Gas Market Report

AUSTRALIAN ENERGY REGULATOR

16 – 22 July 2017

Weekly Summary

There was minimal change to the average price in the southern markets compared to the previous week. While the price in Brisbane did increase to some extent, they still remain well below levels in the south.

Demand in Victoria exceeded 1.2 PJ on Thursday 20 July, with temperatures reaching a maximum of only 20 degrees driving up heating demand and gas generation in the region reaching its highest level for the week at around 204 TJ on the day.

Gas generation in general fell by 165 TJ/day from the previous week, largely due to trends in Victoria and South Australia. Figure 5.1 shows that gas generation across the week fell significantly from the week before (to an average of 90 TJ/day) in Victoria. Gas generation in South Australia also fell significantly, but still remained high at around 192 TJ/day.

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.

Market overview

Note that Figures 1, 2 and 4 show full financial year data for the 2016-17 period, compared against the previous financial year. These comparisons will revert back to year-to-date (YTD) numbers in upcoming weekly reports when a longer period of data is available for comparison (2017-18 compared to 2016-17).

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)**.

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

	Victoria		Sydney		Adelaide		Brisbane	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand
16 Jul - 22 Jul 2017	9.27	1013	9.89	298	8.98	85	6.62	87
% change from previous week	0	-2	3	-2	1	2	6	-2
16-17 financial year	8.58	565	8.81	244	8.83	63	8.21	85
% change from previous financial year	72	1	74	2	54	3	76	1

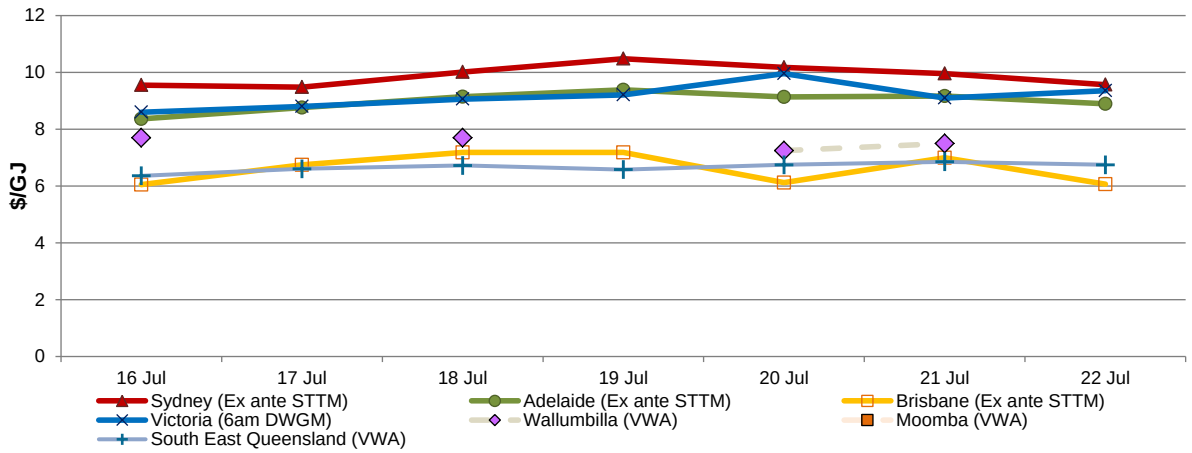
Figure 2 sets out price and demand information is also shown for the voluntary Wallumbilla and Moomba Gas Supply Hubs **(GSH)**.

Figure 2: Average prices and total quantity – Gas supply hub ($/GJ, TJ)[2]

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
16 Jul - 22 Jul 2017	-	-	6.70	136	7.49	163
% change from previous week	-	-	0	-23	0	81
16-17 financial year	-	-	7.32	995	8.27	8792
% change from previous financial year	-	-	-	-	89	16

Figure 3 illustrates the daily prices in each gas market, as defined in figures 1 and 2.

Figure 3: Daily gas market prices ($/GJ)



1 Average daily quantities are displayed for each region. The weighted average daily imbalance price applies for Victoria.

2 The prices shown for the GSH in Moomba, South East Queensland and Wallumbilla are volume weighted average (VWA) prices for all products traded across the period. The total quantity contributing to the weighted price is displayed for these GSH. Reported values for Moomba are the aggregate of trades on the Moomba to Adelaide Pipeline (MAP) and the Moomba to Sydney Pipeline (MSP). Historic trades for RBP and SWQP are grouped under WAL, (including in-pipe trades on the RBP).

Figure 4 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

Figure 4: Average ancillary payments ($000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
16 Jul - 22 Jul 2017	-	58.17	6.39	2.15
% change from previous week	-	-1	3	38
16-17 financial year		50.77	17.27	1.66
% change from previous financial year		77	52	8

* 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 5 shows the quantity and volume weighted prices of products traded in the Gas Supply Hub locations at Moomba, South East Queensland and Wallumbilla.

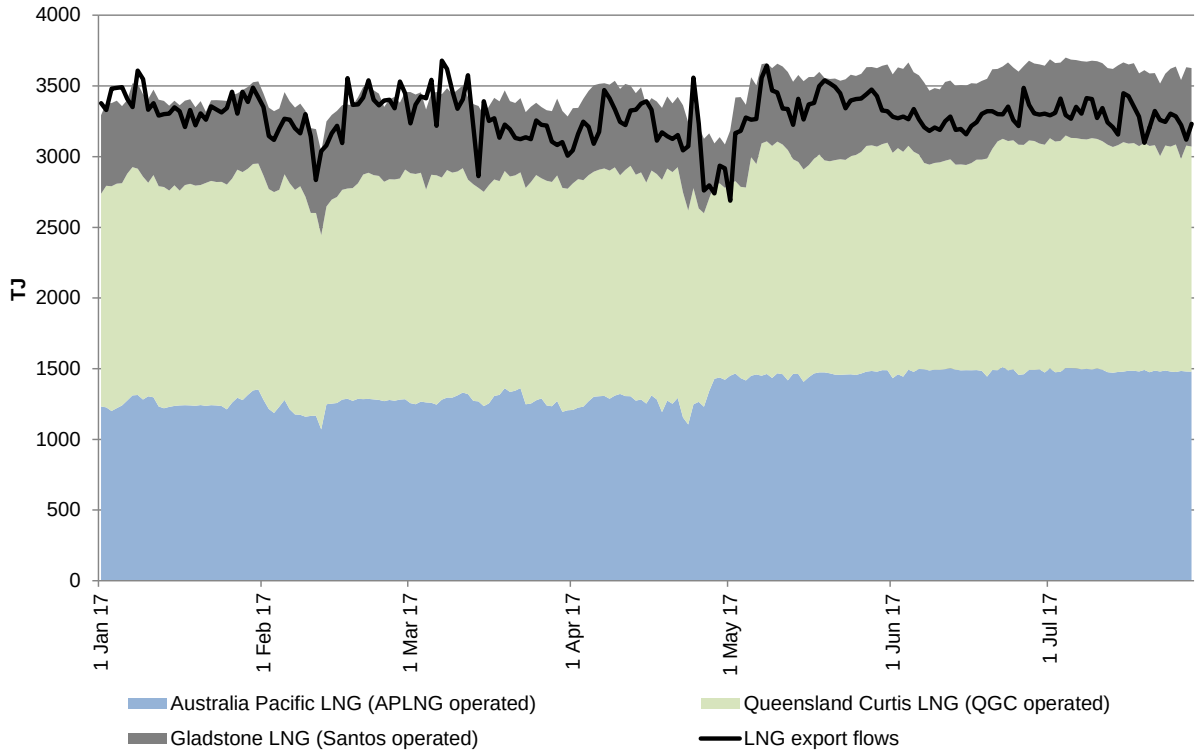
Figure 5: Gas supply hub products traded for the current week ($/GJ, TJ)

	Moomba		South East Queensland		Wallumbilla*	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	-	-	7.00	10.0	7.50	5.0
Daily	-	-	6.63	23.0	7.70	11.0
Day ahead	-	-	6.48	33.0	7.60	21.0
Weekly	-	-	6.78	70.0	7.46	126.0
Monthly	-	-	-	-	-	-
Total	**-**	**-**	**6.70**	**136.0**	**7.49**	**163.0**

* includes non-netted (off-market) trades.

Figure 6 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 6: LNG export pipeline and production flows (TJ) – Roma only[3]



Detailed market analysis

Queensland

Figure 6 shows the total production levels at Roma and the total export pipeline flows from the three export projects since the beginning of the year. Production in excess of pipeline flows has been around 200 – 500 TJ/day this winter. Towards the end of July, Origin Energy announced that its 90-day operational phase of the financial lenders' testing, in which both trains were run at high operational capacity[4], had concluded for the APLNG project. While outages of one train or less at each of the Santos and QCLNG projects are set to come to a conclusion around 10 August, APLNG will take further outages towards the end of August.

Victoria

Figure 1.1 shows the increase to schedule prices driven by a rise in demand (see figure 1.5). Whilst this was influenced by higher forecast demand (figure 1.2), an upturn in withdrawal bids priced above $10/GJ (figure 1.4), and increased output from gas generation driven by Newport power station coming online from mid-afternoon (consuming around 26.3 TJ), the main factor regarding the higher prices was a steep offer curve. Figure 1.3 shows the limited quantity of gas available in price bands between $6/GJ to $10/GJ offered around 1 PJ, leading to the schedule price climbing to $14.79/GJ by the 10 pm horizon.

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[3] Bulletin Board quantities shown in figure 6 in weekly reports from the week ending 11 June 2016 to the week ending 15 July 2017 displayed incorrect Roma-specific production data due to a historical change in participant identification. From this weekly report onwards this error has been addressed to show production around Roma operated by the three LNG export projects. Some additional facilities exempt from Bulletin Board reporting requirements are not shown in this figure.

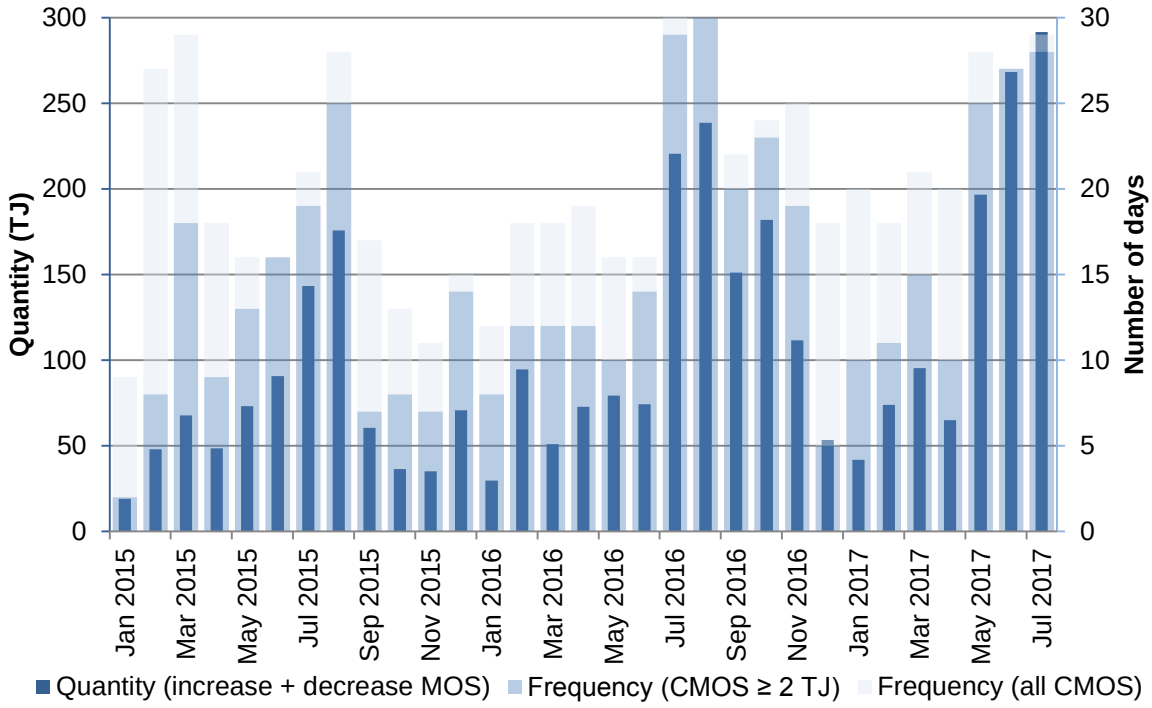
[4] The project was producing LNG at around 10 per cent above its nameplate capacity at a continuous rate.

Sydney

Figure 2.4 shows daily MOS payments in Sydney reached as high as $90,710, with an average daily payment of $58,168 for the week. This represented a continued trend of counteracting MOS (CMOS) allocations.

Figure 7 shows the total quantity of CMOS allocations each month alongside the number of days in each month where CMOS allocations were above 2 TJ.[5] While there is a trend of higher MOS requirements around the winter months, there is a notable trend toward increased quantities in recent years. As discussed in the AER's Gas Market Report: 25 June – 1 July 2017, this adds to the higher cost of available MOS offers on the Moomba Sydney Pipeline (MSP), putting further upward pressure on MOS payments in the hub.

Figure 7: Counteracting MOS quantity and frequency in Sydney (TJ)



Counteracting MOS allocations may occur as a result of a number of factors. As Figure 7 indicates, this may include winter demand and higher variability in demand levels within the network due to temperature sensitivity. The nature of this variability will depend on the distribution of retail customers within sub-sections of the Sydney hub and the associated allocation of supply between the Eastern Gas Pipeline (EGP) and MSP.

Other contributing factors may include the renomination of supply and back haul on each of the EGP and MSP. Further analysis of the physical constraints within the Sydney distribution system and counteracting MOS allocations are available in the AER's significant price variation report – July and August 2016.

[5] 2 TJ of CMOS allocations are defined as 1 TJ of increase MOS services provided to the hub offset by 1 TJ of decrease MOS services on another pipeline. This is generally in the form of decrease MOS allocations on the pressure controlled Moomba to Sydney Pipeline (MSP) and increase MOS allocations on the Eastern Gas Pipeline (EGP).

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[6] which is the schedule at which most gas is traded.

The main drivers[7] 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[8], 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)

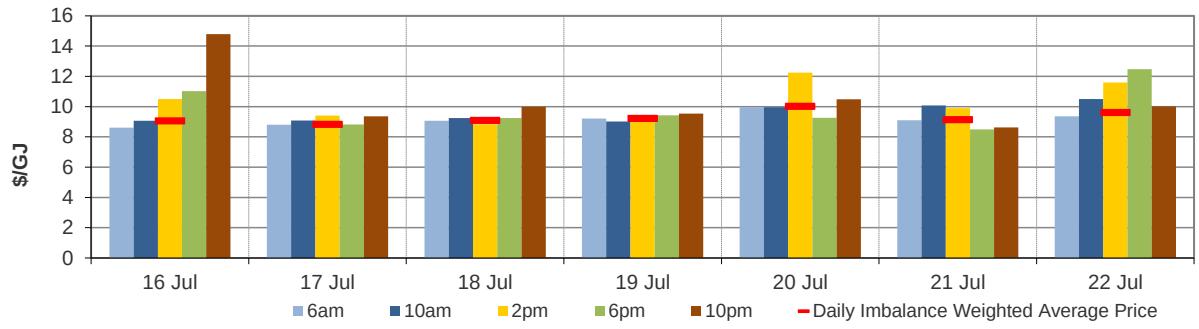
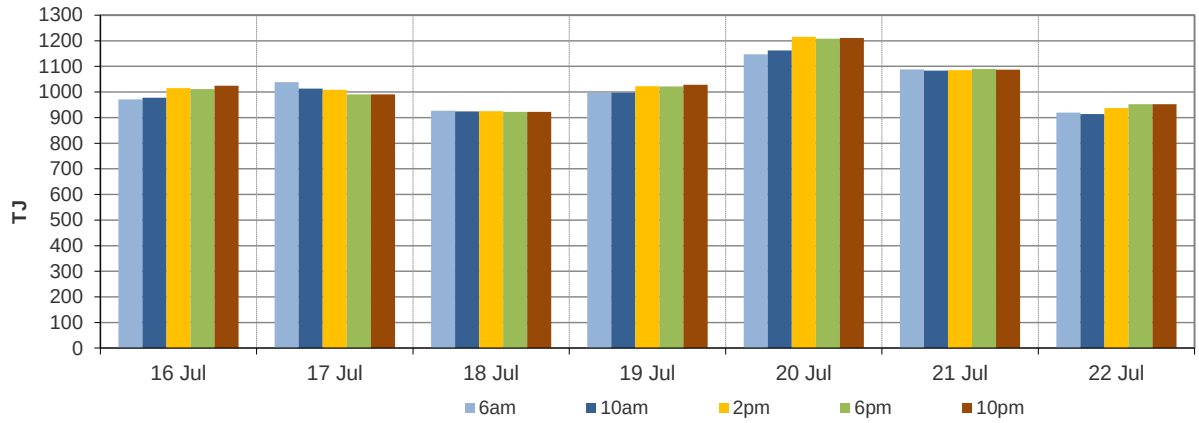


Figure 1.2: Demand forecasts (TJ)



6 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.

7 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.

8 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)

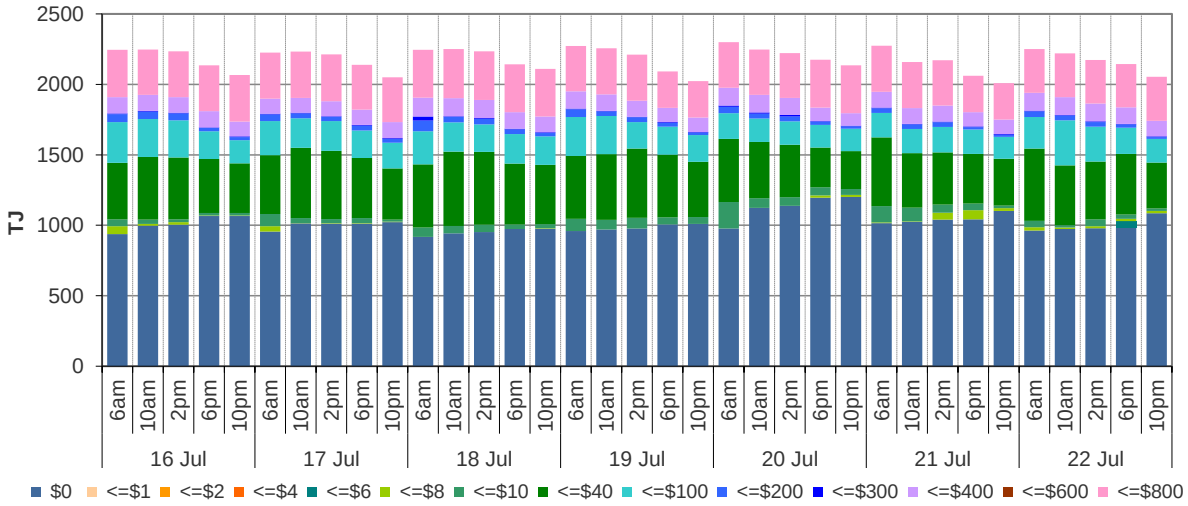


Figure 1.4: Withdrawal bids by price bands (TJ)

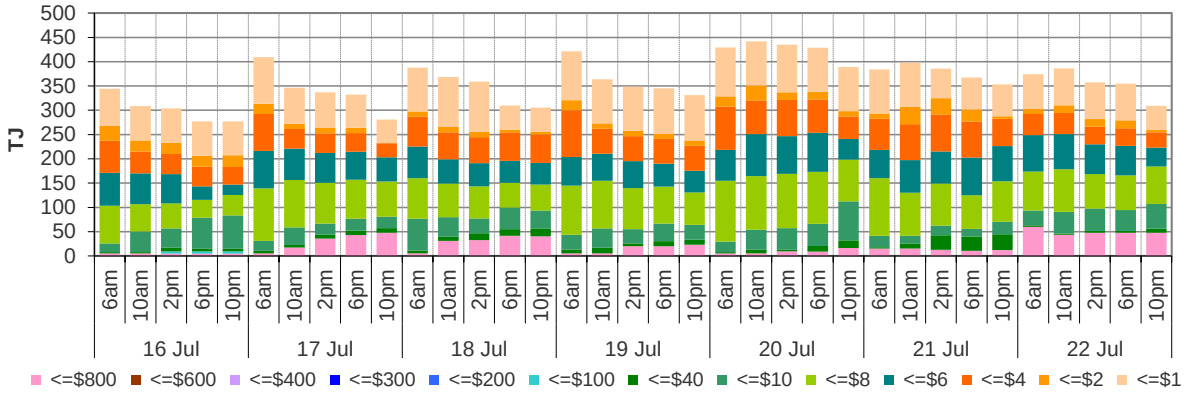
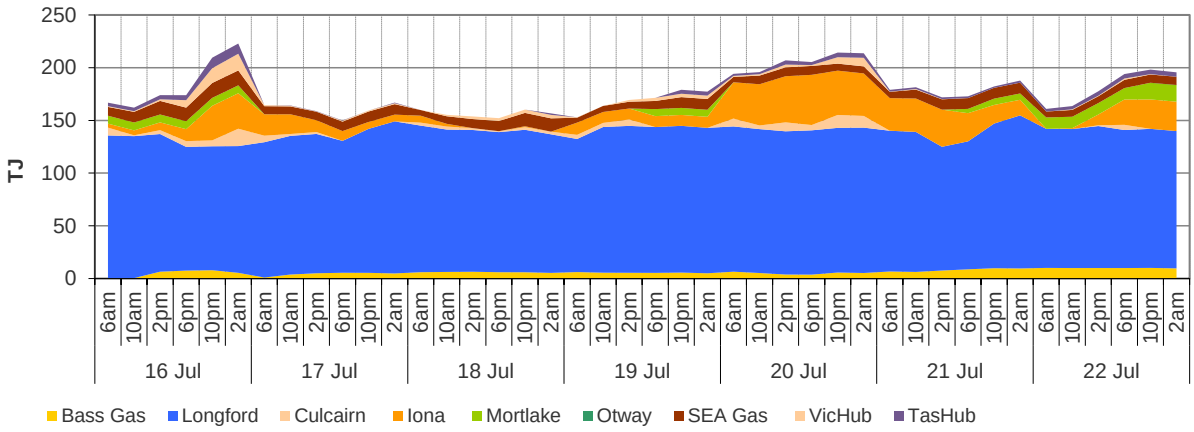


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.[9] 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.

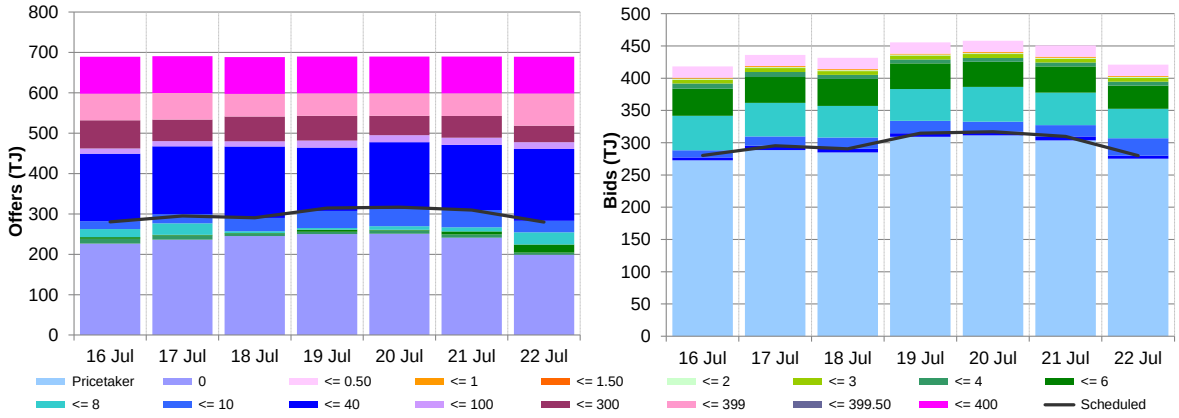
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.[10]

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 ($/GJ)	9.55	9.48	10.01	10.48	10.18	9.96	9.57
Ex ante quantity (TJ)	280	295	291	315	317	310	280
Ex post price ($/GJ)	9.20	10.01	9.48	8.22	9.57	10.45	10.20
Ex post quantity (TJ)	271	301	286	271	308	321	289

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



9 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.

10 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)

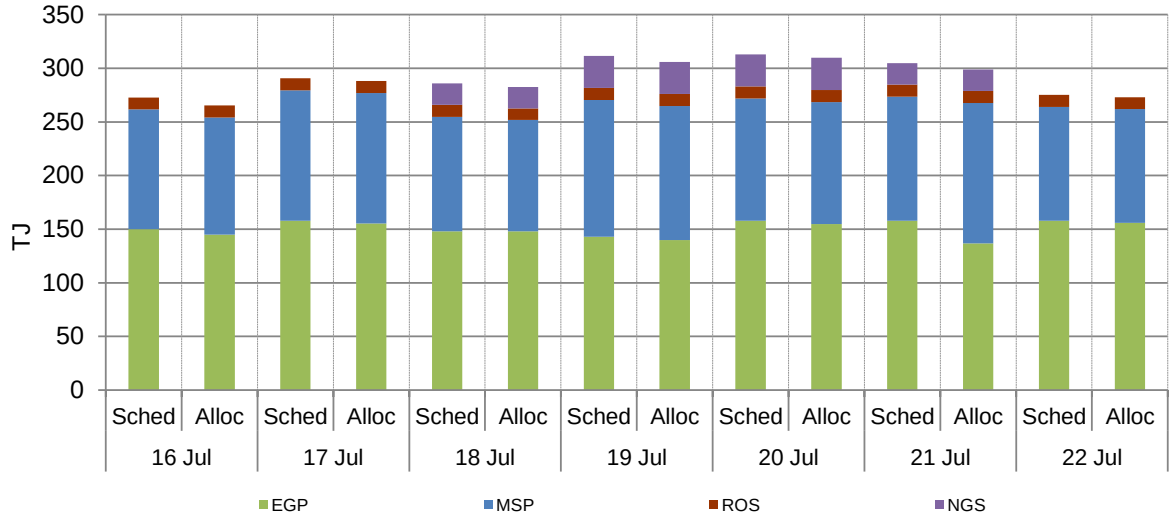
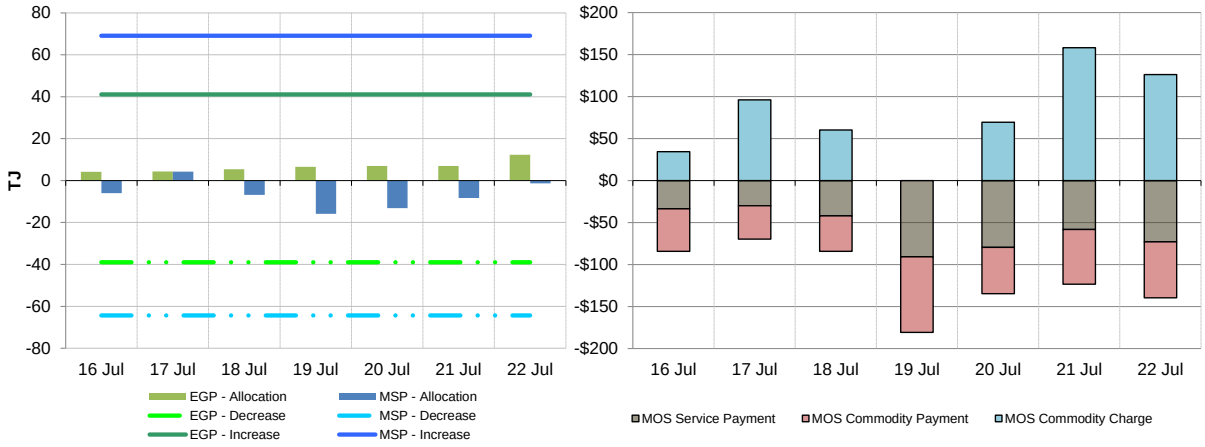


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges ($000)[11]



[11] 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 ($/GJ)	8.36	8.76	9.15	9.39	9.14	9.17	8.90
Ex ante quantity (TJ)	78	89	91	92	94	84	68
Ex post price ($/GJ)	8.36	9.02	9.39	9.39	9.14	9.17	8.90
Ex post quantity (TJ)	83	91	94	93	95	84	68

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

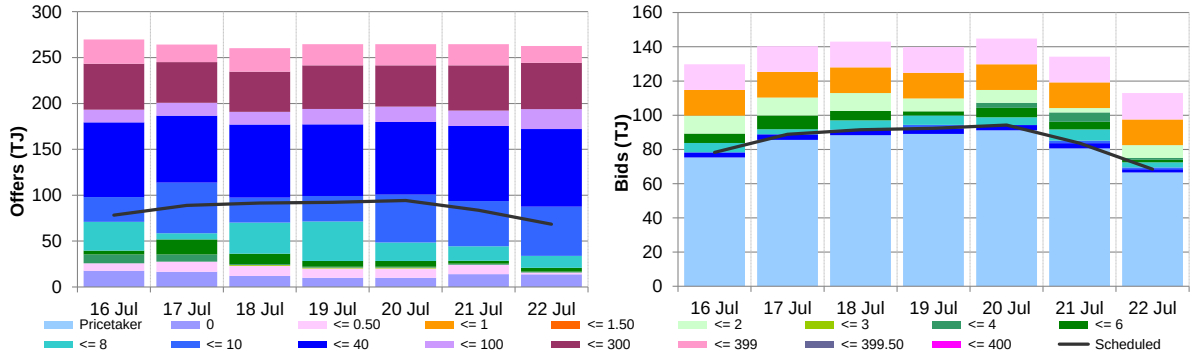


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

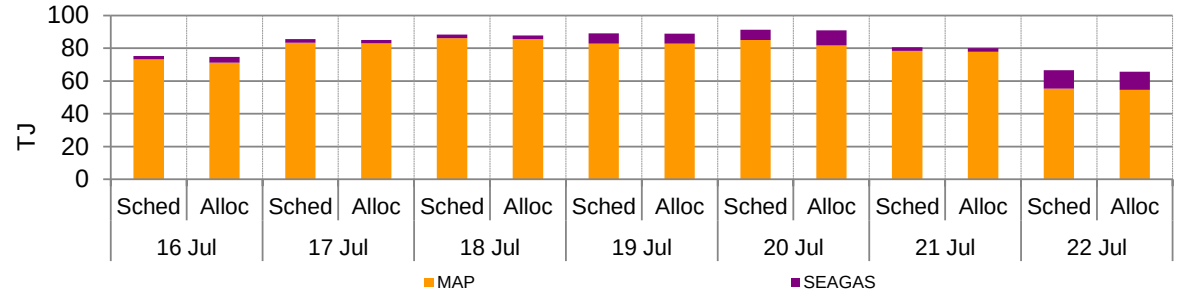
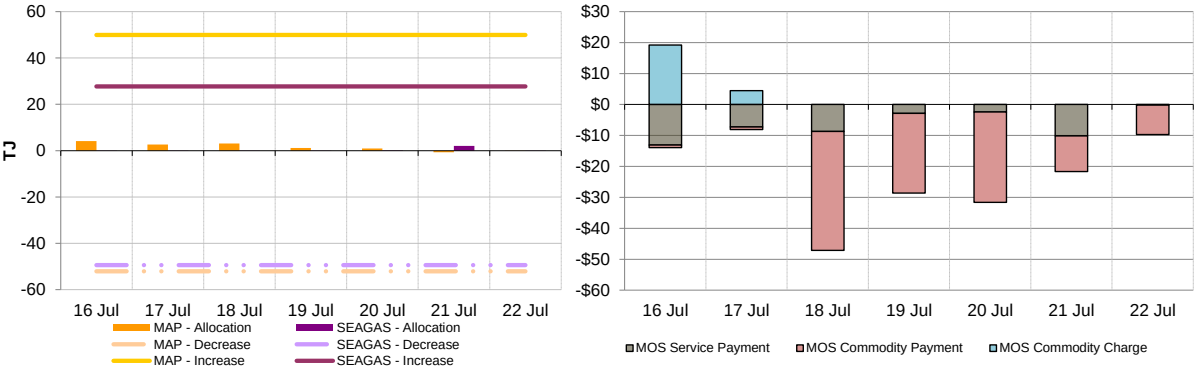


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges ($000)



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 ($/GJ)	6.05	6.75	7.18	7.18	6.12	7.00	6.07
Ex ante quantity (TJ)	72	88	90	99	99	85	77
Ex post price ($/GJ)	7.29	7.19	7.19	7.15	5.56	5.30	5.68
Ex post quantity (TJ)	80	95	94	96	86	75	74

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

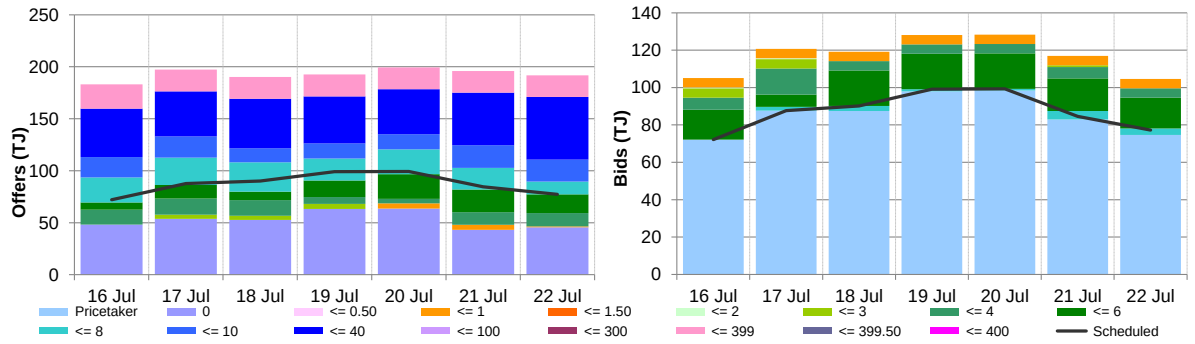


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

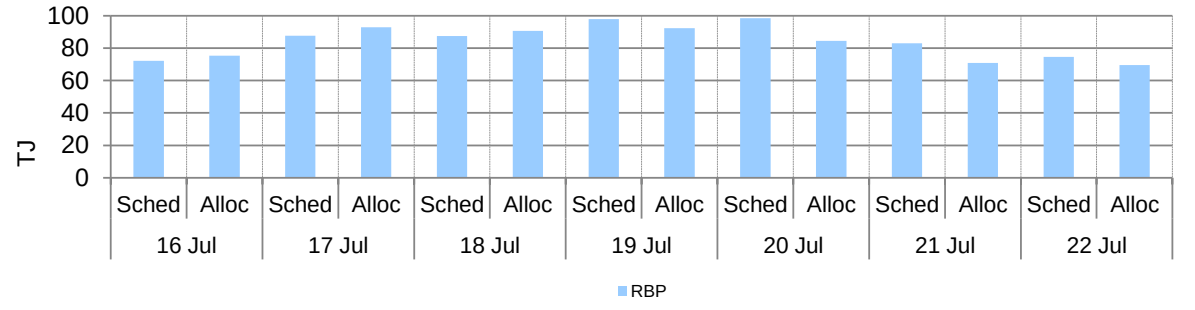
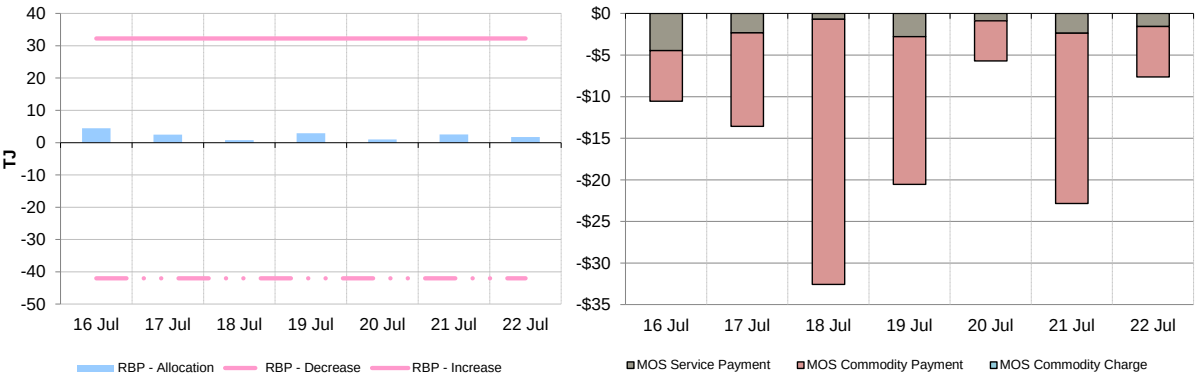


Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges ($000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week[12] from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices[13] 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); Bulletin Board flows (TJ)[14]

Totals	Current Week	Change (TJ)
Domestic gas flows	2161	(-44)
Export gas flows	3279	(-18)
Gas production	5363	(-96)
GPG gas usage	430	(-165)
Pipelines		
Queensland		
Gladstone		
APLNG	1646	(+14)
GLNG	628	(-64)
QGP	125	(-5)
WGP	1005	(+32)
Mt Isa		
CGP	76	(+4)
Brisbane		
RBP	103	(+7)
South West		
SWQP	83	(+7)
Wallumbilla		
BWP	142	(+7)
CRWP	158	(+38)
DDP	84	(+5)
SGP	23	(-3)
QGP (WAL)	16	(0)
RBP (WAL)	-76	(+7)
SWQP (WAL)	195	(+10)
New South Wales		
MSP	184	(-3)
EGP	265	(0)
Victoria		
LMP	856	(+31)
SWP	184	(-24)
South Australia		
MAP	206	(-16)
SEAGas	129	(-43)
Tasmania		
TGP	32	(+9)
Storage (held volume)		
Moomba LDB	41114	(-292)
Iona UGS	14379	(-694)
LNG Storage Dandenong	671	(-5)

12 **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.

13 GSH supply is the average daily volume of gas 'traded', while price is a volume weighted average. Optional hub services (for compression and redirection) are shown separately from commodity trades.

14 Net flows are shown for Bulletin Board facilities, as outlined in the user guide.

6. Gas Supply Hub

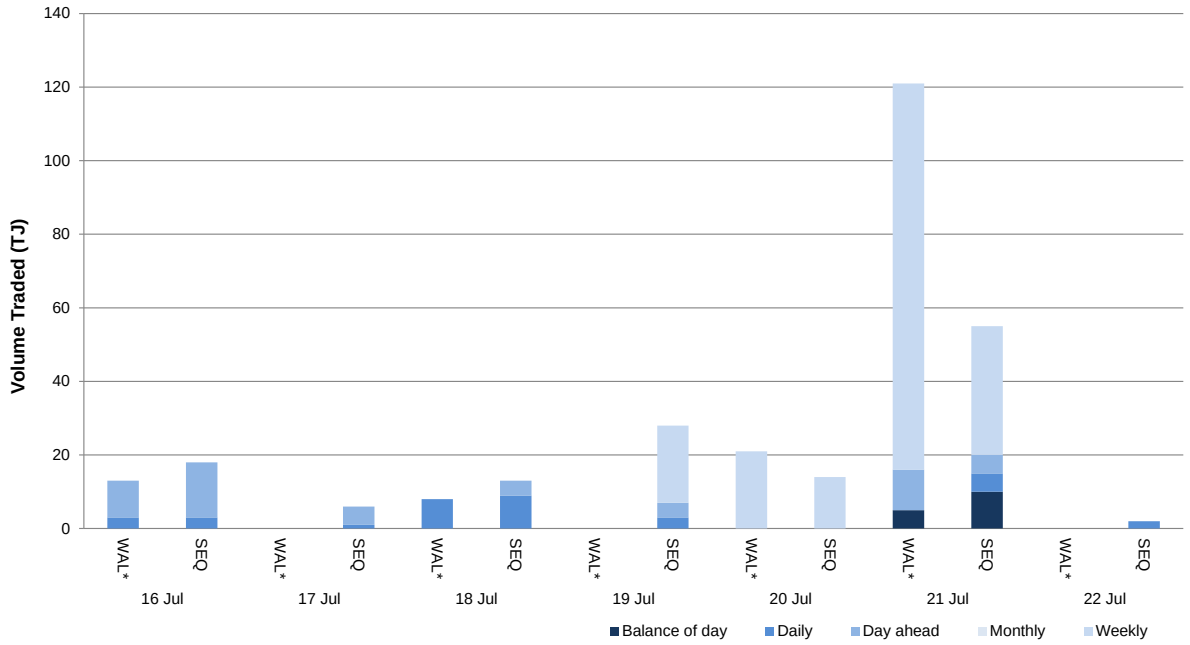
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines at. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).[15]

The Moomba hub commenced operation from June 2016 to further facilitate trading on the **MAP** and **MSP**, with trading between the two hubs on the SWQP via a spread product (representing the price differential between the hubs). From October 2016, the addition of a Wallumbilla Compression Product was introduced to facilitate the supply hub's transition from three different trading locations into one. From March 2017, Wallumbilla transitioned into an optional hub services model, replacing the three trading locations (QGP, SWQP and RBP) with a single product at Wallumbilla **(WAL)** and an in-pipe RBP trading location at South East Queensland **(SEQ)**.

This week there were 32 trades for 299 TJ of gas at a volume weighted price of $7.13/GJ. These consisted of 9 trades at WAL (163 TJ at $7.49/GJ) and 23 trades at SEQ (136 TJ at $6.70/GJ). 280 TJ of the gas traded was matched on the exchange. There were 4 spread product trades between SEQ and WAL for $0.95/GJ to $1.20/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.[16]

Figure 6.1: GSH traded quantities



15 Additional information on trading locations and available products is detailed in the user guide.

16 Non-netted (off-market) trades, allowing the selection of specific delivery point at a trading location, are included with other Wallumbilla trades (WAL*).