Gas Market Report

AUSTRALIAN ENERGY REGULATOR

13 – 19 May 2018

Weekly Summary

Prices have increased across each gas market following a rise in demand. The exception is Brisbane in the Short Term Trading Market (STTM), where prices increased 26 per cent while demand fell 27 per cent. The fall in demand can be attributed to the gas turbine at Swanbank E Power Station in South East Queensland coming offline this week. At the same time, there was reduced supply resulting from an outage at Woleebee Creek in Roma. This outage reflects a considerable fall in Queensland supply as the average quantity of gas produced at Woleebee Creek this year was 510 TJ per day.

Gas demand for generation increased in the southern states - almost tripling in Victoria and increasing by close to a third in South Australia.

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
13 May - 19 May 2018	8.79	781	8.69	299	8.10	74	8.24	86
% change from previous week	11	23	11	7	7	16	26	-27
17-18 financial YTD	7.89	537	8.40	247	7.95	59	7.20	95
% change from previous financial YTD	-7	2	-2	3	-9	-2	-13	13

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

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
13 May - 19 May 2018	-	-	7.85	320	8.04	208
% change from previous week	-	-	8	49	4	142
17-18 financial YTD	5.52	13	7.25	8499	7.68	4235
% change from previous financial YTD	-	-	-1	2096	-8	-39

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

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

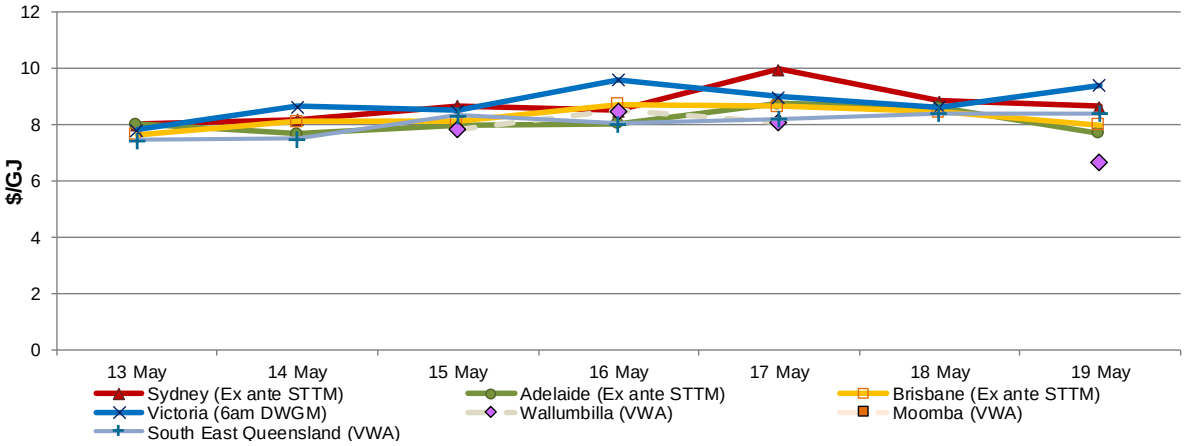


Figure 4 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

Figure 4: Average ancillary payments ($000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
13 May - 19 May 2018	-	37.41	5.41	0.73
% change from previous week	-	13	106	-66
17-18 financial YTD		31.52	5.43	2.24
% change from previous financial YTD		-37	-71	33

* 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.

[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).

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	-	-	8.37	23.0	7.65	8.0
Daily	-	-	7.79	142.0	6.80	11.0
Day ahead	-	-	7.99	39.0	7.59	34.0
Weekly	-	-	7.31	56.0	-	-
Monthly	-	-	8.20	60.0	8.25	155.0
Total	**-**	**-**	**7.85**	**320.0**	**8.04**	**208.0**

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

	APLNG	GLNG	QCLNG	Total
Production	1495	860	1091	3445
Export Pipeline Flows	1341	798	685	2823
% change from previous week (pipeline flows)	0	-10	-14	-7
17-18 financial YTD Flows	1416	879	1072	3367

* 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

Iona underground storage (IUGS) and Victorian Demand

Following the cold front that swept across Victoria the previous week, cold temperatures persisted this week, with the minimum temperature in Melbourne of 6.8 degrees on 14 May. This drove higher demand, getting up above 900 TJ mid-week (see **Figure 1.2**).

Iona reached its peak storage level so far this year, of 23 038 TJ (90 percent full)[3], on 13 May. **Figure 1.5** shows an increased amount of gas from Iona was injected into the market to respond to higher demand due to colder temperatures across the week. This resulted in Iona's storage level dropping significantly from its peak of 23 038 TJ on 13 May to 22 190 TJ on 19 May.

On average, approximately 110 TJ of gas per day was injected into the market from Iona across the week. This is particularly high compared to the May average injections of 24 TJ per day. This increased amount of gas injected into the market across the week reflects a greater reliance on capacity in Iona to meet demand ahead of winter.

Sydney MOS

Figure 2.4 shows the highest daily Market Operator Service (MOS) payment in Sydney was $63 602 on 15 may 2018. Sydney MOS payments averaged $37 410 across the week, reflecting lower daily payments than the previous weeks in May which averaged $42 243.

Gas Powered Generation

Figure 5.1 shows demand for gas for electricity generation increased in the southern states at the same time as temperatures hit below 10 degrees across multiple days in the week. Most notably, demand in Victoria almost tripled (47 TJ the previous week to 136 TJ) and demand in South Australia rose by close to a third (136 TJ from the previous week to 202 TJ). New South Wales experienced only a modest increase in demand.

[3] The facility has a maximum storage capacity of 26 000 TJ.

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

The main drivers[5] 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[6], 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)

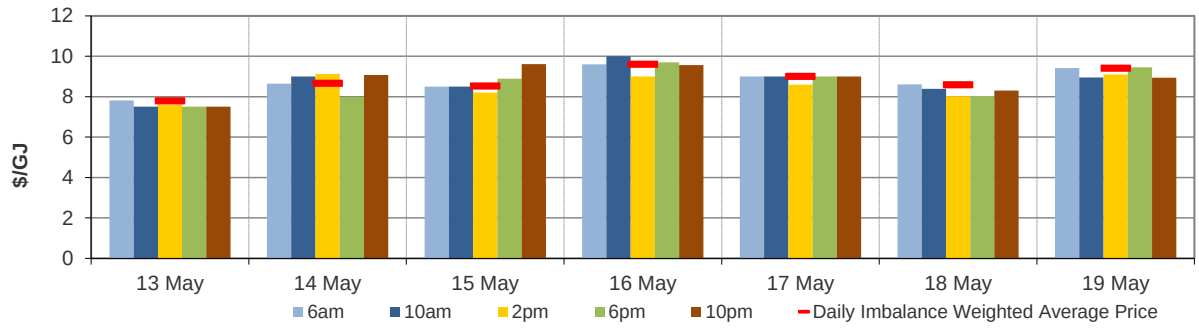
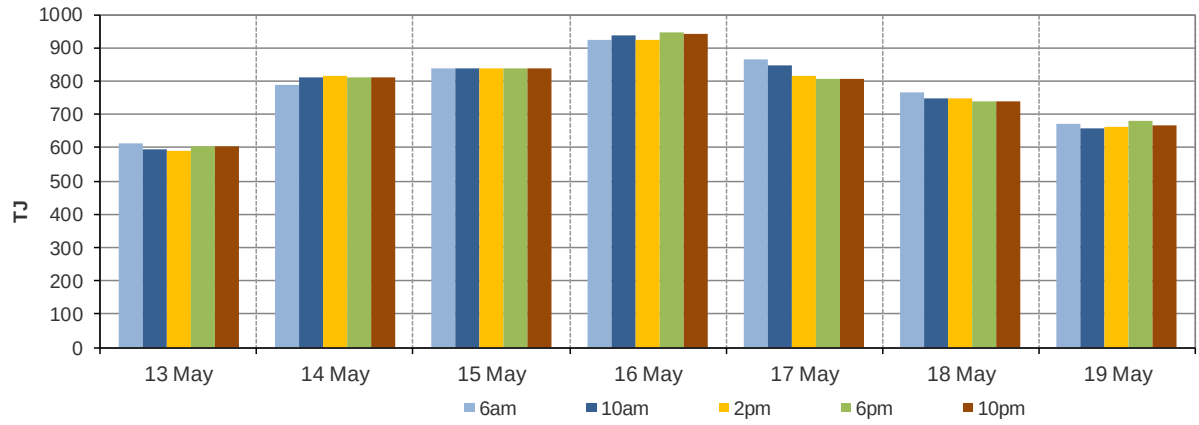


Figure 1.2: Demand forecasts (TJ)



4 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.

5 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.

6 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)

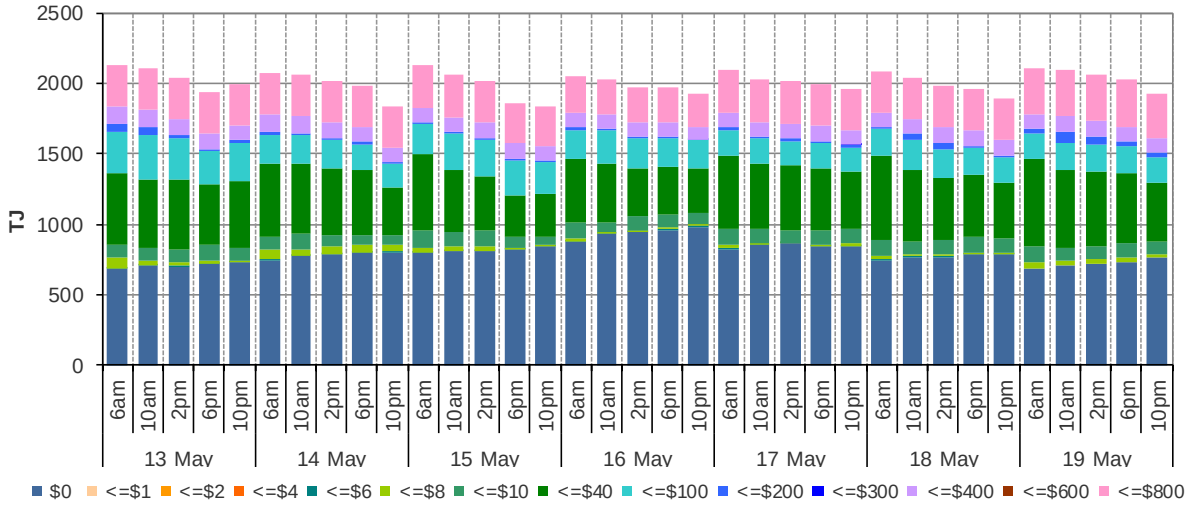


Figure 1.4: Withdrawal bids by price bands (TJ)

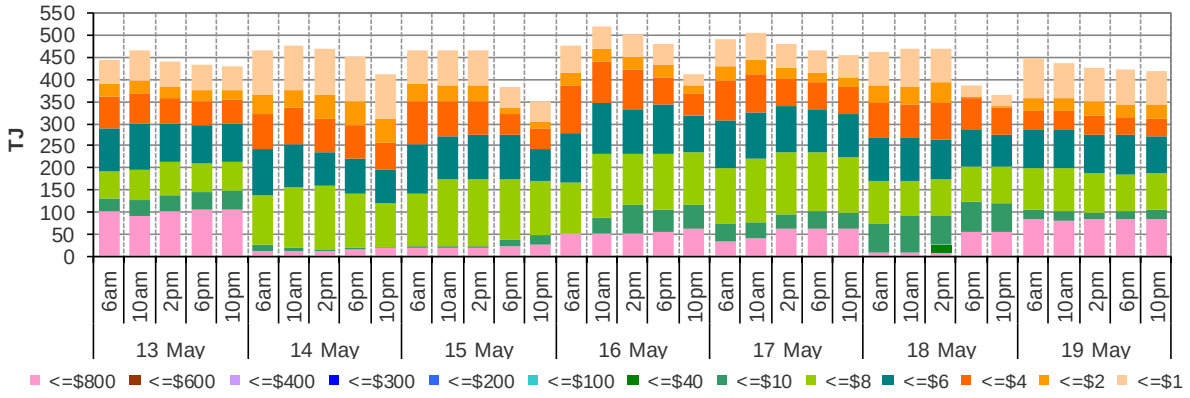
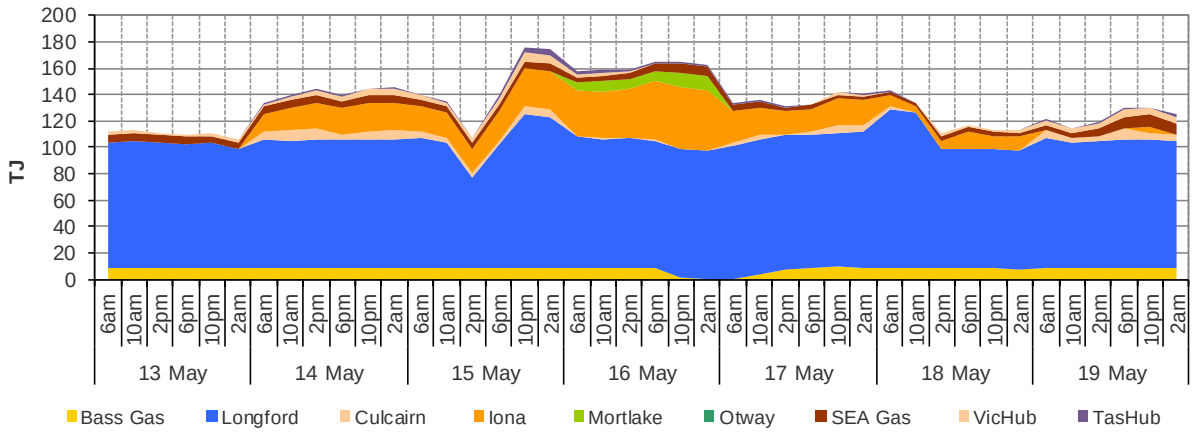


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.[7] 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.

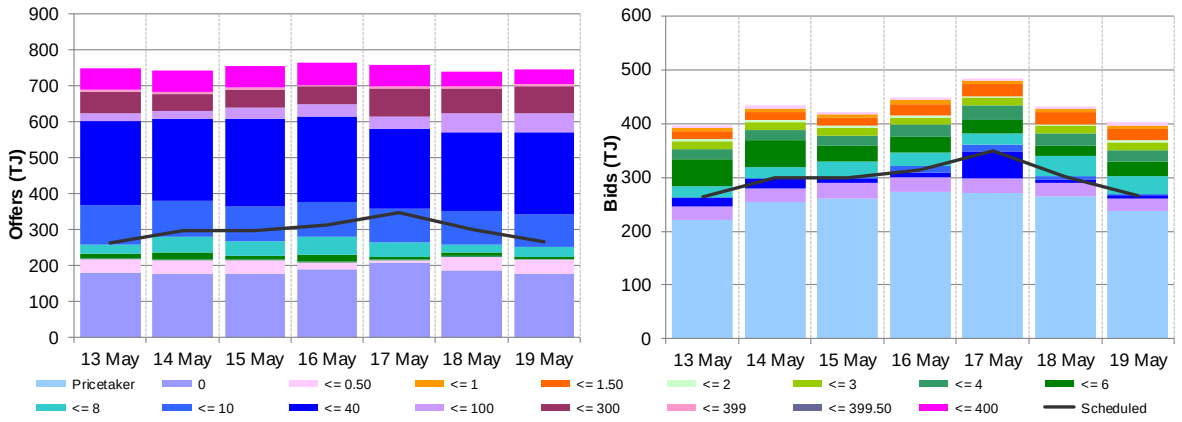
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.[8]

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 ($/GJ)	8.02	8.18	8.67	8.50	9.96	8.85	8.65
Ex ante quantity (TJ)	263	299	298	315	349	302	267
Ex post price ($/GJ)	8.16	8.29	9.00	8.80	9.96	8.89	8.65
Ex post quantity (TJ)	281	307	307	320	350	308	271

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



7 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.

8 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)

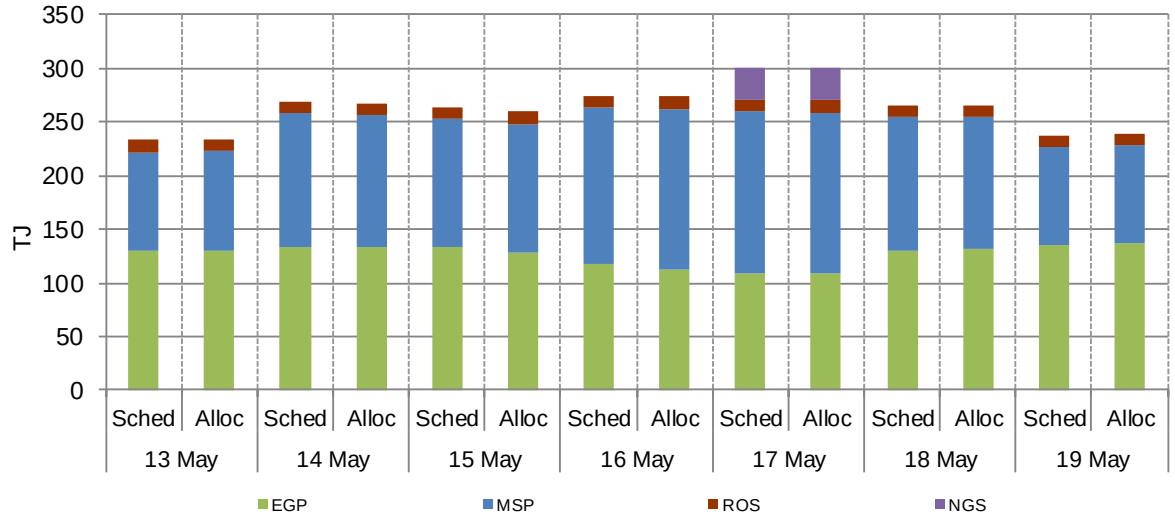
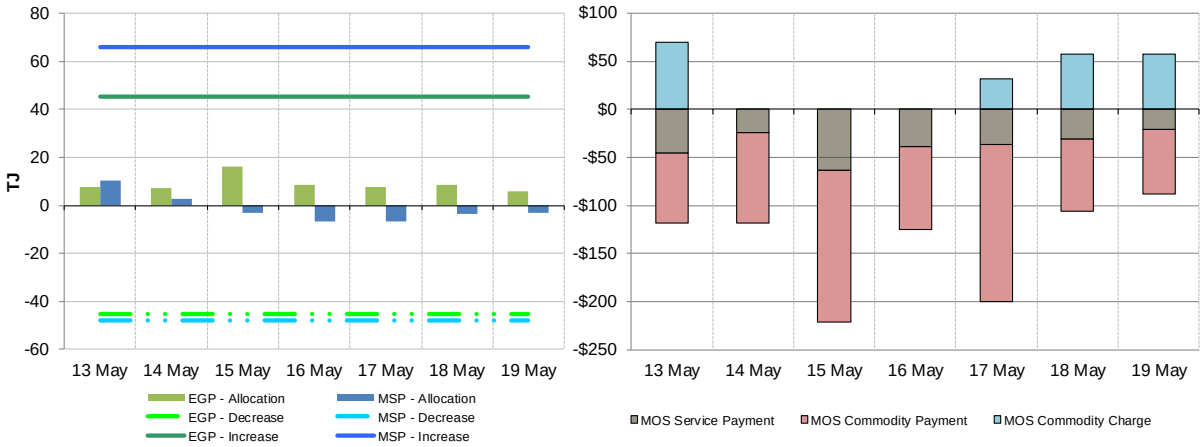


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges ($000)[9]



[9] 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 ($/GJ)	8.01	7.66	7.97	8.04	8.75	8.60	7.70
Ex ante quantity (TJ)	65	76	79	79	79	76	68
Ex post price ($/GJ)	6.84	7.66	7.67	8.06	8.75	8.31	7.56
Ex post quantity (TJ)	60	76	78	80	78	74	64

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

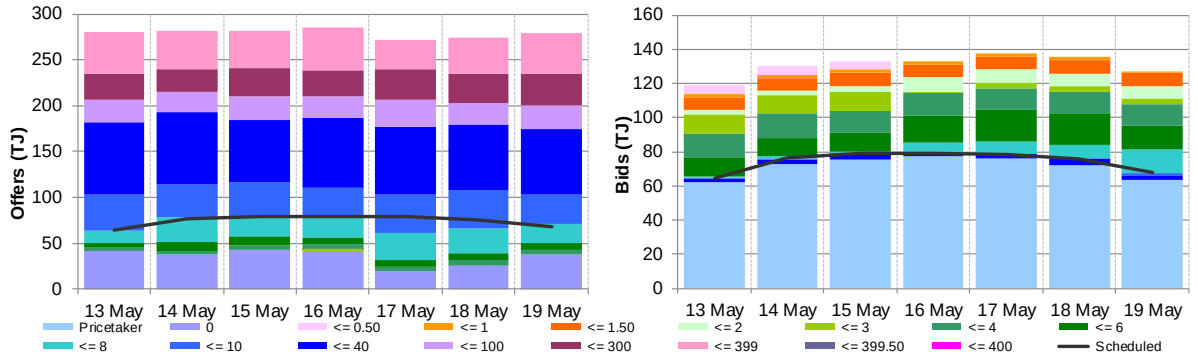


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

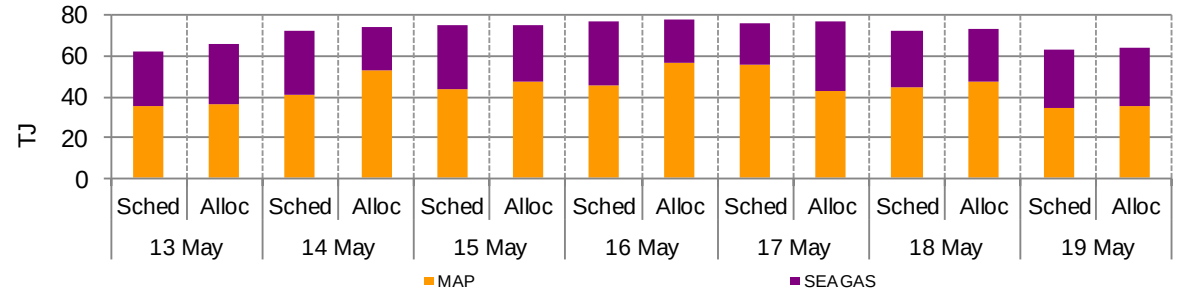
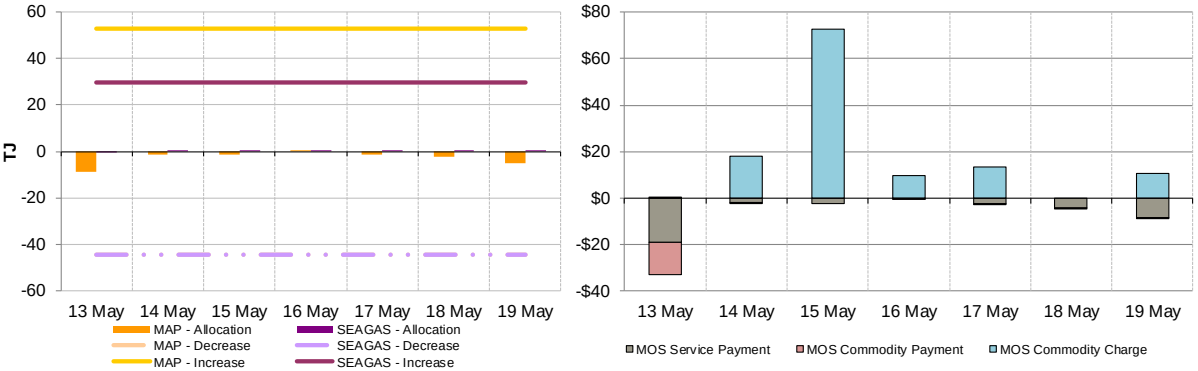


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges ($000)



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 ($/GJ)	7.64	8.11	8.11	8.72	8.65	8.45	7.98
Ex ante quantity (TJ)	81	93	90	89	89	86	73
Ex post price ($/GJ)	7.35	7.39	8.11	8.81	8.70	8.45	8.45
Ex post quantity (TJ)	81	92	89	91	91	85	74

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

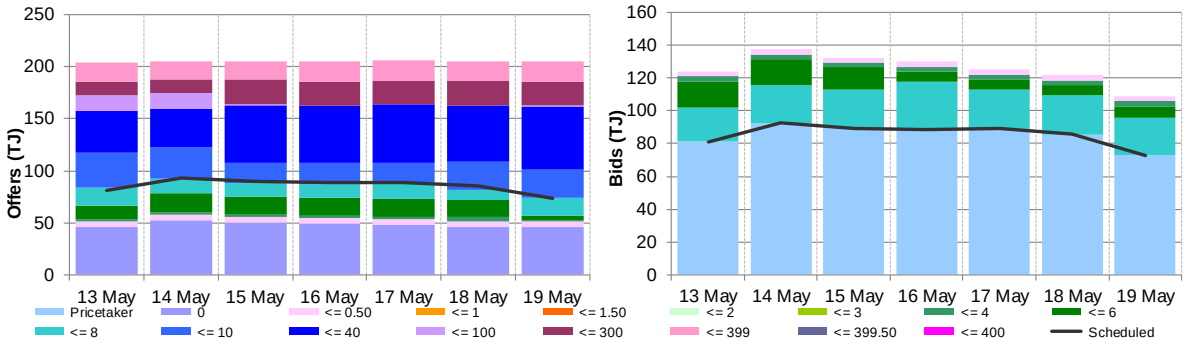


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

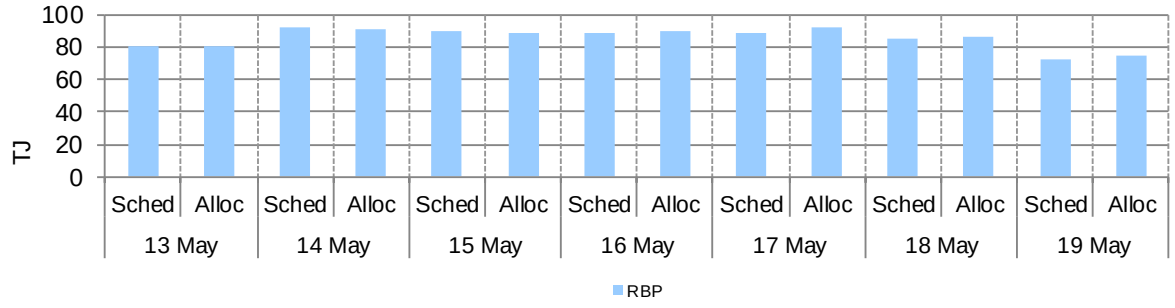


Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges ($000)

5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week[10] from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices[11] 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)[12]

Totals	Current Week	Change (TJ)
Domestic gas flows	1852	(+193)
Export gas flows	2823	(-205)
Gas production	4640	(-47)
GPG gas usage	521	(+143)
Pipelines		
Queensland		
Gladstone		
APLNG	1341	(-6)
GLNG	798	(-90)
QGP	133	(0)
WGP	685	(-109)
Mt Isa		
CGP	75	(+1)
Brisbane		
RBP	97	(-23)
South West		
SWQP	85	(+5)
Wallumbilla		
BWP	122	(+5)
CRWP	56	(-77)
DDP	164	(+39)
SGP	33	(+13)
QGP (WAL)	17	(0)
RBP (WAL)	-30	(+7)
SWQP (WAL)	211	(+82)
New South Wales		
MSP	212	(+23)
EGP	194	(+1)
Victoria		
LMP	653	(+19)
SWP	125	(+108)
South Australia		
MAP	171	(+42)
SEAGas	152	(+20)
Tasmania		
TGP	24	(+2)
Storage (held volume)		
Moomba LDB	28782	(+102)
Iona UGS	22519	(-436)
LNG Storage Dandenong	649	(-5)

10 **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.

11 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.

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

6. Gas Supply Hub

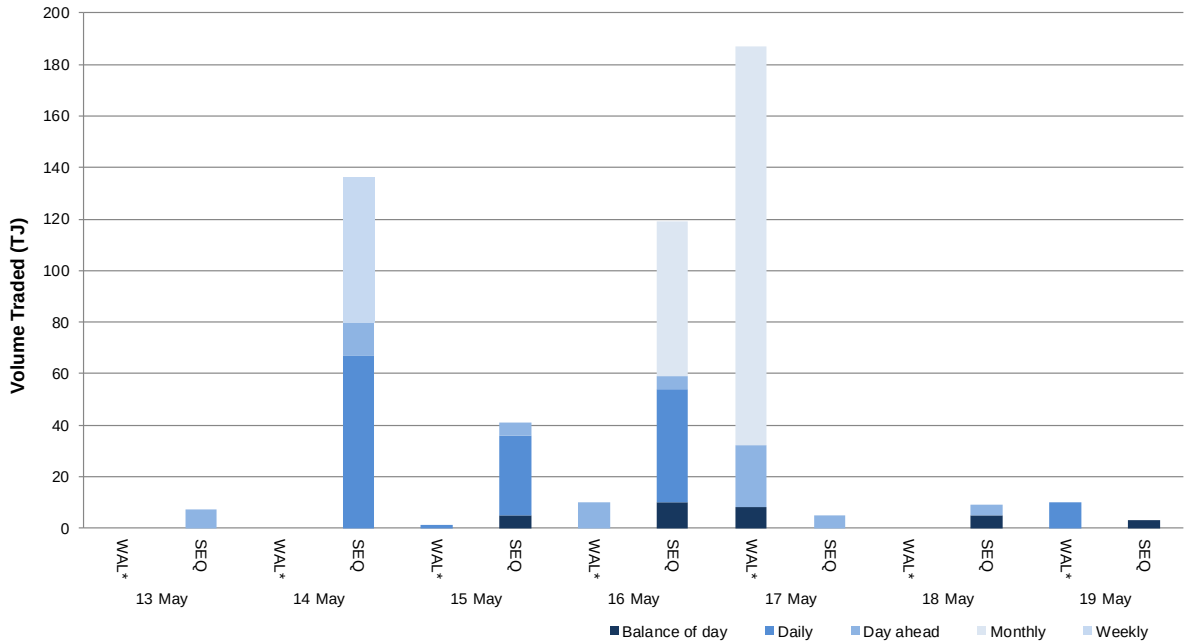
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).[13]

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 59 trades for 528 TJ of gas at a volume weighted price of $7.92/GJ. These consisted of 9 trades at WAL (208TJ at $8.04GJ) and 50 trades at SEQ (320 TJ at $7.85/GJ). There was one spread trade on 16 May.

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.[14]

Figure 6.1: GSH traded quantities



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

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