

2 January – 8 January 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 aerinqury@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

2 Jan – 8 Jan	Victorian market*	STTM Sydney hub**	STTM Adelaide hub**
Average Price	2.27	1.07	2.51

* weighted average daily imbalance price

** ex ante market price

STTM Gas Markets (Adelaide and Sydney)

Figure S3 shows that both the average daily ex ante price and ex post price in Sydney increased slightly this week compared to the previous week. The average ex post price was higher than the average ex ante price as a result of the \$3.33/GJ ex post prices for Monday 3 January and Saturday 8 January gas days.

While average ex ante prices fell in Adelaide, average ex post prices increased compared to the previous week. Allocations at the Adelaide hub were higher than that scheduled for all days except Friday 7 January (see figure S6) resulting in higher ex post prices than ex ante prices.

Victorian Gas Market

Increased demand in Victoria (see figure N4) saw average daily injections increase by 50 TJ (16 per cent) compared to the previous week (see figure V3). Despite this increase in demand the average daily price fell marginally from \$2.30/GJ in the previous week to \$2.27/GJ (see figure V2). This was largely driven by an increase in the amount of \$0/GJ bids, especially from Longford (see figure V4).

Figure V1 shows that for the 6 am gas day schedules the number of participants with injection bids on the Declared Transmission System (DTS) at Iona reduced from five in the previous week (AGL, Energy Australia, Lumo Energy, Origin and TRU Energy) to two (Origin and TRU Energy), while the number of market participants with withdrawal bids scheduled remained at four.

AEMO's INT 313 report indicates that actual volumes of gas withdrawn from the DTS and placed into underground storage at Iona exceeded actual injections into the DTS over five days this week.

AEMO did not issue any demand overrides this week. Supply demand point constraints (SDPCs) were issued for injections at Bass Gas on Thursday 6 January and Culcairn on Friday 7 January. SDPCs were issued for withdrawals at Vic Hub on Monday 3 January, and for withdrawals at SEA Gas from Sunday 2 January to Wednesday 5 January and on Friday 7 January.

National Gas Market Bulletin Board

Figure N4 shows changes in gas demand as well as gas flows from production and pipeline facilities on the Bulletin Board compared to the previous week. Total average daily demand (1391 TJ) increased by 162 TJ (13 per cent) compared to the previous week. All regions other than Queensland (which recorded a slight decrease) recorded an increase in demand compared to the previous week.

Increases in average daily flows compared to the previous week were recorded on most pipelines. The exception was the bi-directional South West Pipeline (SWP), where flows fell by 111 TJ and negative flows were recorded from Thursday (they are usually positive). This reduction in flows on the SWP was more than offset by an increase on the Longford to Melbourne pipeline of 159 TJ compared to the previous week. Increased production levels at Longford met higher overall Victorian gas demand this week compared to the previous week including for the withdrawal of gas into underground storage at Iona.

Overall average daily production increased by 83 TJ (13 per cent) compared to the previous week. Increases compared to the previous week were recorded at the Eastern Production Facilities, the Moomba Gas Plant and the Ballera Gas Plant, while falls were recorded at the Otway Production Facilities and the Roma Production Facilities.

Total average daily gas powered generation (GPG) usage increased by 114 TJ, largely due to higher GPG demand in South Australia (51 TJ) and Victoria (42 TJ).

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
2 Jan – 8 Jan	320	6	362	291	48	154	99	112
Financial Year-to-date 2010-11*	390	26	647	285	45	173	95	109
Financial Year-to-date 2009-10**	379	24	626	284	37	165	85	69

*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
2 Jan – 8 Jan	105	51	192	35	139
Financial Year-to-date 2010-11*	84	17	163	30	157
Financial Year-to-date 2009-10**	83	16	162	30	158

^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)
2 Jan – 8 Jan	427	627	156	223
Financial Year-to-date 2010-11*	540	801	287	293
Financial Year-to-date 2009-10**	442	720	292	291

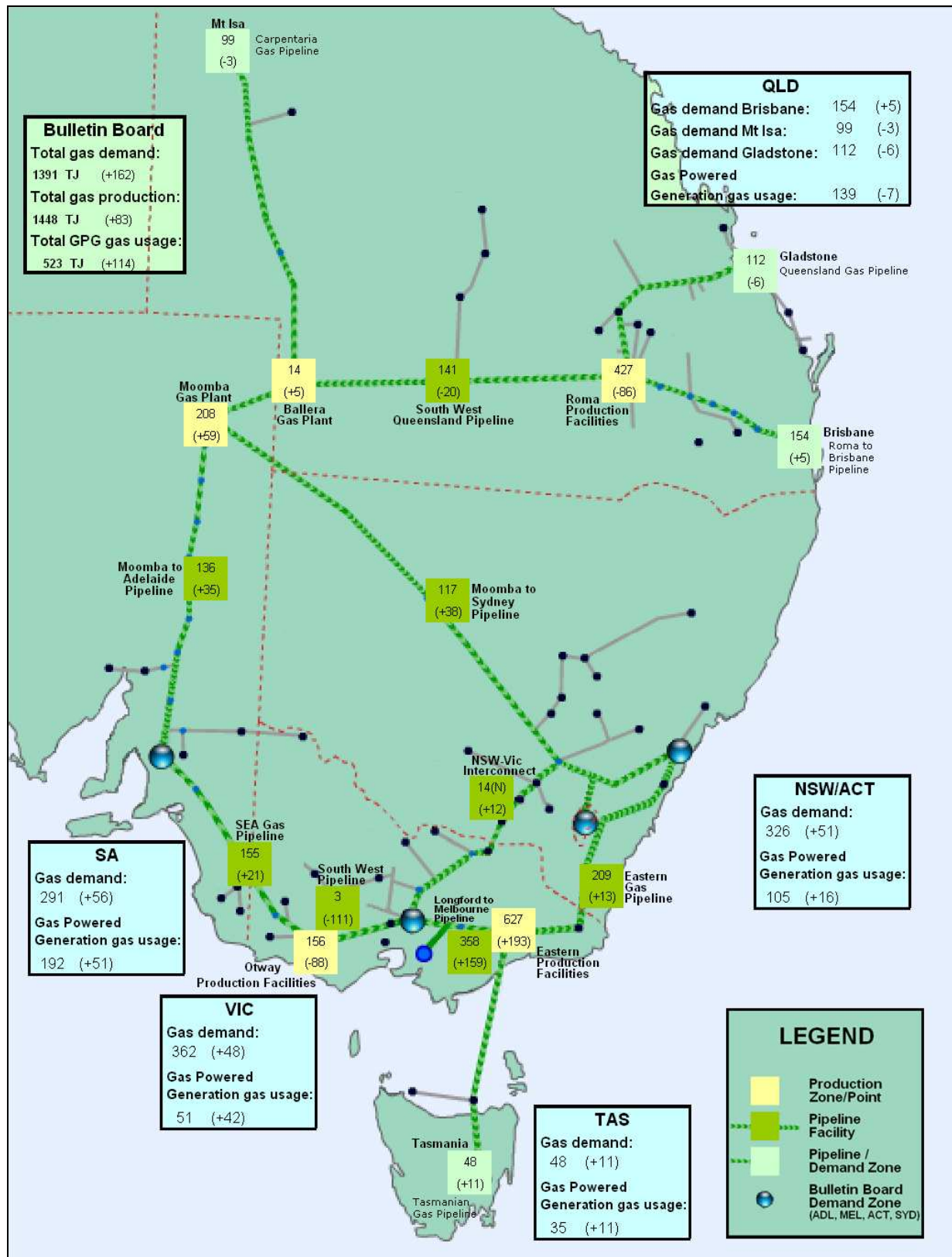
*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

**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)

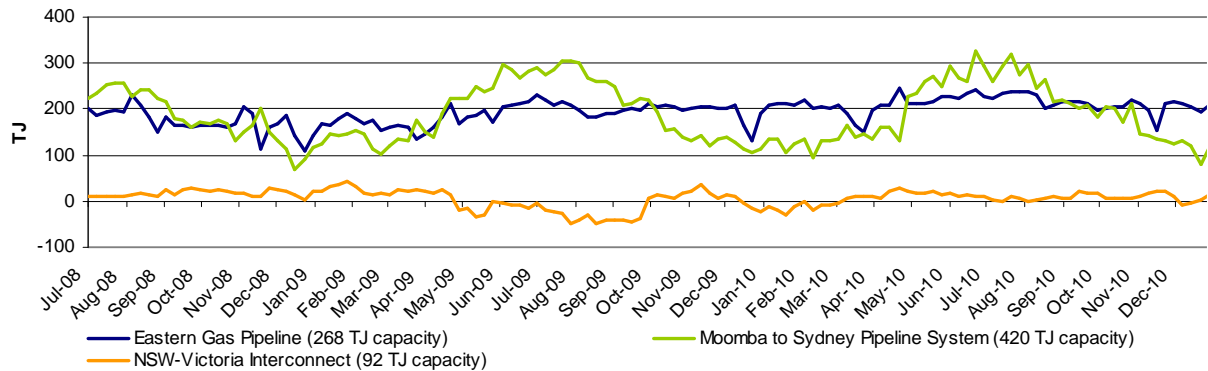


Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>
 Notes: Direction of aggregate daily flows along the NSW-Vic Interconnect indicated on map by S (South) or N (North).
 Numbers in brackets indicate a change in average daily flow from the previous week.

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.

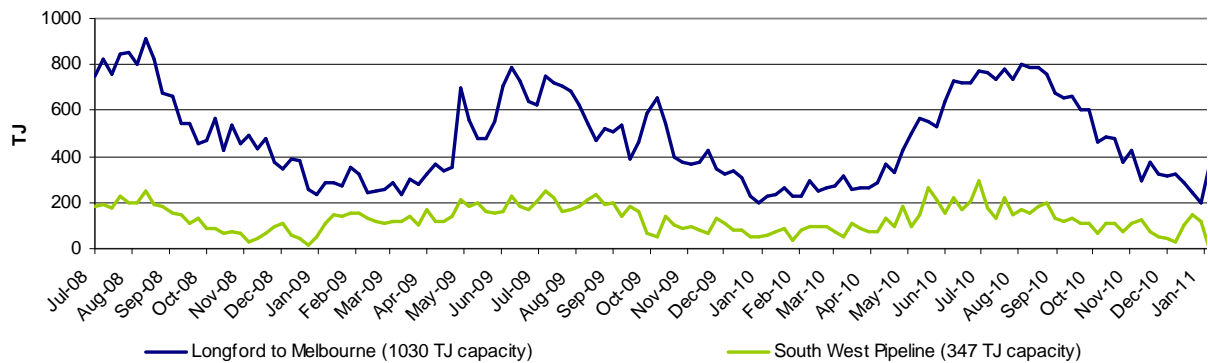
Figure N5: Average daily flows (TJ) into NSW/ACT demand region



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

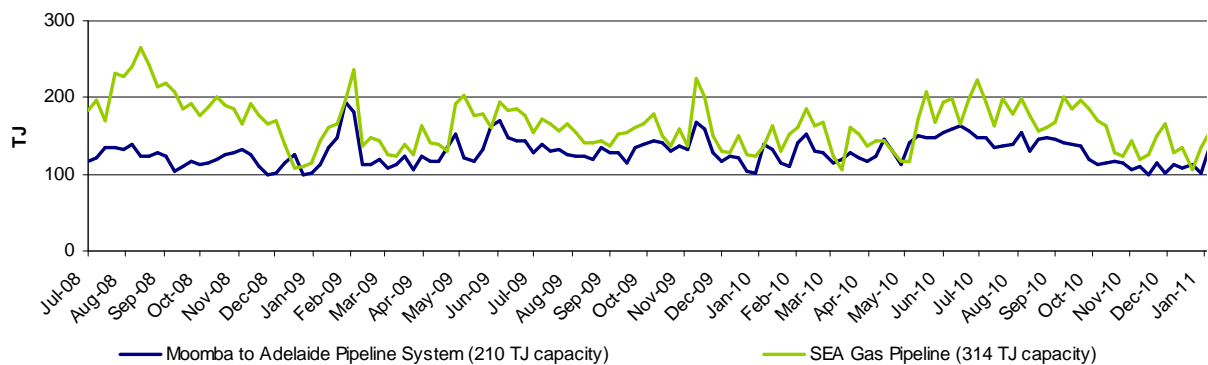
Notes: Negative flows on the NSW-Victoria Interconnect represent flows out of NSW into VIC.

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	1								S				S
AGL (Qld)	Retailer	1				NS								
AGL	Retailer	4			NS	NS	S		NS		S			
Aurora Energy	Retailer	1					S							
Aust. Power & Gas	Retailer	3			NS	NS	S				S			
Coogee Energy	Transmission Customer	1					S							
Country Energy	Transmission Customer	2					S							
Energy Australia	Retailer	3					S		NS					NS
International Power	Transmission Customer	1										S		
Lumo Energy	Retailer	5		NS		NS			S		NS			
Lumo Energy	Trader	2			NS				S		S			NS
Origin (Vic)	Retailer	6	S	NS	S	NS	S				S	S		
Origin (Uranquinty)	Trader	1					S							
Red Energy	Retailer	1					S							
Santos	Retailer	2							S					
Simply Energy	Retailer	4			NS	NS	S	NS				NS		
TRU Energy	Retailer	3			S	NS	S					NS		
Visy Paper	Distribution Customer	2					S				S			

[^]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)

	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*	2009-10 Financial YTD**
Average daily price	2.27	2.30	1.84	1.54

2 Jan – 8 Jan	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Daily price	1.93	1.21	2.07	2.47	2.82	2.54	2.83

*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)

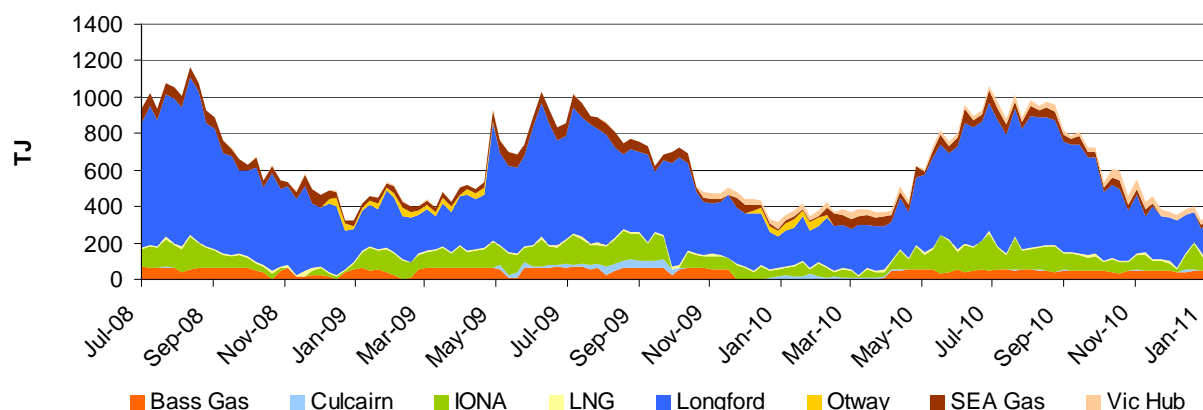
Source: <http://www.aemo.com.au> (INT 041)

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:	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*	2009-10 Financial YTD**
Culcairn	1	1	1	18
Longford	268	129	454	420
LNG	10	10	9	8
IONA	2	86	85	90
VicHub	32	21	33	13
SEAGas	0	25	32	43
Bass Gas	58	50	48	42
Otway	0	0	0	5
TOTAL	371	321	661	641



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

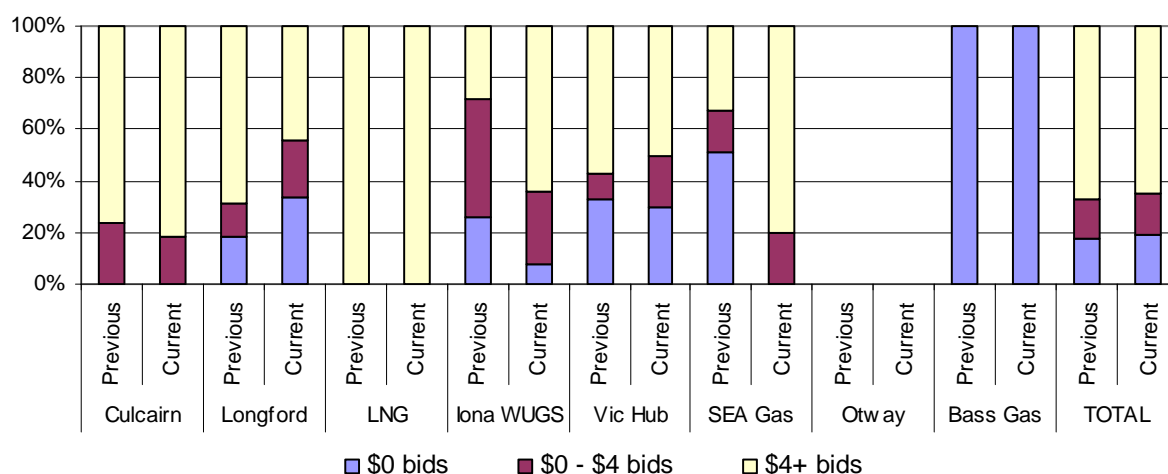
**Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009-10 (inclusive)

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	
Longford				AGL CE Origin TRU	AGL TRU	AGL Origin TRU	Origin TRU
LNG							Lumo
Iona	TRU		TRU	TRU	TRU	TRU	TRU Lumo
VicHub	AETV Lumo	AETV Lumo	AETV Lumo	AETV Lumo	AETV Lumo	AETV Lumo	AETV Santos Lumo Lumo
SEAGas		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) | 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

System withdrawal zone:	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*	2009-10 Financial YTD**
Ballarat	8	9	28	26
Geelong[^]	87	53	89	84
Gippsland	34	35	46	48
Melbourne	226	208	445	426
Northern	38	23	63	57
TOTAL	393	328	672	641

[^]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	1	NS			S			
AGL Energy Sales & Marketing Limited	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								
Lumo Energy Australia Pty Ltd	Shipper	1				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		NS			
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	1	S				
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	NS	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

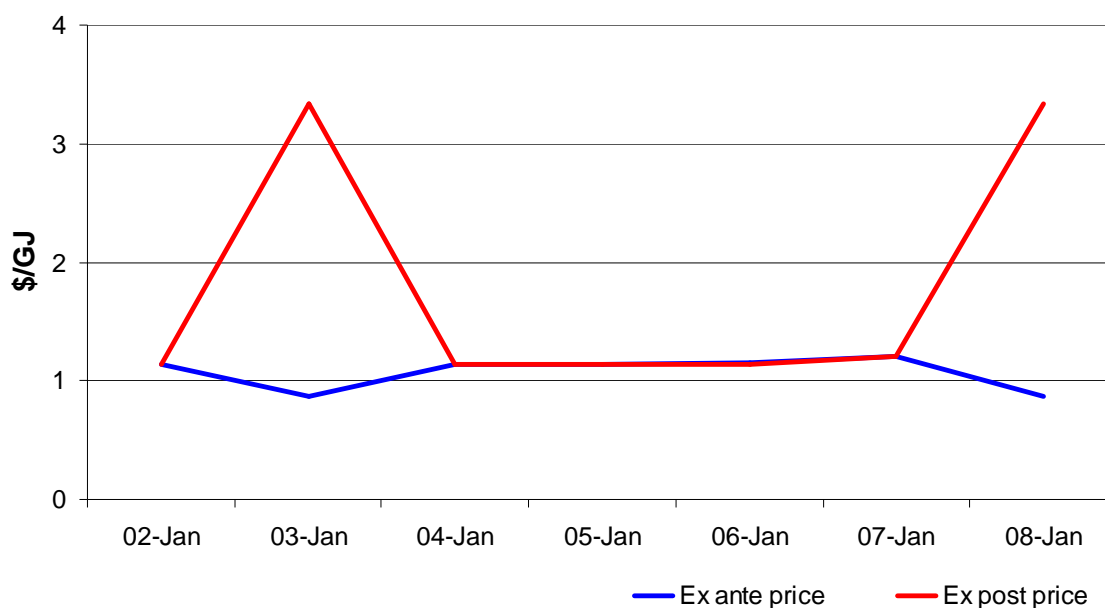
Ex ante and Ex post Market Prices

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)^

	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*
Ex ante price	1.07	0.98	2.60
Ex post price	1.77	0.88	8.01

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

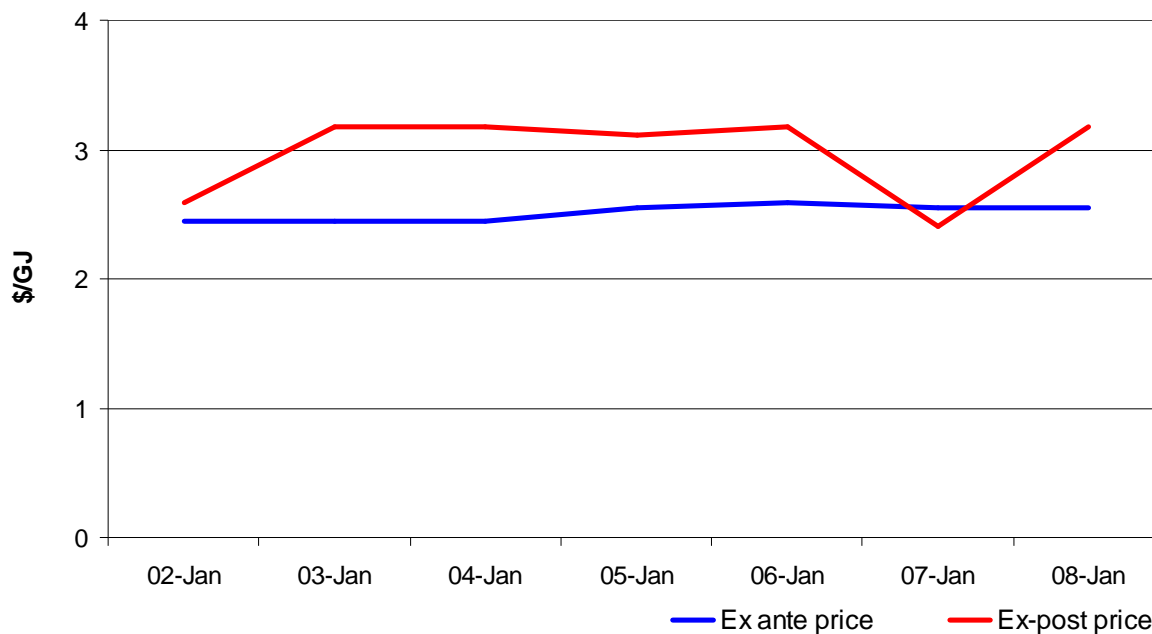


Source: <http://www.aemo.com.au> INT 651, 657

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

	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*
Ex ante price	2.51	2.76	2.66
Ex post price	2.98	2.85	2.78

* 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.

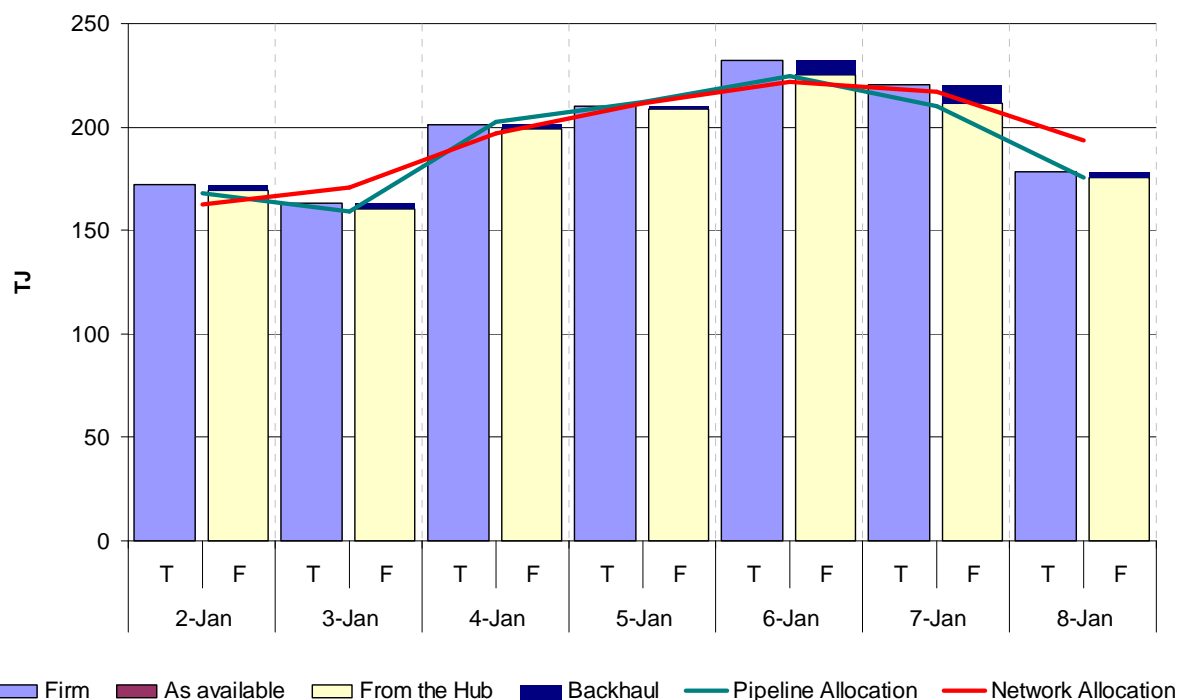
Gas can also be scheduled from the STTM hubs. This happens when Shippers “backhaul” gas from the hub or Users bid to take gas from the hub (including price taker bids).

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.

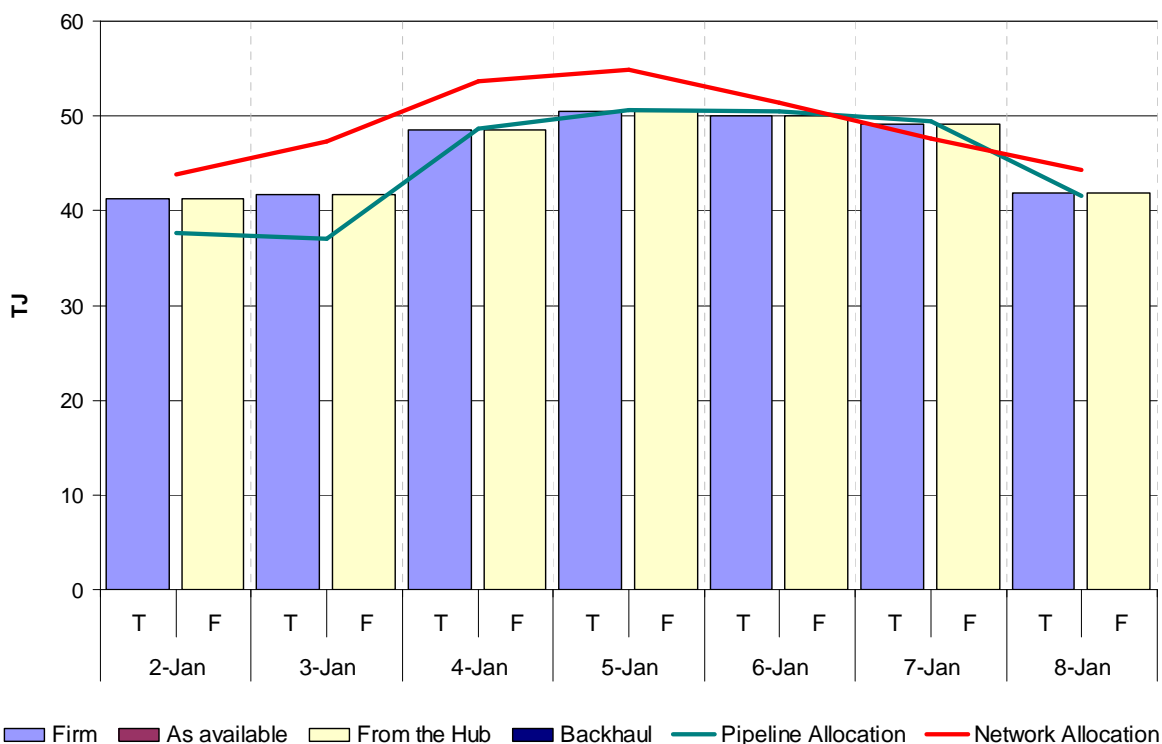
By comparing the level of the red line to the columns marked “F”, it can be shown whether demand (allocation) was higher than scheduled. Similarly, comparing the green line to the columns marked “T” shows how the actual flow of gas (allocation) compared to what was scheduled.

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)

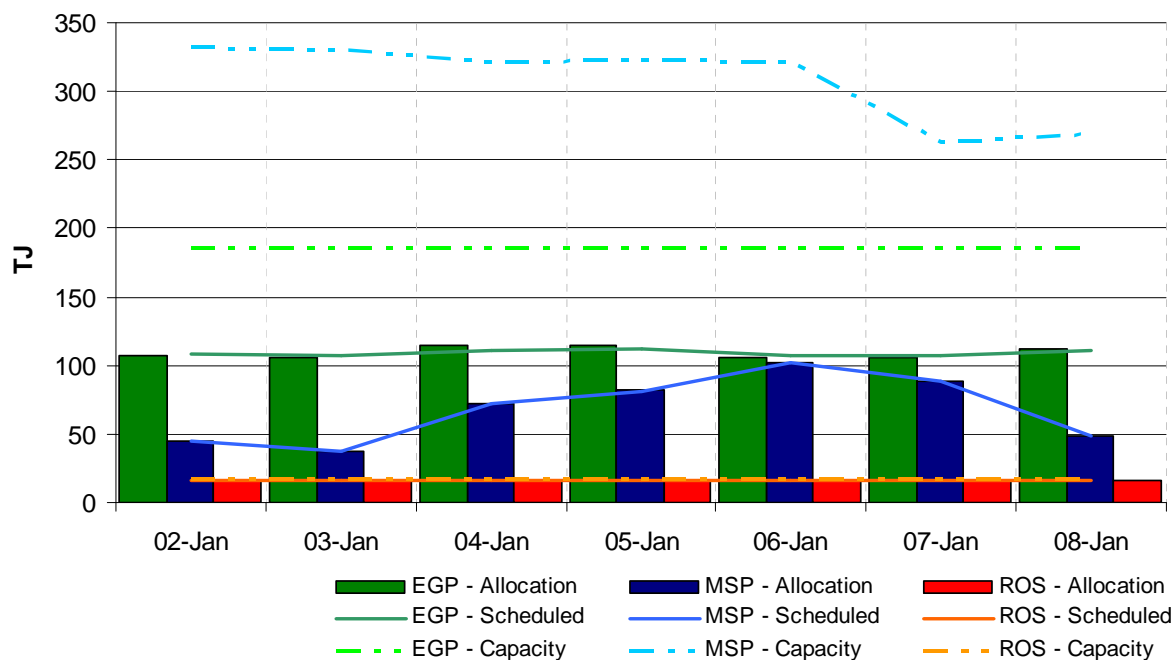
Pipeline Facility Allocations

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.

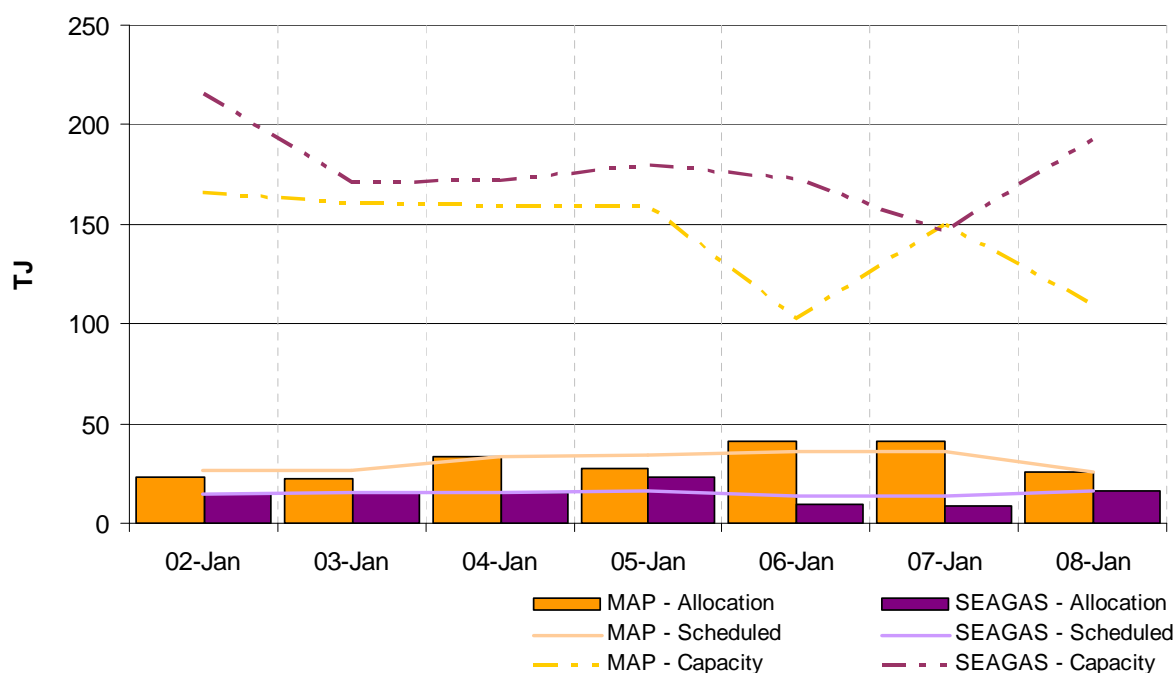
Differences between the amount of gas scheduled and what was actually allocated can result in variations between the ex ante and ex post price, as the ex post price is related to the offers actually allocated while ex ante is related to the offers scheduled.

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

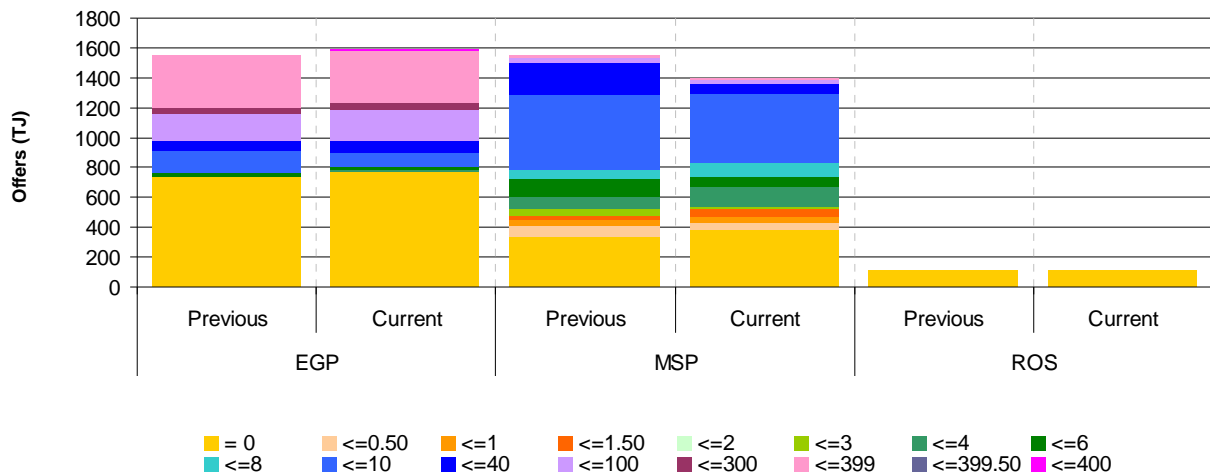
Trading Participants submit offers to sell gas into an STTM hub and withdrawal bids to take gas from a hub. Figures S9 and S11 show for the Sydney and Adelaide hubs respectively, total offers within various price bands for the current week compared to the previous week for each of the pipeline facilities.

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.

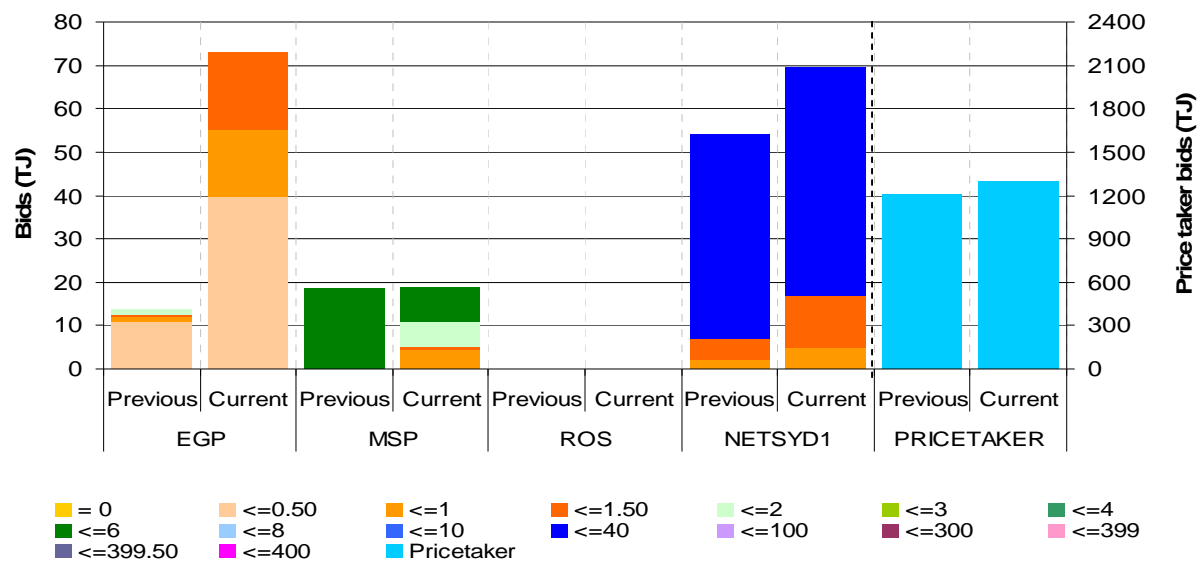
Figure S9: Total weekly Sydney hub offers (TJ) within price bands (\$/GJ)



Source: <http://www.aemo.com.au> INT 652, 659

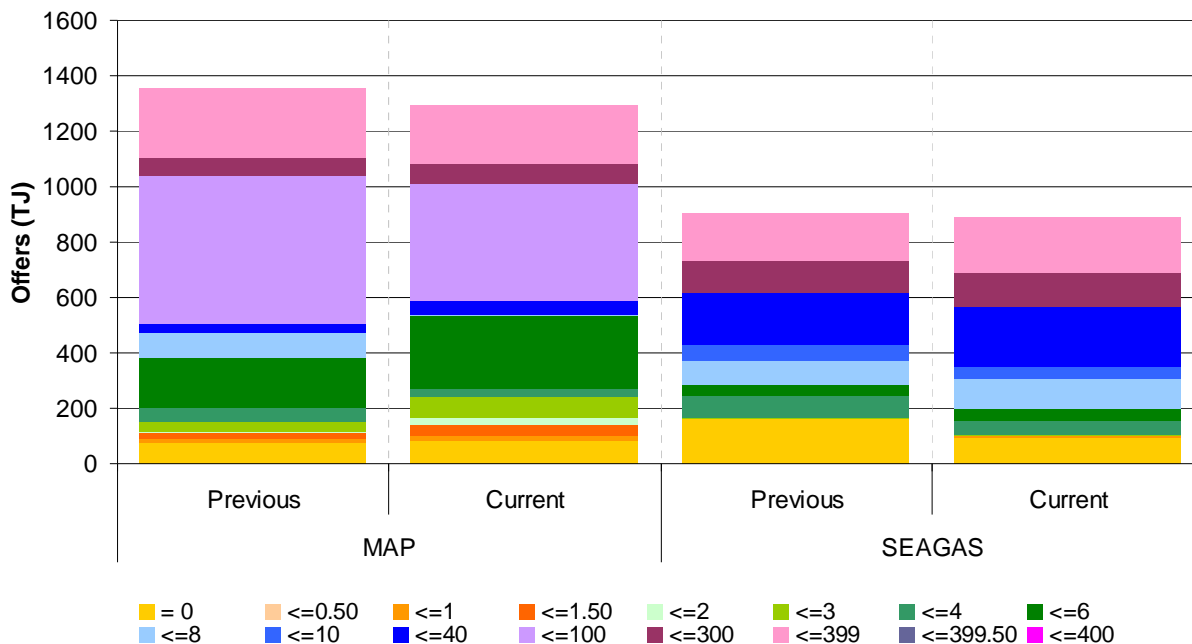
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility

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



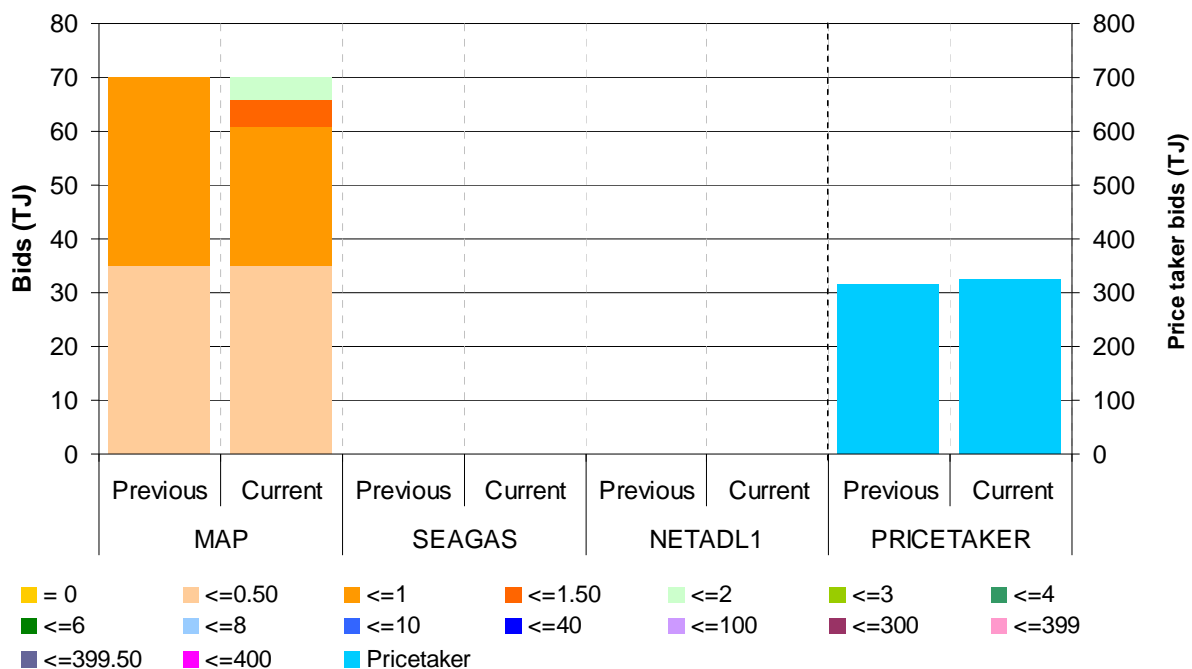
Source: <http://www.aemo.com.au> INT 652, 659

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	AETV BluSc Country EA	SANTOS	TRU	TRU	EA TRU	EA TRU	TRU
	D-2 to D-1	SANTOS	TRU	TRU	BluSc Country EA SANTOS TRU	BluSc Country EA SANTOS TRU	BluSc Country EA SANTOS TRU	BluSc Country EA OneStl(NSW) SANTOS TRU
MSP	D-3 to D-2	AGL(ESM) EA Origin TRU	AGL(ESM) TRU	AGL(ESM) Origin TRU	AGL(ESM) AGL(WG) Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) Origin TRU
	D-2 to D-1	AGL(ESM) TRU	AGL(ESM) Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) EA Origin TRU	AGL(ESM) Origin TRU	AGL(ESM) EA Origin TRU
ROS	D-3 to D-2	AGL(ESM)			AGL(ESM)	AGL(ESM)		
	D-2 to D-1				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 | 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	TRU				Lumo Energy Australia Pty Ltd		
	D-2 to D-1				Lumo	Lumo	Lumo	Lumo
MSP	D-3 to D-2	Country				Country		
	D-2 to D-1				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 | 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

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(SA) Origin	AGL(SA) Simply	AGL(SA) Origin	AGL(SA) Origin	AGL(SA) Origin TRU	AGL(SA) Origin TRU	AGL(SA) Origin
	D-2 to D-1	AGL(SA)	AGL(SA) Origin	AGL(SA) Origin	AGL(SA) Origin TRU	AGL(SA) Origin	AGL(SA) Origin	AGL(SA) Origin TRU
SEA-GAS	D-3 to D-2	AGL(WGSA) Origin TRU	TRU	TRU	Origin TRU	Simply TRU	Origin TRU	
	D-2 to D-1	TRU	TRU	Origin TRU	Simply 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 S16: Inter-day resubmission of bids at Adelaide Hub

Pipeline	Schedule	Sun	Mon	Tue	Wed	Thu	Fri	Sat
MAP	D-3 to D-2						Simply	Simply
	D-2 to D-1					Simply	Simply	
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 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).

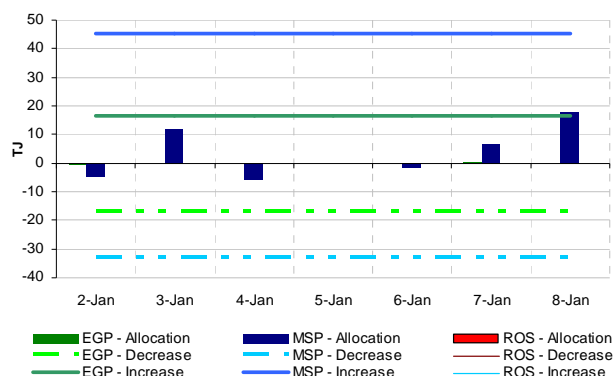
In addition, where this MOS service is required, AEMO pays or charges the MOS provider for the MOS gas allocation on the gas day at the ex ante market price two days after the gas day, which covers the cost of restoring its inventory of MOS gas (the MOS commodity payment or charge). The MOS provider 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.

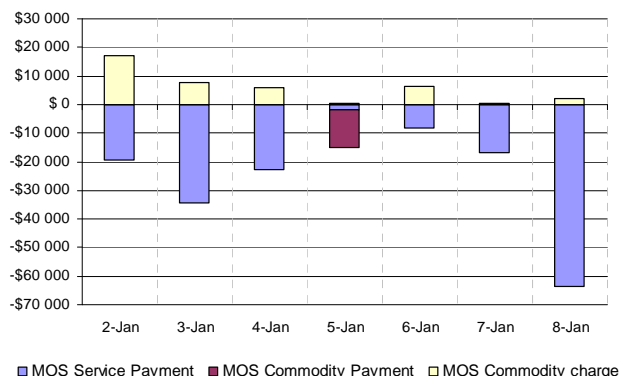
¹ Deviations occur when the gas flowed on pipelines into hubs on a gas day differ from the modified market schedule, or when gas taken out of the hub is different to the schedule.

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.

Figure S17: Sydney MOS allocations



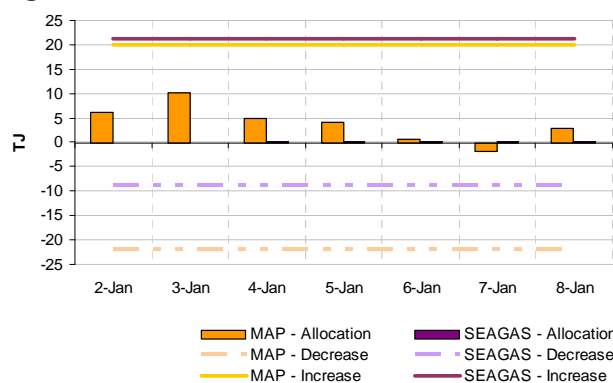
Sydney MOS payments / Charges



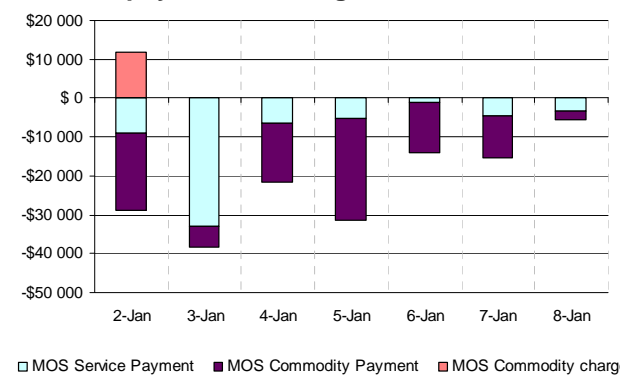
Source: <http://www.aemo.com.au> INT 663, 664, 665

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

Figure S18: Adelaide MOS allocations



Adelaide MOS payments / Charges



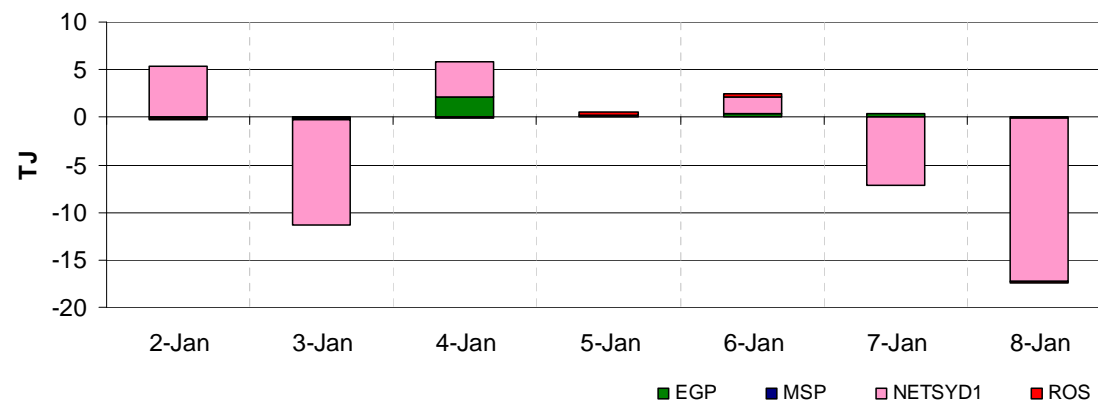
Source: <http://www.aemo.com.au> INT 663, 664, 665

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

Deviations

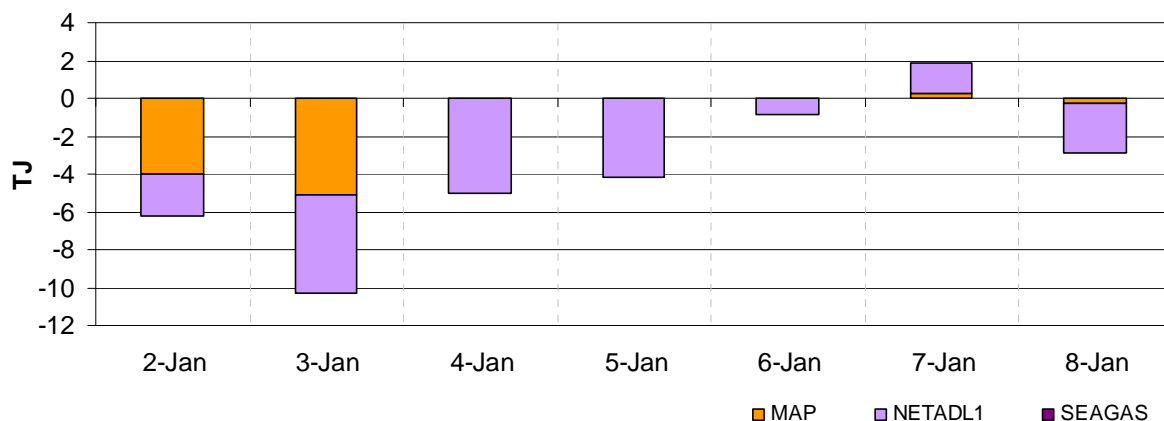
Deviations occur when the gas flowed on pipelines into hubs on a gas day differ from the modified market schedule, or when gas taken out of the hub is different to the schedule. The most likely reason for deviations is where participants incorrectly forecast the demand of customers within the hub. As 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

	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*
Quantity (TJ)	2.01	2.54	4.14
Charges (\$)	20.02	11.81	1100.07

* **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

	2 Jan – 8 Jan	26 Dec – 1 Jan	2010-11 Financial YTD*
Quantity (TJ)	0.30	0.18	0.95
Charges (\$)	0.00	0.00	21.91

* **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	100	100	97	98	103	103	89	117	81	99	95	85
QLD Gas Pipeline	111	115	111	111	112	111	113	142	77	112	109	69
Roma to Brisbane Pipeline	146	141	150	163	165	165	151	219	79	154	173	165
South West QLD Pipeline	78	124	151	151	138	203	145	181	72	141	131	146
NSW/ACT												
Eastern Gas Pipeline	192	193	222	221	214	217	203	268	80	209	213	199
Moomba to Sydney Pipeline	74	74	113	126	147	169	117	420	48	117	202	204
NSW-VIC Interconnect [^]	16	16	8	-5	14	21	26	92	9	14	9	-12
VIC												
Longford to Melbourne	267	293	352	333	412	469	380	1030	51	358	529	473
South West Pipeline	22	27	14	28	-5	-27	-35	347	34	3	117	135
SA												
Moomba to Adelaide Pipeline	119	126	143	126	137	161	137	210	59	136	125	130
SEA Gas Pipeline	126	129	146	154	209	199	127	314	51	155	161	153
TAS												
Tasmanian Gas Pipeline	45	48	49	51	51	40	50	129	35	48	45	37

*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: 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	66	76	81	79	81	81	82	140	69	78	97	91
Fairview	59	80	81	91	69	82	85	130	91	78	119	113
Kenya Gas Plant	46	46	46	45	46	52	52	160	36	47	58	46
Kincora	7	7	7	7	7	10	7	25	16	7	4	1
Kogan North	10	10	10	10	10	10	10	12	77	10	9	8
Peat	5	5	5	5	6	6	6	15	65	5	10	8
Rolleston	9	9	8	8	8	8	8	30	36	8	11	11
Scotia	22	22	22	21	21	21	21	29	90	21	26	22
Spring Gully	38	39	39	39	42	49	43	69	71	41	49	45
Strathblane	38	39	39	39	42	49	43	69	71	41	49	45
Talooka	23	24	24	24	26	30	26	42	71	25	30	27
Wallumbilla	6	5	4	5	6	6	5	20	42	5	8	11
Yellowbank	12	12	12	12	12	12	11	30	41	12	12	14
Talinga	41	42	42	42	42	60	50	90	64	46	58	
Moomba (SA/QLD)												
Moomba Gas Plant	132	158	228	243	245	244	208	430	64	208	276	283
Ballera	54	4	12	13	13	0	6	150	11	14	17	8
Eastern (VIC)												
Orbost Gas Plant	56	57	58	57	57	56	59	100	25	57	25	12
Lang Lang Gas Plant	57	58	58	59	54	59	61	70	69	58	48	42
Longford Gas Plant	416	492	492	496	567	550	572	1145	64	512	728	665
LNG Storage Dandenong	0	0	0	0	0	0	0	158	0	0	0	0
Otway Basin (VIC)												
Minerva Gas Plant	71	60	71	71	71	71	71	73	88	69	65	73
Otway Gas Plant	77	92	84	93	102	9	47	205	62	72	127	128
Iona Underground Gas Storage	-4	1	8	8	26	31	38	440	22	15	95	90

*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)

^ These figures were submitted in error as gigajoules (GJ) rather than terajoules (TJ) by Lang Lang gas plant, and have been modified by the AER as TJs.

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)
2 Jan – 8 Jan	Average min.	21.5	19.3	13.5	16.3	17.6	12.8
	Average max.	28.7	25.0	25.6	26.4	30.0	23.9
26 Dec – 1 Jan	Average min.	20.9	19.1	11.6	13.6	16.5	9.9
	Average max.	27.4	25.7	29.1	25.6	29.8	20.6

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

2 Jan – 8 Jan	Scheduling Interval					Daily Imbalance Weighted Average Price
	6am	10am	2pm	6pm	10pm	
Sun	1.99	0.50	0.50	0.37	0.17	1.93
Mon	1.20	1.99	1.20	0.82	0.60	1.21
Tue	2.01	3.08	2.72	2.15	0.91	2.07
Wed	2.46	2.01	2.01	3.00	2.70	2.47
Thu	2.83	2.79	2.79	2.50	3.06	2.82
Fri	2.47	2.47	2.01	3.78	3.78	2.54
Sat	2.83	2.83	2.83	2.83	3.63	2.83

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	
2-Jan	MP:	308	307	307	307	307	0
	AEMO:	283	282	282	277	277	
	MP as % of AEMO	109	109	109	111	111	
3-Jan	MP:	331	333	338	338	338	0
	AEMO:	313	334	336	329	330	
	MP as % of AEMO	106	100	101	103	102	
4-Jan	MP:	347	373	377	377	377	0
	AEMO:	321	355	361	367	361	
	MP as % of AEMO	108	105	105	103	104	
5-Jan	MP:	375	376	376	378	378	0
	AEMO:	384	383	380	377	377	
	MP as % of AEMO	98	98	99	100	100	
6-Jan	MP:	389	388	393	402	402	0
	AEMO:	365	351	378	391	392	
	MP as % of AEMO	107	110	104	103	102	
7-Jan	MP:	423	423	423	431	430	0
	AEMO:	407	391	400	400	419	
	MP as % of AEMO	104	108	106	108	103	
8-Jan	MP:	313	313	313	314	314	0
	AEMO:	311	282	292	305	306	
	MP as % of AEMO	101	111	107	103	103	

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.

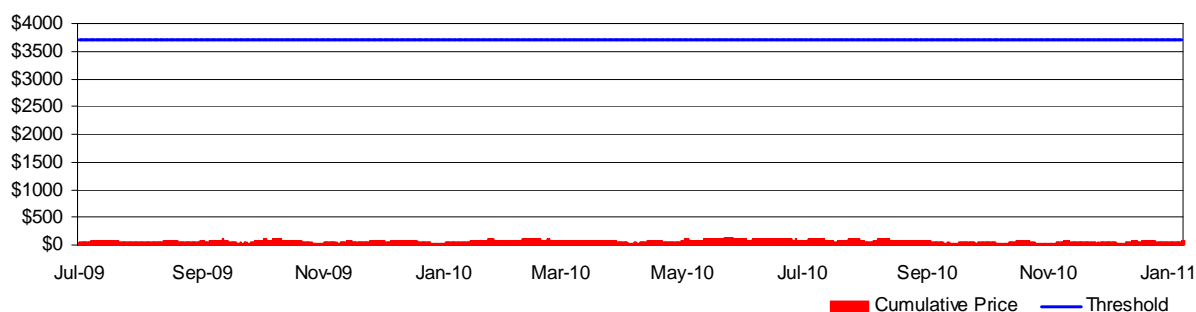
Figure A6: Unaccounted for Gas – 28 Day Rolling Average



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.

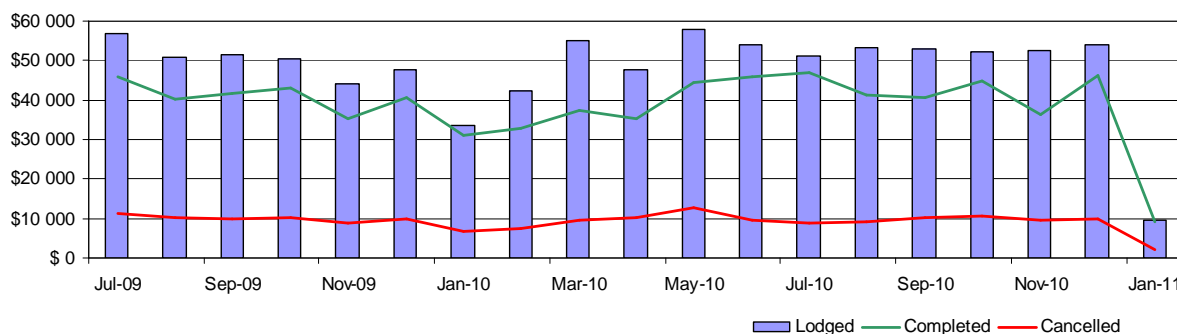
Figure A7: Cumulative Price and Threshold



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)