Gas Market Report

AUSTRALIAN ENERGY REGULATOR

3 – 9 July 2016

Weekly Summary

Prices were above $10/GJ across the gas markets and reached as high as $25.45/GJ in Adelaide mid-week (exceeding the previous week's record)[1]. Average prices increased in Adelaide and Brisbane this week, while decreases in Victoria and Sydney were related to a small number of rather high prices which occurred during the previous week. Average daily demand has remained relatively stable across the STTM but fell back below 1000 TJ/day in Victoria this week.

The first ever monthly products were traded at Wallumbilla this week for the months of August and September.

On the Gas Bulletin Board, Santos and QCLNG have announced planned maintenance schedules for their LNG trains covering the period of 5 to 23 October and 25 July to 2 August respectively.[2]

Long term statistics and explanatory material

The AER has published an explanatory note to assist with interpreting the data presented in its weekly gas market reports. The AER also publish a range of longer term statistics on the performance of the gas sector including gas prices, production, pipeline flows and consumer demand.

1 Wind levels in South Australia during peak periods were again particularly low from 6 – 8 July, driving the high level of gas generation observed in the electricity market.

2 http://www.gasbb.com.au/Reports/Medium%20Term%20Capacity.aspx (as at 22 July 2016)

Market overview

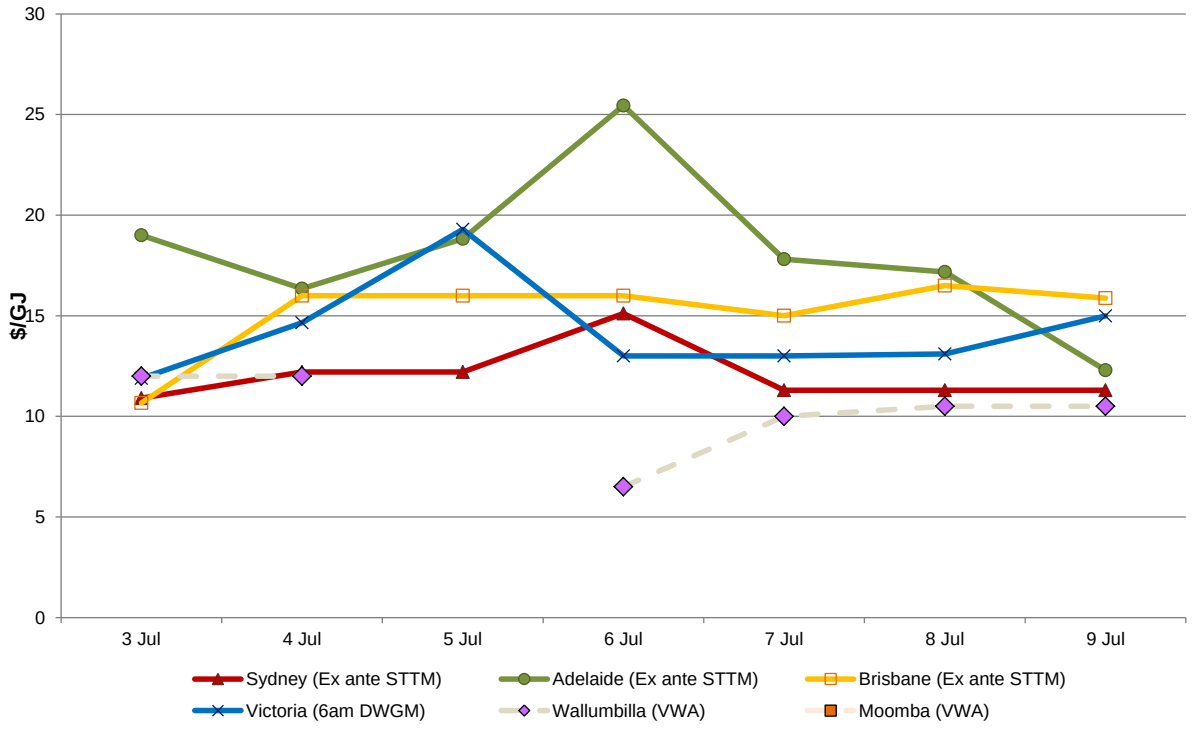
Figure 1 sets out the average daily prices ($/GJ) for the current week, and demand levels, compared to historical averages. Regions shown include the Victorian Declared Wholesale Market **(VGM or Victorian gas market)** and for the Sydney **(SYD)**, Adelaide **(ADL)** and Brisbane **(BRI)** Short Term Trading Market hubs **(STTM)**. Price and demand information is also shown for the voluntary Wallumbilla and Moomba Gas Supply Hubs **(GSH)**.

Figure 1: Average daily prices and demand – all markets ($/GJ, TJ)[3]

	Victoria		Sydney		Adelaide		Brisbane		Wallumbilla		Moomba	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand	Price	Quantity	Price	Quantity
03 Jul - 09 Jul 2016	14.22	937	12.04	299	18.13	93	15.15	97	9.22	2368	-	-
% change from previous week	-12	-5	-24	-2	12	9	29	1	-20	1066	-	-
16-17 financial YTD	13.57	925	12.27	301	18.78	90	15.12	95	9.25	2385	-	-
% change from previous financial YTD	208	-7	185	-1	296	1	424	0	233	2029	-	-

Figure 2 illustrates the daily prices in each gas market, as defined in figure 1.

Figure 2: Daily gas market prices ($/GJ)



[3] Average daily quantities are displayed for each region, with the exception of Gas Supply Hubs (GSH). The weighted average daily imbalance price applies for Victoria. The prices shown for the GSH in Wallumbilla and Moomba are volume weighted average prices for all products traded across the period. The total quantity contributing to the weighted price is displayed for these GSH.

Figure 3 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

Figure 3: Average ancillary payments ($000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
03 Jul - 09 Jul 2016	-	44.80	22.84	0.72
% change from previous week	-	-49	22	-42
16-17 financial YTD		75.70	21.62	1.06
% change from previous financial YTD		84	34	-36

* Ancillary payments reflect the compensation costs for any additional injections offered at a price higher than the market price.
Note: only positive ancillary payments, reflecting system constraints will be shown here.

More detailed analysis on the VGM is provided in section 1.

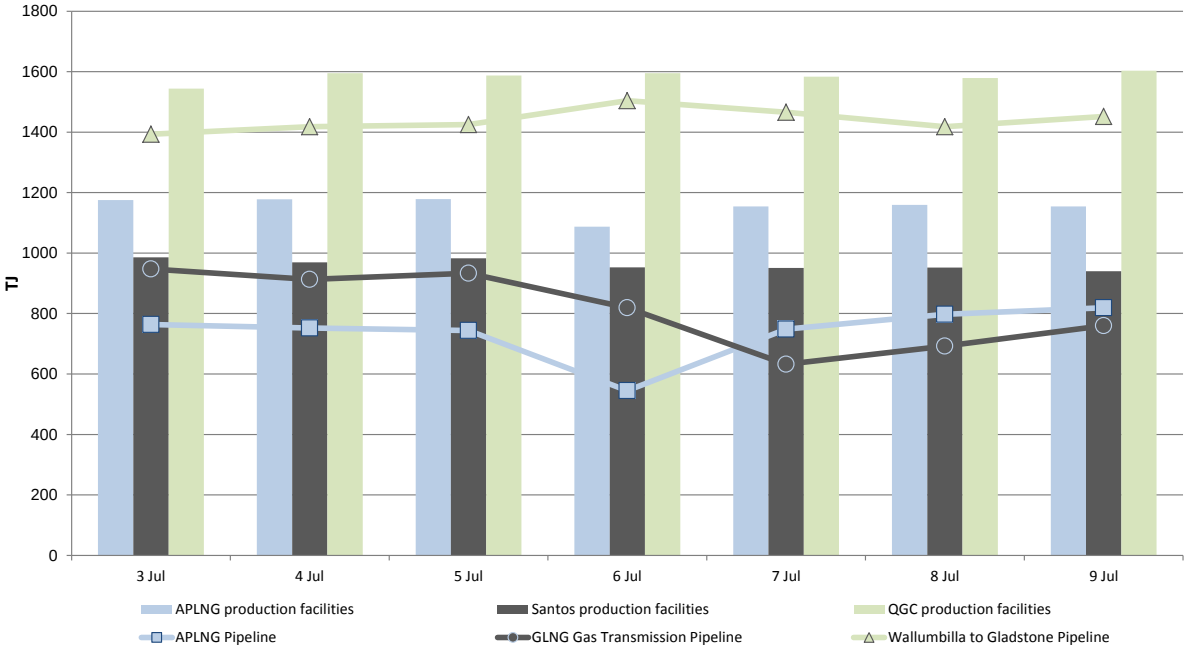
Figure 4 shows the quantity and volume weighted prices of products traded in the Gas Supply Hub locations at Wallumbilla and Moomba.

Figure 4: Gas supply hub products traded for the current week ($/GJ, TJ)

	RBP		SWQP		MAP		MSP		QGP		WAL non-netted	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	13.75	20.0	11.57	33.0	-	-	-	-	-	-	-	-
Daily	11.64	25.0	12.68	110.0	-	-	-	-	-	-	10.00	30.0
Day ahead	11.68	32.0	12.39	173.0	-	-	-	-	-	-	10.00	15.0
Weekly	-	-	-	-	-	-	-	-	-	-	10.00	315.0
Monthly	-	-	10.50	310.0	-	-	-	-	-	-	7.75	1305.0

Figure 5 shows Bulletin Board pipeline flows for the three LNG export pipeline facilities and the production output at related production facilities in the Roma region.

Figure 5: LNG export pipeline and production flows (TJ)



Detailed market analysis

On gas days Sunday 3 July, Monday 4 July and Wednesday 6 July, a number of significant price variation (SPV) triggers were exceeded in the Brisbane, Sydney and Adelaide STTMs:

- 3 July, Brisbane, -$8.03 variation between the D-2 and D-1 schedule prices.
- 4 July, Sydney, -$7.77 variation between the D-2 and D-1 schedule prices.
- 6 July, Adelaide, $10.62 variation between the D-2 and D-1 schedule prices.
- 6 July, Adelaide, -$7.64 variation between the D-1 and D+1 schedule prices.

Under Rules 498 of the Gas Rules, the AER is required to identify and report on any significant price variations (SPVs) in the STTM.

In the STTM, an SPV occurs when there is a variation of greater than $7/GJ between either the D-2 provisional price and ex ante price, or the ex ante and the ex post price.

In accordance with the Gas Rules, we will publish a separate detailed report into the events leading to the significant price variations on the identified gas days.

Brisbane

Preliminary analysis indicates participants rebidding capacity into lower price bands in Brisbane led to ex ante prices reducing to $10.67/GJ.

Sydney

Preliminary analysis indicates participants rebidding capacity into lower price bands in Sydney led to ex ante prices reducing to $12.20/GJ on 4 July.

Counteracting MOS in Sydney also led to a number of service payments around $50 000 across the week.[4]

Adelaide

Preliminary analysis indicates that rebidding led to a significantly steeper supply curve for the ex ante schedule in Adelaide on 6 July. This, combined with a relatively minor increase to forecast demand (just over 2 TJ), pushed the ex ante price above $25/GJ. The ex post price then reduced significantly due to a -3 TJ imbalance (mainly resulting form over forecast demand).

On 4 July, counteracting MOS in Adelaide (and slightly under forecast demand) led to a $54 240 MOS service payment.

Victoria

On 5 July, the price in Victoria reached $19.26/GJ with the beginning of day forecast demand of just over 1000 TJ. The 6 pm price on the day reached $30/GJ as scheduled quantities increased alongside higher forecast demand and some rebidding into higher price bands.

[4] The average daily service cost was around $44 800. Net decrease requirements were largely the result of over forecast demand in the hub, with additional supply nominations also contributing to decrease requirements on 4 days.

1. Victorian Declared Wholesale Market

In the Victorian gas market, gas is priced five times daily at 6 am, 10 am, 2 pm, 6 pm and 10 pm. The imbalance weighted price on a gas day tends towards the 6 am price[5] which is the schedule at which most gas is traded.

The main drivers[6] of price are demand forecasts and bids to inject or withdraw gas from the market. Figures 1.1 to 1.4 below show the daily prices, demand forecasts[7], and injection/withdrawal bids for each of the five pricing schedules. Figure 1.5 provides information on which system injection points were used to deliver gas, in turn indicating the location and relative quantity of gas injection bids cleared through the market.

Ancillary payments for gas injected above the market price are shown above in figure 3.

Figure 1.1: Prices by schedule ($/GJ)

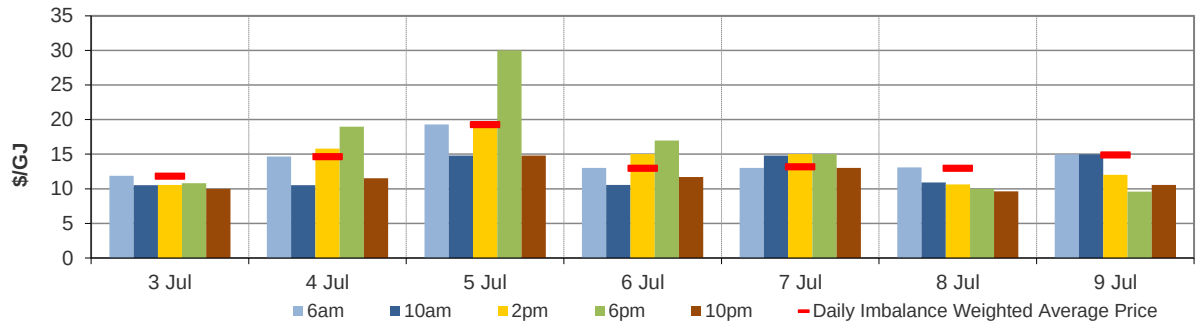
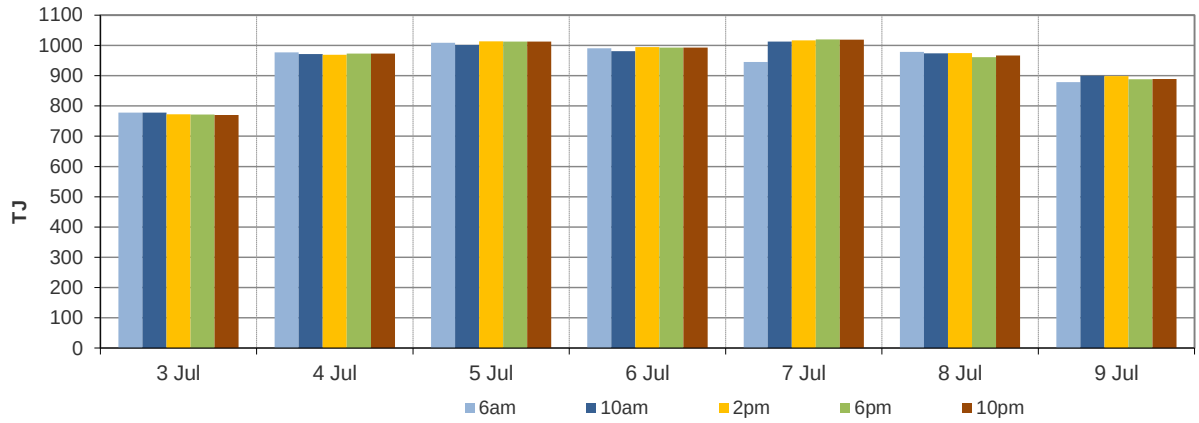


Figure 1.2: Demand forecasts (TJ)



5 Prices for subsequent schedules are applied only to the differences in scheduled quantities (imbalances) to calculate the weighted price. The 6 am price applies to the entire scheduled quantity in the initial schedule.

6 The price might also be affected by transmission or production (contractual) constraints limiting how much gas can be delivered from a locale or System Injection Point (SIP) from time to time.

7 These are Market Participants' aggregate demand forecasts adjusted for any override as applied by AEMO from time to time. These forecasts must be scheduled and cannot respond to price like withdrawal bids.

Figure 1.3: Injection bids by price bands (TJ)

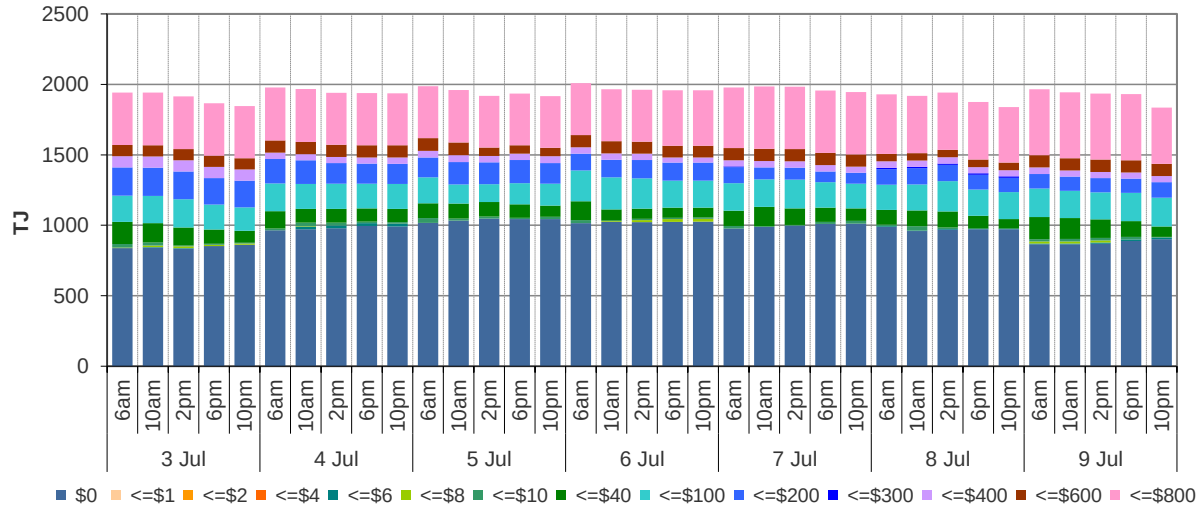


Figure 1.4: Withdrawal bids by price bands (TJ)

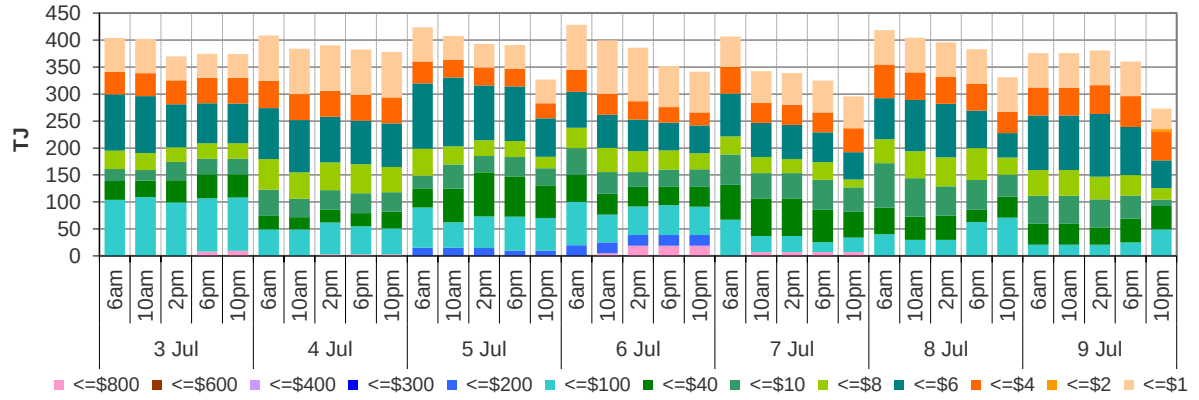
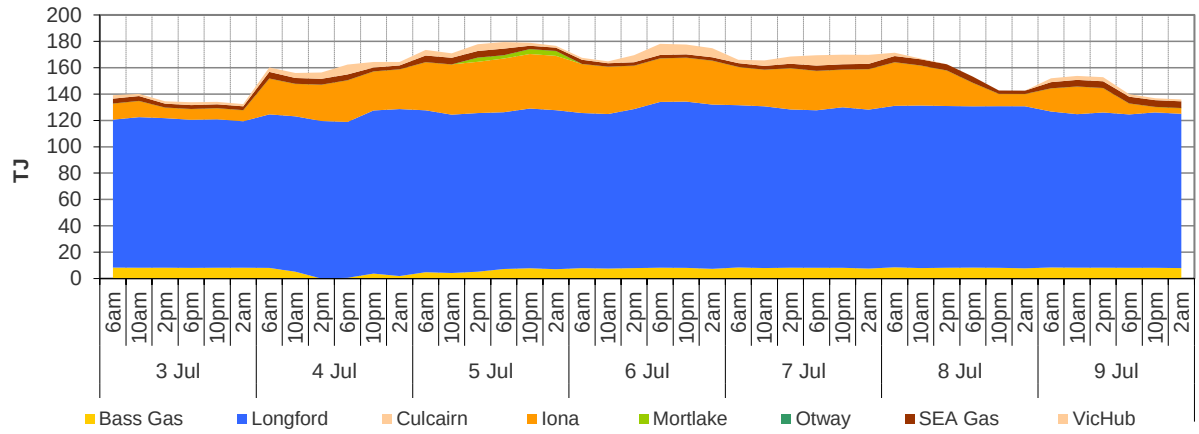


Figure 1.5: Metered Injections by System Injection Point (TJ)



Note that in figure 1.5, the last 8-hour schedule from 10 pm has been separated into two 4-hour blocks to provide a consistent comparison with earlier scheduled injection volumes.

2. Sydney STTM

In each STTM hub, a daily gas price is calculated before the gas day (the ex ante price) and after the gas day (the ex post price). The main drivers of these prices are participant demand forecasts, and offers to inject or bids to withdraw gas traded at the hub.[8] Divergences in ex ante and ex post prices for a gas day may occur due to differences in scheduled (forecast) and allocated (actual) quantities. Pipeline acronyms are defined in the user guide.

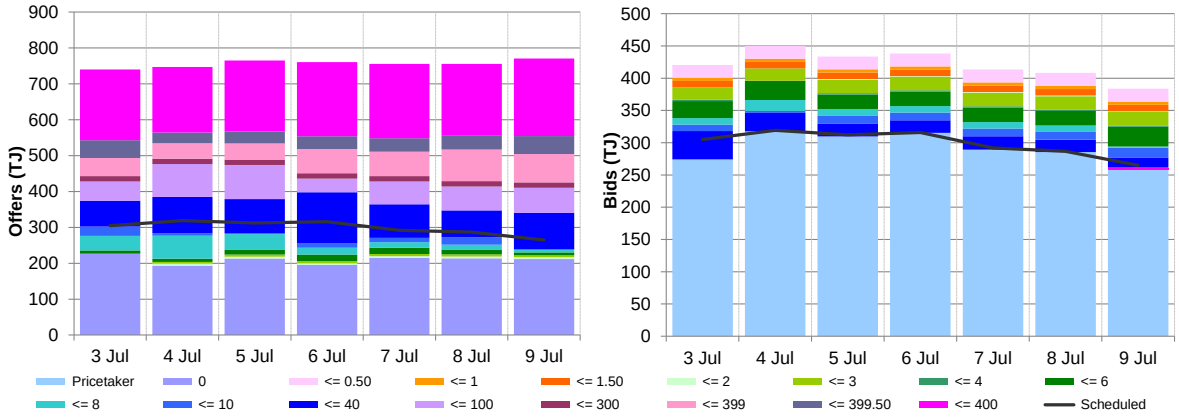
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.[9]

Figures 2.1 and 2.2 show daily prices, demand, offers and bids. Figures 2.3 and 2.4 show gas scheduled and allocated on pipelines to supply the hub, indicating the location and relative quantity of gas offers across pipelines and also the amount of MOS allocated for each pipeline.

Figure 2.1: SYD STTM daily ex ante and ex post prices and quantities

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price ($/GJ)	10.90	12.20	12.21	15.11	11.30	11.30	11.30
Ex ante quantity (TJ)	305	319	312	316	292	287	265
Ex post price ($/GJ)	10.55	12.20	12.21	13.72	11.30	11.30	11.24
Ex post quantity (TJ)	299	314	308	300	291	287	260

Figure 2.2: SYD daily hub offers and daily hub bids in price bands ($/GJ)



8 The main driver of the amount of gas scheduled on a gas day is the 'price-taker' bid, which is forecast hub demand that cannot respond to price and which must be delivered, regardless of the price.

9 MOS service payments involve a payment for a MOS increase service when the actual quantity delivered exceeds final gas nominations for delivery to a hub, and a payment for a MOS decrease service when the actual quantity delivered is less than final nominations. As well as a MOS 'service' payment, as shown in figure 2.4, MOS providers are paid for or pay for the quantity of MOS sold into the market or bought from the market (MOS 'commodity' payments/charges).

Figure 2.3: SYD net scheduled and allocated gas hub supply (excluding MOS)

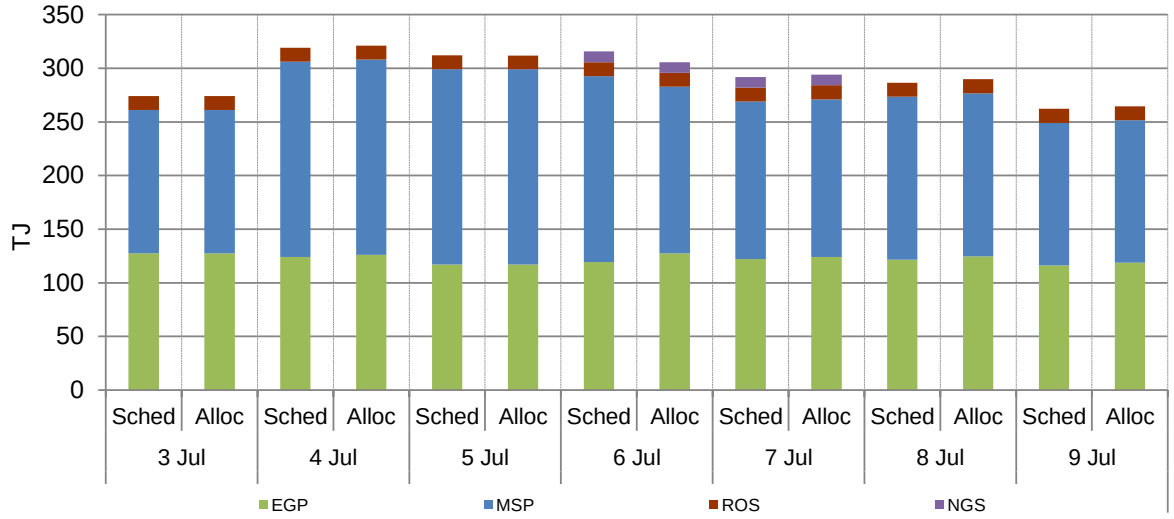
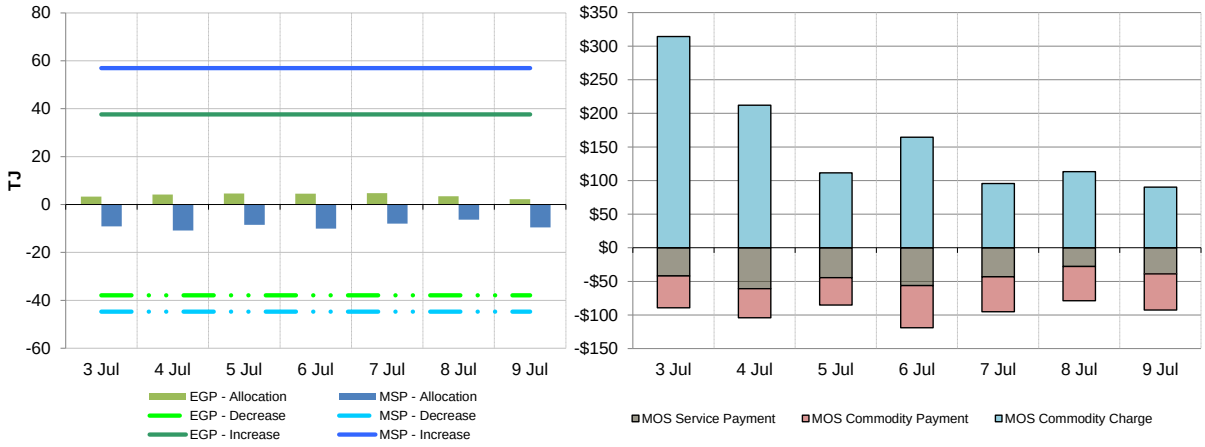


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges ($000)[10]



[10] The commodity cost of MOS illustrated on the right of the figure represents the commodity quantity at the D+2 ex ante price. Commodity payments and charges for a given gas day relate to quantities traded two days earlier. That is, the commodity cost for services provided on Sunday will appear in the chart for Tuesday, when the D+2 price is set. In contrast, service payments are shown alongside the day they occurred.

3. Adelaide STTM

The Adelaide STTM hub functions in the same way as the Sydney STTM hub. The same data that was presented for the Sydney hub is presented for the Adelaide hub in the figures below.

Figure 3.1: ADL STTM daily ex ante and ex post prices and quantities

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price ($/GJ)	19.00	16.35	18.82	25.45	17.81	17.18	12.30
Ex ante quantity (TJ)	79	99	96	96	95	101	86
Ex post price ($/GJ)	16.99	16.35	15.00	17.81	17.00	14.97	12.30
Ex post quantity (TJ)	76	97	90	92	93	99	87

Figure 3.2: ADL daily hub offers and daily hub bids in price bands ($/GJ)

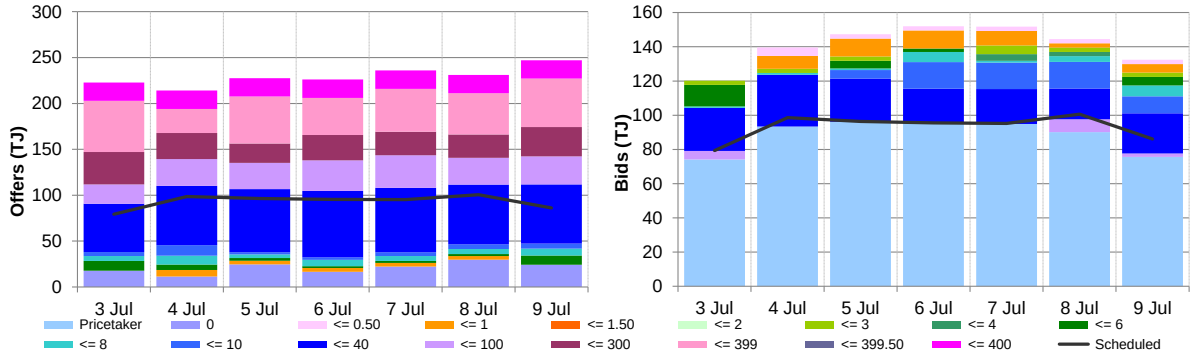


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

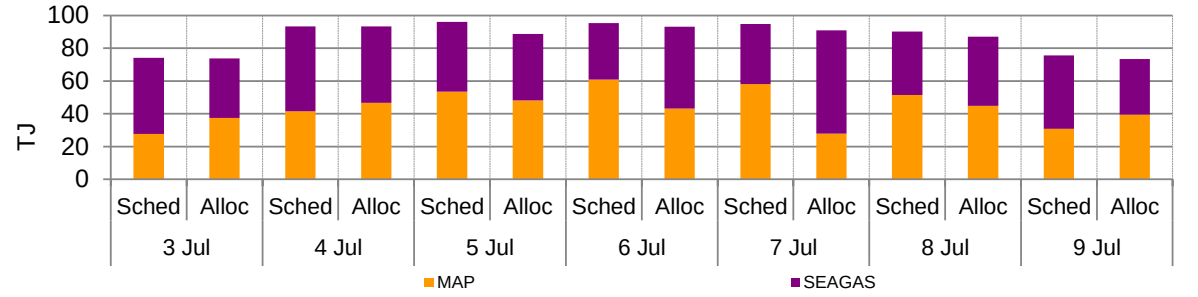
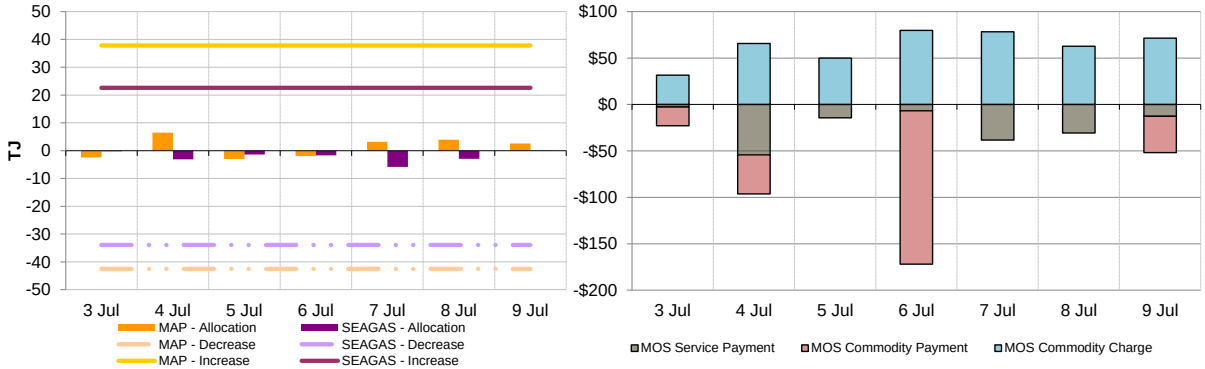


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges ($000)



4. Brisbane STTM

The Brisbane STTM hub functions in the same way as the Sydney STTM hub. The same data that was presented for the Sydney hub is presented for the Brisbane hub in the figures below.

Figure 4.1: BRI STTM daily ex ante and ex post prices and quantities

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price ($/GJ)	10.67	16.00	16.00	16.00	15.00	16.50	15.88
Ex ante quantity (TJ)	85	102	102	103	104	98	84
Ex post price ($/GJ)	10.67	12.51	16.00	16.00	15.00	16.50	15.88
Ex post quantity (TJ)	84	100	104	104	106	96	83

Figure 4.2: BRI daily hub offers and daily hub bids in price bands ($/GJ)

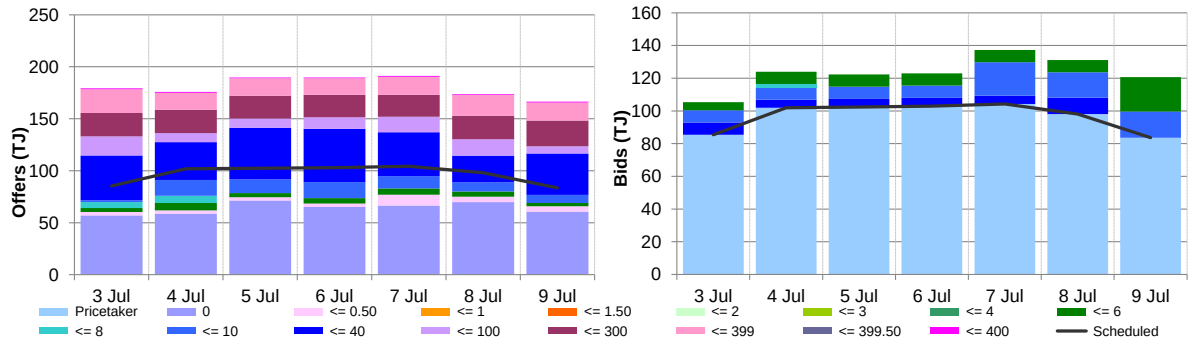


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

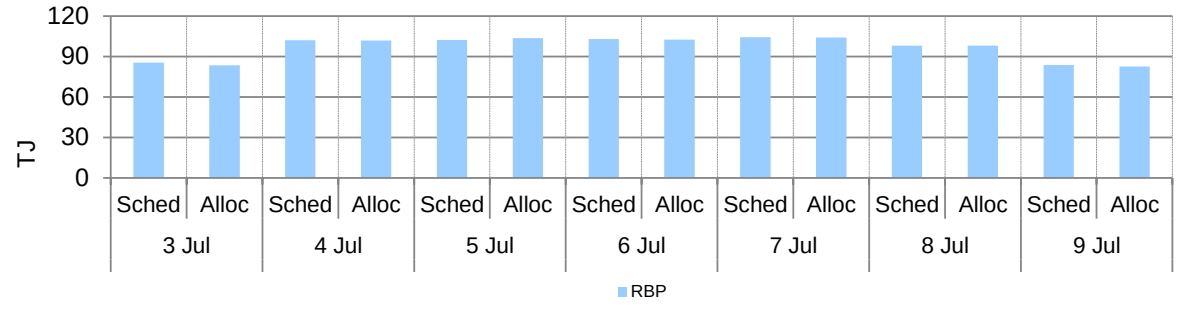
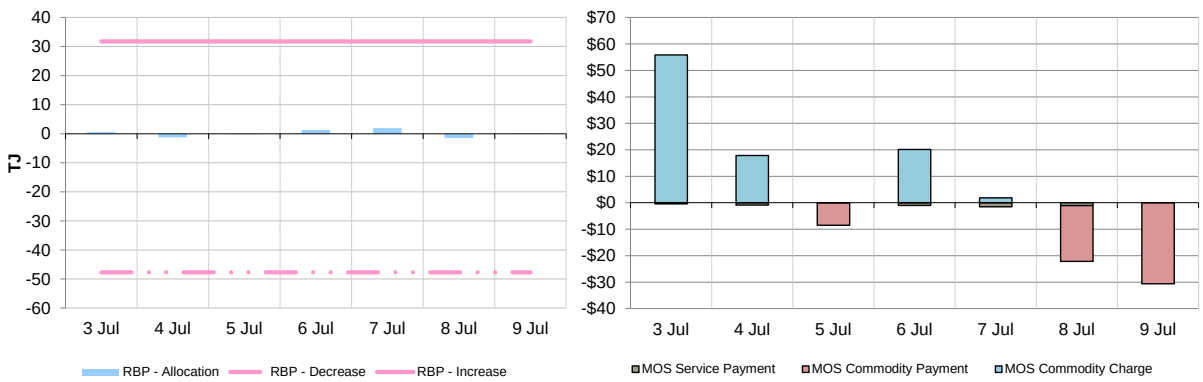


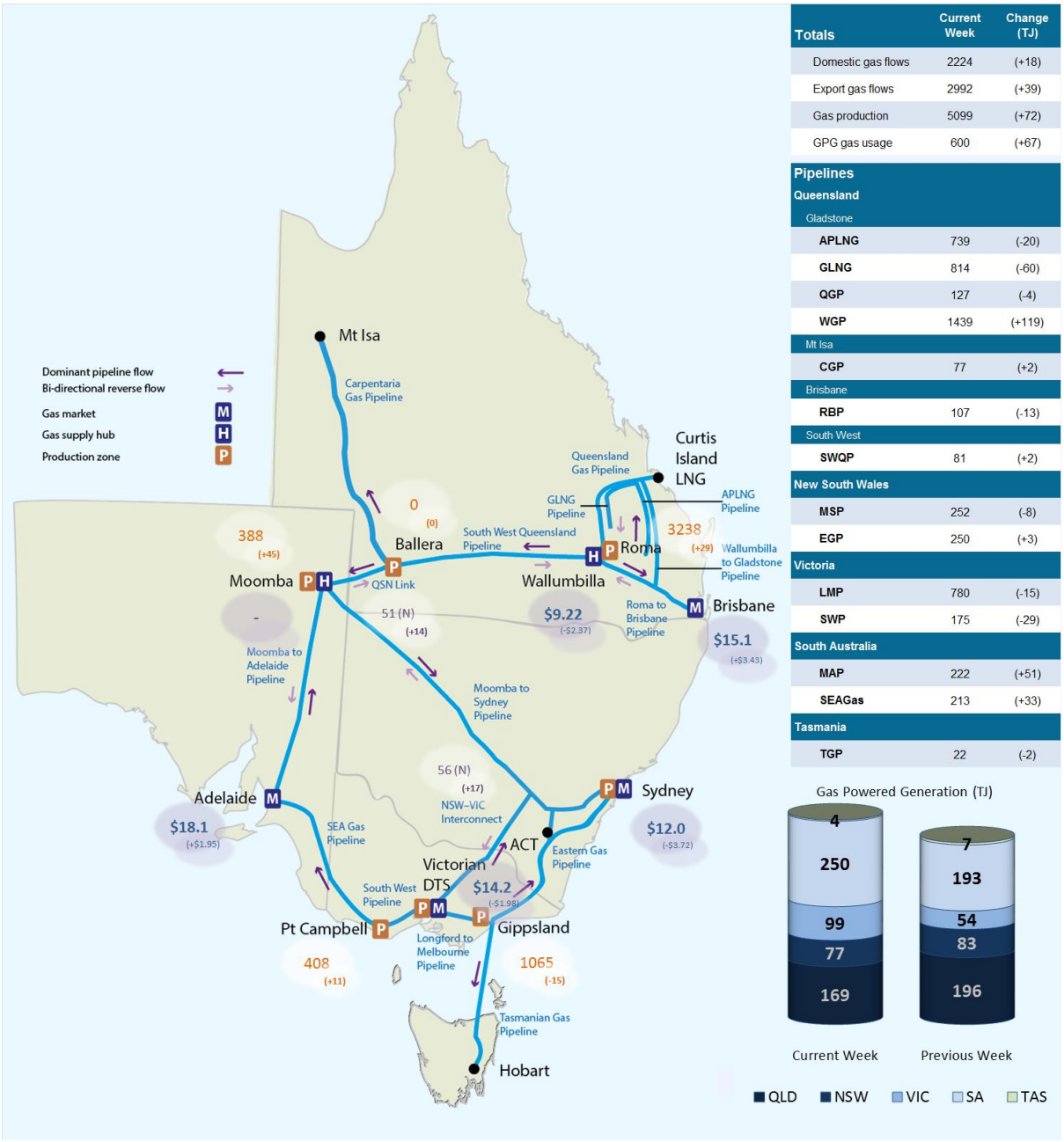
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges ($000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week[11] from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices[12] are provided for gas markets and gas supply hubs. Average daily quantities are provided for gas powered generation for each region.

Figure 5.1: Gas market data ($/GJ, TJ); Production and Pipeline flows (TJ)



Totals	Current Week	Change (TJ)
Domestic gas flows	2224	(+18)
Export gas flows	2992	(+39)
Gas production	5099	(+72)
GPG gas usage	600	(+67)
Pipelines		
Queensland		
Gladstone		
APLNG	739	(-20)
GLNG	814	(-60)
QGP	127	(-4)
WGP	1439	(+119)
Mt Isa		
CGP	77	(+2)
Brisbane		
RBP	107	(-13)
South West		
SWQP	81	(+2)
New South Wales		
MSP	252	(-8)
EGP	250	(+3)
Victoria		
LMP	780	(-15)
SWP	175	(-29)
South Australia		
MAP	222	(+51)
SEAGas	213	(+33)
Tasmania		
TGP	22	(-2)

11 **Domestic gas flows** are calculated as the total of: **SA** = MAP + SEAGAS; **VIC** = SWP + LMP + (absolute quantity of negative flows only on the 'NSW-VIC interconnect'); **NSW/ACT** = EGP + MSP; **TAS** = TGP; **QLD (Brisbane)** = RBP; **QLD (Mt Isa)** = CGP; and **QLD (Gladstone)** = QGP.
Export gas flows are calculated as the total of: the APLNG pipeline; the GLNG pipeline; and the Wallumbilla to Gladstone pipeline.
GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.

12 GSH supply is the average daily volume of gas 'traded', while price is a volume weighted average.

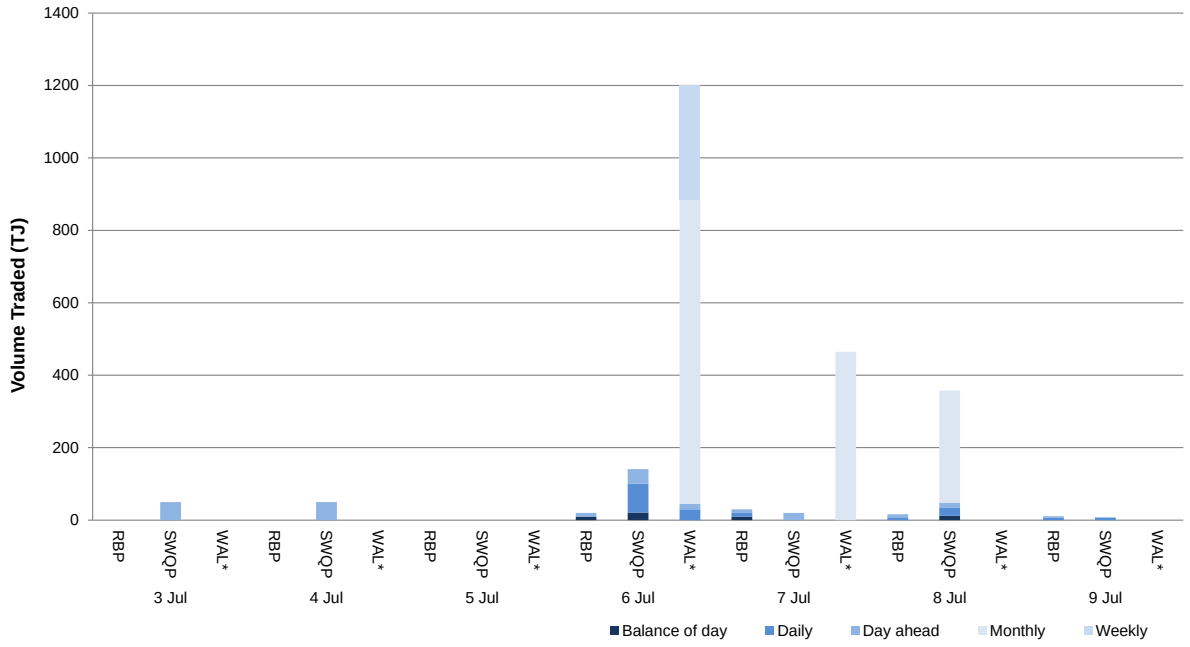
6. Gas Supply Hub

The Gas Supply Hub **(GSH)** was established in March 2014 for the trading of gas at Wallumbilla. The GSH is a voluntary market[13] for the supply of gas traded[14] between separate participants, with products listed for sale and purchase at delivery points on three major connecting pipelines at Wallumbilla – the **QGP**, the **SWQP** and the **RBP**. There are separate products for each pipeline (each pipeline is considered a trading location, and each has a number of delivery points) and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products). In June 2016, a new supply hub at Moomba was created to facilitate trade on the **MAP** and **MSP**, and also allow for trading between the Wallumbilla and Moomba markets on the SWQP through a spread product (representing the price differential between the two hubs).

There were 43 trades this week for 2368 TJ of gas at a volume weighted price of $9.22/GJ in the Wallumbilla hub. These included the first occurrence of non-netted product trades, in addition to the first monthly product trade on any pipeline (which occurred on the SWQP). The 3 Wallumbilla non-netted products traded this week were all at points along the SWQP and included 2 of the 3 monthly product trades. RBP trades totalled 77 TJ ($12.20/GJ) while SWQP trades were 626 TJ ($11.46/GJ) and 1665 TJ for non-netted ($8.23/GJ).

Figure 6.1 shows the quantity of gas traded by product type for each trading day on pipeline trading locations in the Wallumbilla and Moomba Gas Supply Hubs.

Figure 6.1: GSH traded quantities



WAL* = Wallumbilla non-netted product (off-market trade at a specified delivery point)

13 Market trade is facilitated through an electronic trading platform, with standardised terms and conditions and a market settlement facility for the short-term trading of physical gas and related products. The market is designed to complement existing bilateral gas supply arrangements and gas transportation agreements, through the placement of anonymous offers (to sell) or bids (to buy) at specified quantity and price increments, which are automatically matched on the exchange to form transactions.

14 Volume weighted average prices and traded quantities provided in this report may include off-market trades, which are not included in AEMO's reference price calculations.