Gas Market Report

AUSTRALIAN ENERGY REGULATOR

26 May – 1 June 2019

Weekly Summary

Average price increases occurred in Victoria, Sydney and Adelaide this week, with prices in Adelaide again climbing above $10/GJ towards the end of the week. The price in Sydney also rose to almost $12/GJ on 29 May, before returning to under $10/GJ for the remainder of the week.

Demand in Victoria increased by 62 per cent compared to the previous week due to the cold weather. Maximum temperatures in Melbourne across the week ranged from 10.6 to 15.7 degrees, driving up gas heating demand across the state.

Despite falling from the previous week, trading of the Wallumbilla product remained high, with 210 TJ of monthly product trades contributing to the amount traded. A significant amount of traded quantities at locations in the Moomba hub continued this week, with a number of on and off market trades settled through the exchange across May. This also included 310 TJ and 140 TJ of gas traded in monthly and weekly products respectively. Further detail of this week's trading is provided above figure 6.1.

There were significant MOS requirements in Brisbane on 31 May, with service payments reaching their highest level observed in the hub (over $160,000).

Ancillary payments accrued across two days in Victoria this week.

Since commencement, on 1 March 2019, there have been over 500 trades in the Day Ahead Auction despite limited participation.

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)**.

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

	Victoria		Sydney		Adelaide		Brisbane	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand
26 May - 01 Jun 2019	9.54	873	9.69	292	10.05	72	8.20	112
% change from previous week	5	62	7	17	1	22	0	30
18-19 financial YTD	9.68	523	9.95	245	10.03	57	9.47	87
% change from previous financial YTD	22	-4	18	-2	26	-4	31	-8

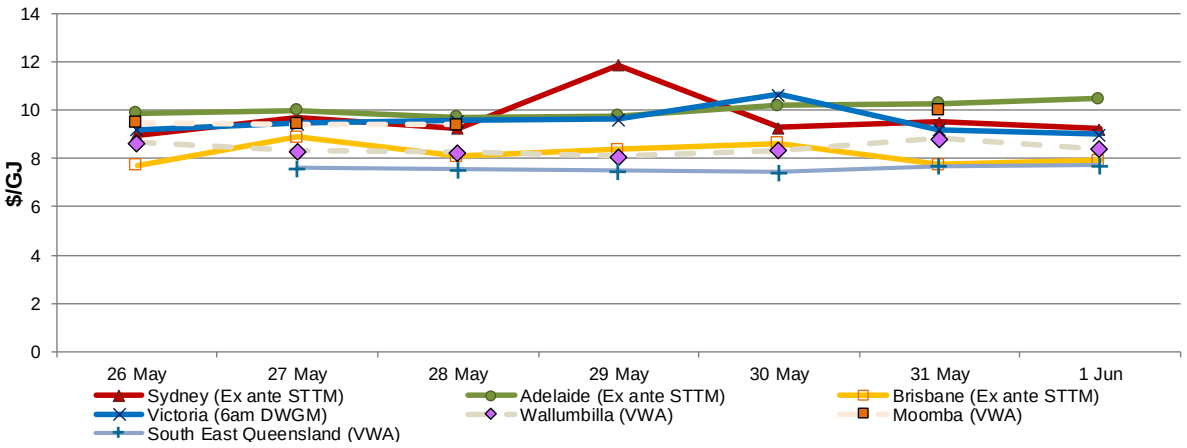
Figure 2 sets out price and demand information for the voluntary Wallumbilla and Moomba Gas Supply Hubs **(GSH)**.

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

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
26 May - 01 Jun 2019	9.94	515	7.61	131	8.44	502
% change from previous week	3	151	-2	-44	-6	-48
18-19 financial YTD	9.52	850	9.33	10712	9.25	9573
% change from previous financial YTD	73	6438	28	22	20	124

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 daily ancillary payments ($000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
26 May - 01 Jun 2019	11.27	28.38	7.57	25.20
% change from previous week	-	23	57	3065
18-19 financial YTD		19.40	4.25	1.59
% change from previous financial YTD		-37	-20	-28

* 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 total traded for the current week ($/GJ, TJ)

	Moomba		South East Queensland		Wallumbilla*	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	-	-	7.51	49.0	7.72	91.4
Daily	9.51	45.0	7.68	66.0	8.49	80.0
Day ahead	9.55	20.0	7.59	16.0	8.12	86.0
Weekly	10.00	140.0	-	-	7.60	35.0
Monthly	10.00	310.0	-	-	9.00	210.0
Total	**9.94**	**515.0**	**7.61**	**131.0**	**8.44**	**502.4**

* 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: Average daily LNG export pipeline and production flows (TJ)*

	APLNG	GLNG	QCLNG	Total
Production	1422	847	1731	4000
Export Pipeline Flows	1335	953	1079	3367
% change from previous week (pipeline flows)	-2	12	-7	0
18-19 financial YTD Flows	1437	846	1285	3568

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

Detailed market analysis

Capacity prices on the MSP in Sydney

Capacity prices were set on the Moomba to Sydney Pipeline (MSP) on three occasions this week. While capacity constraints and associated prices on the pipeline were forecast two days ahead of each gas day in the provisional schedules, high prices were expected to be set in the D-2 schedules for 28 May ($5.61/GJ) and 29 May ($3.03/GJ). Following the early completion of scheduled pipeline maintenance (published on the Bulletin Board)[3], the day ahead capacity increased on 28 May reducing the capacity price. However, the capacity on 29 May fell more than 10 TJ below the provisional forecast, setting a higher ex ante[4] and capacity prices for the gas day.[5]

Figure 7 shows the provisional and ex ante capacity quantities and prices.

Figure 7: Moomba to Sydney Pipeline Capacity Prices (TJ, $/GJ)

	Two days ahead (D-2)		Day ahead (D-1)	
	Capacity	Provisional Capacity Price	Capacity	Ex ante capacity price
27 May	104.630	0.32	96.564	0.65
28 May	89.025	5.61	125.302	0.17
29 May	100.615	3.03	89.724	2.94

Ancillary Payments in Victoria

There were two instances of market intervention in the Victorian gas market this week related to AEMO declarations of a threat to system security (TSS), brought about by high demand as particularly cold temperatures occurred across the state.

On 27 May, demand reached 1,025 TJ and Longford (the region's main source of production) experienced a significant supply decrease after a period of injections tracking below scheduled levels. AEMO modelling forecast a drop in pressures at Dandenong City Gate (DCG) which led to a notice of a TSS being issued just prior to 5 pm. Information from Longford relating to a requested constraint (limiting the amount of gas that could be scheduled at the facility) was not provided before the cut-off time for the 6 pm scheduling interval, and AEMO intervened and scheduled 20 TJ of LNG for the 4 hour scheduling window to avoid an expected pressure breach. Additional gas supply being redirected into the transmission system from the Eastern Gas Pipeline following a Longford compressor trip helped return pressures to required levels earlier than expected, with the TSS being cancelled before the scheduling interval concluded.

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3 https://www.aemo.com.au/Gas/Gas-Bulletin-Board/Reports Capacity / Medium Term and Short Term Capacity Outlooks

4 The ex ante price was set $2.24/GJ higher, compared to an unconstrained supply/demand curve equilibrium.

5 The usual capacity into the Sydney STTM is generally around 220 – 400 TJ depending on scheduled maintenance activity. The $2.94/GJ capacity price on 29 May represents the difference between the last cleared gas price on the MSP at the scheduled capacity limit (89.7 TJ) and price of the additional gas scheduled out-of-merit-order on the EGP to set the ex ante market price ($11.89/GJ). The price represents the amount of compensation that is paid by participants with gas scheduled on as-available trading rights, paid to shippers with firm haulage rights that did not have their gas scheduled on the day due to the capacity constraint.

On 29 May, demand was tracking higher than expected as the day progressed, increasing earlier than expected. With the Euroa Compressor Station unavailable, around 10-15 TJ of gas could not be supplied south to mitigate pressure concerns around the DCG. A TSS was issued just prior to 6 pm and 12 TJ of LNG was scheduled across that trading interval.

Ancillary payments across these two days accrued to $45,637 and $33,268 respectively. Additional information on the events over these two days can be found in AEMO's website: http://www.aemo.com.au/Gas/Declared-Wholesale-Gas-Market-DWGM/Market-notices

Record MOS service payments in Brisbane

On 29 May, a 9.66 TJ MOS decrease requirement resulted from a mix of over forecasting (4.7 TJ) and over supply (4.9 TJ).

On 31 May, Brisbane recorded its largest decrease MOS allocation since the market commenced in December 2011. This resulted in a record MOS service payment of $160,672. The cause of the 24.2 TJ decrease service requirement was almost entirely attributable to a participant increasing their supply and demand on the day, with renominations for extra supply far exceeding the increase in demand.

Victorian Gas Futures trade activity

There was continued trade activity for Victorian gas futures contracts on the ASX this month with 71 contracts traded with a range of forward prices between $10.4–10.87/GJ. As of the end of May 2019, there were 573 contracts open for quarters in 2019, 2020 and 2021.

Gladstone LNG exports

LNG export volumes from QLD declined by one cargo from the previous month, reaching 26 cargoes during May, as Asian LNG prices continued to decline. Since all three Queensland exports projects became fully operational, the average monthly export volume has been 26 cargoes, with the record export volumes occurring in December 2017 at 30 cargoes. The ACCC reported a continued significant decline in the Wallumbilla netback price series to $5.49/GJ for May, driven by large declines in Asian LNG spot prices.

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)

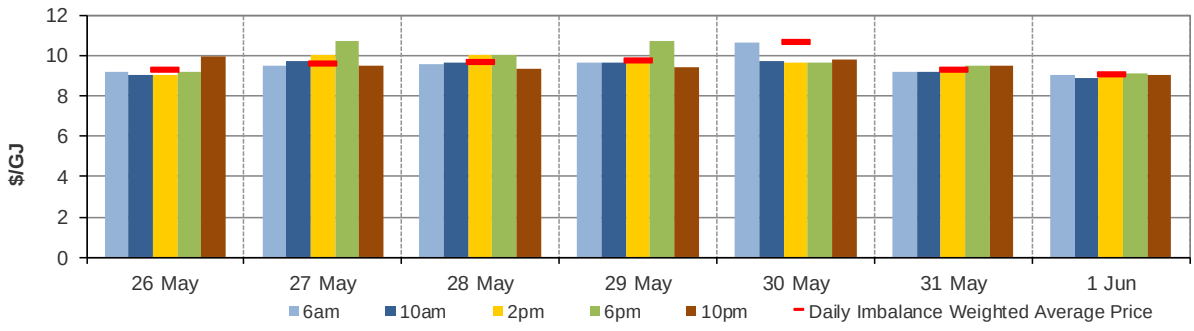
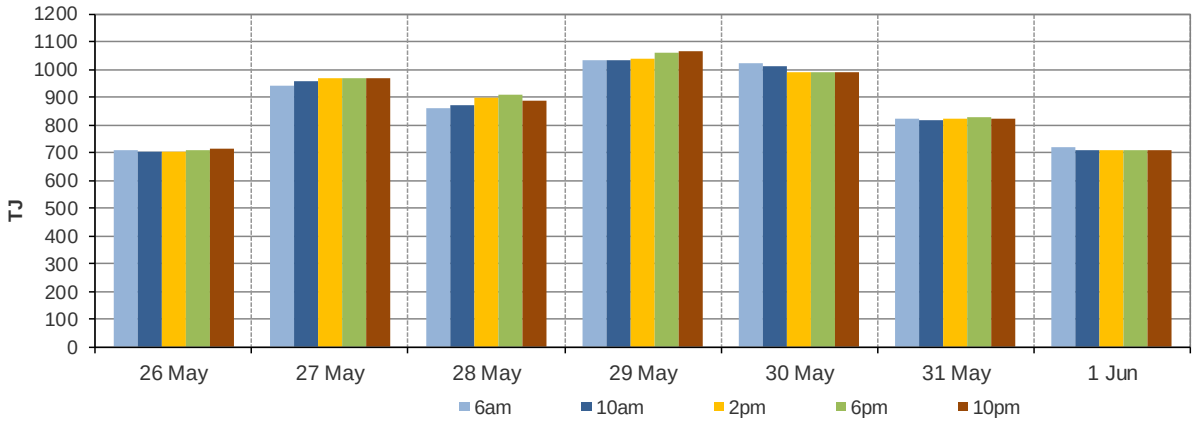


Figure 1.2: Demand forecasts (TJ)



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)

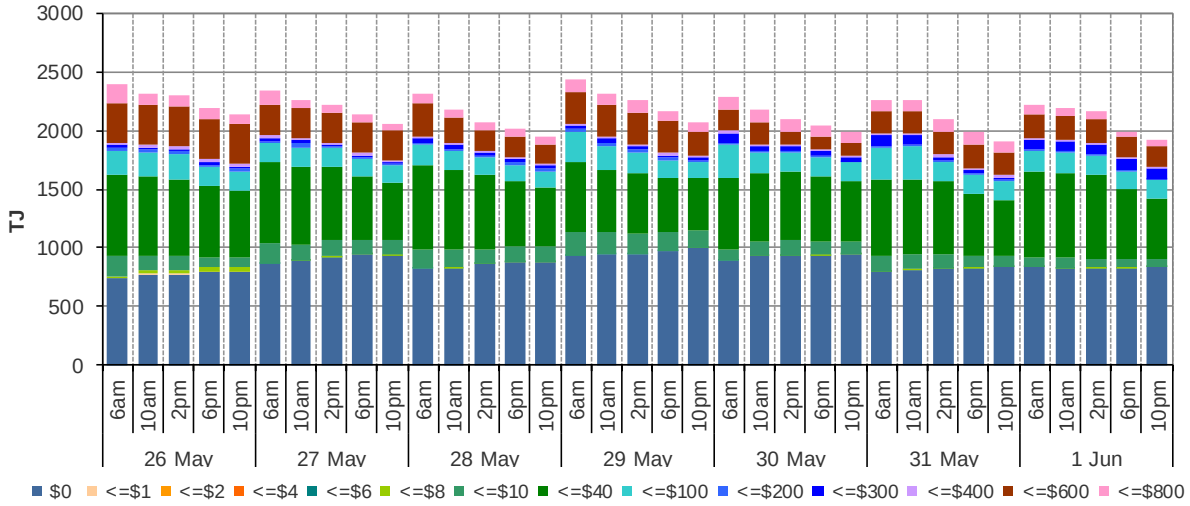


Figure 1.4: Withdrawal bids by price bands (TJ)

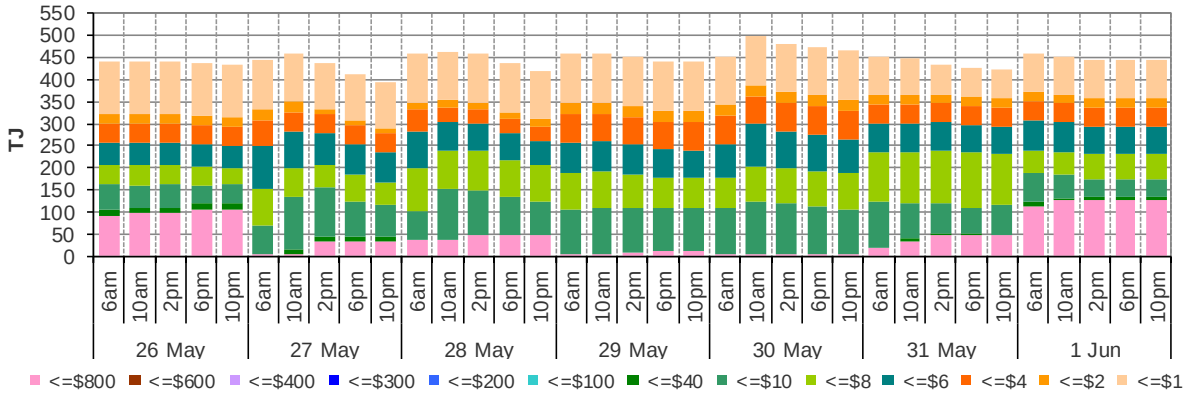
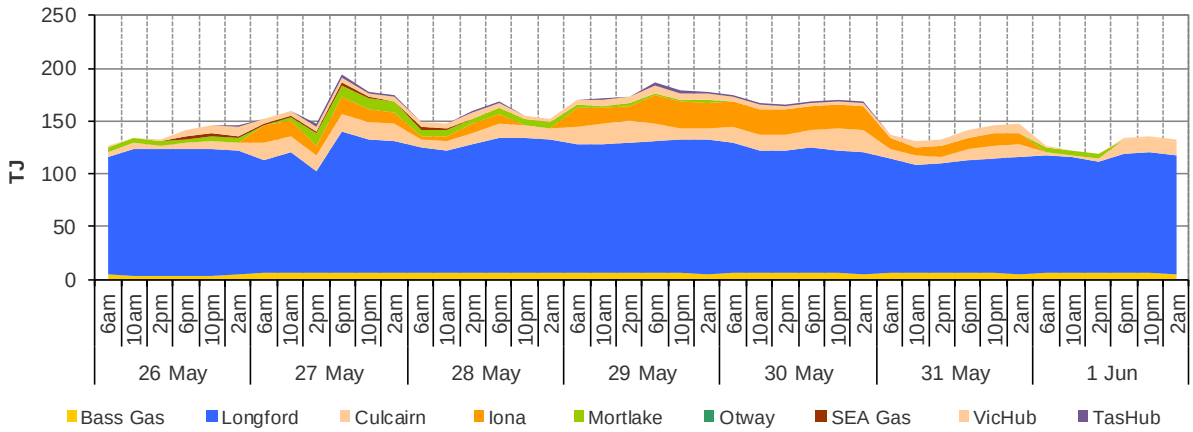


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.

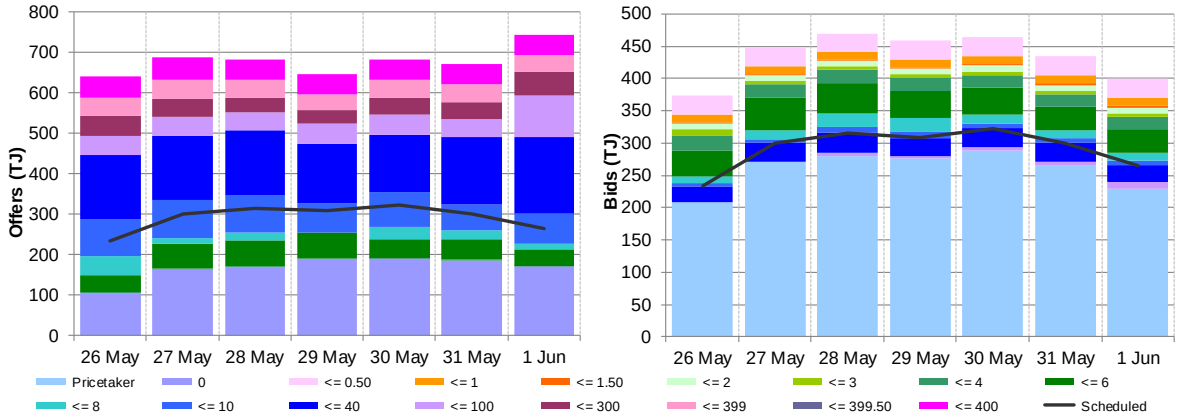
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing 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 ($/GJ)	8.98	9.69	9.27	11.89	9.28	9.51	9.23
Ex ante quantity (TJ)	233	300	316	308	323	301	266
Ex post price ($/GJ)	8.98	11.30	9.27	12.66	9.61	10.00	9.70
Ex post quantity (TJ)	237	314	316	313	334	316	284

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)

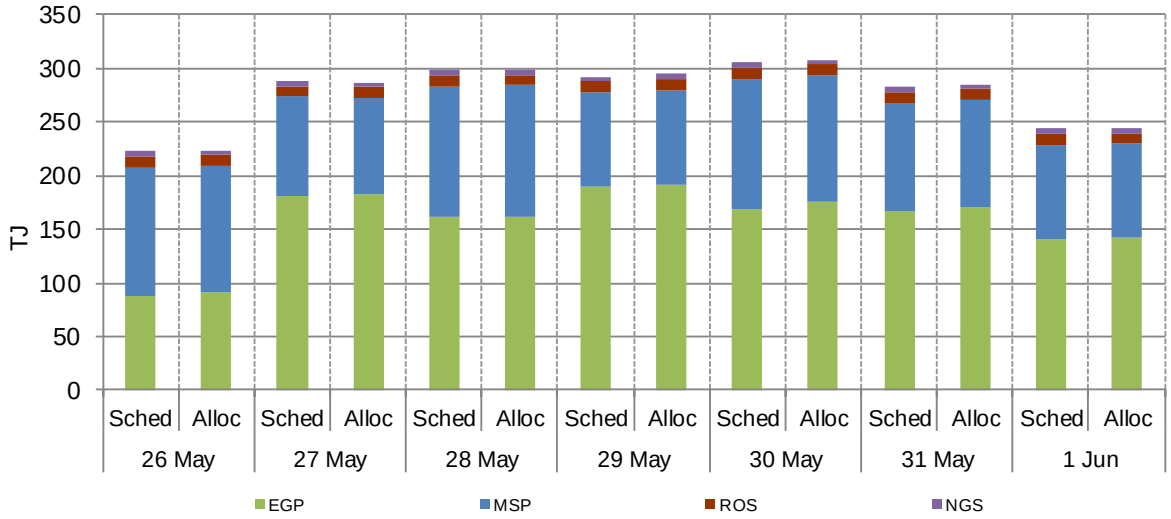
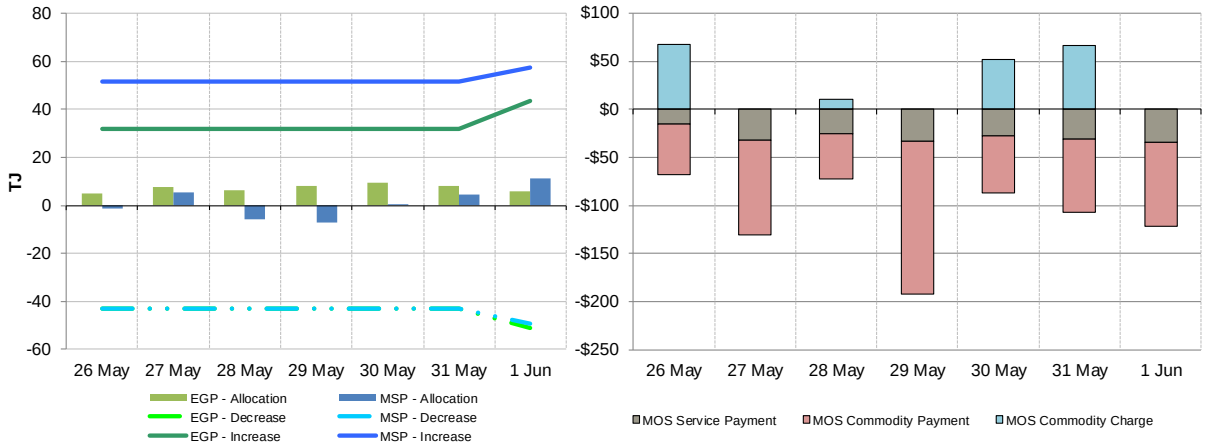


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges ($000)[11]



[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 ($/GJ)	9.88	10.01	9.71	9.78	10.19	10.28	10.50
Ex ante quantity (TJ)	59	73	71	81	78	74	67
Ex post price ($/GJ)	10.00	10.07	9.91	9.99	10.60	10.11	9.48
Ex post quantity (TJ)	64	76	76	83	82	72	55

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

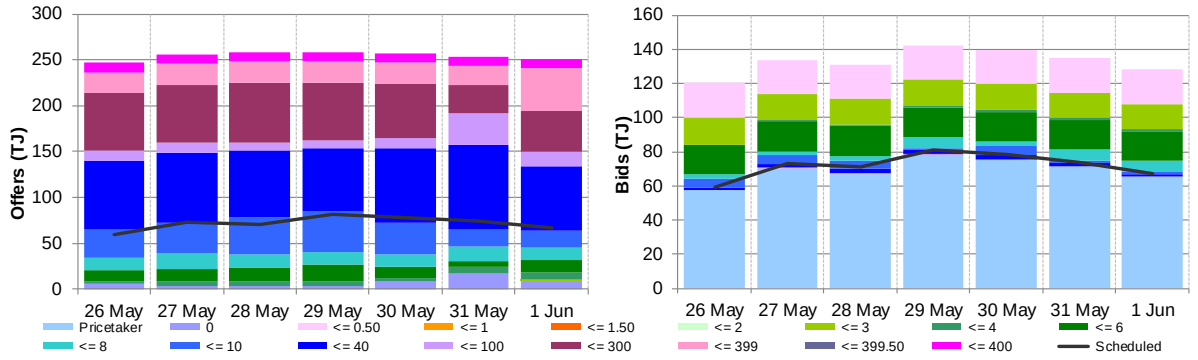


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

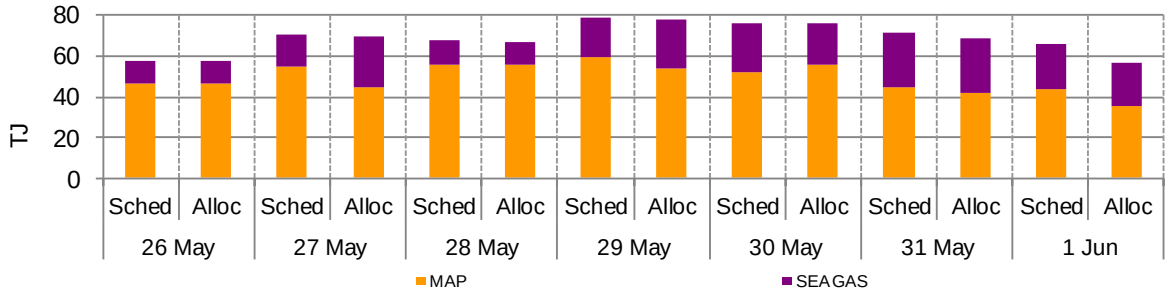
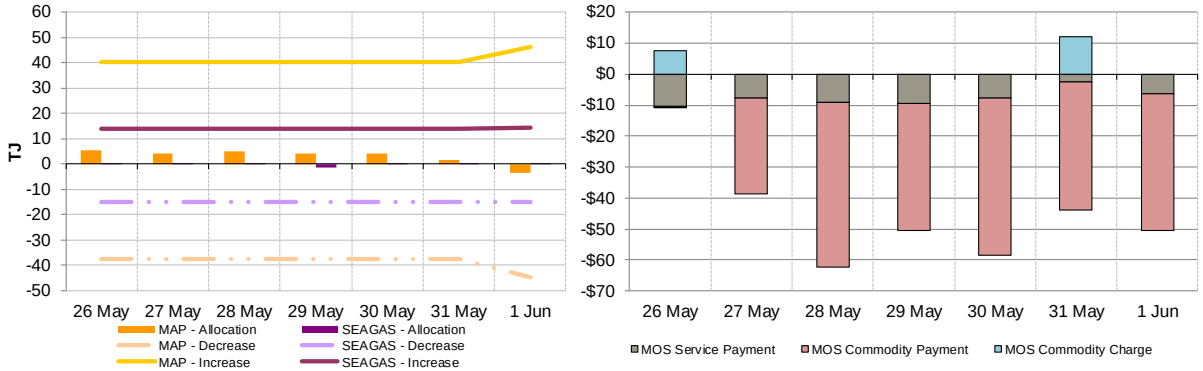


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges ($000)



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 ($/GJ)	7.73	8.89	8.10	8.37	8.64	7.75	7.93
Ex ante quantity (TJ)	75	124	131	135	128	114	75
Ex post price ($/GJ)	8.40	8.65	8.38	7.73	9.38	9.10	8.37
Ex post quantity (TJ)	79	123	134	130	133	128	76

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

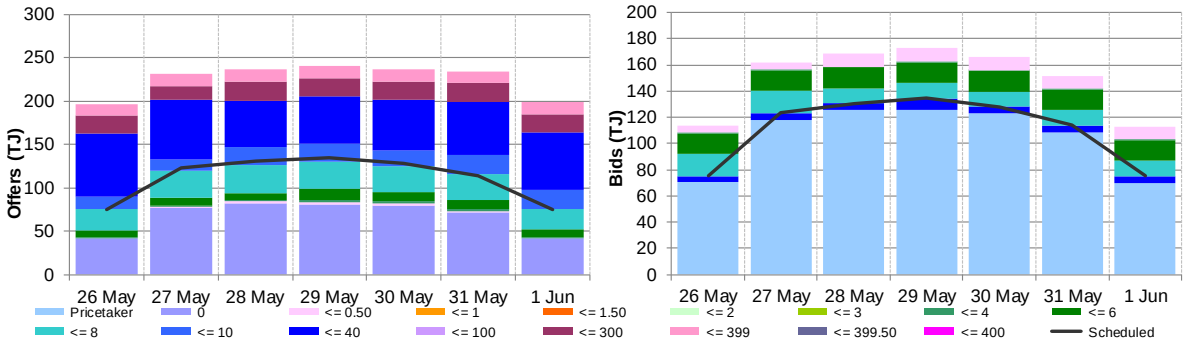


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

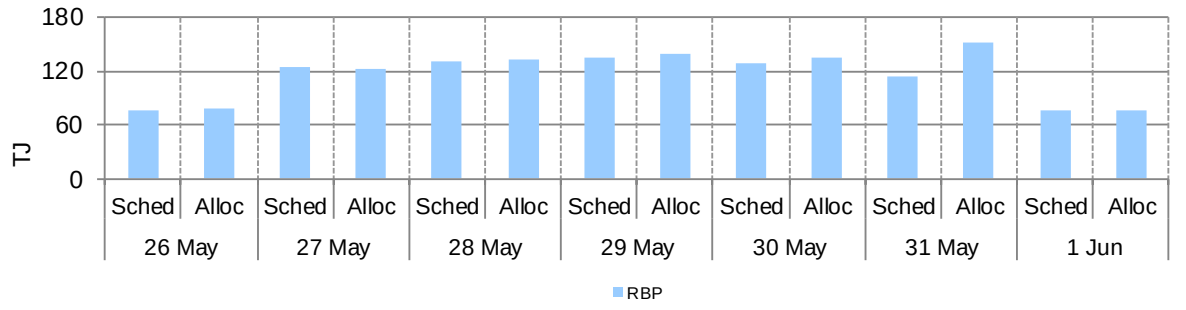
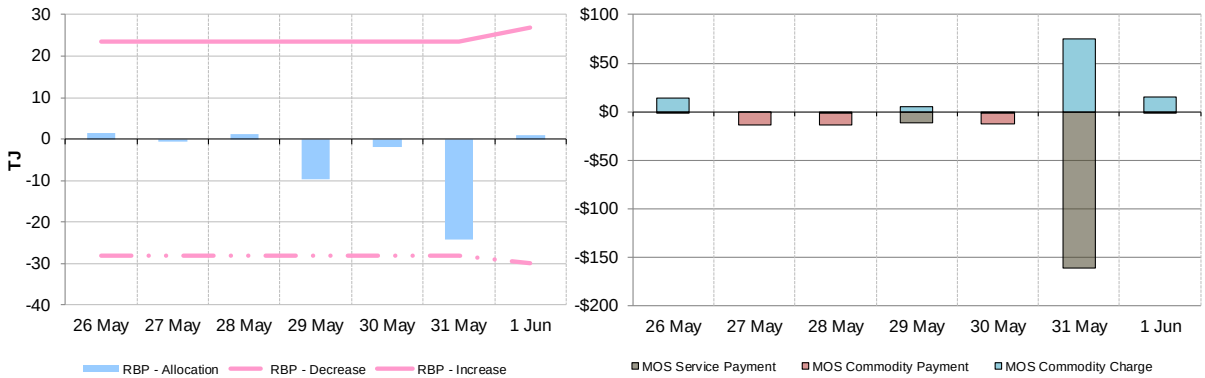


Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges ($000)



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	1944	(+385)
Export gas flows	3367	(+4)
Gas production	5347	(+383)
GPG gas usage	388	(-37)
Pipelines		
Queensland		
Gladstone		
APLNG	1335	(-21)
GLNG	953	(+101)
QGP	131	(-1)
WGP	1079	(-77)
Mt Isa		
CGP	80	(0)
Brisbane		
RBP	122	(+28)
South West		
SWQP	19	(+5)
Wallumbilla		
BWP	144	(+28)
CRWP	163	(-8)
DDP	52	(+15)
QGP (WAL)	36	(+2)
RBP (WAL)	-37	(+6)
SWQP (WAL)	231	(+39)
New South Wales		
MSP	195	(+43)
EGP	206	(+5)
Victoria		
LMP	772	(+125)
SWP	62	(+187)
South Australia		
MAP	198	(+15)
SEAGas	84	(-26)
Tasmania		
TGP	22	(+3)

Storage (held volume)		
Moomba LDB	22685	(+113)
Iona UGS	20617	(+453)
LNG Storage Dandenong	649	(-24)
Silver Springs	24589	(-18)
Roma UGS	31880	(-3)

12 **Domestic gas flows** are calculated as the total of: **SA** = MAP + SEAGAS; **VIC** = SWP + LMP + (flows towards Victoria 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

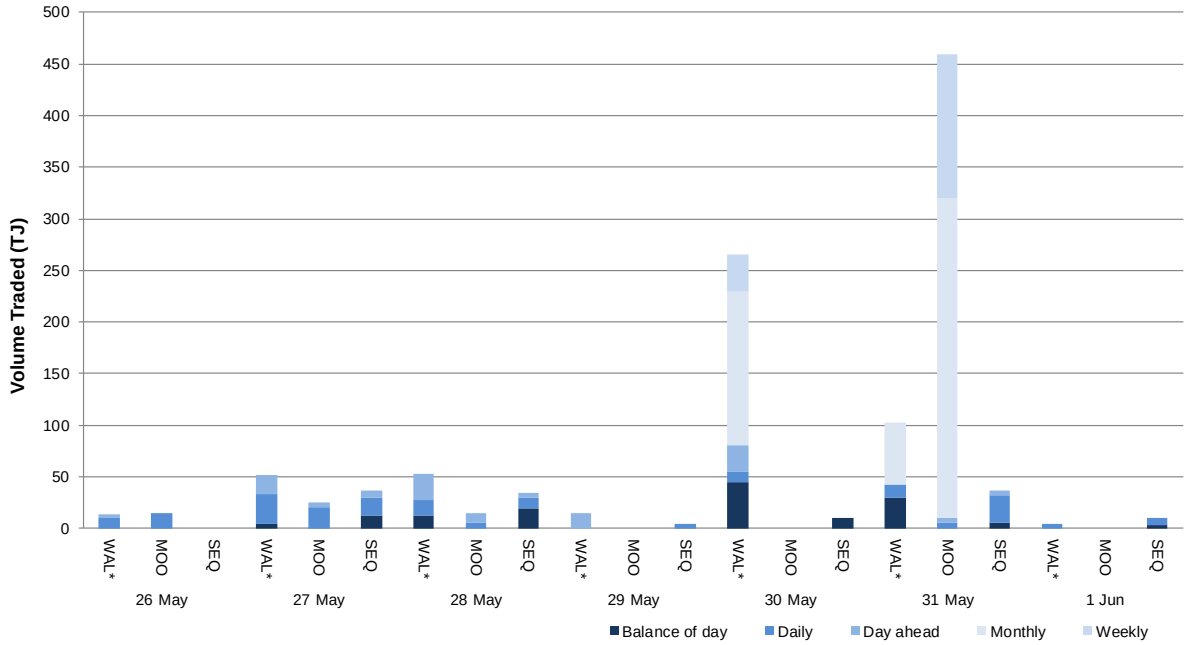
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (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 102 trades for 1148.4 TJ of gas at a volume weighted price of $9.02/GJ. These consisted of 47 trades at WAL (502.4 TJ at $8.44/GJ), 36 trades at SEQ (131 TJ at $7.61/GJ) and 19 trades at MOO (515 TJ at $9.94/GJ). There were 14 spread trades. Similar to the previous week, the large quantity of trades was driven by off market monthly product trades (210 TJ at WAL and 310 TJ at MOO), with those trades at WAL driving up the volume weighted price at that location by $0.40/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



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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*).