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	S			
TRUenergy Pty Ltd	STTM User,Shipper	2	S	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

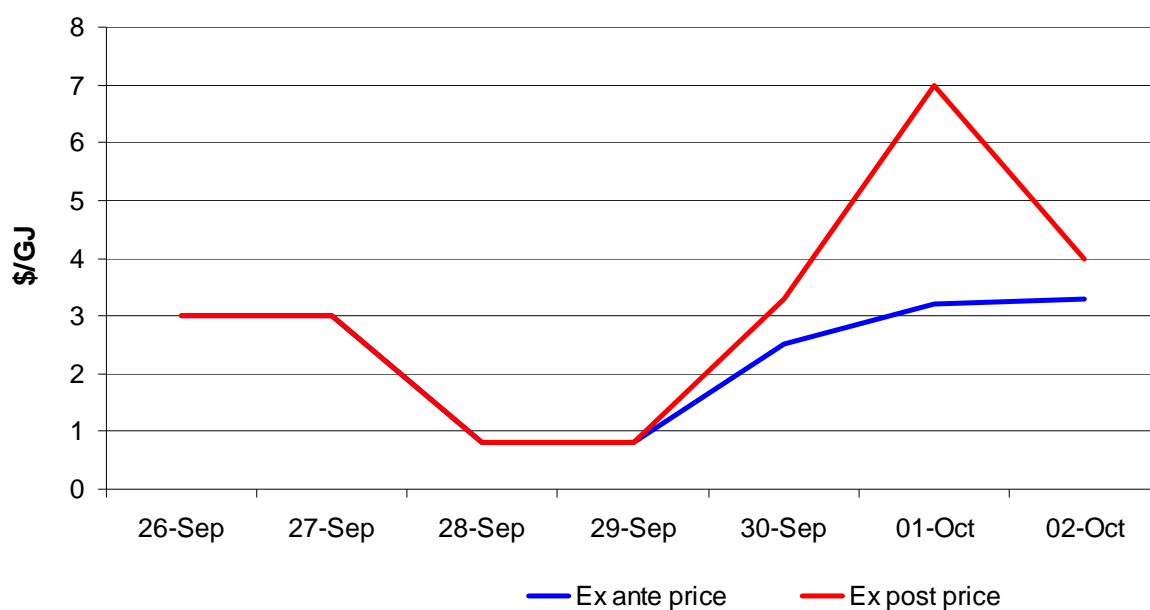
Ex ante and Ex post Market Prices

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)^

	26 Sep - 2 Oct	19 Sep - 25 Sep	2010-11 Financial YTD*
Ex ante price	2.37	3.30	3.12
Ex post price	3.12	3.60	3.49

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

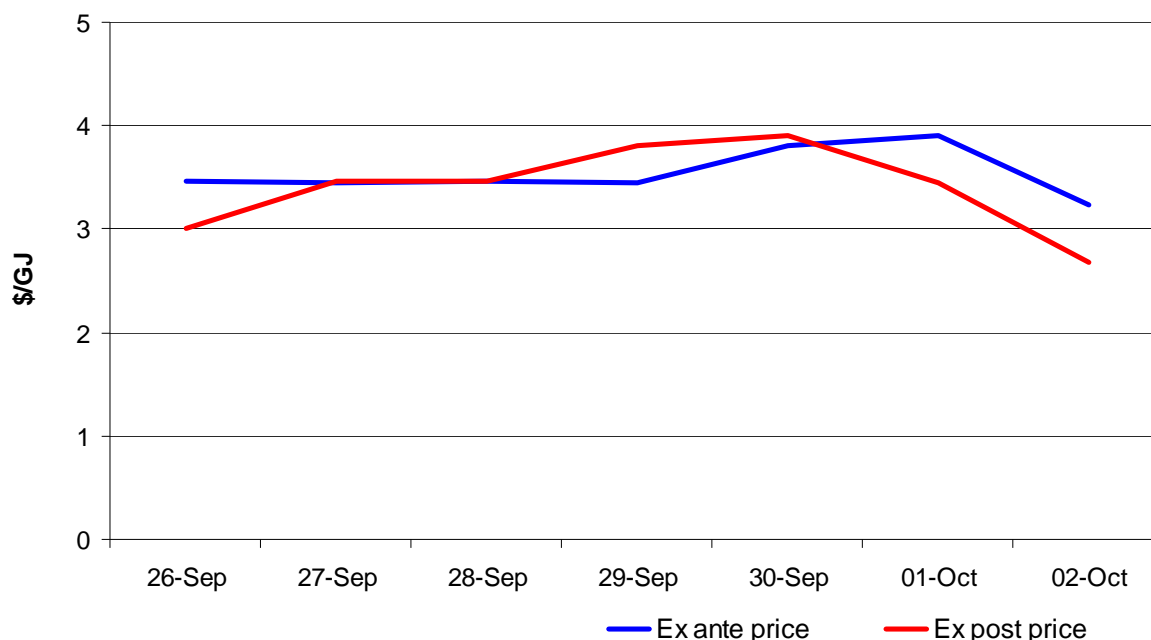


Source: <http://www.aemo.com.au> INT 651, 657

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

	26 Sep - 2 Oct	19 Sep - 25 Sep	2010-11 Financial YTD*
Ex ante price	3.54	3.52	3.47
Ex post price	3.40	3.75	3.55

* 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.

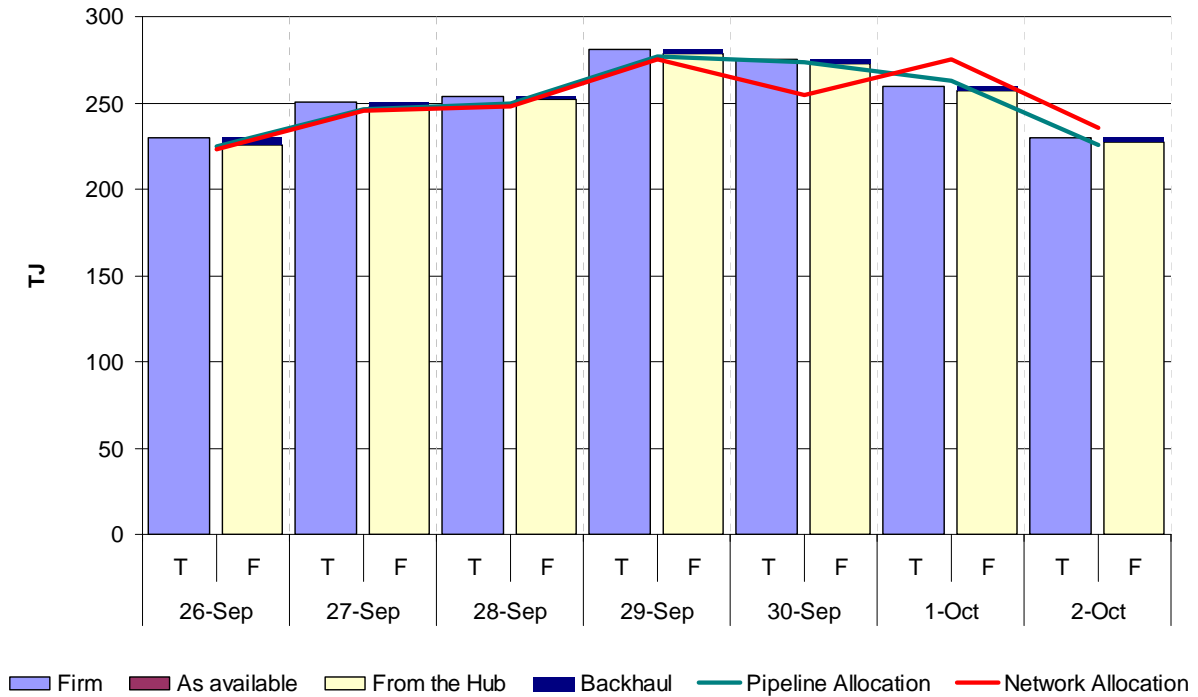
Gas can also be scheduled from the STTM hubs. This happens when Shippers “backhaul” gas from the hub or Users bid to take gas from the hub (including price taker bids).

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.

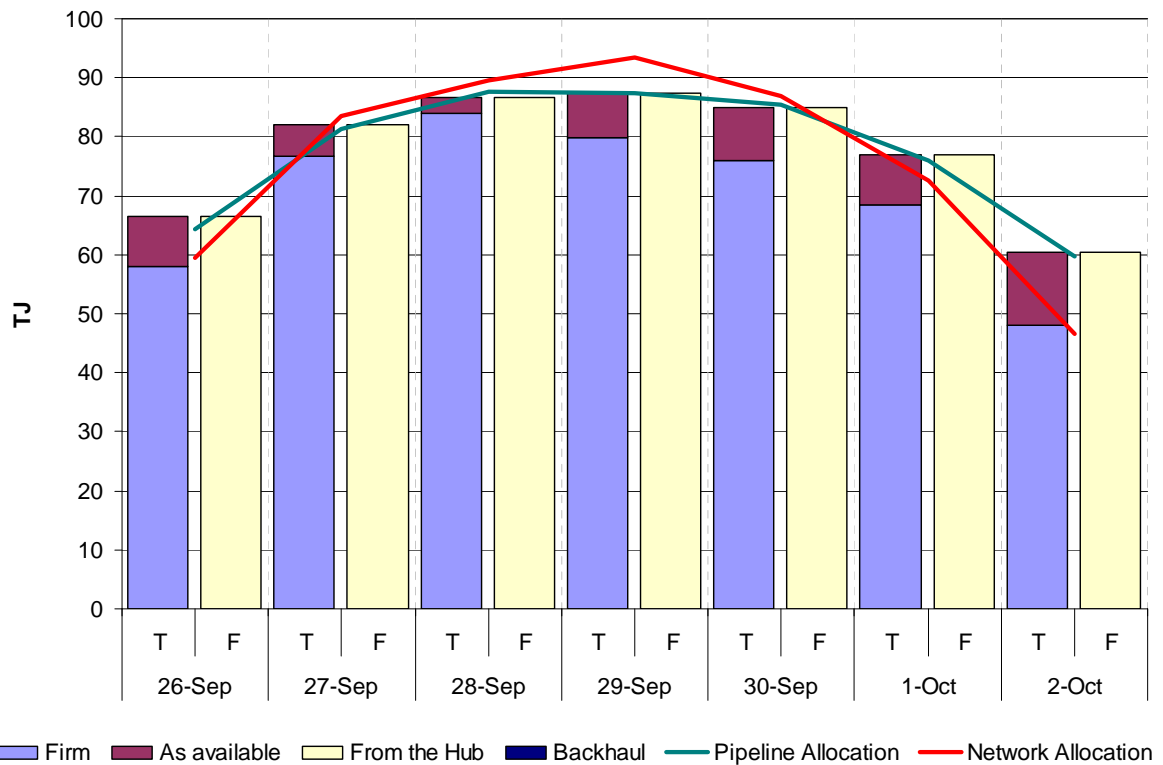
By comparing the level of the red line to the columns marked “F”, it can be shown whether demand (allocation) was higher than scheduled. Similarly, comparing the green line to the columns marked “T” shows how the actual flow of gas (allocation) compared to what was scheduled.

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)

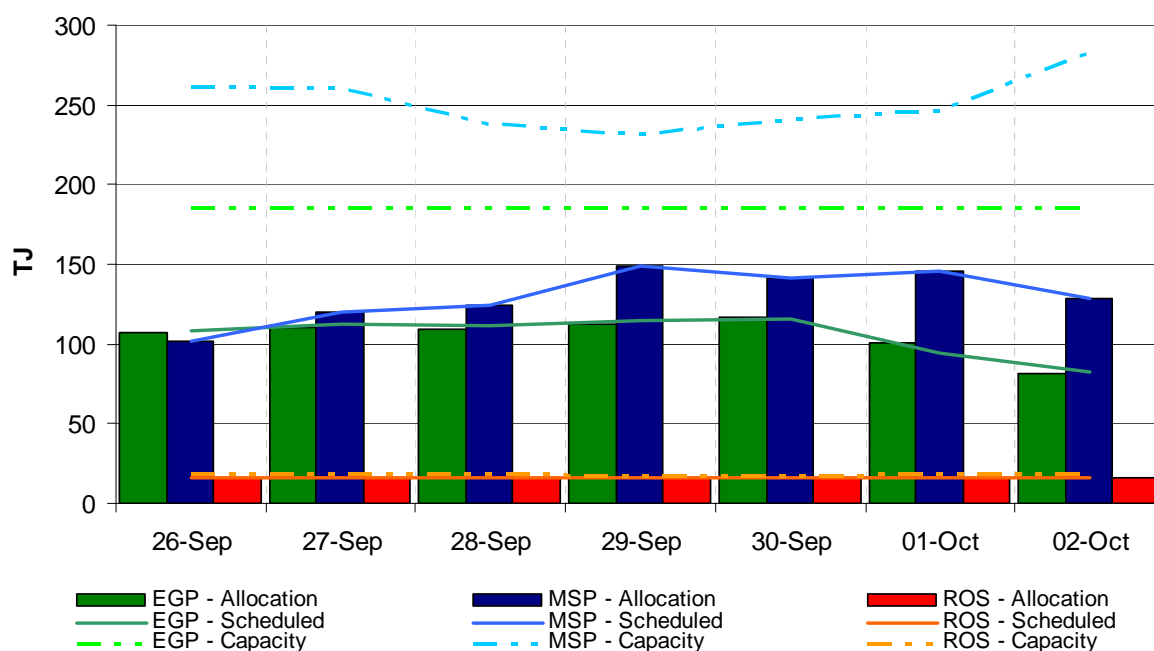
Pipeline Facility Allocations

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.

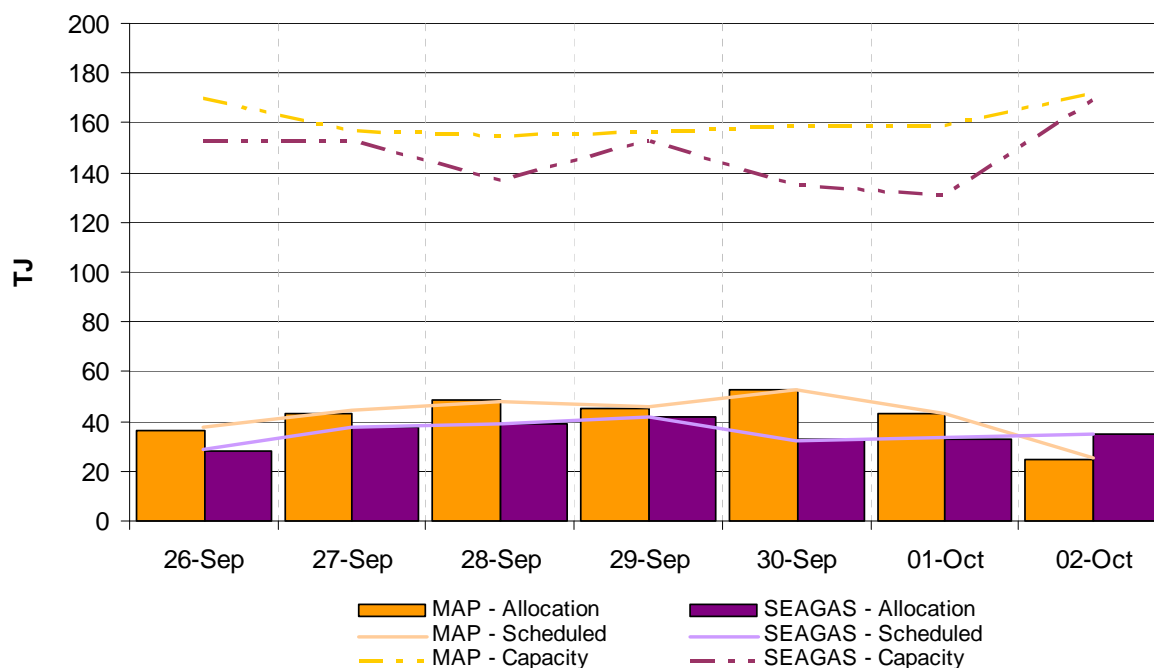
Differences between the amount of gas scheduled and what was actually allocated can result in variations between the ex ante and ex post price, as the ex post price is related to the offers actually allocated while ex ante is related to the offers scheduled.

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)

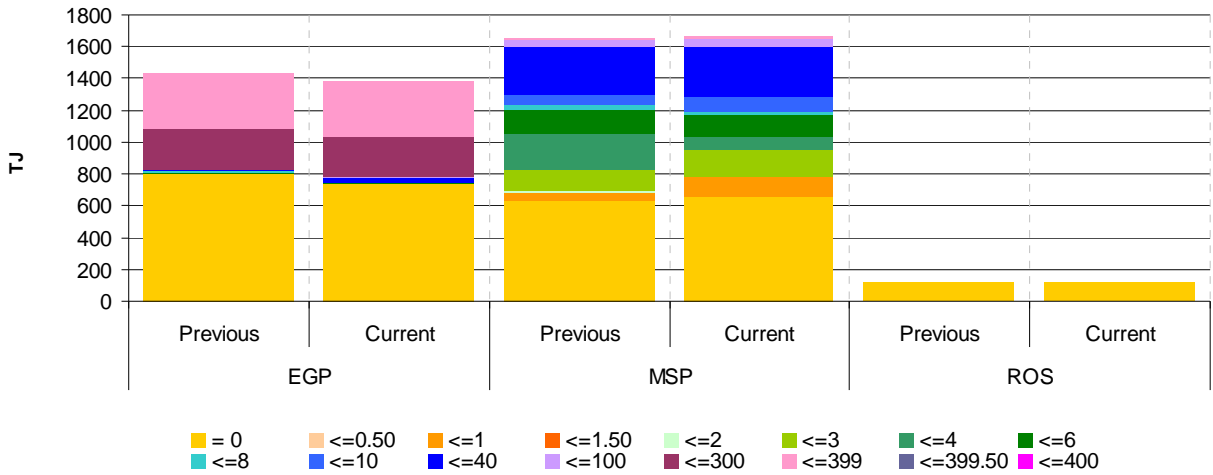


Figure S10: Total weekly Sydney hub bids (TJ) within price bands (\$/GJ)

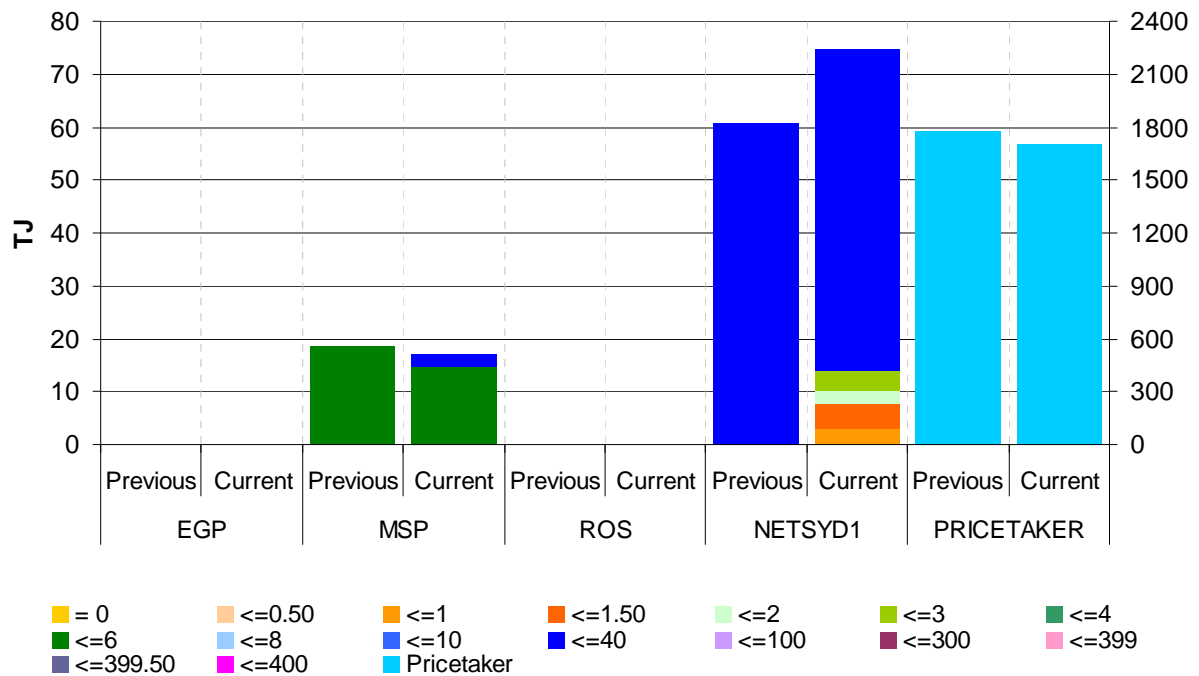
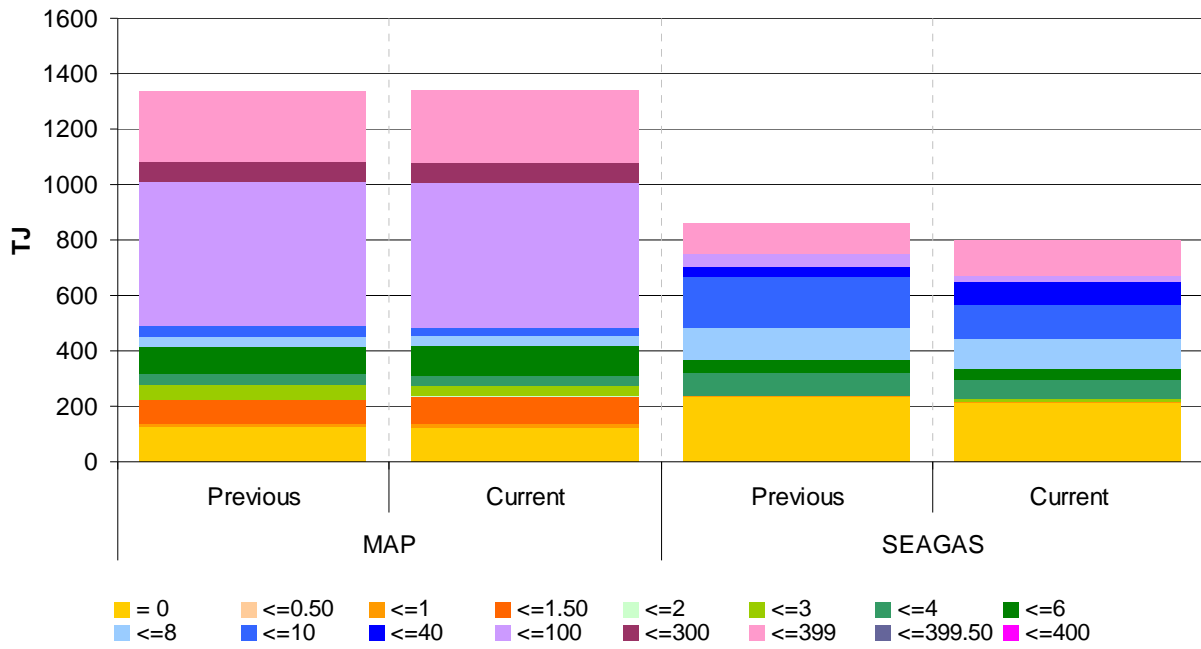
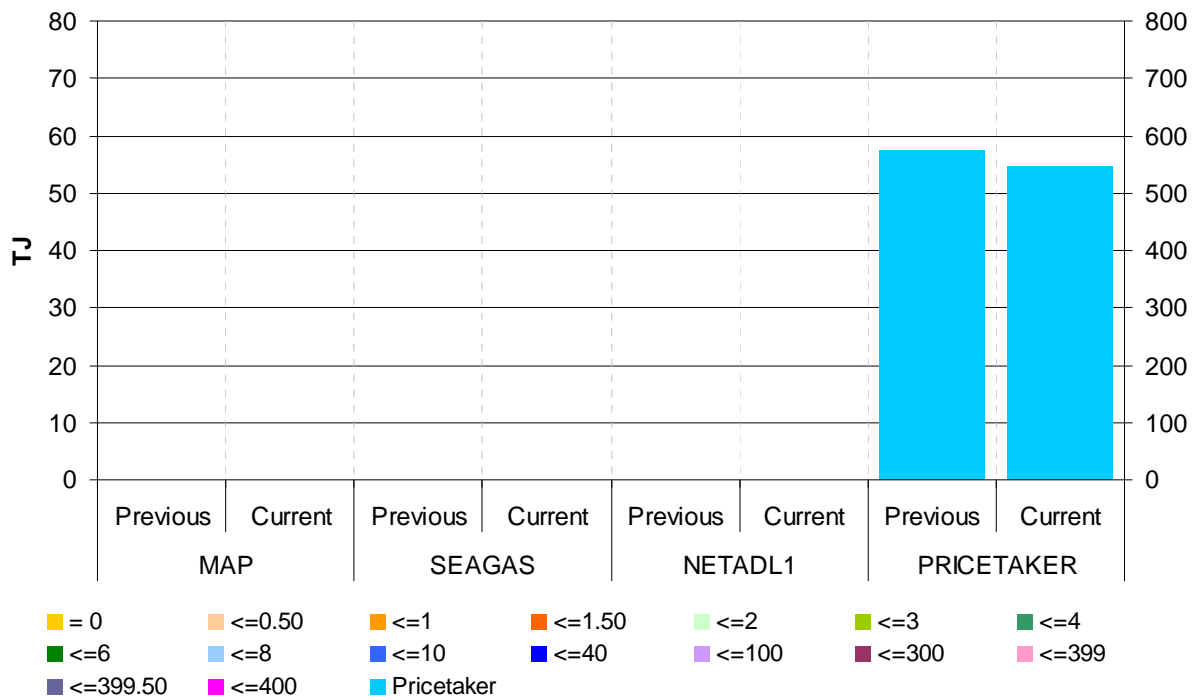


Figure S11: Total weekly Adelaide hub offers (TJ) within price bands (\$/GJ)



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 TRU	Country OneStl(NSW) SANTOS TRU	TRU	Country TRU	SANTOS TRU	Country EA	AGL(ESM) EA SANTOS
	D-2 to D-1	Country SANTOS	Country SANTOS	BluSc Country EA SANTOS	BluSc Country EA SANTOS	BluSc Country EA	AGL(ESM) BluSc EA SANTOS	AGL(ESM) BluSc Country EA SANTOS TRU
MSP	D-3 to D-2	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) EA Origin TRU
	D-2 to D-1	AGL(ESM) Origin TRU	AGL(ESM)	AGL(ESM) Origin	AGL(ESM) EA Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU
ROS	D-3 to D-2				AGL(ESM)			AGL(ESM)
	D-2 to D-1			AGL(ESM)			AGL(ESM)	

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 |
 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							
	D-2 to D-1							
MSP	D-3 to D-2		Country		Country		Country	
	D-2 to D-1	Country	Country	Country	Country	Country	Country	Country
NETSYD1	D-3 to D-2							
	D-2 to D-1							
ROS	D-3 to D-2							
	D-2 to D-1							Country

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

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

Figure S15: Inter-day resubmission of offers at Adelaide Hub

Pipeline	Schedule	Sun	Mon	Tue	Wed	Thu	Fri	Sat
MAP	D-3 to D-2	AGL(WGSA) Origin Simply TRU	AGL(WGSA) Origin Simply TRU	AGL(WGSA) Origin Simply TRU	AGL(WGSA) Origin Simply TRU	ABC AGL(WGSA) Origin Simply TRU	ABC AGL(SA) AGL(WGSA) Origin Simply TRU	AGL(SA) AGL(WGSA) Origin
	D-2 to D-1	AGL(WGSA) Origin Simply	AGL(WGSA) Origin Simply TRU	ABC AGL(WGSA) Origin Simply	ABC AGL(WGSA) Origin Simply TRU	ABC AGL(SA) AGL(WGSA) Origin Simply	AGL(SA) AGL(WGSA) Origin Simply TRU	AGL(SA) AGL(WGSA) Origin Simply TRU
SEA-GAS	D-3 to D-2	Origin Simply TRU	Origin Simply TRU	Origin TRU	Origin TRU	Simply TRU	AGL(WGSA) Origin Simply TRU	AGL(WGSA) TRU
	D-2 to D-1	Origin Simply TRU	Origin TRU	Origin Simply TRU	TRU	AGL(WGSA) Origin Simply TRU	AGL(WGSA) TRU	AGL(WGSA) Origin Simply 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 S16 – Inter-day resubmission of bids at Adelaide Hub

There were no inter-day resubmissions of bids at the Adelaide Hub this week.

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.

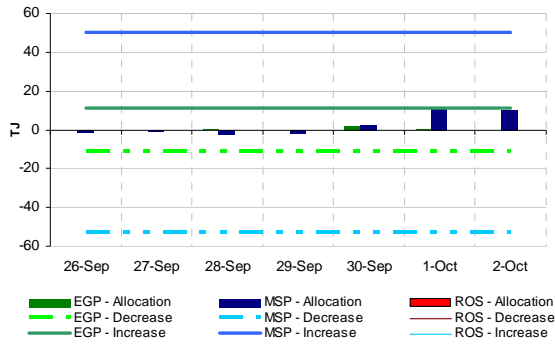
MOS offers are made by participants who have contracts with pipeline facilities to “park” gas (on the pipeline) or “loan” gas (from the pipeline). Based on these contracts, two types of MOS are offered: increase offers to increase flows on a pipeline to a hub; and decrease offers to decrease flows on a pipeline to a hub. Where a pipeline deviation¹ 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 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.

¹ 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.

Figure S17a – Sydney MOS allocations



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 S17b Sydney MOS payments / Charges

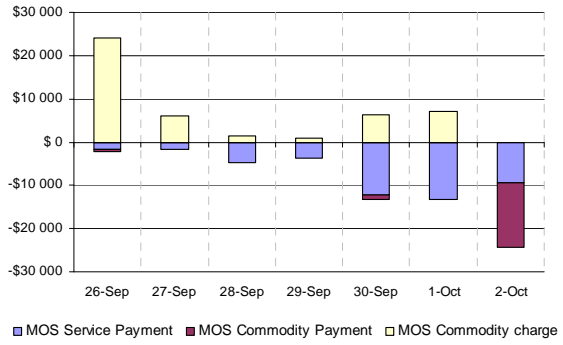
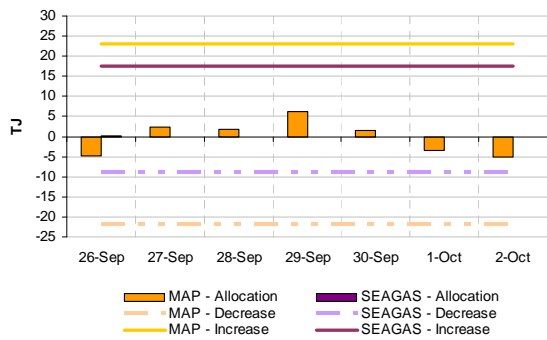
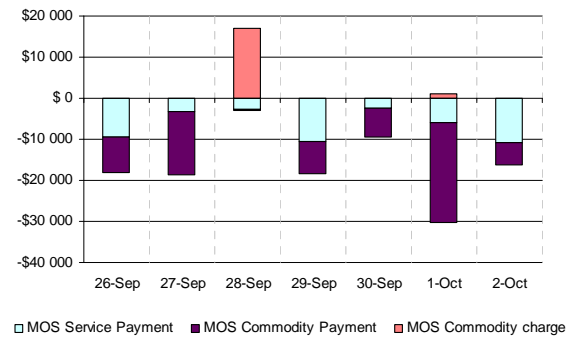


Figure S18a – Adelaide MOS allocations



Source: <http://www.aemo.com.au> INT 663, 664, 665
 MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

Figure S18b Adelaide MOS payments / Charges

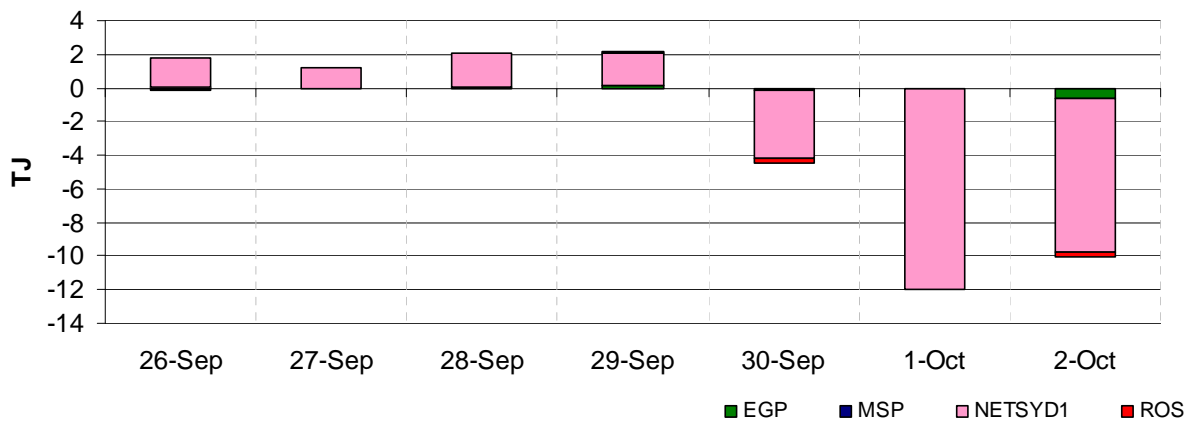


Deviations

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.

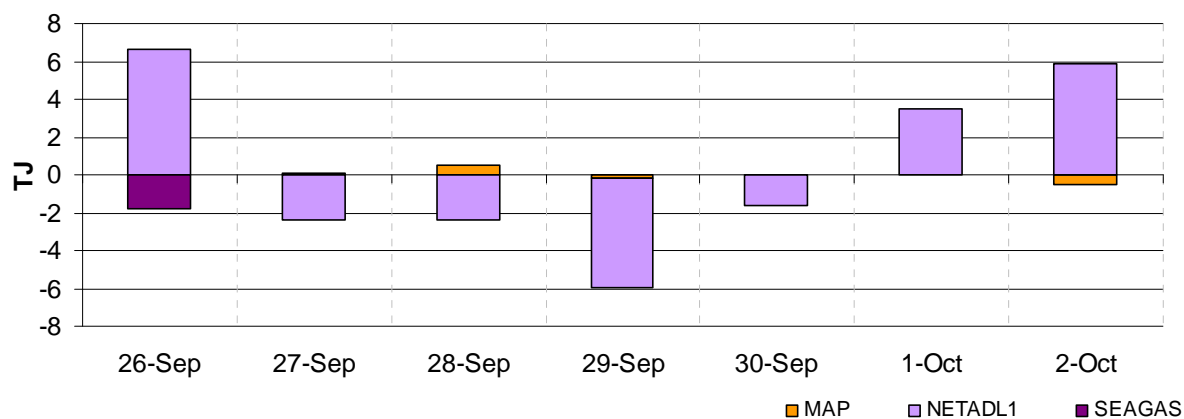
The most likely reason for deviations is where participants incorrectly forecast the demand of customers within the hub. As discussed previously, figures S5 and S6 show allocated quantities versus scheduled. Where they differ, there is a deviation. Net deviations may lead to requirements for MOS services. 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” 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 market schedule variation quantities and charges at the STTM Hubs.

Figure S21 Average Daily Market Variations - Sydney Hub

	26 Sep - 2 Oct	19 Sep - 25 Sep	2010-11 Financial YTD*
Quantity (TJ)	2.27	1.86	3.38
Charges (\$)	65	84	110

* 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

	26 Sep - 2 Oct	19 Sep - 25 Sep	2010-11 Financial YTD*
Quantity (TJ)	1.06	0.60	1.34
Charges (\$)	20	2	33

* 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**
QLD												
Carpentaria Pipeline	96	96	93	97	96	96	99	117	80	96	93	89
QLD Gas Pipeline	117	124	123	120	114	110	109	142	73	117	104	68
Roma to Brisbane Pipeline	169	189	175	175	181	144	118	219	85	164	185	154
South West QLD Pipeline	105	72	37	83	95	82	75	181	69	78	124	158
NSW/ACT												
Eastern Gas Pipeline	194	221	221	224	231	212	181	268	84	212	224	202
Moomba to Sydney Pipeline	156	191	217	256	232	220	188	420	61	209	256	267
NSW-VIC Interconnect [^]	31	4	5	26	28	20	0	92	8	16	8	-33
VIC												
Longford to Melbourne	435	577	728	730	715	575	460	1030	70	603	718	582
South West Pipeline	63	125	139	163	146	68	74	347	45	111	155	187
SA												
Moomba to Adelaide Pipeline	93	122	131	134	137	120	95	253	55	119	139	129
SEA Gas Pipeline	133	186	201	232	216	185	136	314	58	184	183	155
TAS												
Tasmanian Gas Pipeline	39	41	46	50	48	43	39	129	37	44	48	28

*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)

[^]Negative figure represents a reverse flow of gas along the pipeline

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**
Roma (QLD)												
Berwyndale South	107	107	106	107	107	109	105	140	72	107	101	83
Fairview	130	136	115	130	127	94	66	130	94	114	123	109
Kenya Gas Plant	63	63	62	63	63	65	64	160	39	63	62	28
Kincora	0	0	0	0	0	0	0	25	14	0	4	1
Kogan North	8	8	8	8	8	6	6	12	79	7	10	7
Peat	11	11	11	11	11	11	11	15	68	11	10	10
Rolleston	11	11	11	11	11	11	11	30	37	11	11	11
Scotia	22	22	22	22	22	11	11	29	94	19	27	17
Spring Gully	52	48	44	49	54	57	48	69	78	50	54	52
Strathblane	52	48	44	49	54	57	48	69	78	50	54	52
Taloona	31	29	27	29	32	35	29	42	77	30	32	31
Wallumbilla	9	9	10	9	9	5	5	20	47	8	9	9
Yellowbank	12	13	12	12	12	12	13	30	42	12	13	15
Talinga	34	35	36	34	49	39	35	81	64	37	52	
Moomba (SA/QLD)												
Moomba Gas Plant	213	204	241	284	284	301	249	430	78	254	334	349
Ballera	45	83	97	44	50	59	67	150	13	64	19	2
Eastern (VIC)												
Orbost Gas Plant	0	0	0	0	0	0	0	100	0	0	0	0
Lang Lang Gas Plant	51	50	50	50	50	50	49	70	71	50	50	55
Longford Gas Plant	621	775	938	952	947	792	621	1145	83	807	954	767
LNG Storage Dandenong	0	0	0	0	0	0	0	158	0	0	0	0
Otway Basin (VIC)												
Minerva Gas Plant	54	49	49	49	59	45	40	73	105	50	76	76
Otway Gas Plant	84	196	196	196	199	184	184	205	72	177	148	140
Iona Underground Gas Storage	66	92	91	124	122	39	52	440	27	84	117	123

*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)

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)
26 September – 2 October	Average min.	16.3	12.0	3.0	8.0	9.0	6.1
	Average max.	25.0	21.6	17.3	17.8	18.5	14.6
19 September – 25 September	Average min.	16.0	12.8	3.6	10.2	8.5	9.1
	Average max.	23.2	21.3	18.6	16.9	17.6	16.9

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

26 September – 2 October	Scheduling Interval					Daily Imbalance Weighted Average Price
	6am	10am	2pm	6pm	10pm	
Sun	2.00	2.00	0.52	0.09	0.01	1.90
Mon	0.89	0.28	2.00	1.99	2.49	0.95
Tue	2.17	2.38	2.38	1.44	3.06	2.18
Wed	2.81	3.06	3.21	1.10	1.45	2.79
Thu	2.17	3.05	2.50	1.10	0.30	2.18
Fri	0.60	0.31	0.55	0.29	0.28	0.58
Sat	1.12	2.78	1.50	1.51	0.20	1.14

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)

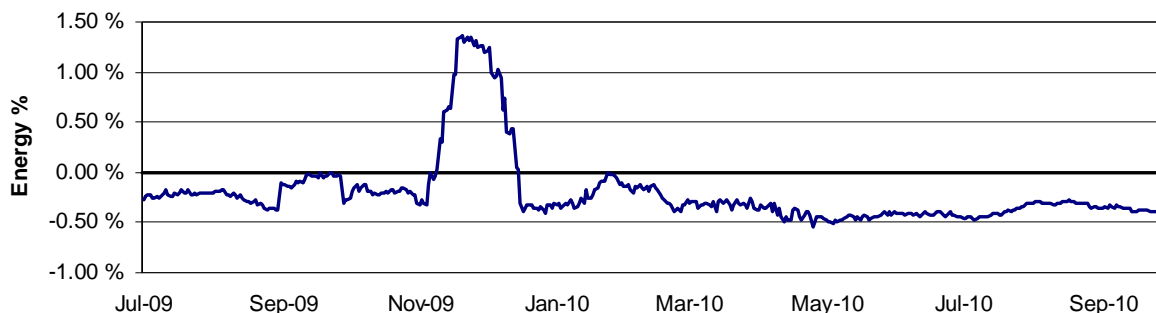
Gas Day	Demand Forecasts (TJ)	Schedule					Total Demand Override (TJ)
		1	2	3	4	5	
26-Sep	MP:	531	526	512	498	507	-7
	AEMO:	482	480	484	456	447	
	MP as % of AEMO	110	110	106	109	113	
27-Sep	MP:	675	674	693	703	702	0
	AEMO:	664	701	710	714	710	
	MP as % of AEMO	102	96	98	98	99	
28-Sep	MP:	864	859	859	861	860	0
	AEMO:	830	831	844	855	849	
	MP as % of AEMO	104	103	102	101	101	
29-Sep	MP:	867	890	891	887	888	0
	AEMO:	864	892	885	849	857	
	MP as % of AEMO	100	100	101	104	104	
30-Sep	MP:	813	827	822	833	833	0
	AEMO:	824	821	819	814	812	
	MP as % of AEMO	99	101	100	102	103	
1-Oct	MP:	739	728	732	706	708	-22
	AEMO:	731	699	703	652	637	
	MP as % of AEMO	101	104	104	108	111	
2-Oct	MP:	511	517	519	524	518	-5
	AEMO:	512	532	527	501	471	
	MP as % of AEMO	100	97	98	105	110	

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

Figures A6 to A8 present information that was previously published by AEMO in its monthly Victorian Gas Market Reports.

Figure A6 shows “unaccounted for gas” as a percentage of the gas used on a 28-day rolling average basis. A positive “unaccounted for gas” indicates more gas purchased than sold, and negative indicates more gas is purchased from a supplier than sold to customers. The difference may be caused by measurement errors, leakages, pressure regulation, construction activities, theft or damage to the pipeline system. The increased quantity over November 2009 was related to pigging substitutions.

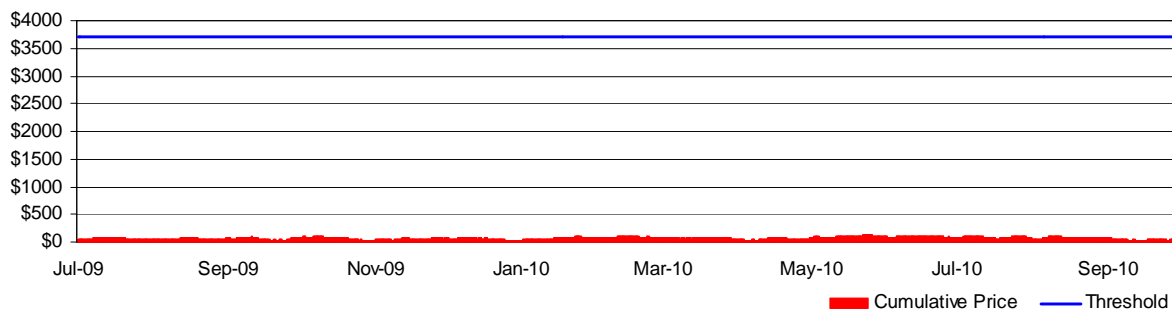
Figure A6: Unaccounted for Gas – 28 Day Rolling Average



Source: <http://www.aemo.com.au> (INT 312)

Figure A7 shows the cumulative weekly price and the cumulative price threshold (CPT), which is set at \$3700. The cumulative price is measured over a rolling weekly period, (35 scheduling intervals). When the cumulative price breaches the CPT, an administered price cap (APC) is applied to the market at \$40/GJ. AEMO may declare the end of an administered price period subsequent to the cumulative price falling below the threshold.

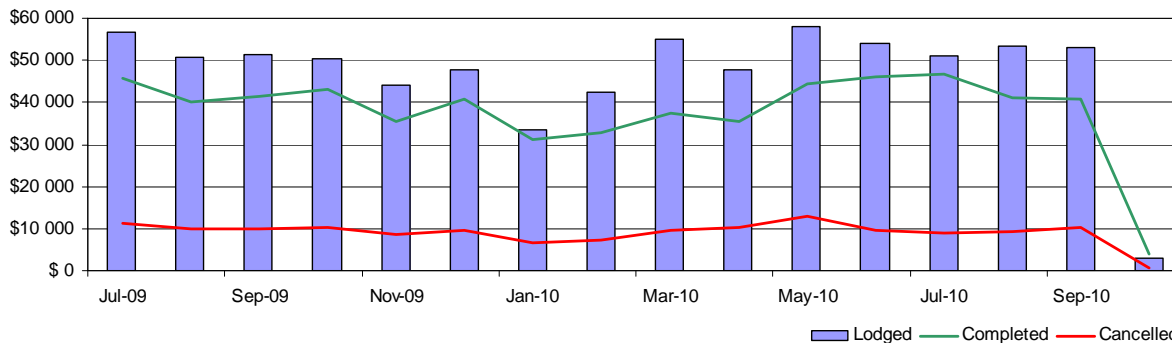
Figure A7: Cumulative Price and Threshold



Source: <http://www.aemo.com.au> (INT 199)

Figure A8 shows the monthly (and current month to date) retail customer transfers lodged, completed or cancelled in the Victorian gas market.

Figure A8: Customer Transfers



Source: <http://www.aemo.com.au> (INT 311)