

29 August – 4 September 2010

Preface

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

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

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

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

Summary

Average prices in Victoria reduced from \$2.93/GJ the previous week to \$1.44/GJ, consistent with a reduction in average gas injections of 15 per cent. Average prices in the Victorian gas market were lower than prices in the Sydney and Adelaide hubs as shown in figure 1.

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

29 August – 4 September	Victorian market*	STTM Sydney hub**	STTM Adelaide hub**
Average Price	1.44	3.95	3.22

* weighted average daily imbalance price

** ex ante market price

NOTE: The STTM weekly figures include both market trial data (until 31 August) and live data.

On Saturday 4 September prices fell to \$0.02/GJ in Victoria with reduced gas demand on the weekend. However prices remained above \$3/GJ in Sydney and Adelaide where falls in weekend demand were smaller in comparison.

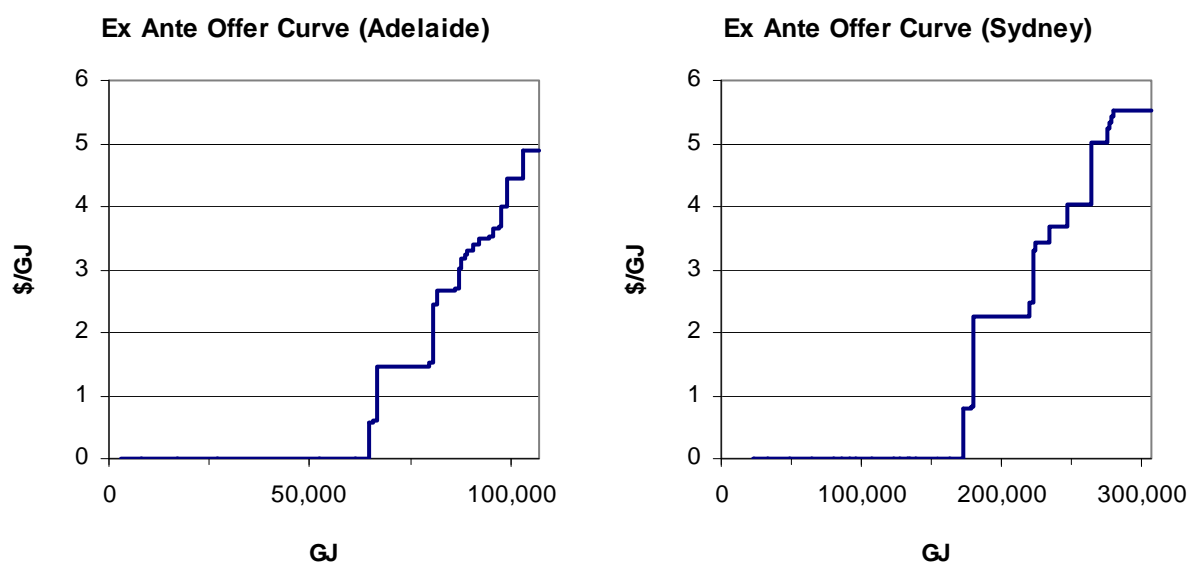
On Friday 3 September prices in the three markets also differed considerably as shown in figure 2.

Figure 2: Prices (\$/GJ) on 3 September

Friday 3 September	Victorian market	STTM Sydney hub	STTM Adelaide hub
Weighted Average Daily Imbalance Price	\$0.62	N/A	N/A
Ex ante price	N/A	\$5.00	\$3.31
Ex post price	N/A	\$5.00	\$4.45

The price in the Sydney hub was much higher on this day than in the Adelaide hub. Figure 3 shows the pricing of offers to the Adelaide hub and Sydney hub (for offers up to \$6/GJ). There is a large quantity of gas offered at \$0/GJ, presumably to match long term contracted gas. The figure highlights that the price of offers increases quite quickly once the \$0/GJ gas is exhausted. At the Sydney hub, offers combined with withdrawals bids and price taker bids set a price of \$5/GJ. In the Adelaide hub, the ex ante price was \$3.31/GJ however the ex post price for a higher demand was set at \$4.45/GJ. The Adelaide hub offers indicate that the price of offers is quite sensitive for any change in demand beyond approximately 80 TJ (80 000 GJ). Similarly in Sydney for changes in demand beyond 175 TJ there is a large amount of price sensitivity.

Figure 3: Ex ante offers in STTM hubs (3 September)



STTM Gas Markets (Adelaide and Sydney)

Currently the STTM has two hubs: one for Sydney and one for Adelaide. The level of participation by trading participants — STTM shippers and STTM users — between the hubs varies. To date Origin, AGL and TRUenergy have participated in both hubs. However, there are a number of trading participants active in only one of the hubs. Some examples are Adelaide Brighton Cement and Simply Energy (Adelaide hub) and Santos (Sydney hub) (see Figures S1 and S2).

From the commencement of the live market on 1 September 2010, ex post prices have followed ex ante prices in the Sydney hub more closely than in the Adelaide hub. In the Adelaide hub, ex post prices on most days were higher than the ex ante prices (see Figure S3 and S4). Differences between the prices appear to have been caused by deviations at the

Adelaide hub caused by under-forecasting of gas requirements in Adelaide (see Figure S19 and S20). Note that many of the tables and charts include market trial data.

A larger proportion of “As Available gas” (or non-firm gas) is being scheduled into the Adelaide hub than the Sydney hub (see Figure S5 and S6). There were greater differences in relative pipeline flows to hubs at the Sydney hub (see Figure S7). The predominant source of gas into the Adelaide hub was the Moomba to Adelaide Pipeline (see Figure S8).

With the commencement of the market, the amount of re-offering of gas between the provisional market schedule and final ex ante/ex post schedules increased, particularly to the Sydney Hub (see Figure S13 and S15). The AER is currently reviewing patterns of changes in offers and bids between the provisional and final schedules.

The highest amount of service payments for MOS (balancing gas) occurred in the live market on Sydney on Saturday, but was a relatively small amount in comparison to amounts over the market trial.

Victorian Gas Market

In line with a decrease in demand in Victoria, average gas injections fell by 142 TJ (15 per cent) compared to the previous week (see Figure V3). The average imbalance price increased from \$2.93/GJ the previous week to \$1.44/GJ (see Figure V2). AEMO issued demand overrides of -7 TJ on Sunday, -15 TJ on Monday, 8 TJ on Wednesday and -5 TJ on Thursday (see figure A5). A Supply Point Constraint (SDPC) was applied to injections at Bassgas on 2 September. Directional Flow Point Constraints (DFPCs) were also applied to injections and withdrawals at Vic Hub on 3 August, and at SEA Gas on 4 August.

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. Total average daily demand for gas decreased by 186 TJ compared to the previous week. Reduced demand was observed in all regions except South Australia, which recorded a 5 TJ increase (2 per cent). The most significant decreases in demand were recorded in Victoria (144 TJ or 15 per cent) and NSW/ACT (40 TJ or 9 per cent).

Total average daily gas powered generation (GPG) gas usage rose by 10 TJ (2 per cent) compared to the previous week. This was the result of increased GPG demand in NSW/ACT and South Australia offsetting decreased demand in the other regions. Demand for GPG in South Australia rose by 11 TJ (7 per cent), while a rise of 8 TJ (15 per cent) was recorded in NSW/ACT. Minor decreases of 1 TJ to 4 TJ were recorded in other regions.

Average daily production volumes fell by 185 TJ (8 per cent) compared to the previous week. While an increase of 22 TJ was recorded at Ballera, significant decreases were recorded in all the other production zones. Decreased injections at Longford (67 TJ or 7 per cent), Iona (55 TJ or 38 per cent) and Minerva (14 TJ or 17 per cent) influenced a fall in production in Victoria by 119 TJ (9 per cent). Production at Moomba also decreased significantly, falling 47 TJ (13 per cent), while production at Roma fell by 39 TJ (7 per cent).

Reduced production led to a significant reduction in average daily flows across most major pipelines this week. Significant flow reductions were recorded on the South West Queensland Pipeline (19 TJ or 14 per cent), the Moomba to Sydney Pipeline (47 TJ or 18 per cent), the South West Pipeline (64 TJ or 33 per cent) and the Longford to Melbourne Pipeline (81 TJ or 11 per cent). Coinciding with the significant demand decrease in Victoria, increased flows were recorded on each pipeline transporting gas away from Victoria, with the exception of flows towards Tasmania decreasing by 1 TJ. This saw flows on the NSW-Vic Interconnect, Eastern Gas and SEA Gas Pipelines rise by 3 TJ, 7 TJ and 8 TJ respectively.

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
29 August – 4 September	393	33	805	314	48	191	94	118
Financial Year-to-date 2010-11*	456	47	930	321	49	187	92	99
Financial Year-to-date 2009-10**	447	43	855	282	25	146	90	67

*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 (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
29 August – 4 September	62	6	170	33	160
Financial Year-to-date 2010-11*	20	34	179	81	159
Financial Year-to-date 2009-10**	87	44	144	10	103

^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 (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)
29 August – 4 September	550	958	296	339
Financial Year-to-date 2010-11*	565	1049	352	366
Financial Year-to-date 2009-10**	418	858	358	366

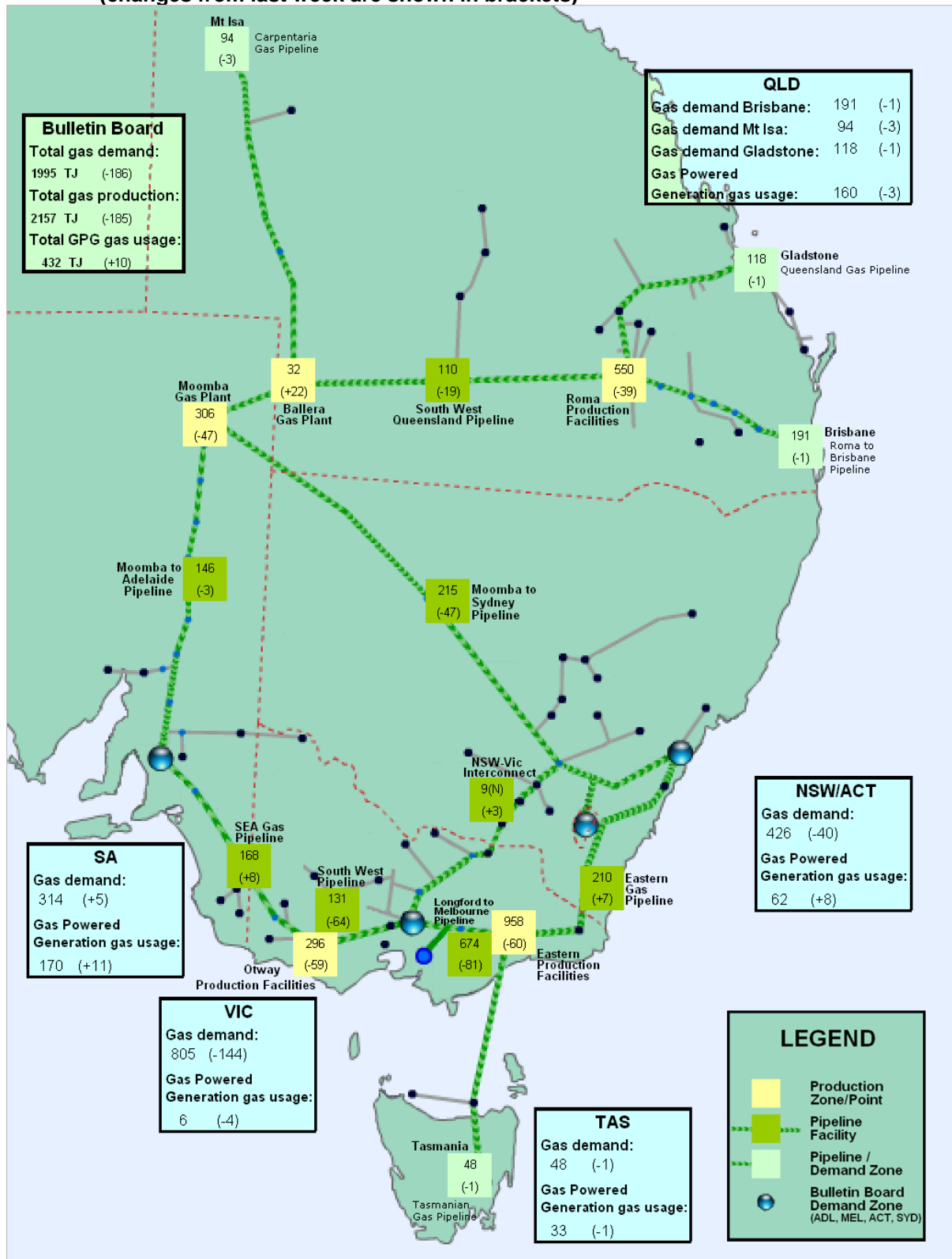
*Average daily estimated gas consumption measured from 1 July 2010 to the current week (inclusive)

**Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009 (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 last week are shown in brackets)

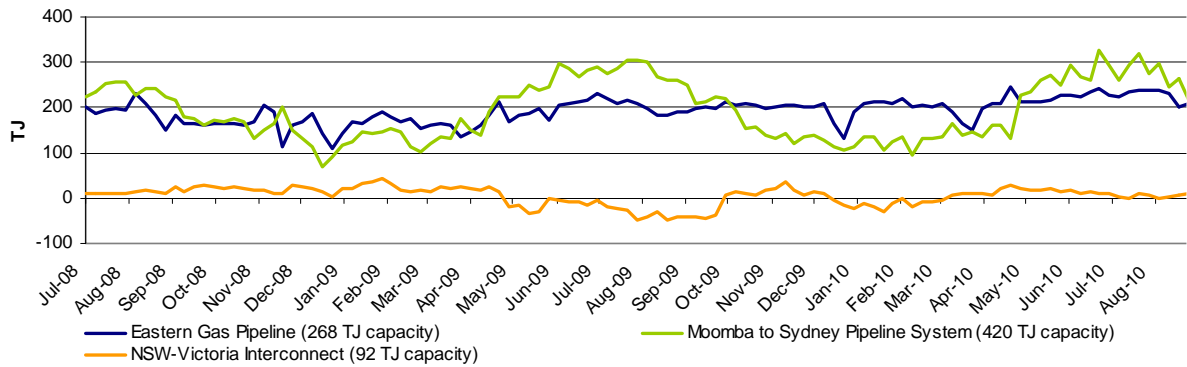


Source: Natural Gas Market Bulletin Board <http://www.gasbb.com.au>
 Notes: Direction of aggregate daily flows along the NSW-Vic Interconnect indicated on map by S (South) or N (North).
 Numbers in brackets indicate a change in average daily flow from the previous week.

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.

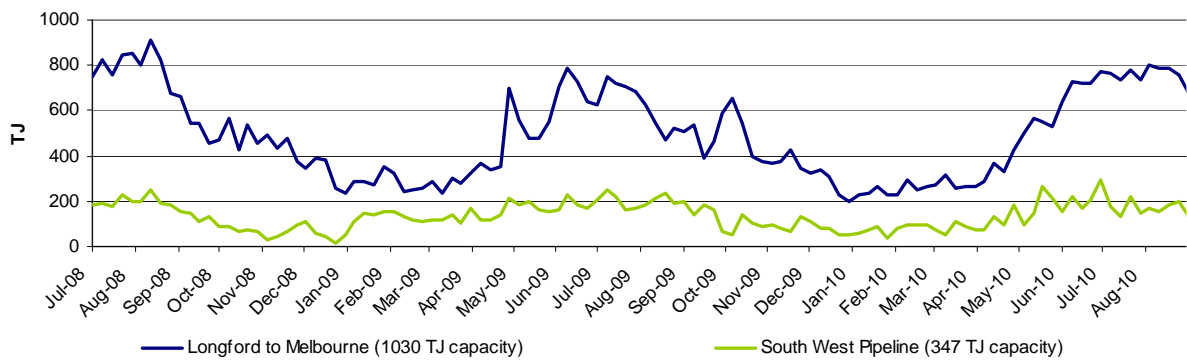
Figure N5: Average daily flows (TJ) into NSW/ACT demand region



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

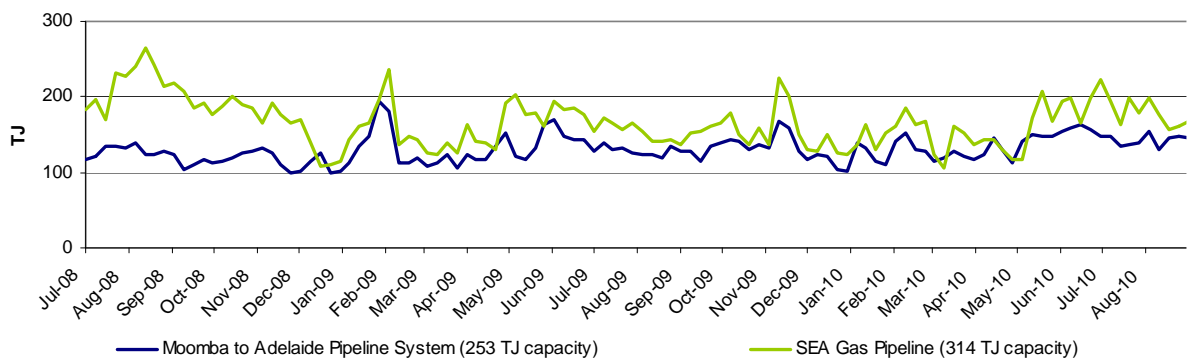
Notes: Negative flows on the NSW-Victoria Interconnect represent flows out of NSW into VIC.

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 Principal Transmission System (VPTS). 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 VPTS							Withdrawal bids in the VPTS				
			BassGas	Culcairn	IONA	LNG	Longford	SEA Gas	VicHub	Otway	Culcairn	IONA	SEA Gas	VicHub
AETV Power	Trader	2							NS					S
AGL (Qld)	Retailer	1				NS								
AGL	Retailer	4		NS	S	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					
Lumo Energy	Trader	2			S				NS			S		S
Origin (Vic)	Retailer	6	S	NS	S	NS	S	S			S	S		
Origin (Uranquinty)	Trader	1					S							
Red Energy	Retailer	1					S							
Santos	Retailer	3			S			S						S
Simply Energy	Retailer	4			S	NS	S	NS						
TRU Energy	Retailer	4			S	NS	S					S		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)

	29 August – 4 September	22 – 28 August	2010-11 Financial YTD*	2009-10 Financial YTD**
Average daily price	1.44	2.93	2.71	1.67

29 August – 4 September	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Daily price	1.90	3.03	0.82	1.75	1.93	0.62	0.02

*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 (inclusive)

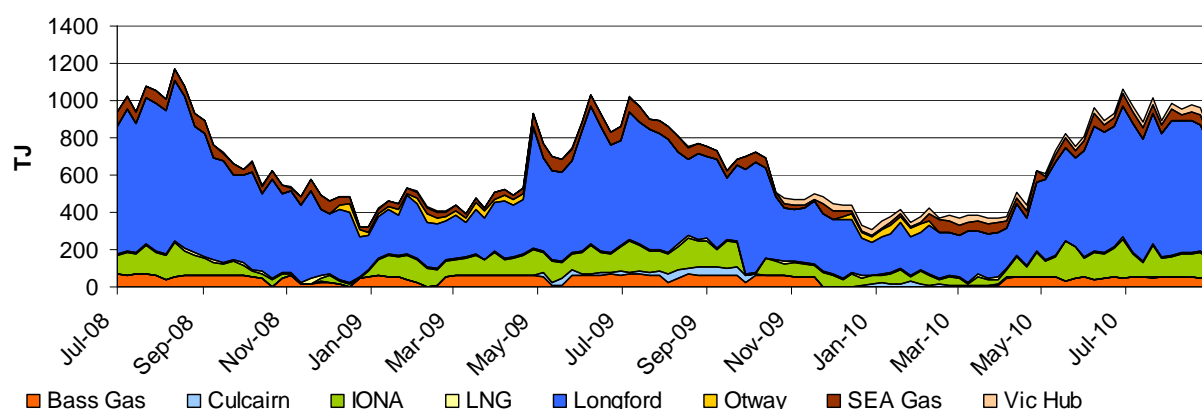
Source: <http://www.aemo.com.au> (INT 041)

System Injections

Figure V3 notes the average daily injections into the VPTS for the current 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 VPTS

Injection Point:	29 August – 4 September	22 – 28 August	2010-11 Financial YTD*	2009-10 Financial YTD**
Culcairn	1	0	2	31
Longford	607	682	681	563
LNG	9	8	8	9
IONA	89	139	121	137
VicHub	20	35	30	1
SEAGas	39	51	50	67
Bass Gas	50	43	50	57
Otway	0	0	0	0
TOTAL	816	958	941	865



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

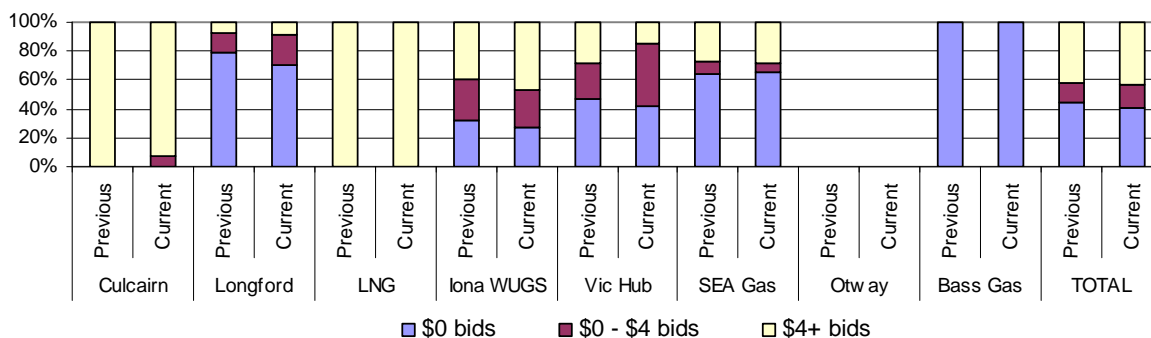
**Average daily estimated gas consumption measured from 1 July 2009 to the equivalent week in 2009 (inclusive)

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 VPTS 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							
Longford	AGL TRU	AGL TRU	AGL TRU	AGL TRU	Origin TRU	AGL Origin TRU	AGL TRU
LNG							
Iona	TRU APG	APG Lumo	APG Lumo	AGL APG Lumo	APG Lumo	TRU APG Lumo	TRU APG
VicHub	AETV	AETV	AETV	AETV Lumo	AETV Lumo	AETV Lumo	AETV
SEAGas		Simply	Origin Simply	Origin 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 notes the average daily gas usage on the VPTS for this week, compared with the 2009-10 financial year-to-date daily average, as well as the 2008-09 equivalent.

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

System withdrawal zone:	29 August – 4 September	22 – 28 August	2010-11 Financial YTD*	2009-10 Financial YTD**
Ballarat	39	46	45	41
Geelong^	95	107	107	96
Gippsland	52	58	58	57
Melbourne	560	658	650	600
Northern	79	85	85	73
TOTAL	825	955	945	867

^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 (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.

This, the first edition of the Gas Weekly Analysis report containing a section on the new STTM, 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 offers / withdrawal bids	Offers			Bids			
			EGP	MSP	ROS	EGP	MSP	ROS	SYD - NET
AETV Power	Shipper	1	S			NS			
AGL Energy Sales & Marketing Pty Ltd	STTM User, Shipper	3	S	S	S				S
AGL Wholesale Gas Limited	Shipper	2	S	S					
APA Facilities Management Pty Ltd	Shipper								
APA Facilities Management Pty Ltd (not active)	Shipper								
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								NS
EnergyAustralia	STTM User, Shipper	2	S	S					
Esso Australia Resources Pty Ltd	Shipper								
OneSteel Manufacturing Pty Ltd	Shipper, STTM User	1	S						
OneSteel NSW Pty Ltd	STTM User, Shipper	1	S						
Origin Energy (VIC) PTY LTD	Shipper								
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						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

NOTE: This figure includes both market trial data (until 31 August) and live data

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				
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

NOTE: This figure includes both market trial data (until 31 August) and live data

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

Ex ante and Ex post Market Prices

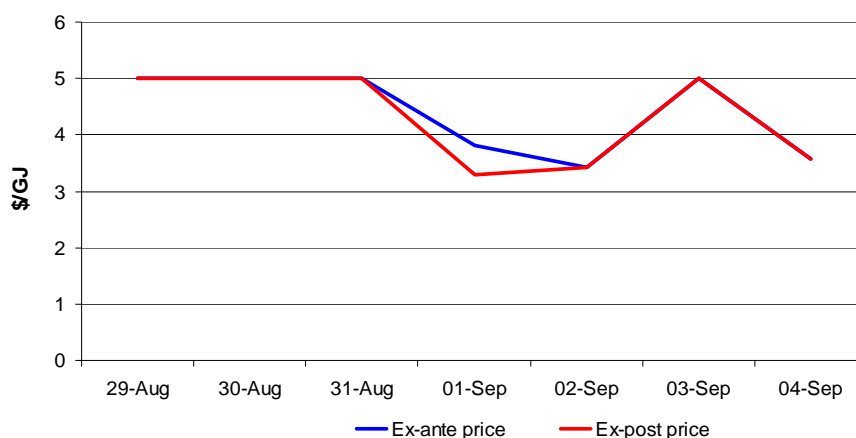
Figures S3 and S4 show ex ante and ex post prices at the Sydney and Adelaide Hubs. Differences between the ex ante and ex post price may arise where there are significant differences between price taker bids (demand forecasts) for the hub and actual demand in the hub. When this occurs, this leads to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

	29 Aug - 4 Sep	22 - 28 Aug	Financial YTD*
Ex ante price (\$/GJ)	4.40	4.34	N/A
Ex post price (\$/GJ)	4.33	4.59	N/A

* Financial Year to date figures will be included from October 2010

NOTE: This figure includes both market trial data (until 31 August) and live data



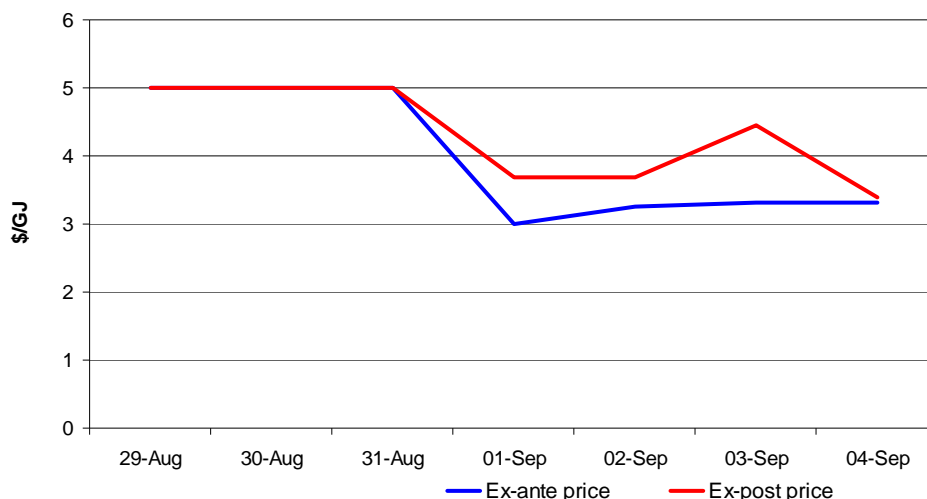
Source: <http://www.aemo.com.au> INT 651, 657

NOTE: This figure includes both market trial data (until 31 August) and live data

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

	29 Aug - 4 Sep	22 - 28 Aug	2010-11 Financial YTD*
Ex ante price	3.98	10.02	N/A
Ex post price	4.32	4.53	N/A

* Financial Year to date figures will be included from October 2010
 NOTE: This figure includes both market trial data (until 31 August) and live data



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

NOTE: The STTM weekly figure includes both market trial data (until 31 August) and live data

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.

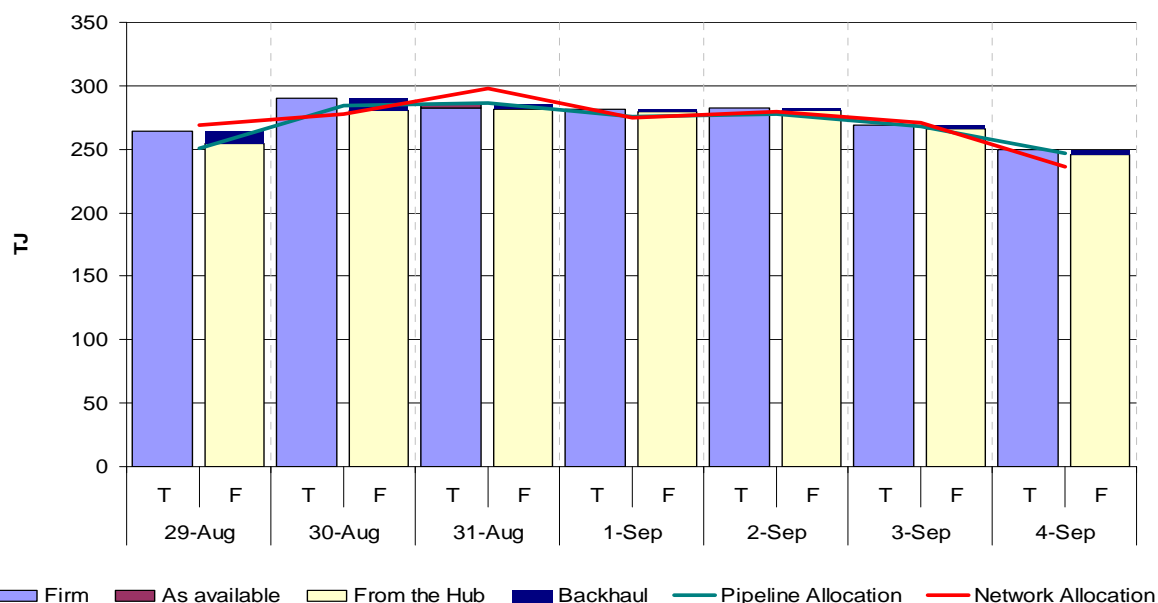
Gas can also be scheduled from the STTM hubs. This happens when Shippers “backhaul” gas from the hub or Users bid to take gas from the hub (including price taker bids).

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.

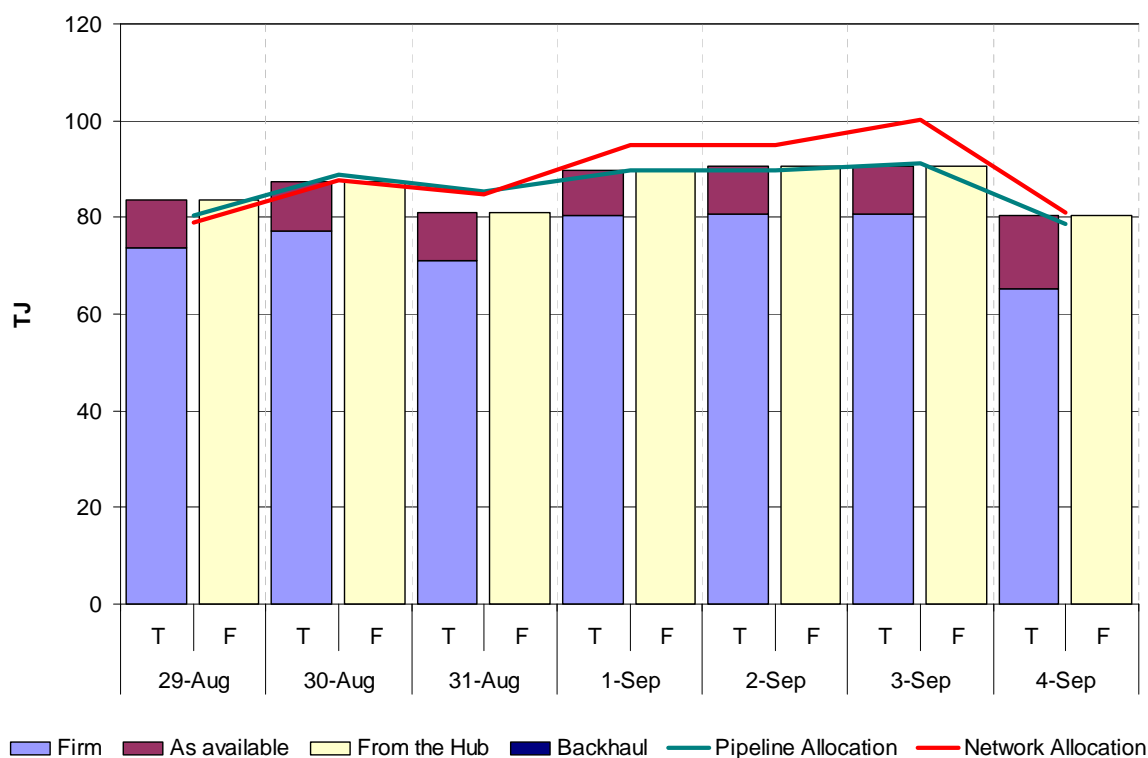
By comparing the level of the red line to the columns marked “F”, it can be shown whether demand (allocation) was higher than scheduled. Similarly, comparing the green line to the columns marked “T” shows how the actual flow of gas (allocation) compared to what was scheduled.

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



Source: <http://www.aemo.com.au> INT 651, 652, 658 and 664
NOTE: This figure includes both market trial data (until 31 August) and live data

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



Source: <http://www.aemo.com.au> INT 651, 652, 658 and 664
NOTE: This figure includes both market trial data (until 31 August) and live data

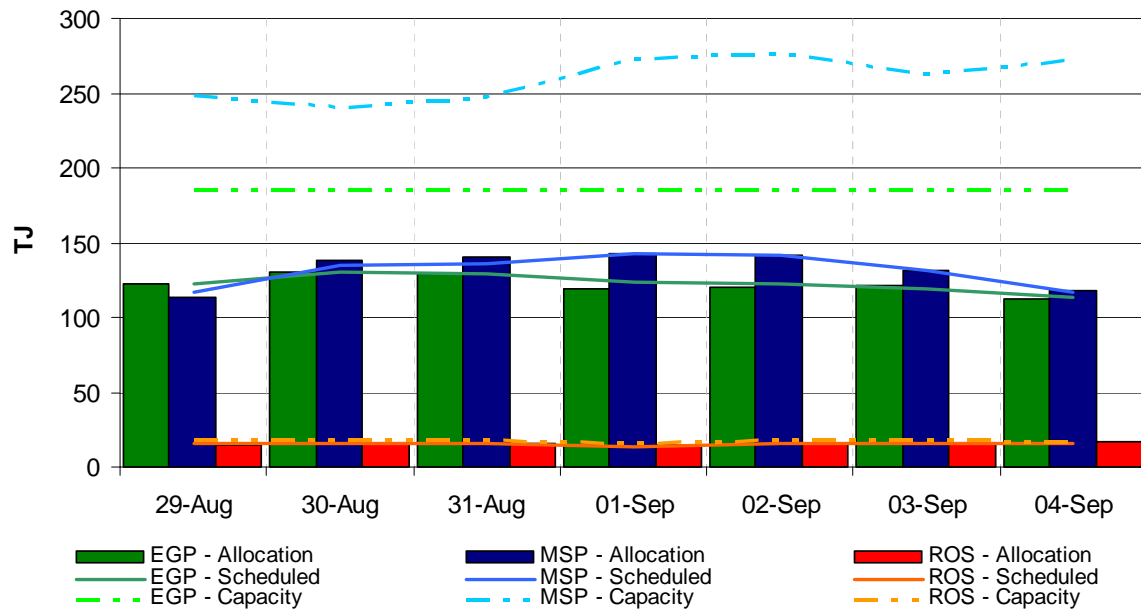
Pipeline Facility Allocations

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.

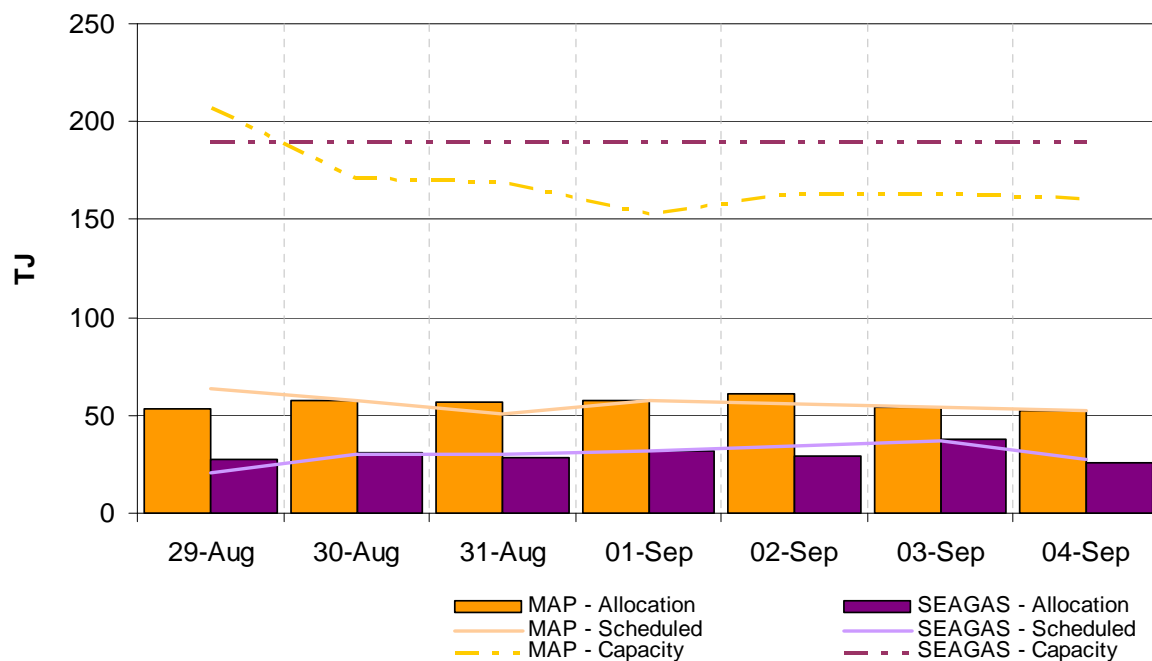
Differences between the amount of gas scheduled and what was actually allocated can result in variations between the ex ante and ex post price, as the ex post price is related to the offers actually allocated while ex ante is related to the offers scheduled.

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



Source: <http://www.aemo.com.au> INT 652, 653, 658 and 664
 EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility
 NOTE: This figure includes both market trial data (until 31 August) and live data

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



Source: <http://www.aemo.com.au> INT 652, 653, 658 and 664
 MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline
 NOTE: This figure includes both market trial data (until 31 August) and live data

Offers and Bids

Trading Participants submit offers to sell gas into an STTM hub and withdrawal bids to take gas from a hub.

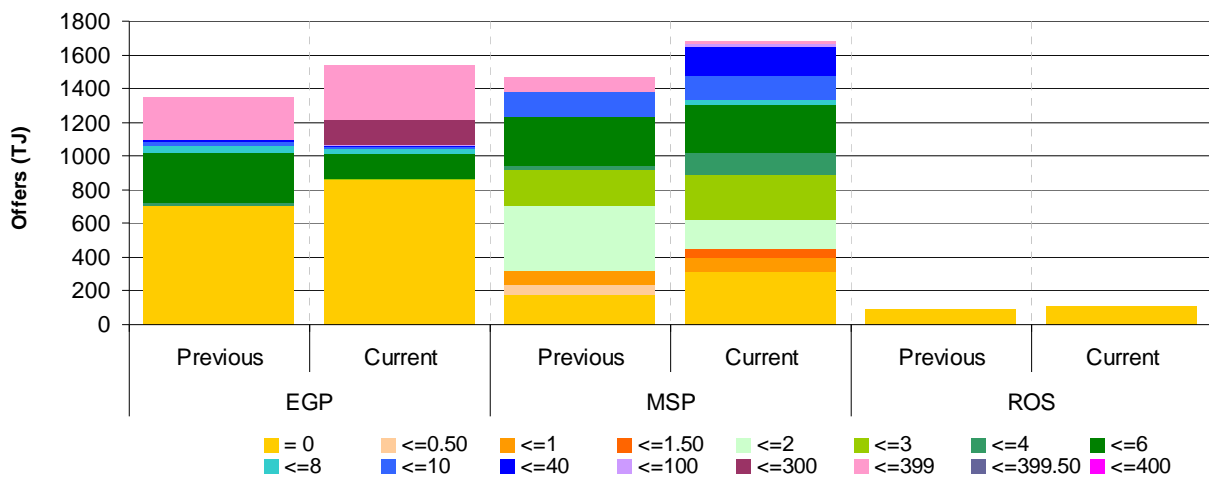
Figures S9 and S11 show for the Sydney and Adelaide hubs respectively, total offers within various price bands for the current week compared to the previous week for each of the pipeline facilities.

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)

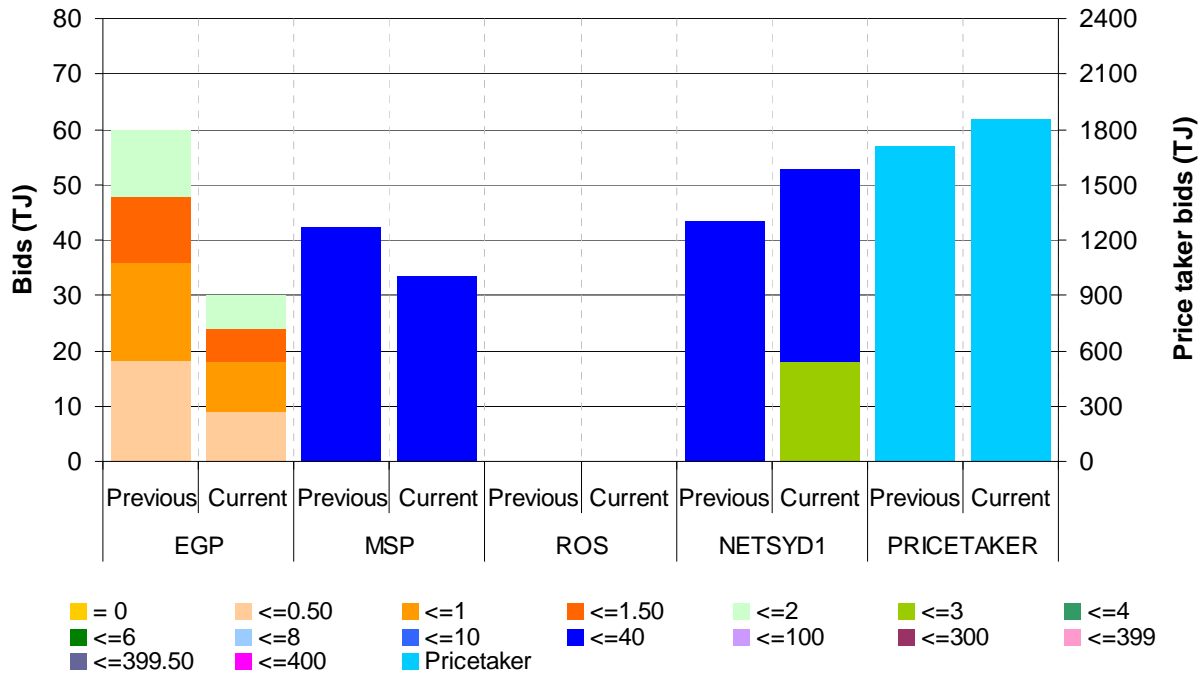


Source: <http://www.acmo.com.au> INT 652, 659

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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

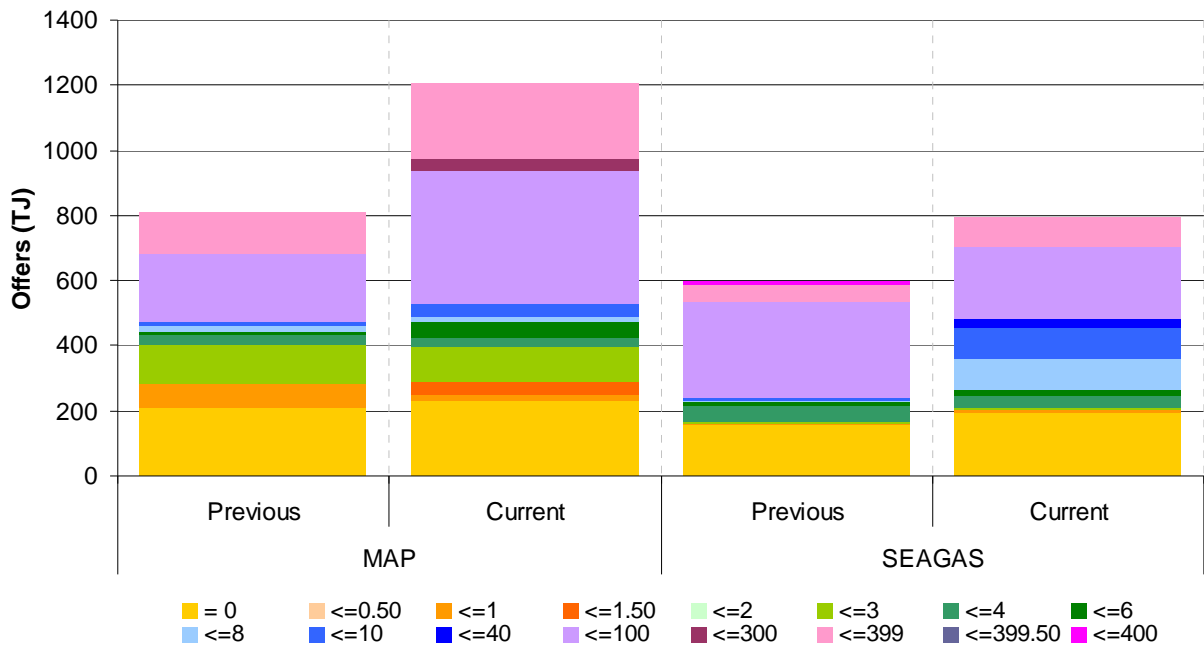


Source: <http://www.aemo.com.au> INT 652, 659

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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

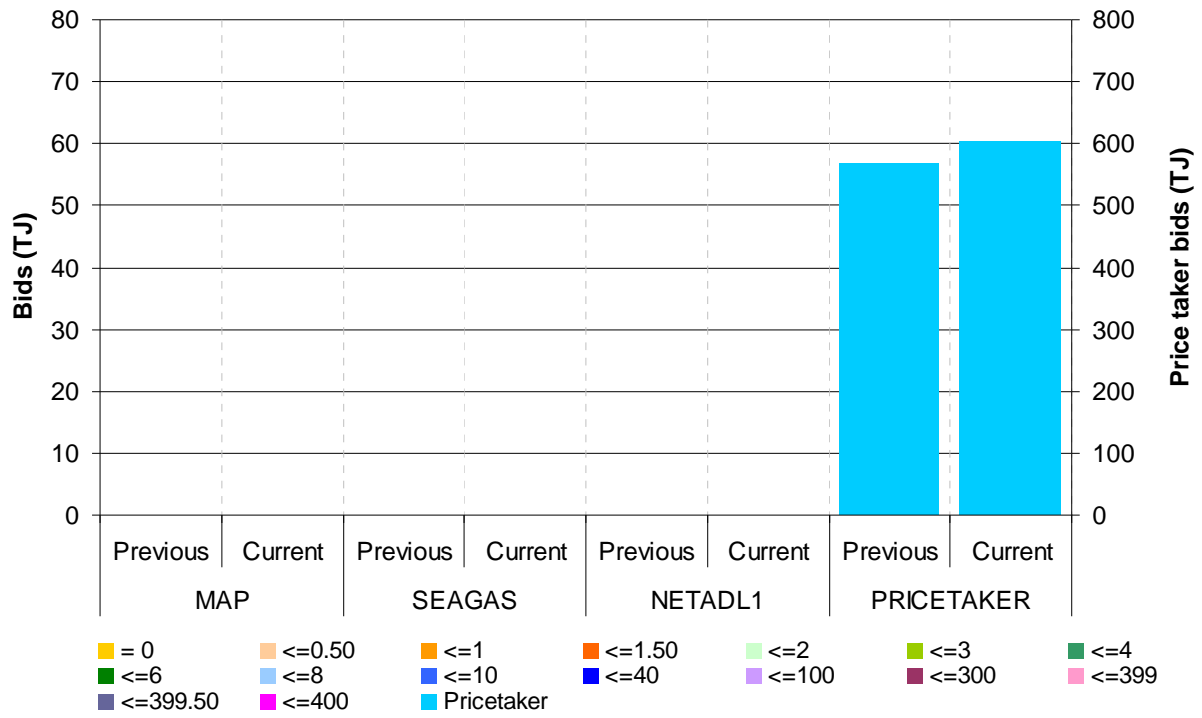


Source: <http://www.aemo.com.au> INT 652, 659

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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 |

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		
NETS-YD1	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

NOTE: This figure includes both market trial data (until 31 August) and live data

Country= Country Energy

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	ABC AGL(WGSA) Origin Simply TRU	TRU	Origin Simply	ABC AGL(SA) AGL(WGSA) Origin	AGL(SA) AGL(WGSA) Origin Simply	ABC AGL(SA) AGL(WGSA) Origin Simply	ABC AGL(SA) AGL(WGSA) Origin Simply
	D-2 to D-1	Simply TRU	Origin Simply	AGL(SA) AGL(WGSA) Origin	AGL(SA) AGL(WGSA) Origin Simply	ABC AGL(SA) AGL(WGSA) Origin Simply	ABC AGL(SA) AGL(WGSA) Origin Simply	ABC AGL(SA) AGL(WGSA) Origin Simply
SEA-GAS	D-3 to D-2	Origin TRU	TRU	Origin Simply TRU	Origin TRU	AGL(WGSA) Origin Simply TRU	Origin	Origin Simply TRU
	D-2 to D-1	Simply TRU	Origin Simply TRU	AGL(WGSA) Origin TRU	AGL(WGSA) Origin Simply TRU	Origin TRU	Origin Simply TRU	Origin Simply TRU

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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 |

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 (or an “allocation”) from a MOS provider (either an increase or decrease offer), the MOS provider is charged or paid according to their MOS offer price.

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 (called 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

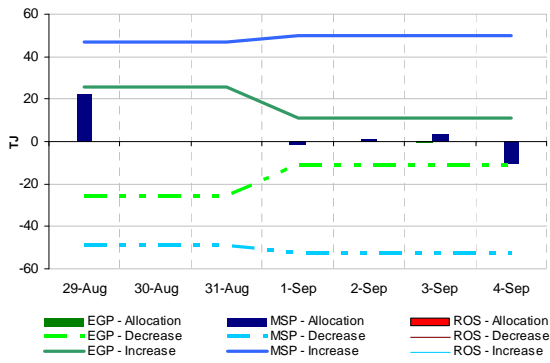
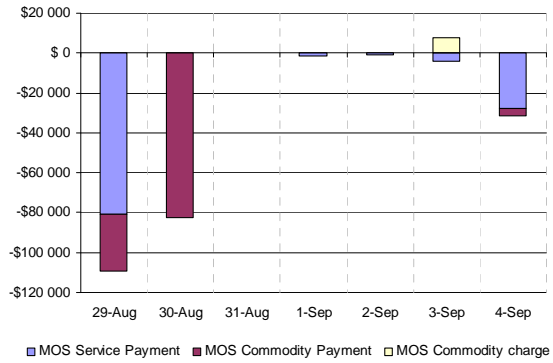


Figure S17b Sydney MOS payments / Charges



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

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

NOTE: These figures include both market trial data (until 31 August) and live data

Figure S18a – Adelaide MOS allocations

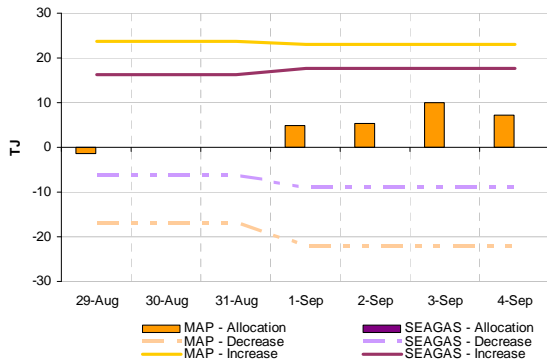
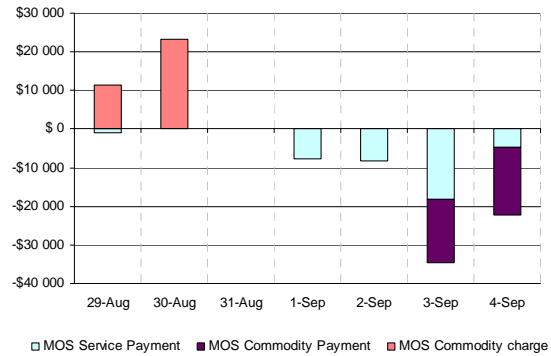


Figure S18b Adelaide MOS payments / Charges



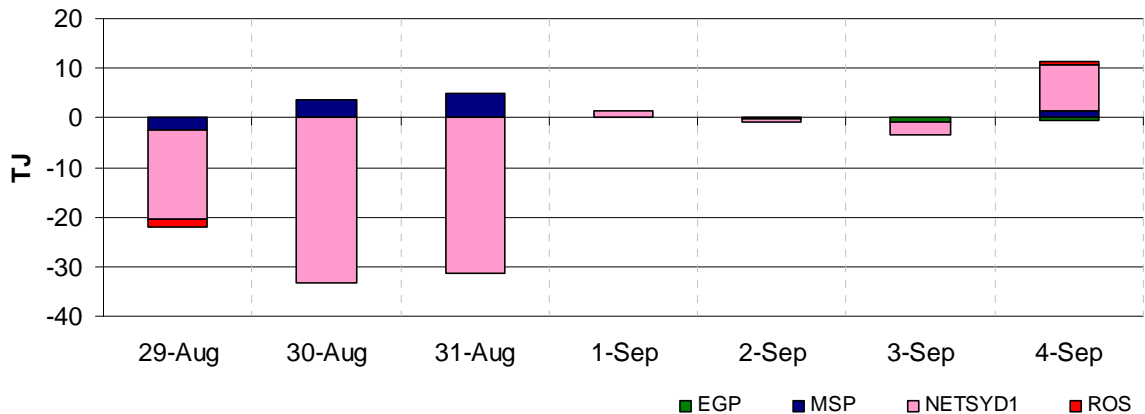
MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

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.

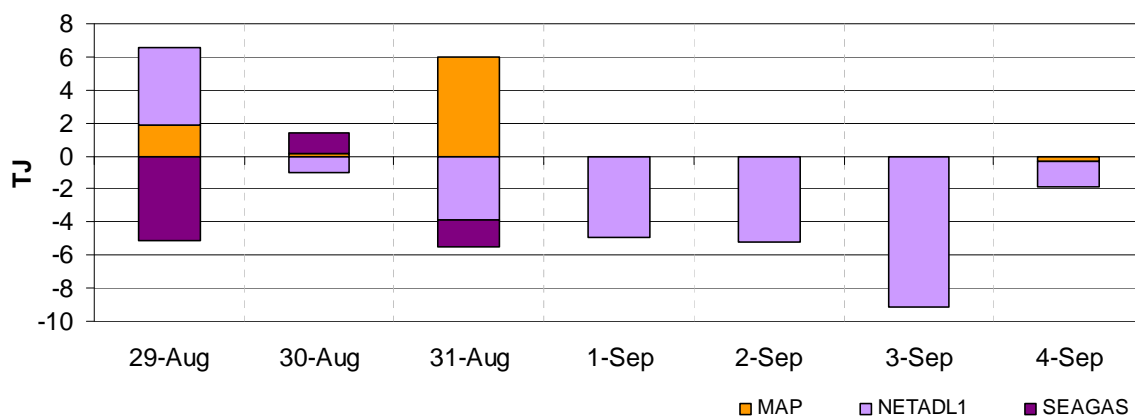
Figure S19 Net Deviations – Sydney Hub



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

NOTE: This figure includes both market trial data (until 31 August) and live data

Figure S20 Net Deviations – Adelaide Hub



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

NOTE: This figure includes both market trial data (until 31 August) and live data

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 Market Variations - Sydney Hub

	29 Aug-4 Sep	22-28 Aug	2010-11 Financial YTD
Quantity (TJ)	1669	1528	N/A
Charges (\$)	278 317	91 952	N/A

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

NOTE: This figure includes both market trial data (until 31 August) and live data

Figure S22 Market Variations - Adelaide Hub

	29 Aug-4 Sep	22-28 Aug	2010-11 Financial YTD
Quantity (TJ)	706	3251	N/A
Charges (\$)	3803	948 061	N/A

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

NOTE: This figure includes both market trial data (until 31 August) and live data

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	95	95	94	91	93	96	92	117	79	94	92	90
QLD Gas Pipeline	121	116	116	118	120	122	116	142	70	118	99	67
Roma to Brisbane Pipeline	179	196	208	204	197	190	164	219	85	191	187	146
South West QLD Pipeline	132	109	119	118	134	79	82	181	76	110	137	159
NSW/ACT												
Eastern Gas Pipeline	165	188	221	233	233	232	203	268	85	210	228	204
Moomba to Sydney Pipeline	213	256	255	206	203	205	169	420	66	215	275	285
NSW-VIC Interconnect [^]	7	18	0	13	8	7	12	92	6	9	5	-29
VIC												
Longford to Melbourne	664	684	714	726	711	656	563	1030	73	674	757	617
South West Pipeline	100	110	170	171	132	158	78	347	49	131	172	207
SA												
Moomba to Adelaide Pipeline	136	147	143	150	147	147	150	253	56	146	141	129
SEA Gas Pipeline	155	185	177	182	165	191	124	314	57	168	180	154
TAS												
Tasmanian Gas Pipeline	47	48	49	49	48	48	43	129	38	48	49	25

*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 (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	106	106	107	107	106	105	105	140	70	106	98	81
Fairview	129	129	32	130	34	147	121	130	94	103	122	108
Kenya Gas Plant	67	67	69	70	59	60	60	160	38	64	61	24
Kincora	12	15	15	0	0	0	0	25	19	6	5	1
Kogan North	10	10	10	10	10	10	10	12	80	10	10	6
Peat	11	11	11	11	11	11	11	15	69	11	10	11
Rolleston	11	11	11	12	11	11	11	30	38	11	11	11
Scotia	29	29	29	29	29	29	29	29	95	29	28	14
Spring Gully	55	54	55	55	55	54	56	69	78	55	54	53
Strathblane	55	54	55	55	55	54	56	69	78	55	54	53
Taloona	33	33	33	33	33	33	34	42	77	33	32	32
Wallumbilla	10	10	10	10	10	10	10	20	47	10	9	9
Yellowbank	13	11	13	13	13	13	11	30	43	12	13	15
Talinga	56	45	53	52	48	27	26	81	72	44	58	
Moomba (SA/QLD)												
Moomba Gas Plant	373	341	316	293	278	276	267	430	83	306	356	365
Ballera	0	18	13	22	33	81	60	150	6	32	9	1
Eastern (VIC)												
Orbost Gas Plant	0	0	0	0	1	0	0	100	0	0	0	0
Lang Lang Gas Plant	50	50	51	51	47	51	51	70	71	50	50	56
Longford Gas Plant	896	902	922	963	945	938	786	1145	87	907	1000	802
LNG Storage Dandenong	0	0	0	0	0	0	0	158	0	0	0	0
Otway Basin (VIC)												
Minerva Gas Plant	60	73	73	68	78	68	54	94	88	68	83	77
Otway Gas Plant	105	164	159	132	169	169	84	206	68	140	140	144
Iona Underground Gas Storage	68	69	115	126	81	76	76	440	30	88	130	137

*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 (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)
29 August – 4 September	Average min.	13.1	12.9	4.7	8.6	10.0	5.4
	Average max.	25.1	19.7	15.2	16.0	17.3	14.4
22 – 28 August	Average min.	11.5	10.3	1.9	6.9	8.2	5.8
	Average max.	21.3	17.8	11.7	14.9	15.0	13.9

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

29 August – 4 September	Scheduling Interval					Daily Imbalance Weighted Average Price
	6am	10am	2pm	6pm	10pm	
Sun	1.95	1.80	1.27	0.35	1.96	1.90
Mon	3.18	3.20	1.27	0.17	0.15	3.03
Tue	0.55	1.65	2.21	3.29	3.89	0.82
Wed	1.65	2.45	3.27	3.00	1.99	1.75
Thu	1.95	0.46	2.50	0.49	2.97	1.93
Fri	0.47	2.90	2.85	0.61	0.51	0.62
Sat	0.02	0.01	0.02	0.08	0.10	0.02

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	
29-Aug	MP:	827	810	812	803	820	-7
	AEMO:	787	772	786	765	780	
	MP as % of AEMO	105	105	103	105	105	
30-Aug	MP:	883	884	869	855	860	-15
	AEMO:	855	834	822	781	788	
	MP as % of AEMO	103	106	106	110	109	
31-Aug	MP:	766	761	795	814	808	0
	AEMO:	786	804	841	855	902	
	MP as % of AEMO	97	95	95	95	90	
1-Sep	MP:	823	836	885	866	865	8
	AEMO:	903	902	937	918	871	
	MP as % of AEMO	91	93	94	94	99	
2-Sep	MP:	867	844	867	864	865	-5
	AEMO:	843	838	832	821	861	
	MP as % of AEMO	103	101	104	105	101	
3-Sep	MP:	772	761	790	789	788	0
	AEMO:	773	798	856	811	798	
	MP as % of AEMO	100	95	92	97	99	
4-Sep	MP:	643	651	668	671	672	0
	AEMO:	686	636	642	660	649	
	MP as % of AEMO	94	102	104	102	103	

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