

25 June – 1 July 2017

Weekly Summary

Average prices increased this week alongside higher demand, rising from \$0.39/GJ in Sydney and up to \$1.01/GJ in Victoria. Figure 1 shows average prices for the past financial year ranged from 54 per cent higher (in Adelaide) to 76 per cent higher (in Brisbane) compared to the previous financial year 2015/16.

Production levels at Roma remain high, with bulletin board data showing record levels being reached a number of times since late-June.¹

Average daily MOS payments in Sydney increased by 77 per cent, from just under \$29,000 in 2015/16 to above \$50,000 in 2016/17. MOS payments occur primarily because balancing gas (MOS) is required to correct for hub wide forecasting errors. With average daily demand of around 250,000 GJ per day – this increase reflects a GJ per day cost increase for some participants from around 10 cents to 20 cents. The AER is monitoring factors behind this increase (more discussion is in the market overview).

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

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**).

¹ New record production levels were set on 23 June (3675 TJ), 27 June (3688 TJ), 1 July (3698 TJ) and 4 July (3710 TJ). APLNG is understood to be continuing to run its 2 trains at maximum capacity pursuant to “lenders testing” requirements, influencing the high production.

Figure 1: Average daily prices and demand – all markets (\$/GJ, TJ)²

	Victoria		Sydney		Adelaide		Brisbane	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand
25 Jun - 01 Jul 2017	9.50	997	9.65	302	9.38	89	7.52	93
% change from previous week	12	11	4	7	5	5	10	3
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

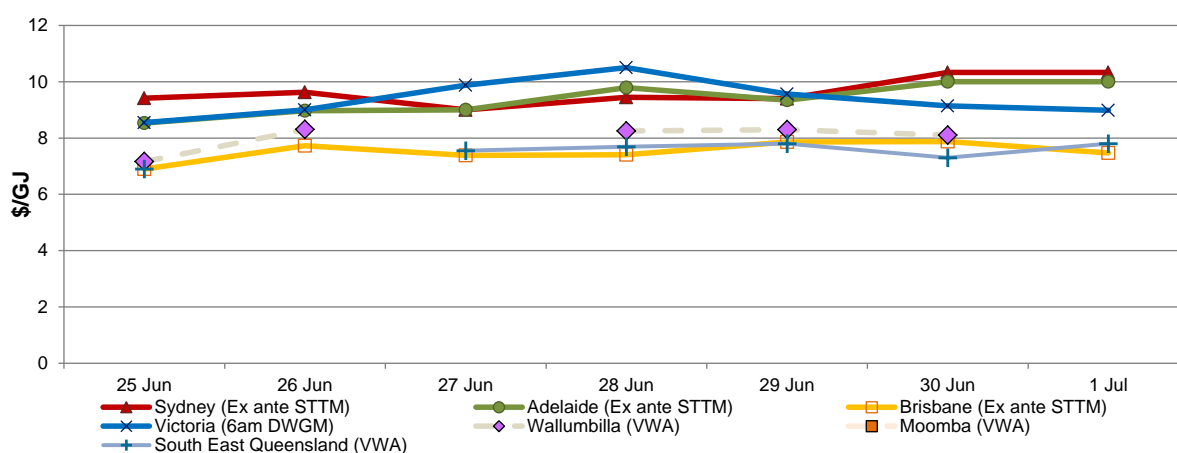
Figure 2 sets out price and demand information is also shown for the voluntary Wallumbilla and Moomba Gas Supply Hubs (GSH).

Figure 2: Average prices and total quantity – Gas supply hub (\$/GJ, TJ)³

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
25 Jun - 01 Jul 2017	-	-	7.47	107	8.09	493
% change from previous week	-	-	8	49	2	-27
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)



² Average daily quantities are displayed for each region. The weighted average daily imbalance price applies for Victoria.

³ 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
25 Jun - 01 Jul 2017	-	69.67	5.65	1.00
% change from previous week	-	28	27	-1
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.

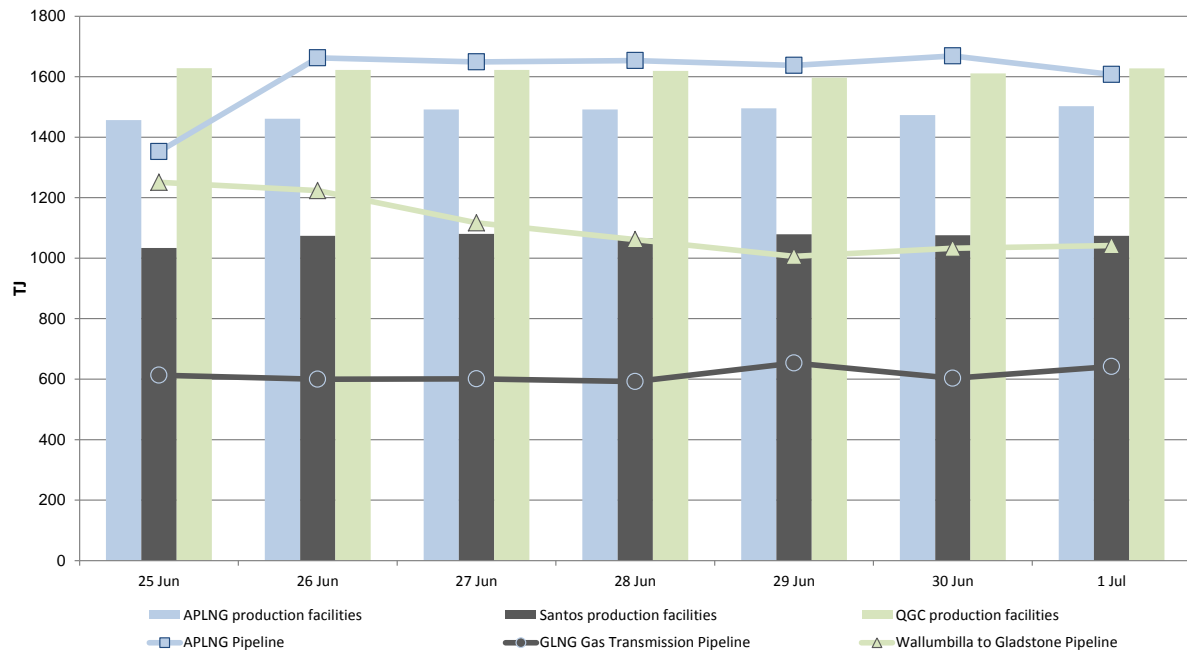
Figure 5: Gas supply hub products traded for the current week (\$/GJ, TJ)

	Moomba		South East Queensland		Wallumbilla*	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	-	-	7.15	14.0	7.68	85.0
Daily	-	-	7.53	31.0	8.31	87.0
Day ahead	-	-	7.13	27.0	7.06	41.0
Weekly	-	-	7.80	35.0	8.30	280.0
Monthly	-	-	-	-	-	-
Total	-	-	7.47	107.0	8.09	493.0

* 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)*



* Production quantities represent flows from facilities operated by APLNG, Santos and QGC in the Roma region. Gas from individual facilities may also supply the domestic market, other LNG projects or storage facilities.

Detailed market analysis

Sydney MOS outcomes over 2016-17

As reported in the AER's [Quarterly Compliance Reports](#), a trend of over forecasting in the Sydney hub has driven higher requirements for decrease MOS, as over supply to the market is stored upstream of the hub on pipelines offering decrease services. Another contributing factor to higher MOS payments over the past year is the increase in the cost of MOS decreased services on the pressure controlled Moomba to Sydney Pipeline (MSP), which provides the majority of this service in the Sydney STTM hub.

Figure 7 shows the monthly MOS offers for decrease services on the MSP, comparing 2015-16 to 2016-17. The figure highlights the increase to the cost of MOS offered to the market (in each month there was less decrease MOS offered in to the market at less than \$5/GJ, the lightest blue shading). The increase in offer prices combined with higher allocations of decrease MOS on the pipeline (the blue vertical bars) have driven higher service costs in the hub this financial year.

Figure 7: Moomba to Sydney Pipeline decrease MOS offer stacks (TJ/day)⁴

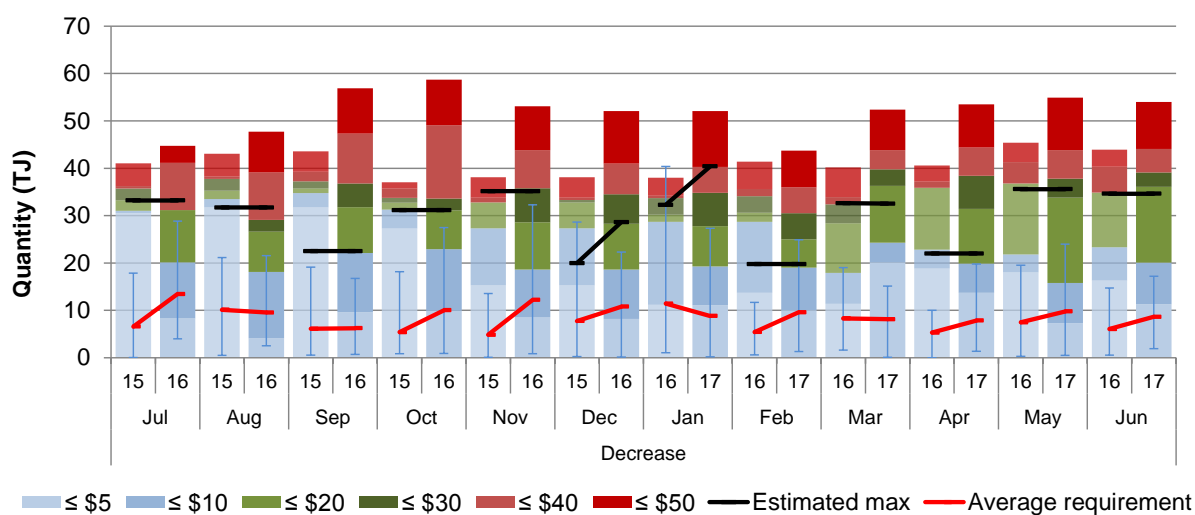


Figure 8 shows that decrease MOS is allocated on the MSP on the majority of days. The figure also illustrates the higher contribution to the total cost of MOS services on those days compared to the previous financial year.

Figure 8: Moomba to Sydney Pipeline decrease MOS frequency and costs

	Number of days with MSP decrease MOS allocations	MSP proportion of total service costs on those days (%)	Average MSP decrease cost per day (\$)
2016-17 financial year	298	72	54,525
2015-16 financial year	234	59	29,074

⁴ The average level of MOS decrease allocations in each month are shown in red, with the blue error bars indicating the range of MOS decrease service allocations provided across the month (minimum/maximum requirements).

Sydney

In Sydney, MOS service costs increased by 77 per cent on the previous week, with the majority of days seeing costs above \$50,000 influenced by counteracting MOS allocations (increase MOS on the EGP offsetting decrease MOS on the MSP). Net MOS decrease requirements over the period of up to 11 TJ were offset to some extent as participants renominated to reduce supply on a number of days. However, the combination of forecasting error and counteracting MOS allocations drove services costs as high as \$112,138 on Friday, despite renominations which reduced supply on the MSP by 10 TJ (lowering the decrease MOS requirement).

Victoria

On Thursday 29 June, an offshore platform outage caused by an electrical fault affected lower production levels at Longford.⁵ As a result, the price increased to \$15.82/GJ at 2 pm. Schedule prices decreased in the following intervals as participants' rebids became effective at other locations, largely from Iona underground storage.⁶ Figure 1.5 shows the increased supply from other sources following the Longford outage.

The facility returned to service the next day Victorian market demand on the following days exceeded 1.14 PJ, influenced by very cold temperatures.⁷ Demand from gas generators in the region also increased to above 215 TJ on 30 June, influencing the higher demand on the day.

⁵ The facility was constrained to 640 TJ/day just prior to the 2 pm scheduling horizon. The issue was resolved the following day.

⁶ Some additional supply was also provided by the relatively recently commissioned TasHub system point, which provides a new storage connection to the market from the Tasmanian Gas Pipeline (TGP). While additional supply into Victoria was provided from NSW (Culcairn), the net flows transported more gas into NSW on that gas day.

⁷ The temperature fell to around 1 degree in the Melbourne on the morning of 1 July and was much lower at inland locations, decreasing to negative temperatures in a number of regions (including Essendon at -2 degrees). This was the coldest day since mid-July 2015.

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 price⁸ which is the schedule at which most gas is traded.

The main drivers⁹ 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 forecasts¹⁰, 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)

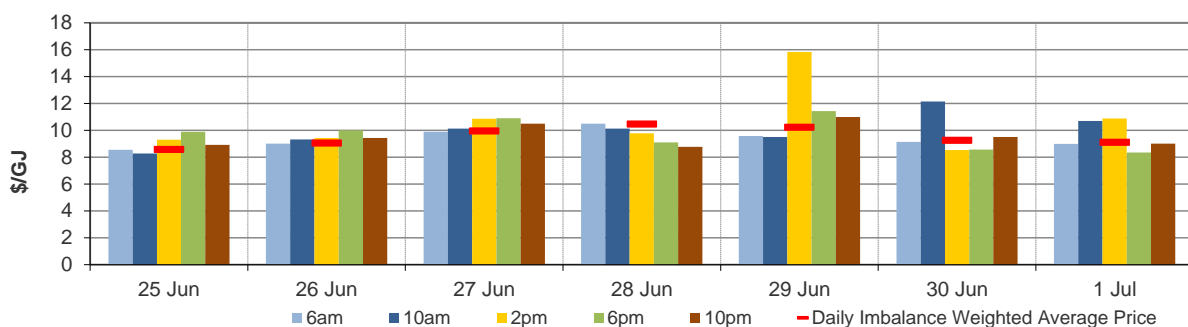
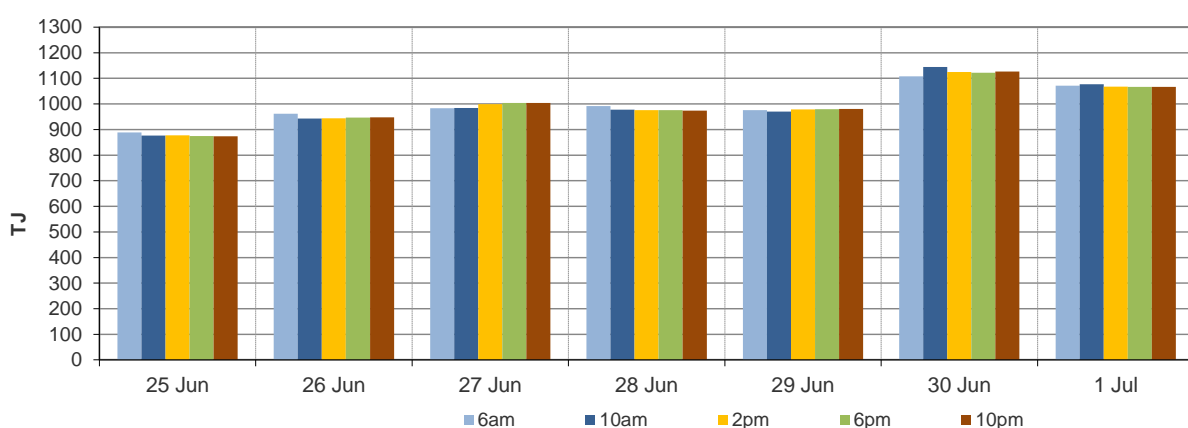


Figure 1.2: Demand forecasts (TJ)



⁸ 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.

⁹ 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.

¹⁰ 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)

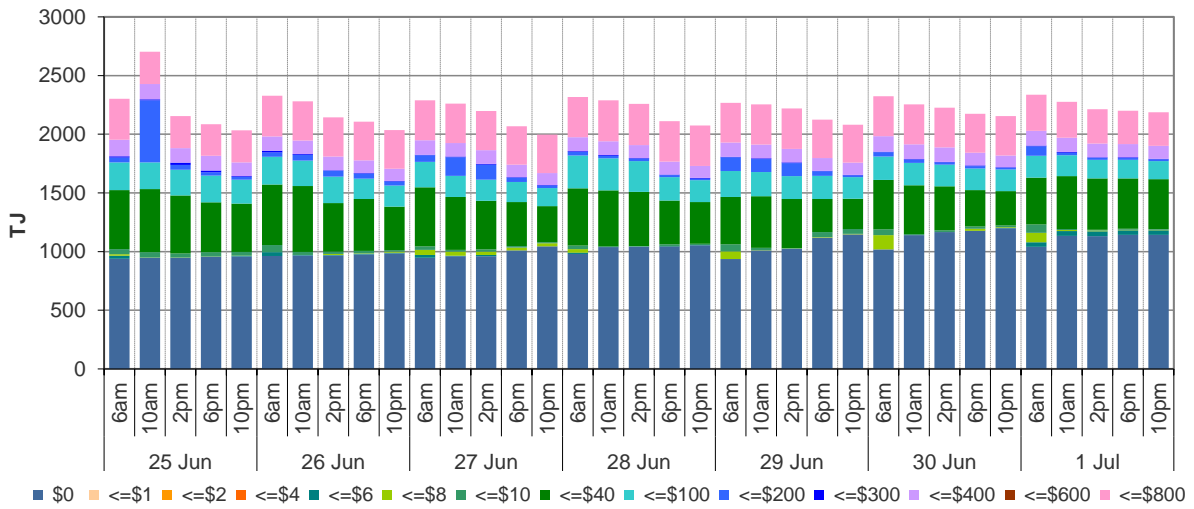


Figure 1.4: Withdrawal bids by price bands (TJ)

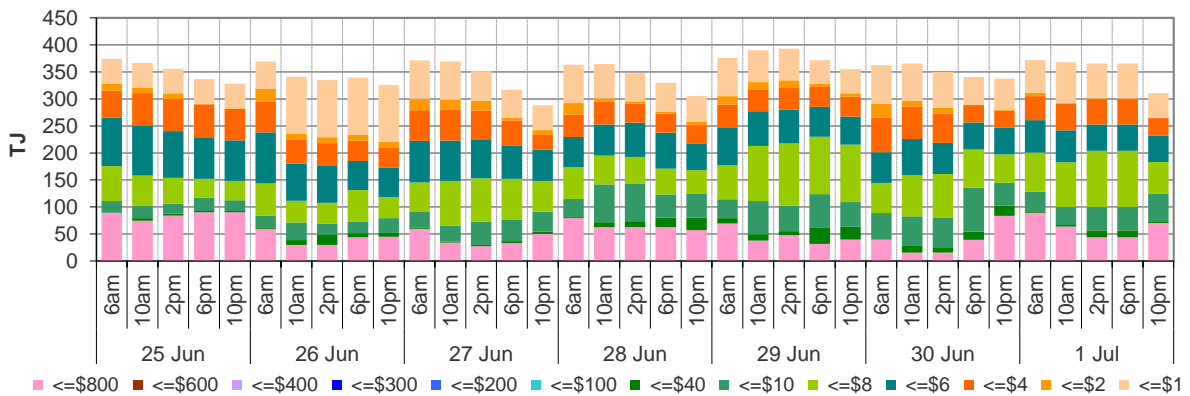
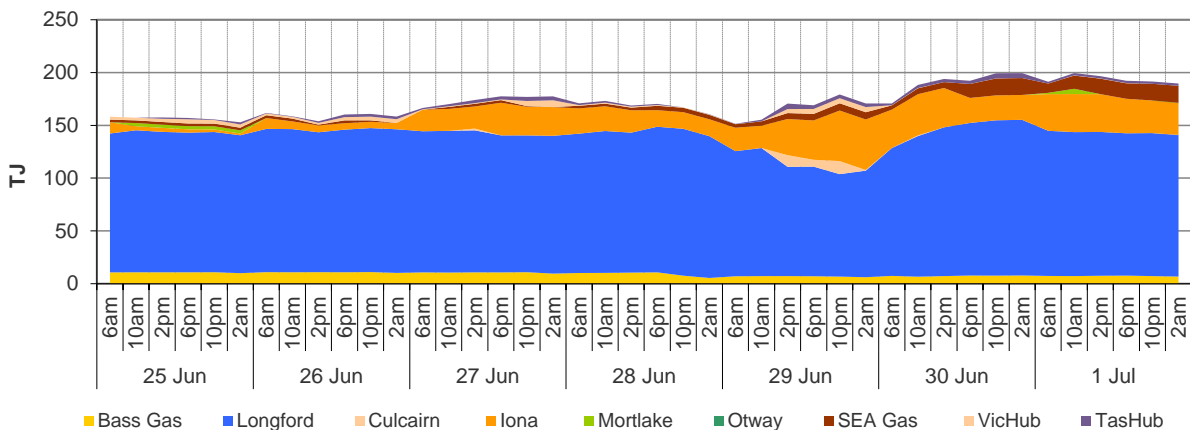


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.¹¹ 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](#).

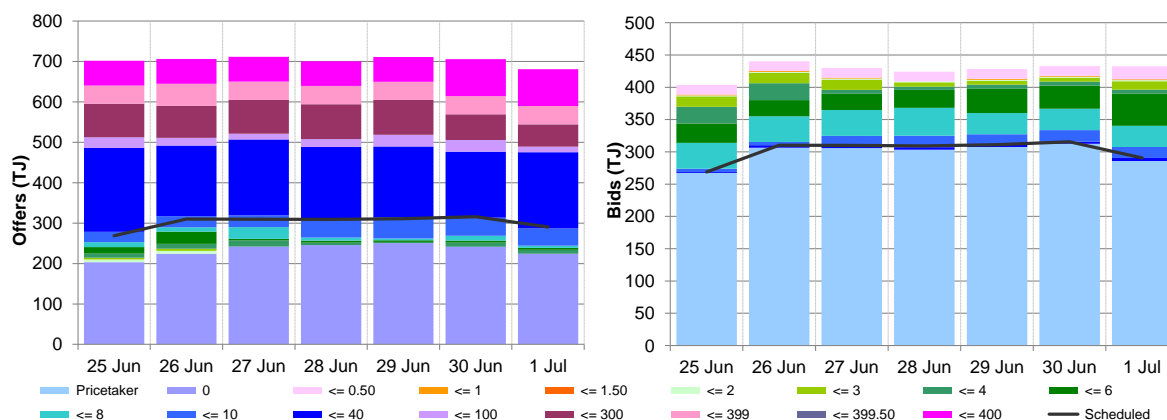
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.¹²

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)	9.42	9.63	9.00	9.45	9.40	10.33	10.33
Ex ante quantity (TJ)	269	310	310	309	311	316	290
Ex post price (\$/GJ)	8.99	9.33	9.40	9.37	9.29	9.34	9.38
Ex post quantity (TJ)	259	301	314	305	300	301	279

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



¹¹ 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.

¹² 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)

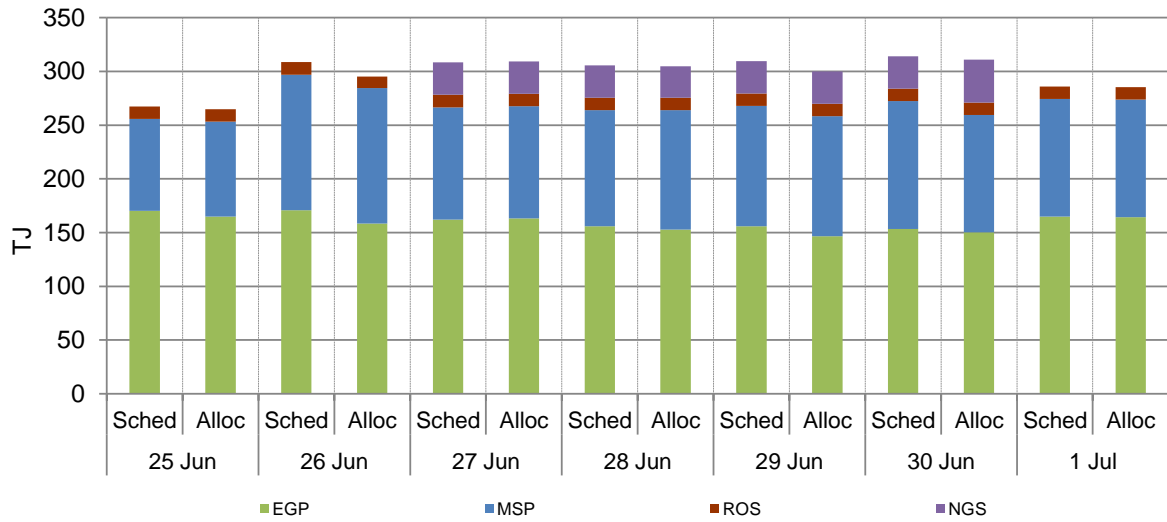
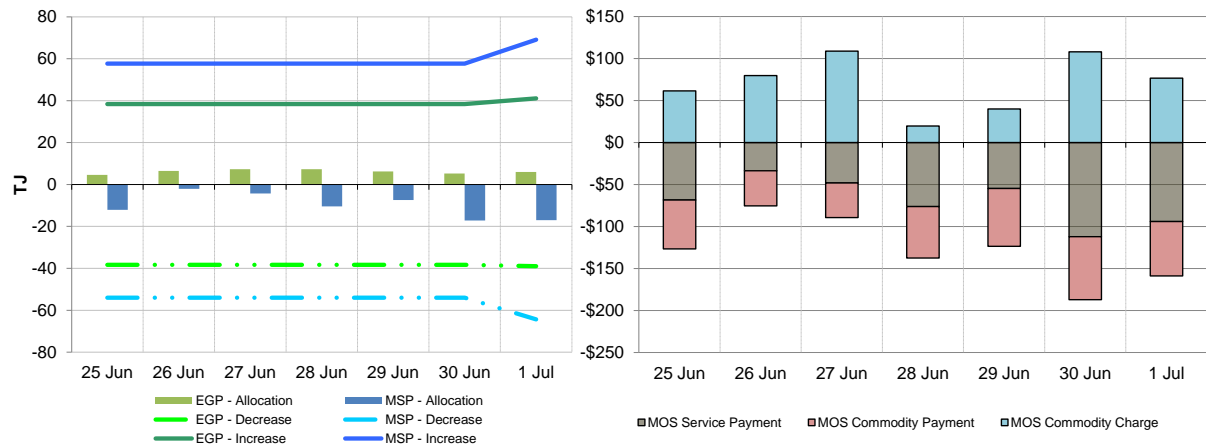


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)¹³



¹³ 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)	8.53	8.97	9.00	9.79	9.35	10.00	10.00
Ex ante quantity (TJ)	76	90	91	95	96	95	78
Ex post price (\$/GJ)	8.51	8.97	9.00	10.28	9.35	9.35	10.00
Ex post quantity (TJ)	75	92	92	99	96	91	77

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

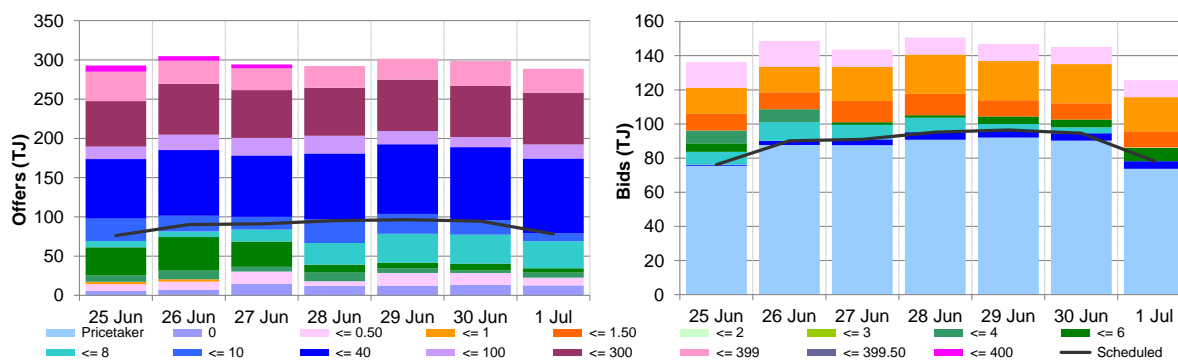


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

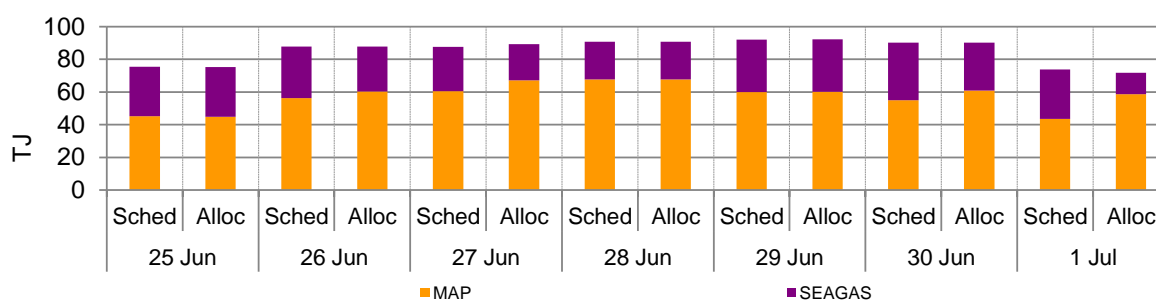
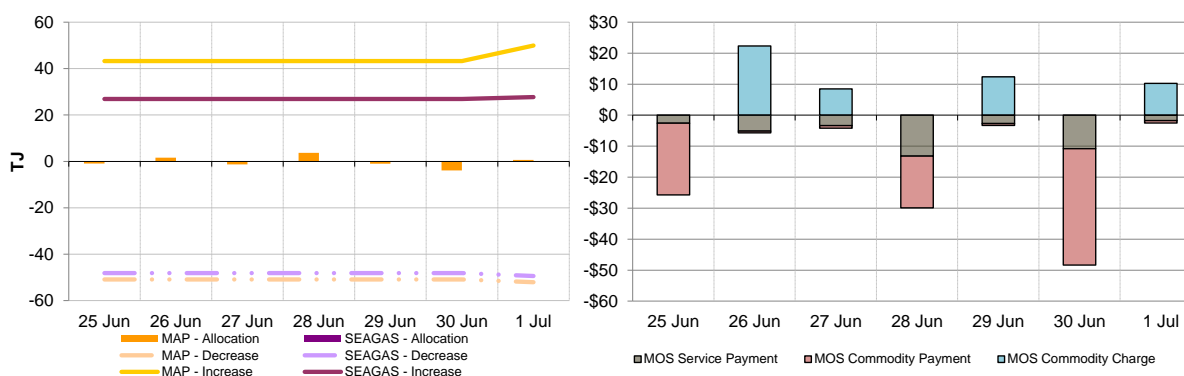


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	6.90	7.73	7.38	7.41	7.86	7.88	7.47
Ex ante quantity (TJ)	81	98	99	100	98	94	82
Ex post price (\$/GJ)	7.33	7.73	7.38	7.40	7.86	7.88	7.47
Ex post quantity (TJ)	83	98	97	98	94	92	80

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

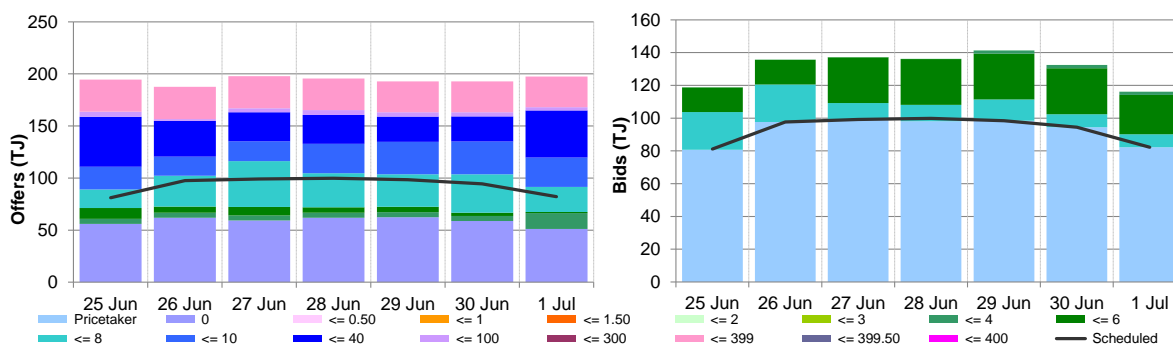


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

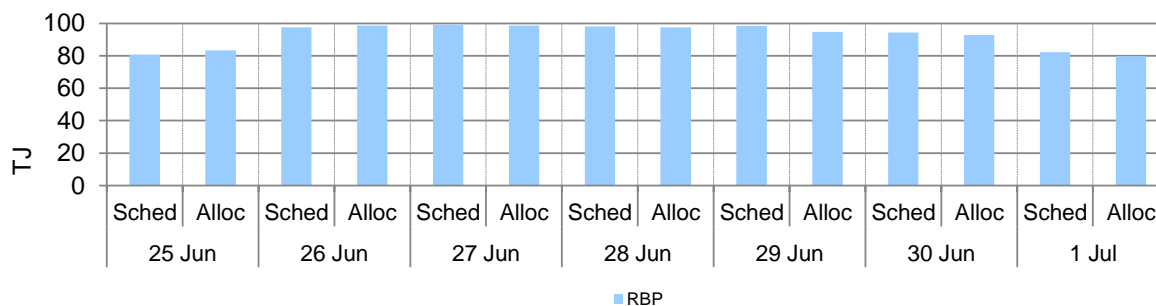
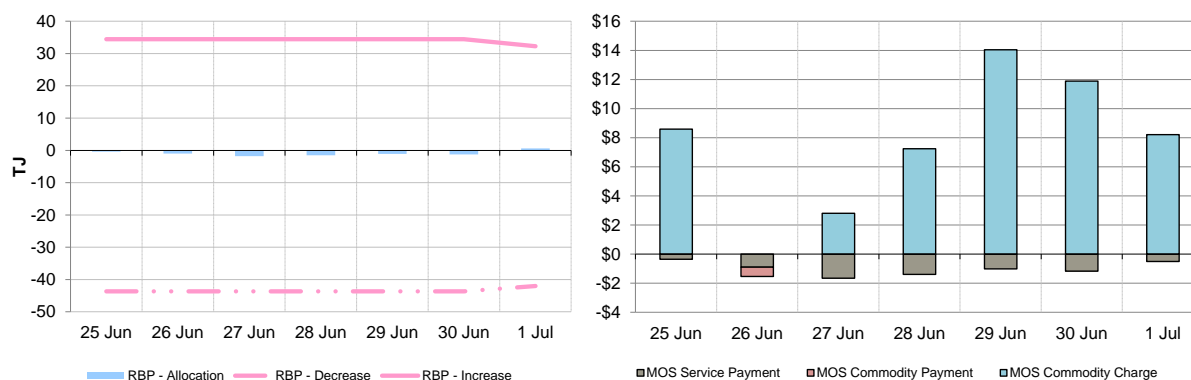


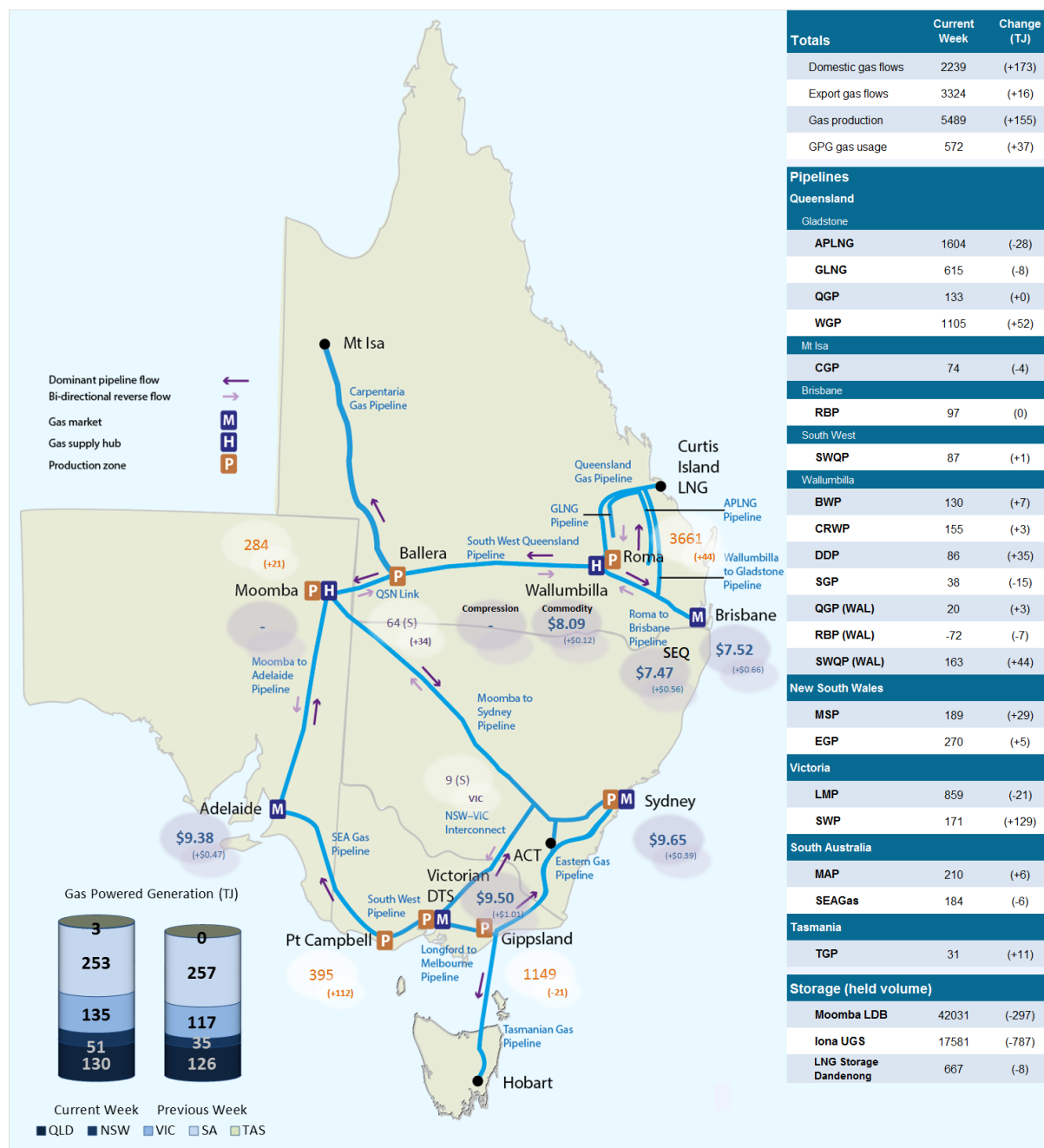
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week¹⁴ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices¹⁵ 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)¹⁶



¹⁴ 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.

¹⁵ Export gas flows are calculated as the total of: the APLNG pipeline; the GLNG pipeline; and the Wallumbilla to Gladstone pipeline.

¹⁶ GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.

¹⁵ 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.

¹⁶ Net flows are shown for Bulletin Board facilities, as outlined in the [user guide](#).

6. Gas Supply Hub

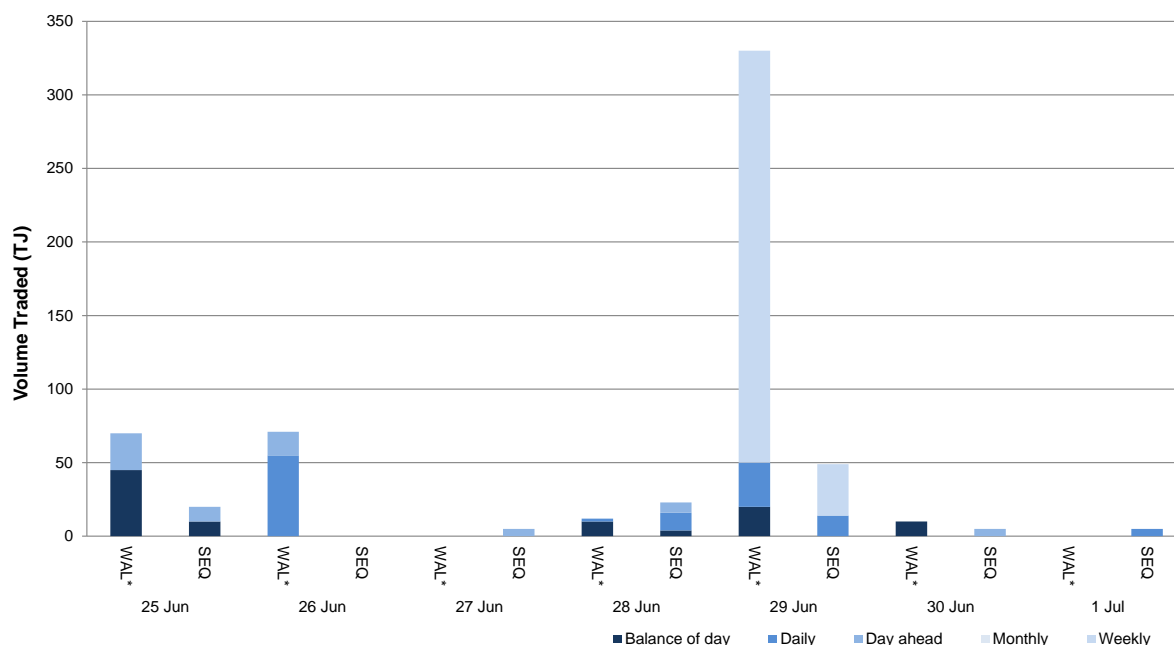
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines at. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).¹⁷

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 47 trades for 600 TJ of gas at a volume weighted price of \$7.98/GJ. These consisted of 28 trades at WAL (493 TJ at \$8.09/GJ) and 19 trades at SEQ (107 TJ at \$7.47/GJ). Figure 6.1 highlights four weekly trades on 29 June, which accounted for 315 TJ of the gas traded in the hub this week (the majority of this gas was traded off-market at WAL for \$8.30/GJ, with one SEQ trade on the exchange for \$7.80/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.¹⁸

Figure 6.1: GSH traded quantities



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¹⁷ Additional information on trading locations and available products is detailed in the [user guide](#).

¹⁸ Non-netted (off-market) trades, allowing the selection of specific delivery point at a trading location, are included with other Wallumbilla trades (WAL*).