WEEKLY GAS MARKET ANALYSIS

AUSTRALIAN ENERGY REGULATOR

14 August – 20 August 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 (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. 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 aerinquiry@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

14 August – 20 August	Victorian market*	STTM Sydney hub**	STTM Adelaide hub**
Average Price	3.34	3.67	3.82

*weighted average daily imbalance price
**ex ante market price

STTM Gas Markets (Adelaide and Sydney)

Figure S3 shows Sydney's average ex ante and ex post prices were higher than the previous week's. This week's ex ante and ex post prices were also more closely aligned than the previous week, perhaps reflecting more accurate ex ante demand forecasting by participants.

Adelaide's average ex ante and ex post prices were essentially the same as the previous week's (see figure S4). Daily ex ante and ex post prices were closely aligned.

Figures S5 and S6 show that with variations of between 1 TJ to 6 TJ, network allocations (consumption at the hub, indicated by the red lines) at both hubs were also largely in line with their respective pipeline allocations (deliveries to the hub, indicated by the green lines). The variations were equivalent to around 2 per cent of pipeline allocations in Sydney, and around 5 per cent of pipeline allocations in Adelaide.[1]

Figure S7 shows variances between allocated and ex ante scheduled gas on Sydney pipelines were very small this week. However figure S8 shows on 15, 16 and 19 August in Adelaide under-deliveries on the SEAGas Pipeline were essentially offset by over-deliveries on the Moomba to Adelaide Pipeline (MAP). The magnitude of the variances on these days is set out in figure 2.

Figure 2: Deliveries compared to scheduled gas on pipelines in the Adelaide hub

Gas day	SEAGas Pipeline (TJ) (Under-deliveries)	Moomba to Adelaide Pipeline (TJ) (Over-deliveries)
15-Aug	-14.5	13.7
16-Aug	-10.3	9.9
19-Aug	-3.0	3.8

Source: http://www.aemo.com.au INT 652, 653, 658 and 664 (MOS allocations removed)

The AER understands these variances were caused by participants renominating to reduce flows on the SEAGas Pipeline and renominating to increase flows on the MAP to meet hub demand. These variances did not cause large pipeline deviations (which would have led to a requirement for MOS).

Figure S18a shows that with the exception of 20 August (where there was 1 TJ of decrease allocations), there were essentially no MOS allocations on the SEAGas Pipeline. As the cost of MOS on SEAGas is relatively high, low allocations on SEAGas meant MOS payments and charges in Adelaide were relatively low this week (see figure S18b).

Victorian Gas Market

Slightly warmer temperatures this week (see A3) saw a 19 per cent (184 TJ) drop in average daily demand (see figure V3), and a lower average daily price than the previous week (see figure V2).

There were a number of very low prices at the final 10 pm schedule this week, with prices falling to $0/GJ on Sunday, $0.60/GJ on Thursday and $1.29/GJ on Saturday (see figure A4).

National Gas Market Bulletin Board

Figure N4 shows gas demand and production was lower across all the south-eastern regions compared to the previous week, led by Victoria. The lower demand was consistent with warmer temperatures in Victoria and the ACT this week.

The drop in demand for Tasmania and South Australia this week was primarily driven by lower gas-powered generation (GPG) compared to last week.

There were no instances of late or missing Bulletin Board data this week.

[1] Allocations before accounting for market operator services as determined by internal AER analysis.

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

						QLD		
Average daily flows	**NSW**	**ACT**	**VIC**	**SA**	**TAS**	Brisbane	Mt Isa	Gladstone
14 August – 20 August	392	39	767	320	46	171	104	122
Financial Year-to-date 2011-12*	412	47	893	318	50	170	101	122
Financial Year-to-date 2010-11**	470	49	946	324	50	186	91	93

*Average daily estimated gas consumption measured from 1 July 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (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**
14 August – 20 August	81	18	192	30	128
Financial Year-to-date 2011-12*	80	25	187	35	121
Financial Year-to-date 2010-11**	87	24	184	35	159

^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 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (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.

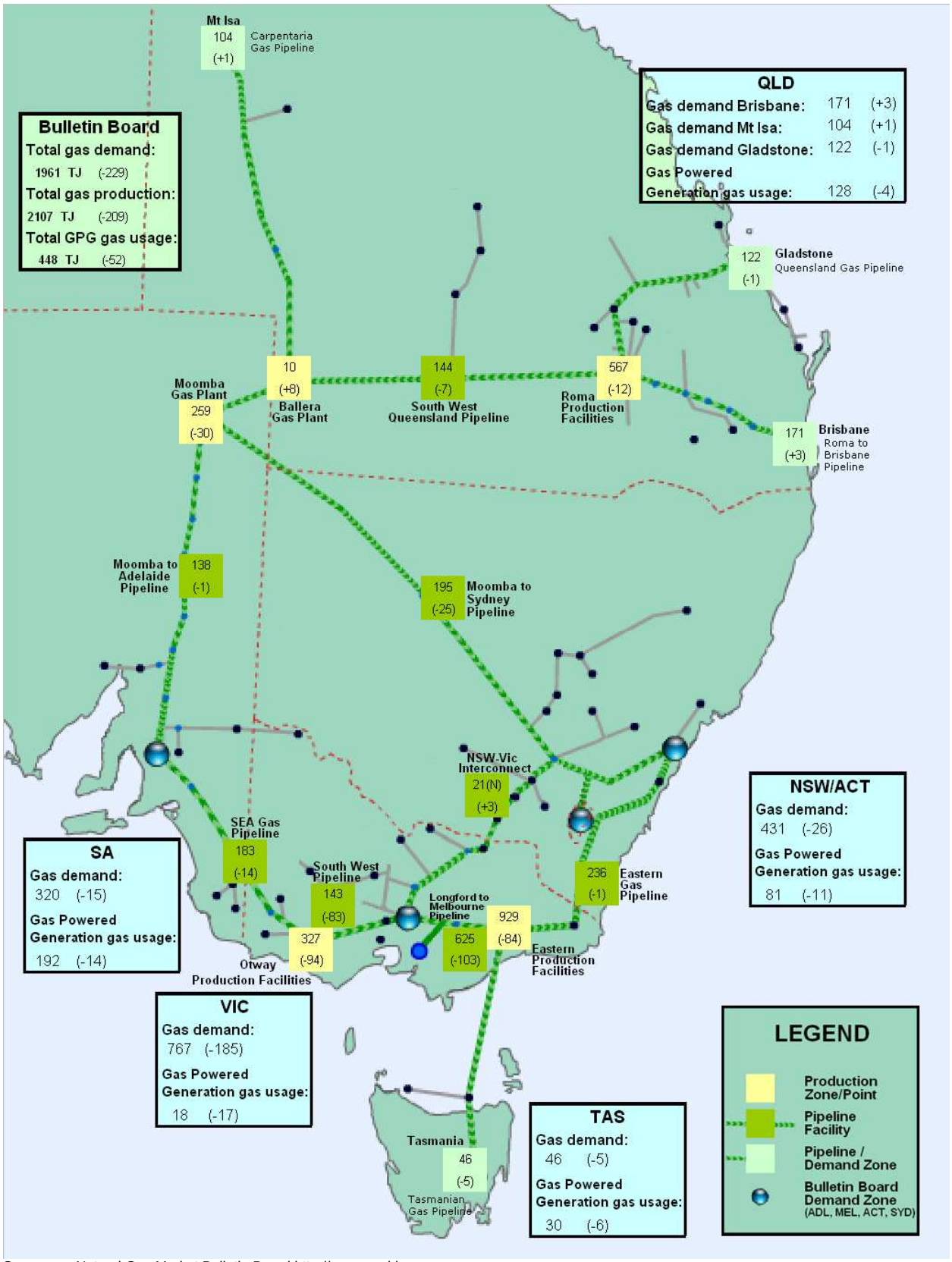
Figure N3 sets out the daily average flows from production and storage facilities from each production zone across the National Gas Market. A list of production/storage facilities for each zone is provided in Figure A2.

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

Average daily flows	**Roma (QLD)**	**Eastern Victoria**	**Otway Basin (VIC)**	**Moomba (SA/QLD)**
14 August – 20 August	567	929	327	268
Financial Year-to-date 2011-12*	569	971	396	290
Financial Year-to-date 2010-11**	564	1068	361	370

*Average daily estimated gas consumption measured from 1 July 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (inclusive)
Source: National Gas Market Bulletin Board http://www.gasbb.com.au

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

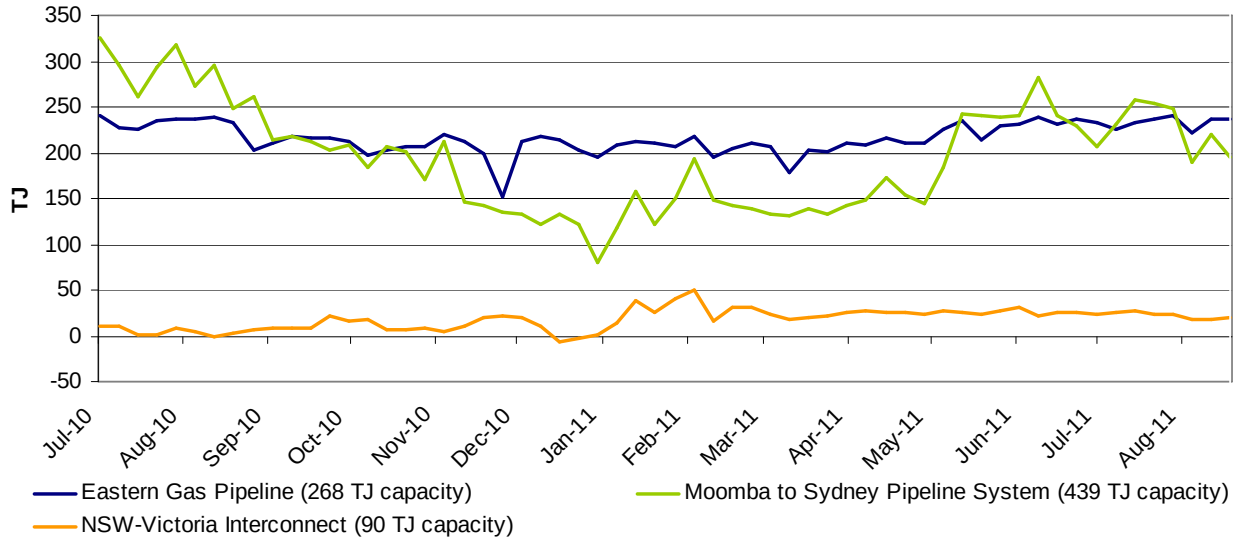


Source: Natural Gas Market Bulletin Board http://www.gasbb.com.au
Notes: Direction of aggregate daily flows along the NSW-Vic Interconnect indicated on map by S (South) or N (North).
Numbers in brackets indicate a change in average daily flow from the previous week.

Gas flows into demand regions

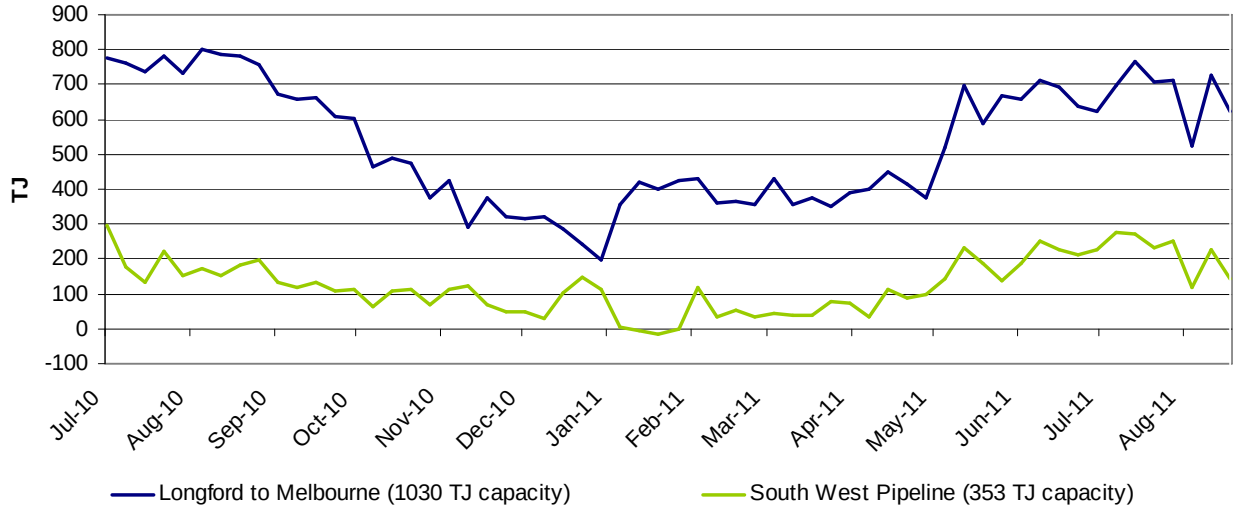
The figures below provide the average daily flows into each of the demand regions served by multiple pipelines and supply sources.

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



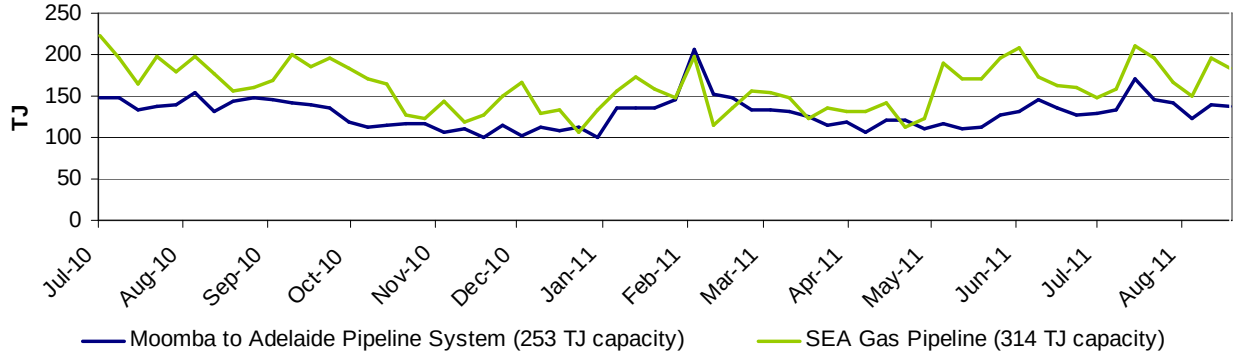
Source: Natural Gas Market Bulletin Board http://www.gasbb.com.au
Notes: Negative flows on the NSW-Victoria Interconnect represent flows out of NSW into VIC.

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



Source: Natural Gas Market Bulletin Board http://www.gasbb.com.au
Notes: Negative flows on the South West Pipeline represent flows out of the VPTS and back into storage at Iona.

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



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

Part B: Victorian Gas Market

Participation in the market

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

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

Figure V1: Injection and withdrawal point bids in the VIC Gas Market^

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	Mortlake	Culcairn	IONA	SEA Gas	VicHub
AETV Power	Trader	2					NS		NS						NS
AGL (Qld)	Retailer	1				NS									
AGL	Retailer	3			NS	NS	S						NS		
Aurora Energy	Retailer	1					S								
Ausgrid	Retailer	1					S								
Aust. Power & Gas	Retailer	3			S	NS	S						S		
Aust. Power & Gas	Trader	1					S								
Coogee Energy	Transmission Customer	1					S								
Essential Energy	Transmission Customer	1										S			
Lumo Energy	Retailer	5		NS	S	NS		S	S			NS			
Lumo Energy	Trader	2			S				NS				NS		NS
Origin (Vic)	Retailer	6	S	NS	S	NS	S	S				NS	NS		
Origin (Uranquinty)	Trader	2					S					S			
Red Energy	Retailer	1					S								
Santos	Retailer	1							S						
Simply Energy	Retailer	4			NS	NS	S	S					S	S	
TRU Energy	Retailer	4			S	NS	S		NS				NS		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)

	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*	2010-11 Financial YTD**
Average daily price	3.34	3.67	3.54	*2.85*

14 August – 20 August	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Daily price	3.43	3.18	3.48	3.43	3.07	3.40	3.41

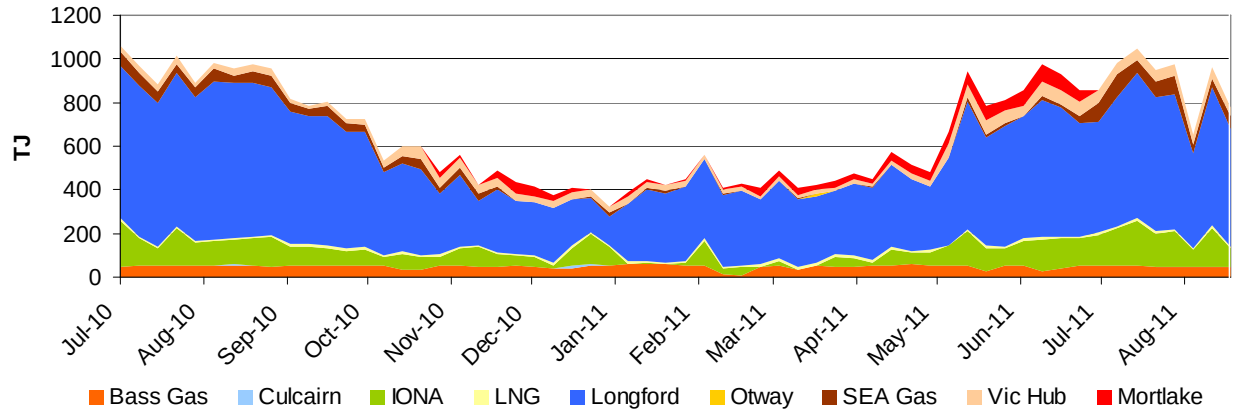
*Average daily imbalance weighted average price from 1 July 2011 to the current week (inclusive)
**Average daily imbalance weighted average price from 1 July 2010 to the equivalent week in 2010-11 (inclusive)
Source: http://www.aemo.com.au (INT 041)

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:	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*	2010-11 Financial YTD**
Culcairn	0	0	0	2
Longford	538	633	582	692
LNG	11	10	10	8
IONA	82	179	146	122
VicHub	41	50	48	30
SEAGas	59	43	68	52
Bass Gas	48	47	49	51
Otway	0	0	0	0
Mortlake	0	0	0	
TOTAL	**779**	**963**	**903**	**957**

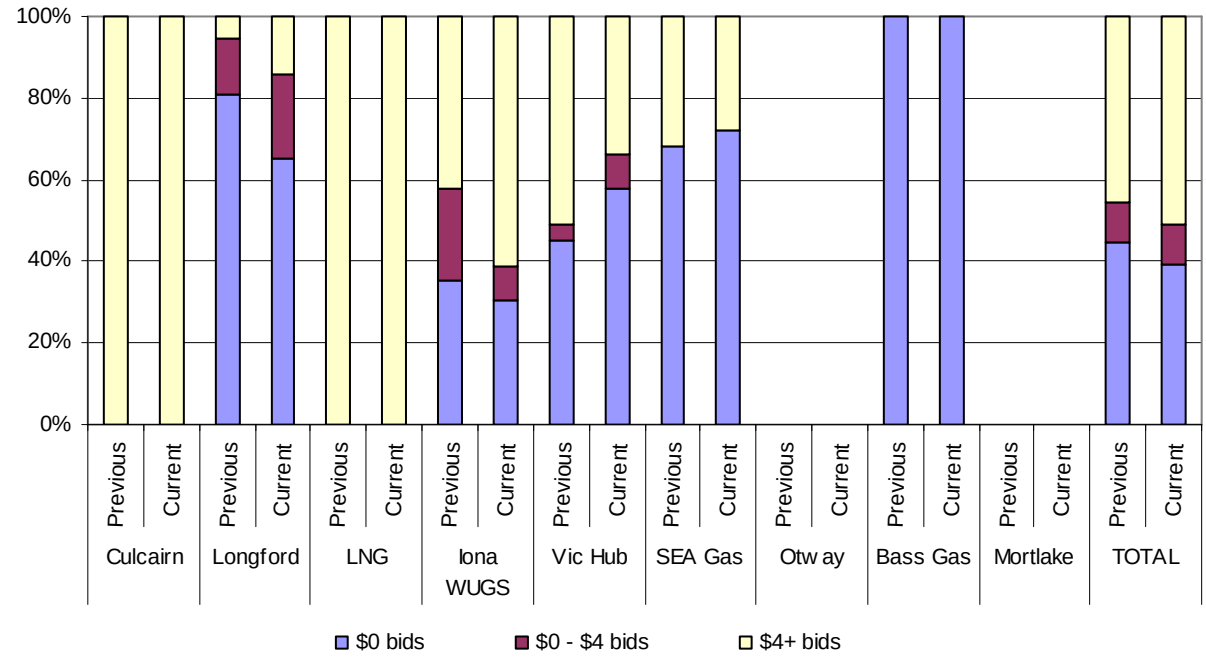


*Average daily estimated gas consumption measured from 1 July 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (inclusive)
Source: http://www.aemo.com.au (INT 150)

Bidding Activity

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

Figure V4: Price structure of bids by injection points



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

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

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

Figure V5: Intra-day rebidding of gas injections

Injection Point:	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Culcairn		Lumo				Lumo	
Longford	AGL TRU Aurora	AETV AGL Origin TRU Aurora	AETV AGL Origin TRU Aurora	AETV AGL TRU Aurora	AETV AGL TRU Aurora	AETV AGL Origin TRU Aurora	AETV AGL Origin TRU Aurora
LNG				APG			
Iona	TRU Lumo	TRU APG Simply Lumo		Origin TRU APG Lumo	Origin TRU APG Simply	TRU APG Lumo	Origin TRU APG Lumo
VicHub	AETV TRU	AETV TRU Lumo	AETV	AETV Lumo	AETV	AETV Lumo	AETV TRU
SEAGas				Origin	Origin		
Bass Gas							
Mortlake							

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 I CE = Country Energy | Lumo = Lumo Energy (formerly Victoria Electricity) | AGL (QLD) = AGL Sales (Queensland) | Red = Red Energy | Ausgrid = Ausgrid | Aurora = Aurora 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:	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*	2010-11 Financial YTD**
Ballarat	35	44	42	46
Geelong^	102	112	105	109
Gippsland	49	60	54	58
Melbourne	512	650	608	662
Northern	88	95	97	86
TOTAL	**786**	**961**	**906**	**961**

^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 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (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	• Wholesale market operator, • Retail market operator, • Transmission pipeline system operator	• Wholesale market operator, • Retail market operator
Scheduling	• 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).	• 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	• 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	• 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)	• 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	• On the day pipeline balancing through Market Operator Service (MOS), provided by MOS offers from shippers
Transmission pipeline constraint management	• Ancillary payments for higher priced gas scheduled that relieves constraints • Uplift payments to fund ancillary payments	• 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 bid points	Offers			Bids			
			EGP	MSP	ROS	EGP	MSP	ROS	SYD - NET
AETV Power	Shipper								
AGL Energy Sales & Marketing Limited	STTM User,Shipper	3	S	S	S				
AGL Wholesale Gas Limited	Shipper	2	S	S					
Ausgrid	STTM User,Shipper	2	S	S					
Australian Power & Gas Pty Ltd	STTM User,Shipper	1	S						
BHP Billiton Petroleum (Bass Strait) PL	Shipper								
BlueScope Steel	STTM User,Shipper	1	S						
Commonwealth Steel Company Pty Limited	STTM User								
Delta Electricity	STTM User,Shipper	1							S
Essential Energy	STTM User,Shipper	2	S				S		
Esso Australia Resources Pty Ltd	Shipper								
Lumo Energy (NSW) Pty Ltd	STTM User								
Lumo Energy Australia Pty Ltd	Shipper	2	NS			NS	NS		
OneSteel Coil Coaters Pty Ltd	STTM User								
OneSteel Manufacturing Pty Ltd	STTM User,Shipper	1	S						
OneSteel NSW Pty Ltd	STTM User,Shipper	1	S						
OneSteel Trading Pty Limited	STTM User								
Origin Energy LPG Limited	STTM User,Shipper								
Origin Energy Retail Ltd	STTM User,Shipper	1		S					
Santos Direct Pty Ltd	STTM User,Shipper	1	S						
TRUenergy Pty Ltd	STTM User,Shipper	2	S	S		S			
Tyco Water	STTM User								

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

^^STTM Users also submit price-taker bids to satisfy customer demand, which are not included in this table
Source: http://www.aemo.com.au INT 651, 659, 668
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility, SYD-NET=Sydney Hub

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

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

^ Offers and bids taken from the (D-1) ex ante schedule
^^ STTM Users also submit price-taker bids to satisfy customer demand, which are not included in this table
Source: http://www.aemo.com.au INT 651, 659, 668
MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline, ADL-NET=Adelaide Hub

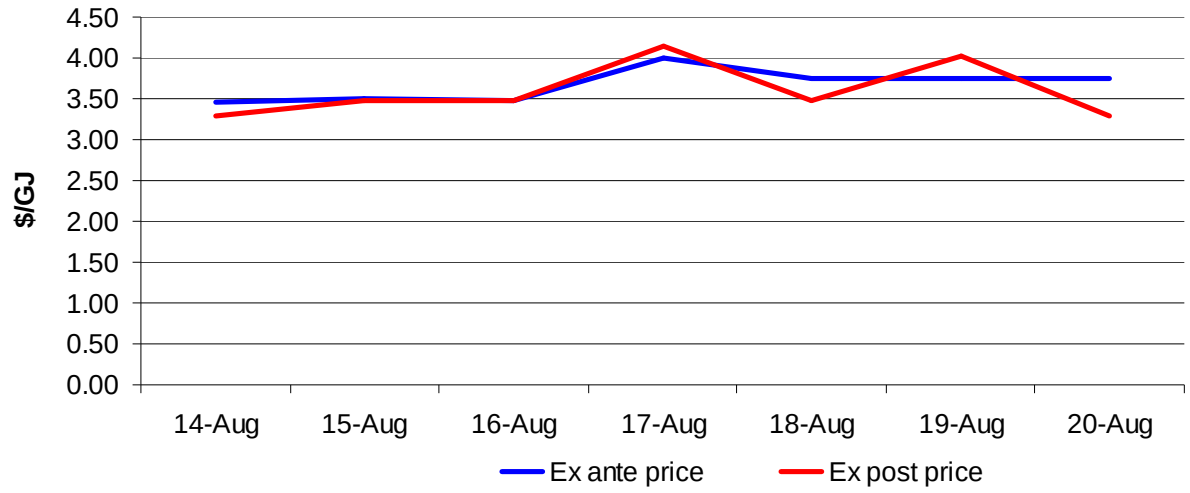
Ex ante and Ex post Market Prices

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

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

	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*
Ex ante price	3.67	3.17	3.53
Ex post price	3.60	2.35	3.00

*Financial Year to date figure from 1 July 2011 to the current week (inclusive)
Source: http://www.aemo.com.au INT 651, 657

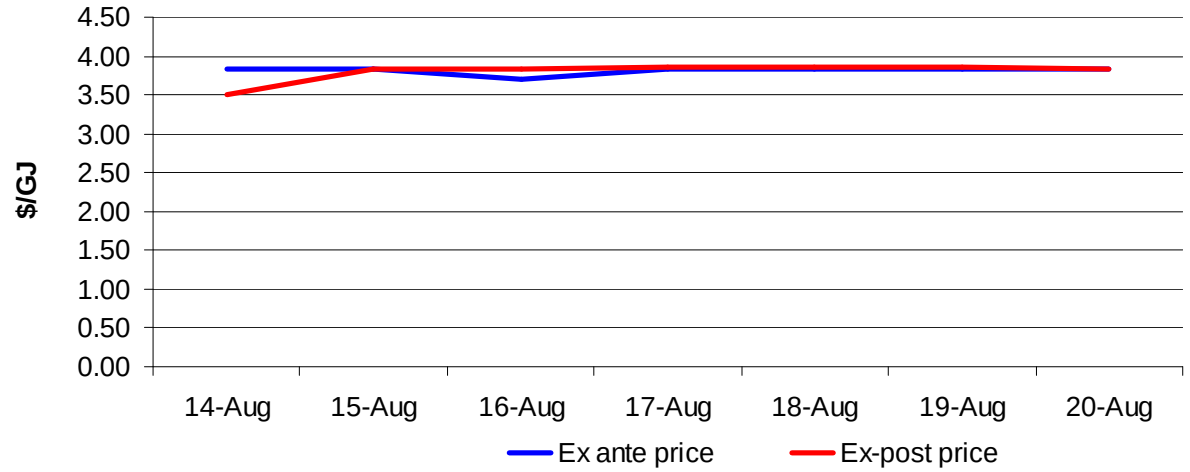


Source: http://www.aemo.com.au INT 651, 657

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

	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*
Ex ante price	3.82	3.83	3.90
Ex post price	3.80	3.79	3.95

*Financial Year to date figure from 1 July 2011 to the current week (inclusive)
Source: http://www.aemo.com.au INT 651, 657



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.

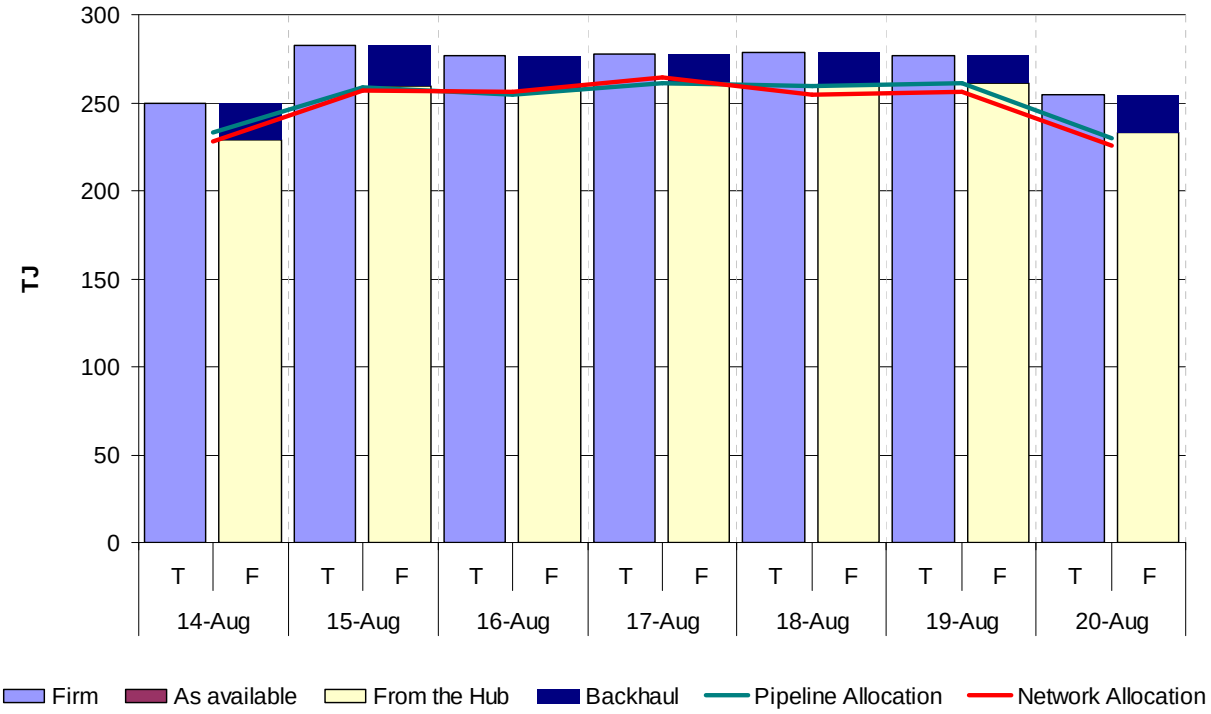
Gas can also be scheduled from the STTM hubs. This happens when Shippers "backhaul" gas from the hub or Users bid to take gas from the hub (including price taker bids).

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.

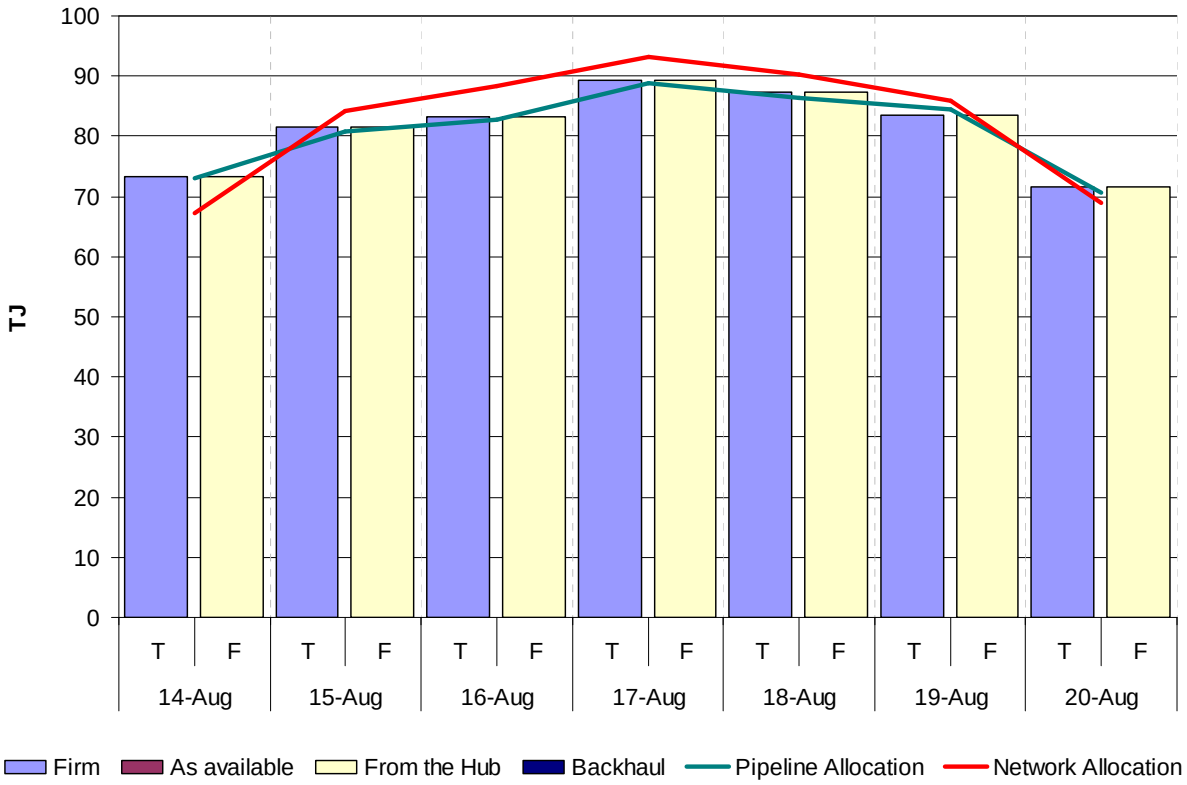
By comparing the level of the red line to the columns marked "F", it can be shown whether demand (allocation) was higher than scheduled. Similarly, comparing the green line to the columns marked "T" shows how the actual flow of gas (allocation) compared to what was scheduled.

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)

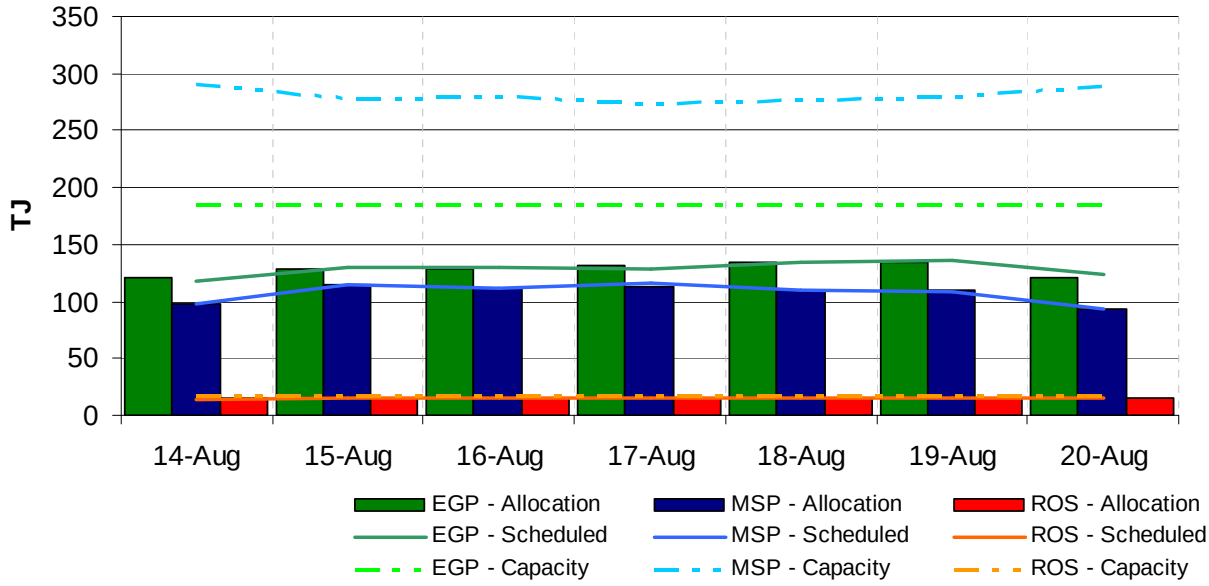
Pipeline Facility Allocations

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.

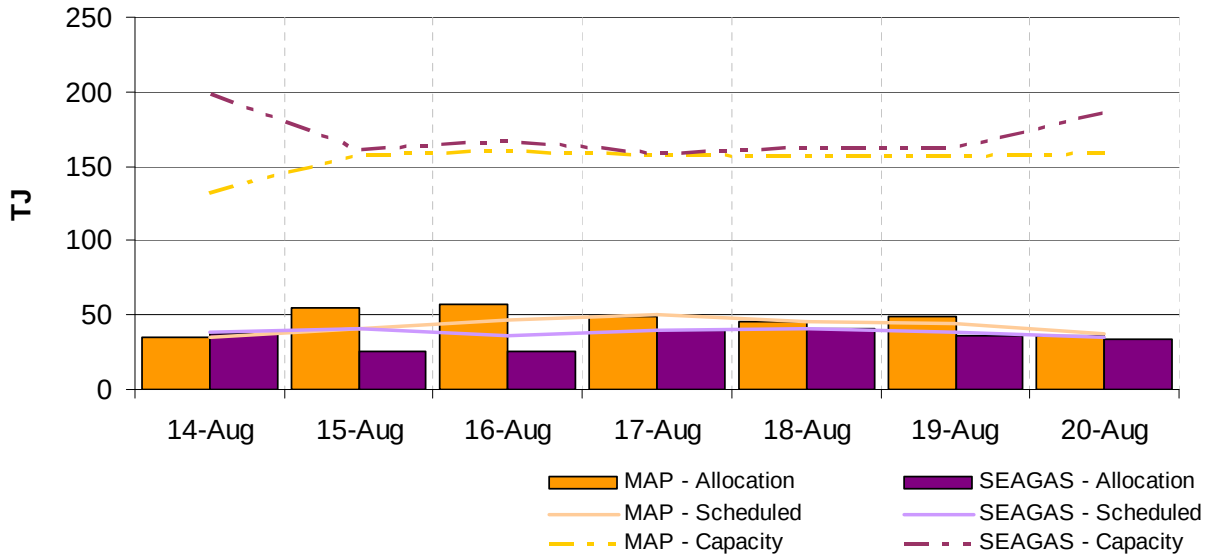
Figure S7: Allocated vs scheduled pipeline quantities - Sydney Hub (TJ)



p

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

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



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

Offers and Bids

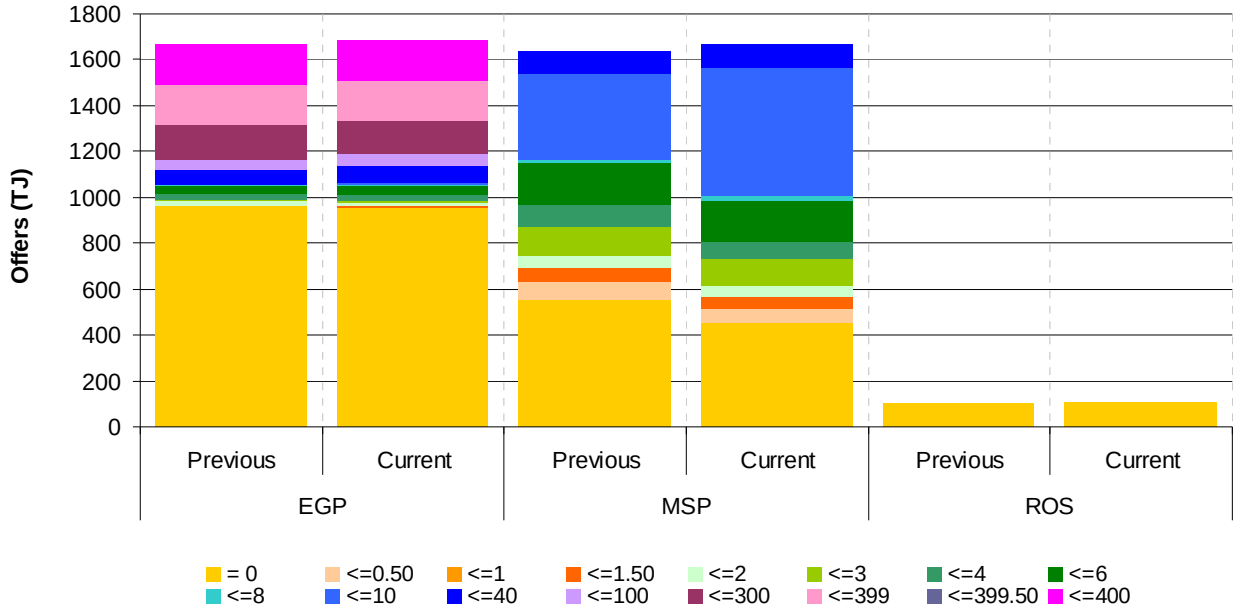
Trading Participants submit offers to sell gas into an STTM hub and withdrawal bids to take gas from a hub. Figures S9 and S11 show for the Sydney and Adelaide hubs respectively, total offers within various price bands for the current week compared to the previous week for each of the pipeline facilities.

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

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

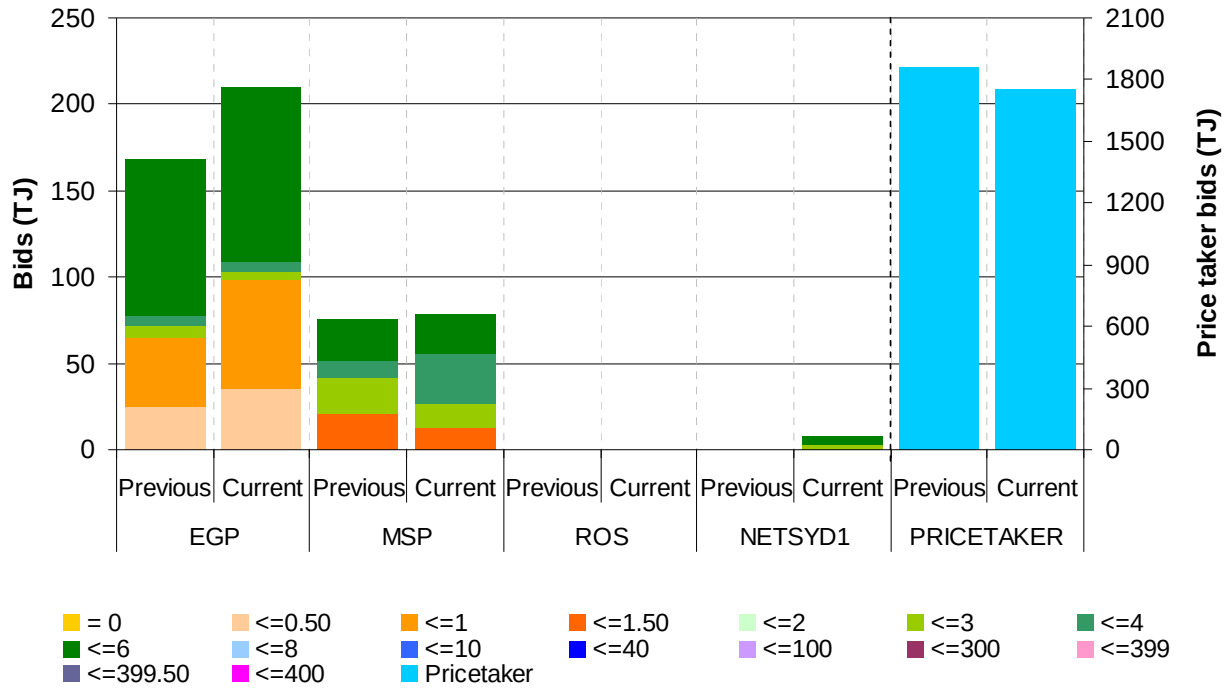
forecasts) must be submitted on a daily basis. Price-taker bid data is read against the right-hand-side axis. Because scheduling is price-driven, offers for lower-priced gas are scheduled ahead of offers for higher-priced gas and bids for higher-priced gas are scheduled ahead of bids for lower-priced gas.

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



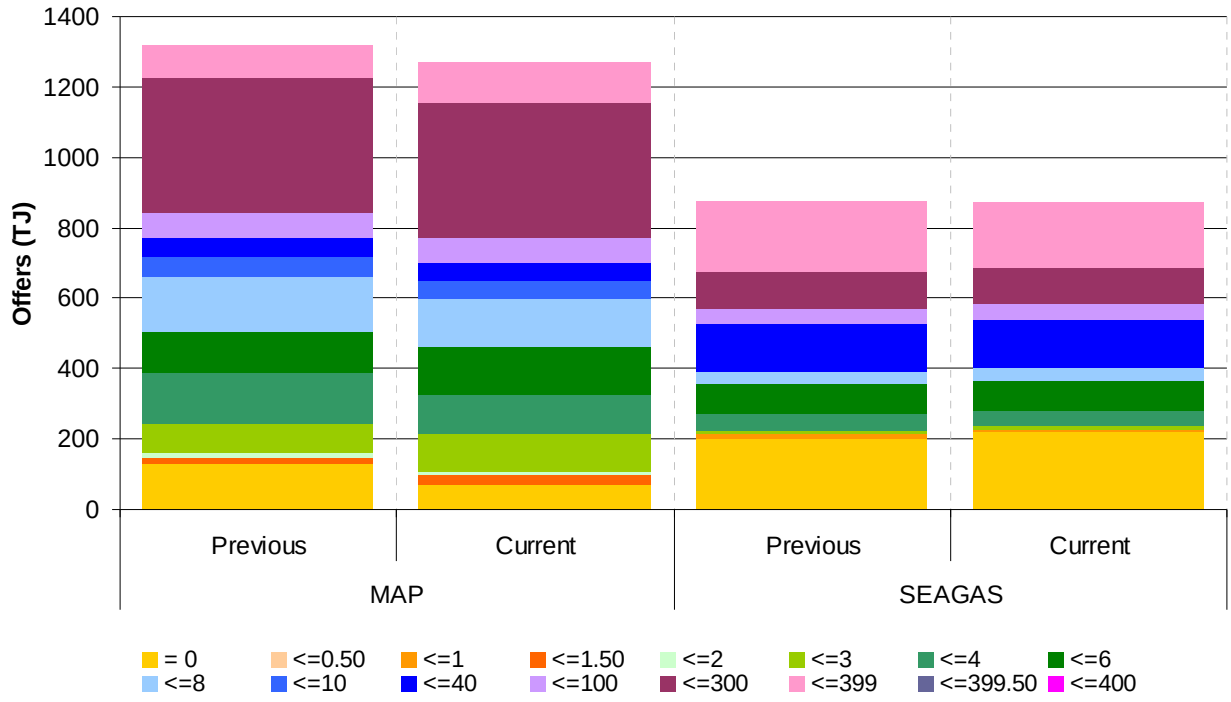
Source: http://www.aemo.com.au INT 652, 659
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility

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



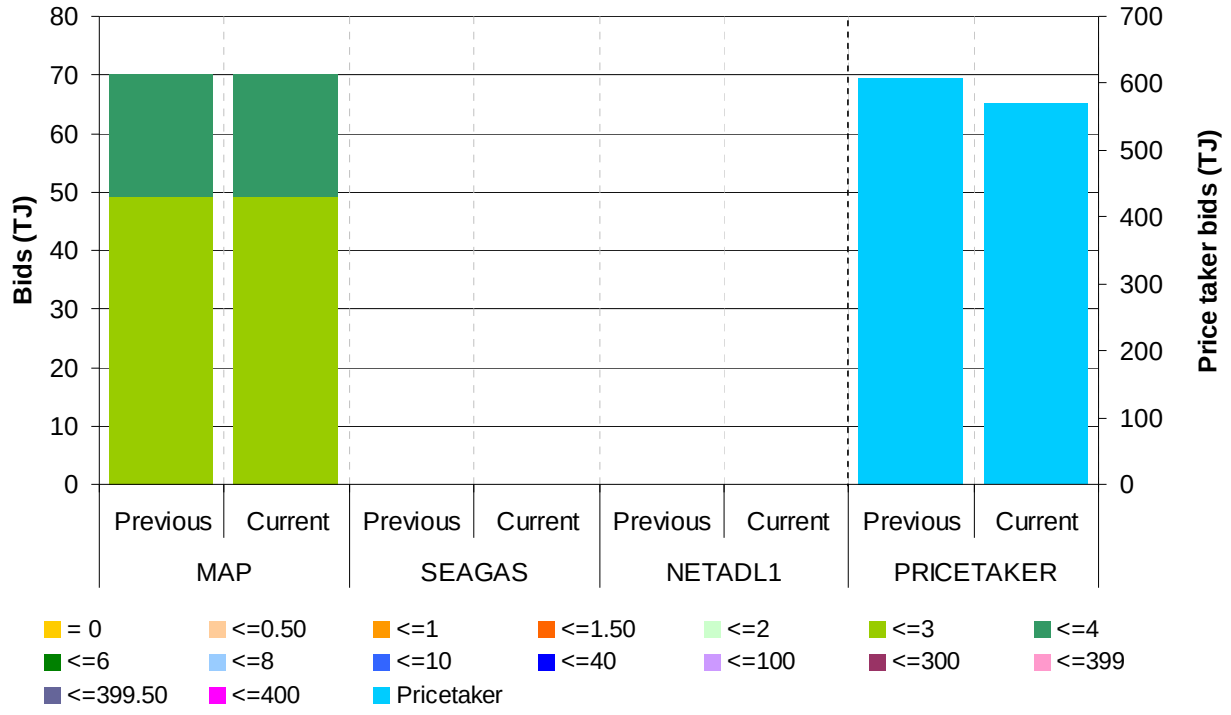
Source: http://www.aemo.com.au INT 652, 659
EGP=Eastern Gas Pipeline, MSP=Moomba to Sydney Pipeline, ROS=Rosalind Park Production facility, NETSYD1=Sydney Hub

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



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

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



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

Re-offers and re-bids

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

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

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

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

Source: http://www.aemo.com.au INT 659
BluSc= BlueScope Steel I Country= Country Energy I Origin=Origin Energy Retail Ltd I TRU= TRUenergy Pty Ltd I
AGL(WG)= AGL Wholesale Gas Limited I EA=EnergyAustralia I OneStl(NSW)= OneSteel NSW Pty Ltd I
SANTOS= Santos Direct Pty Ltd I AGL(ESM)= AGL Energy Sales & Marketing Pty Ltd I Lumo = Lumo Energy Australia Pty Ltd |
APG= Australian Power & Gas 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	TRU		TRU		
	D-2 to D-1	TRU	TRU	TRU	TRU	TRU	TRU	TRU
MSP	D-3 to D-2	Country						Country
	D-2 to D-1	Lumo	Lumo	Country Lumo	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 I Country= Country Energy I TRU= TRUenergy Pty Ltd I
Lumo= Lumo Energy Australia Pty Ltd I
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 Simply TRU	AGL(SA) Origin Simply	AGL(SA) Origin Simply TRU	AGL(SA) Origin Simply TRU	AGL(SA) Origin Simply TRU	AGL(SA) Origin Simply TRU	AGL(SA) Origin Simply TRU
	D-2 to D-1	ABC AGL(SA) Origin Simply TRU	ABC AGL(SA) Origin Simply TRU	ABC AGL(SA) Origin Simply TRU	ABC AGL(SA) Origin Simply TRU	ABC AGL(SA) Origin Simply TRU	ABC AGL(SA) Origin Simply TRU	ABC AGL(SA) Origin Simply TRU
SEA-GAS	D-3 to D-2	Origin TRU	Origin Simply TRU	Origin Simply TRU	Origin TRU	Origin TRU	Origin TRU	Origin TRU
	D-2 to D-1	Origin Simply TRU	Origin Simply TRU	Origin TRU	Origin TRU	Origin TRU	Origin TRU	Origin TRU

Source: http://www.aemo.com.au INT 659
ABC= Adelaide Brighton Cement Ltd I AGL(WGSA)= AGL Wholesale Gas (SA) Pty Ltd I Origin=Origin Energy Retail Ltd I Simply= Simply Energy I TRU= TRUenergy Pty Ltd I AGL(SA)= AGL South Australia Pty Limited I
MAP=Moomba to Adelaide Pipeline, SEAGAS=SEA gas pipeline

Figure S16: Inter-day resubmission of bids at Adelaide Hub

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

Market Operator Service

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

MOS offers are made by participants who have contracts with pipeline facilities to "park" gas (on the pipeline) or "loan" gas (from the pipeline). Based on these contracts, two types of MOS are offered: increase offers to increase flows on a pipeline to a hub; and decrease offers to decrease flows on a pipeline to a hub. Where a pipeline deviation[2] occurs on a gas day and there is a requirement for MOS from a MOS provider (either an increase or decrease offer), the MOS provider is paid according to their MOS offer price (the MOS service payment).

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

Figure S17a and S18a show quantities of MOS allocated on a daily basis compared to total MOS increase and decrease offers (from potential providers) on each pipeline at each hub. MOS allocations are shown by the columns in these figures; whereas total MOS increase and decrease offers on each pipeline are shown by horizontal lines (as indicated in the legend). Figures S17b and S18b show MOS service payments and MOS commodity payments or charges. Payments fall below the horizontal axis and charges are displayed above the axis.

Figure S17a: Sydney MOS allocations

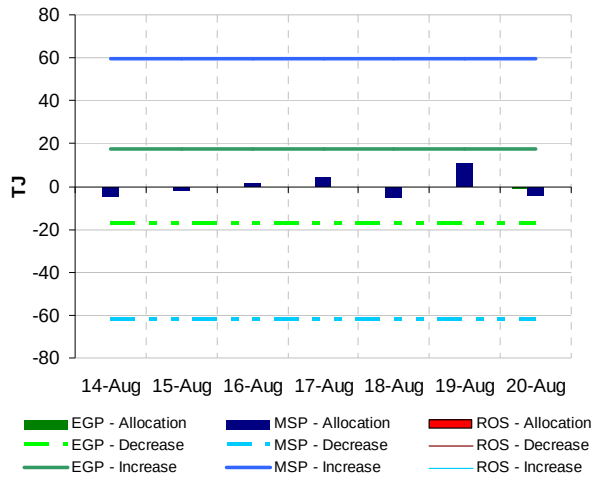
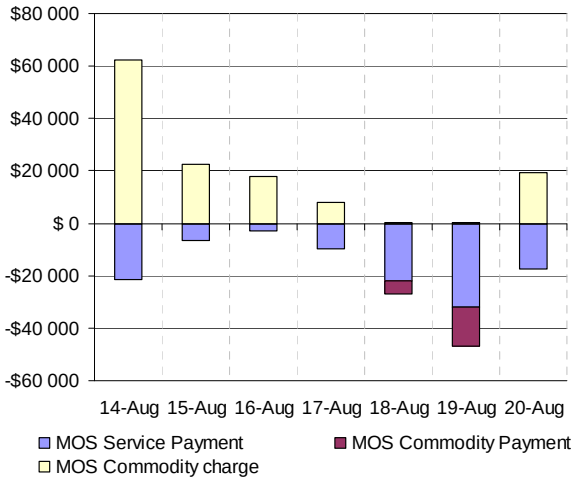


Figure S17b: Sydney MOS payments/charges



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

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

Figure S18a: Adelaide MOS allocations

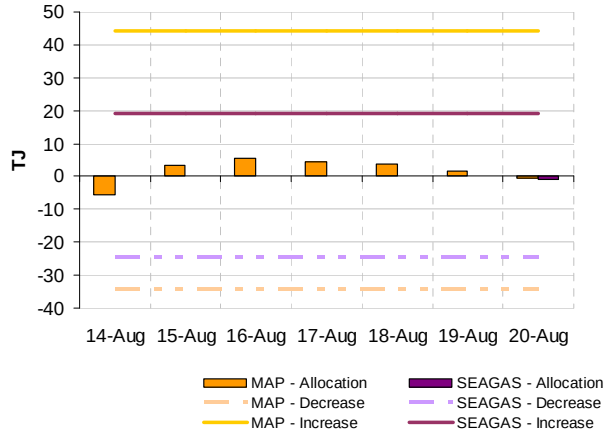
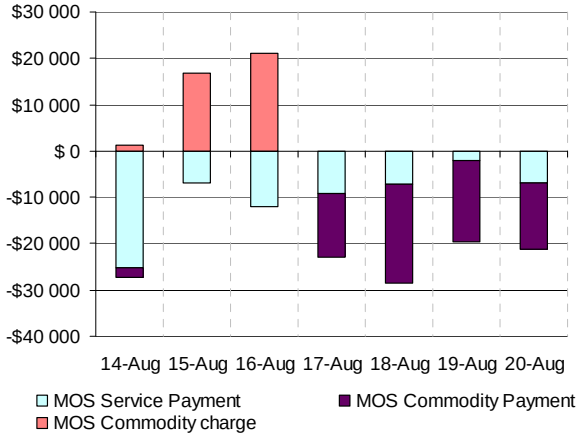


Figure S18b: Adelaide MOS payments/charges



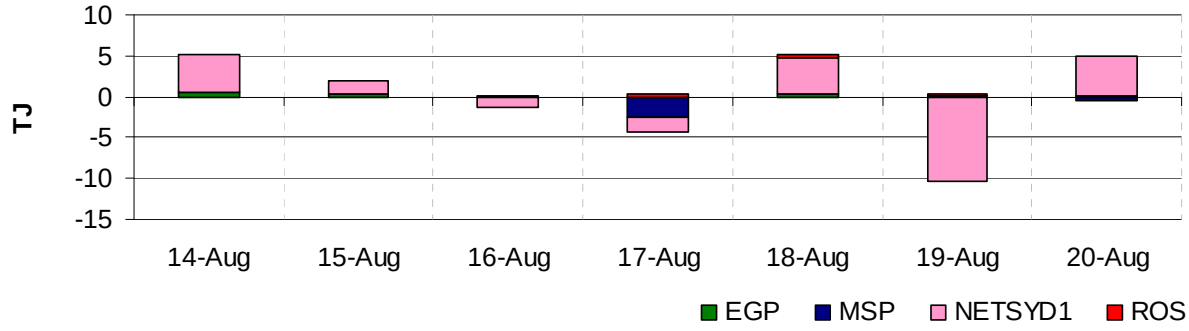
Source: http://www.aemo.com.au INT 663, 664, 665

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

Deviations

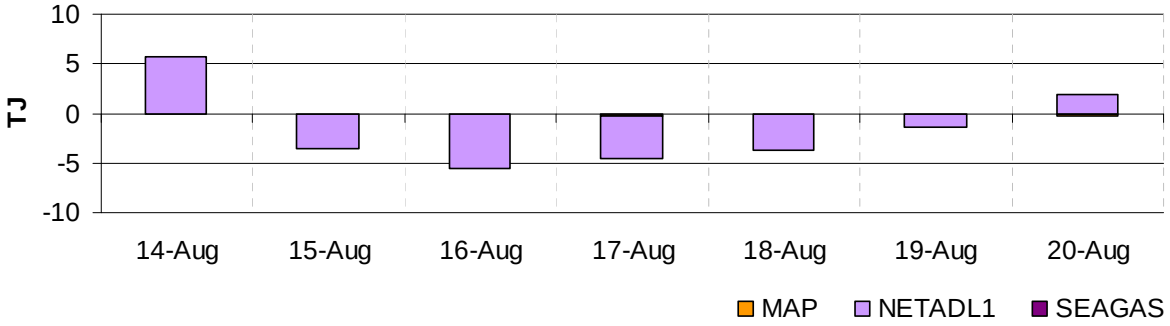
Deviations occur when the gas flowed on pipelines into hubs on a gas day differ from the modified market schedule, or when gas taken out of the hub is different to the schedule. The most likely reason for deviations is where participants incorrectly forecast the demand of customers within the hub. As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

Figure S19: Net Deviations – Sydney Hub



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

Figure S20: Net Deviations – Adelaide Hub



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

Market Schedule Variations

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

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

Figure S21: Average Daily Market Variations - Sydney Hub

	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*
Quantity (TJ)	4.05	6.09	5.22
Charges ($)	112.74	182.43	172.72

*Financial Year to date figure from 1 July 2011 to the current week (inclusive)
Source: http://www.aemo.com.au INT 651, 657

Figure S22: Average Daily Market Variations - Adelaide Hub

	14 August – 20 August	7 August – 13 August	2011-12 Financial YTD*
Quantity (TJ)	0.61	1.42	1.19
Charges ($)	5.76	62.02	45.17

*Financial Year to date figure from 1 July 2011 to the current week (inclusive)
Source: http://www.aemo.com.au INT 651, 657

*

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	105	105	104	103	97	107	105	119	85	104	101	91
QLD Gas Pipeline	124	125	120	122	123	120	124	142	86	122	122	93
Roma to Brisbane Pipeline	154	174	175	175	182	179	157	219	78	171	170	186
South West QLD Pipeline	153	150	173	156	126	115	137	181	87	144	157	143
NSW/ACT												
Eastern Gas Pipeline	217	243	240	248	245	240	220	268	87	236	233	234
Moomba to Sydney Pipeline	163	216	188	223	208	204	161	439	52	195	227	286
NSW-VIC Interconnect	19	24	21	19	23	23	17	90	25	21	22	4
VIC												
Longford to Melbourne	609	724	569	650	713	566	540	1030	66	625	676	770
South West Pipeline^	122	211	141	187	150	119	69	353	61	143	217	174
SA												
Moomba to Adelaide Pipeline	116	148	153	152	136	137	122	253	55	138	140	140
SEA Gas Pipeline	153	198	168	187	177	221	175	314	57	183	177	184
TAS												
Tasmanian Gas Pipeline	42	52	48	49	45	46	41	129	39	46	50	50

*Average daily estimated gas consumption measured from 1 July 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (inclusive)

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 and 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	92	91	94	94	93	94	93	140	66	93	92	96
Fairview	107	130	135	114	88	88	84	130	90	107	116	123
Kenya Gas Plant	80	79	79	79	79	79	80	160	46	79	74	59
Kincora	10	10	10	10	10	10	10	25	43	10	11	5
Kogan North	7	7	7	6	7	7	7	12	55	7	7	10
Peat	6	7	6	6	7	7	8	15	52	7	8	10
Rolleston	11	10	10	10	11	10	10	30	32	10	10	12
Scotia	30	25	30	30	30	30	30	29	87	29	25	28
Spring Gully	44	44	44	45	44	44	41	69	65	44	45	53
Strathblane	44	44	44	45	44	44	41	69	65	44	45	53
Taloona	27	26	27	27	27	26	25	42	64	26	27	32
Yellowbank	9	6	7	10	9	9	9	30	32	8	10	13
Talinga	102	100	104	100	104	105	105	120	84	103	100	61
Moomba (SA/QLD)												
Moomba Gas Plant	215	269	258	282	266	279	241	430	66	259	285	364
Ballera	21	0	0	0	25	23	1	150	3	10	5	6
Eastern (VIC)												
Orbost Gas Plant	69	69	69	68	69	69	69	100	68	69	68	0
Lang Lang Gas Plant	46	47	46	47	47	52	54	70	70	48	49	51
Longford Gas Plant	827	892	804	833	870	762	696	1145	75	812	854	1017
LNG Storage Dandenong	0	0	0	0	0	0	0	158	0	0	0	0
Otway Basin (VIC)												
Minerva Gas Plant	45	65	65	70	70	70	65	84	83	64	70	85
Otway Gas Plant	181	183	183	183	183	179	68	205	76	166	155	142
Iona Underground Gas Storage	70	150	71	120	62	81	123	440	39	97	170	135

*Average daily estimated gas consumption measured from 1 July 2011 to the current week (inclusive)
**Average daily estimated gas consumption measured from 1 July 2010 to the equivalent week in 2010-11 (inclusive)

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

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

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

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

Average daily temperatures (°C)		QLD (Brisbane)	NSW (Sydney)	ACT (Canberra)	VIC (Melbourne)	SA (Adelaide)	TAS (Hobart)
14 August – 20 August	Average min.	10.1	9.8	3.3	9.6	10.3	9.7
	Average max.	22.2	17.8	14.2	17.1	17.2	15.0
7 August – 13 August	Average min.	9.4	9.2	-0.3	6.7	8.7	6.5
	Average max.	22.8	18.3	13.0	13.9	16.4	11.0

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

14 August – 20 August	Scheduling Interval					Daily Imbalance Weighted Average Price
	6am	10am	2pm	6pm	10pm	
Sun	3.52	3.52	3.02	2.51	0.00	3.43
Mon	3.14	3.53	3.73	3.84	4.00	3.18
Tue	3.52	3.60	3.13	2.12	2.12	3.48
Wed	3.45	2.90	2.80	3.49	3.32	3.43
Thu	3.13	3.06	3.06	1.60	0.60	3.07
Fri	3.49	3.21	2.50	1.74	2.56	3.40
Sat	3.52	2.90	2.12	1.27	1.29	3.41

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	
14-Aug	**MP:**	839	845	837	824	824	**-2**
	AEMO:	803	803	767	727	709	
	MP as % of AEMO	104	105	109	113	116	
15-Aug	**MP:**	897	890	903	916	917	**-18**
	AEMO:	830	835	884	938	918	
	MP as % of AEMO	108	107	102	98	100	
16-Aug	**MP:**	808	784	758	747	747	**-2**
	AEMO:	805	804	740	718	698	
	MP as % of AEMO	100	98	102	104	107	
17-Aug	**MP:**	879	860	856	861	861	**0**
	AEMO:	857	789	819	821	828	
	MP as % of AEMO	103	109	104	105	104	
18-Aug	**MP:**	986	968	967	966	966	**-54**
	AEMO:	920	901	895	881	845	
	MP as % of AEMO	107	107	108	110	114	
19-Aug	**MP:**	823	802	784	790	791	**-21**
	AEMO:	811	790	711	690	675	
	MP as % of AEMO	101	101	110	115	117	
20-Aug	**MP:**	732	711	711	709	707	**-23**
	AEMO:	690	700	660	615	595	
	MP as % of AEMO	106	102	108	115	119	

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