

19 – 25 June 2016

Weekly Summary

Figure 2 illustrates prices spiked in Adelaide and Victoria on Friday 24 June representing the highest price in Victoria since 22 November 2008 and Adelaide since market start on 1 September 2010.¹ The Wallumbilla gas supply hub had new record high prices this week, reaching \$10/GJ for the first time on 23 July.

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**). 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)²

	Victoria		Sydney		Adelaide		Brisbane		Wallumbilla		Moomba	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand	Price	Quantity	Price	Quantity
19 Jun - 25 Jun 2016	11.38	943	7.57	278	9.75	85	8.39	94	9.07	121	-	-
% change from previous week	58	7	6	5	30	7	19	5	26	-2	-	-
15-16 financial YTD	4.81	552	4.89	237	5.63	60	4.58	84	4.20	7372	-	-
% change from previous financial YTD	33	0	42	-2	50	-4	99	-35	52	138	-	-

¹ The price reached \$23.34/GJ in Victoria on 24 June alongside demand in excess of 1.15 PJ. The price on 25 June was also high at \$16.06/GJ (demand was just over 1 PJ). The previous highest Adelaide ex ante price was \$14.89/GJ on 4 July 2012.

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

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

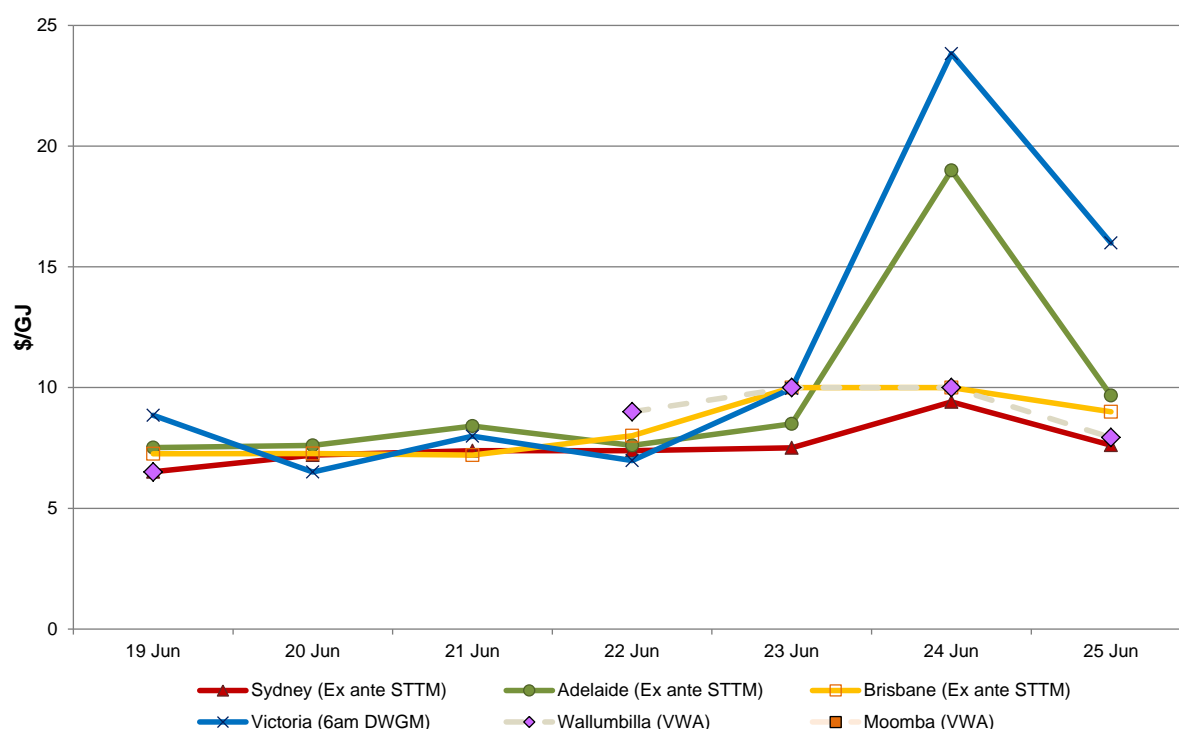


Figure 3 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

Figure 3: Average ancillary payments (\$000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
19 Jun - 25 Jun 2016	-	38.76	18.93	1.45
% change from previous week	-	64	-72	56
15-16 financial YTD		27.76	11.25	1.55
% change from previous financial YTD		65	-14	-12

* 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.

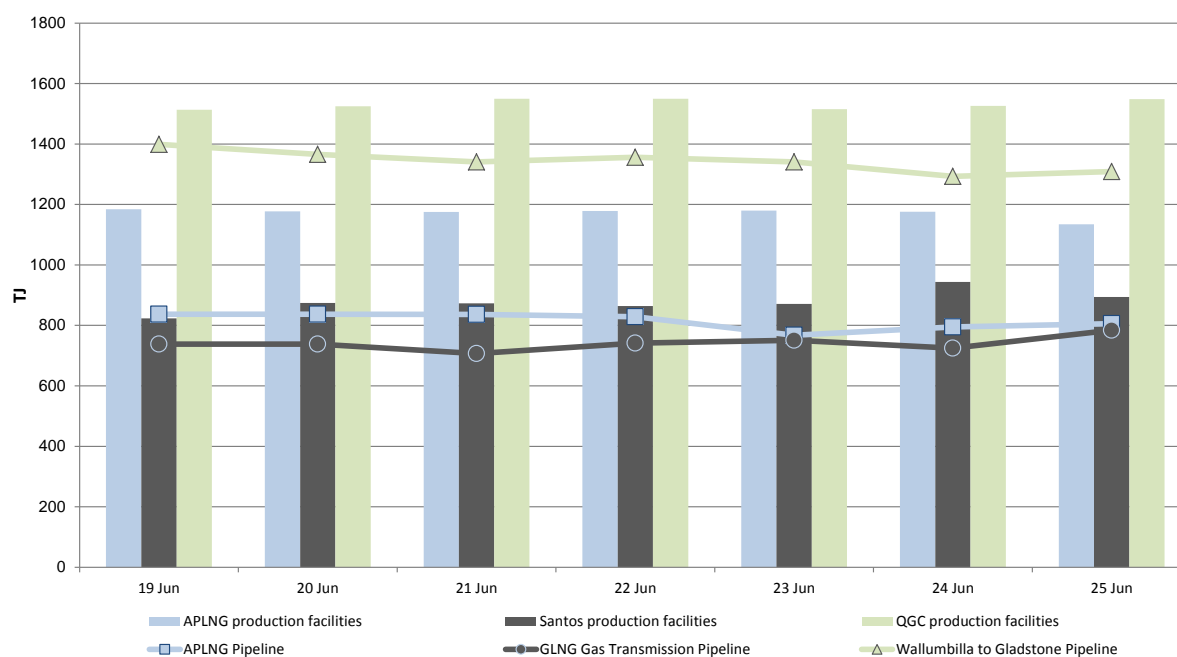
Figure 4: Gas supply hub products traded for the current week (\$/GJ, TJ)*

	RBP		SWQP		MAP		MSP		QGP	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	7.82	21.2	8.00	20.0	-	-	-	-	-	-
Daily	-	-	9.60	50.0	-	-	-	-	-	-
Day ahead	-	-	9.77	30.0	-	-	-	-	-	-
Weekly	-	-	-	-	-	-	-	-	-	-
Monthly	-	-	-	-	-	-	-	-	-	-

* Non-netted products are not shown here. For information about these products, refer to figure 6.1.

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

Significant price variations (Adelaide and Victoria)

On Friday 24 June, significant price variation (SPV) triggers were exceeded in the Adelaide STTM and Victorian gas market:

- Adelaide, \$10.40 variation between the D-2 and D-1 schedule prices.
- Victoria, \$23.34/GJ imbalance price.

Under Rules 498 and 355 of the Gas Rules, the AER is required to identify and report on any significant price variations (SPVs) in the STTM and Victorian gas market, respectively.

In the Victorian gas market, an SPV occurs when the Trade Weighted Market Price (imbalance price) published by AEMO on a gas day is more than three times the average price for the previous 30 days and is greater than or equal to \$15/GJ.

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

Preliminary analysis indicates a link between the high prices in both regions, with very low temperatures in Victoria driving demand forecasts up to 1.2 PJ for the 24 June gas day and leading to price forecasts of up to \$42/GJ two days ahead. While rebidding across the forecast schedules did reduce the price somewhat, the high demand and tight supply conditions led to the Victorian schedule prices remaining at high levels, setting the daily weighted imbalance price at \$23.34/GJ.

In Adelaide, participants' response to the high Victorian price appeared to influence a significant quantity of gas being shifted into higher price bands on SEAGas and additional lower priced offers being rebid on the Moomba to Adelaide Pipeline (MAP). However, reduced capacity on the MAP meant that only 41 TJ of gas could be scheduled at the facility, necessitating the additional supply to be sourced from the higher priced offers on the SEAGas pipeline. This drove the ex ante price to \$18.99/GJ as 11.2 TJ of lower priced MAP offers could not be cleared.

In accordance with the Gas Rules, we will publish a separate detailed report into the events leading to the significant price variations on 24 June.

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 price³ which is the schedule at which most gas is traded.

The main drivers⁴ 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 forecasts⁵, 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)

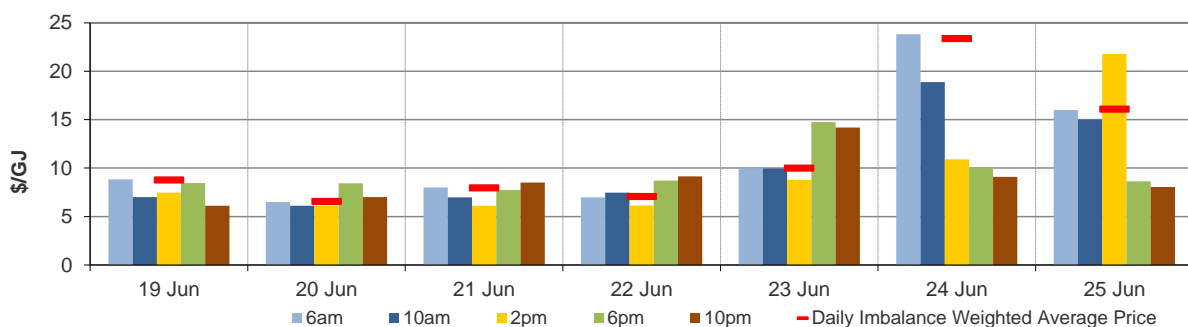
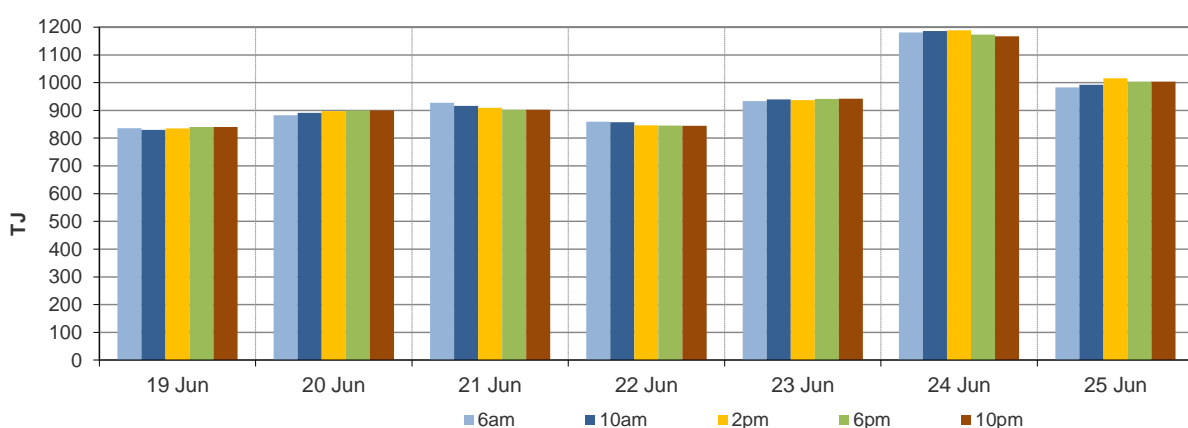


Figure 1.2: Demand forecasts (TJ)



³ 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.

⁴ 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.

⁵ 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)

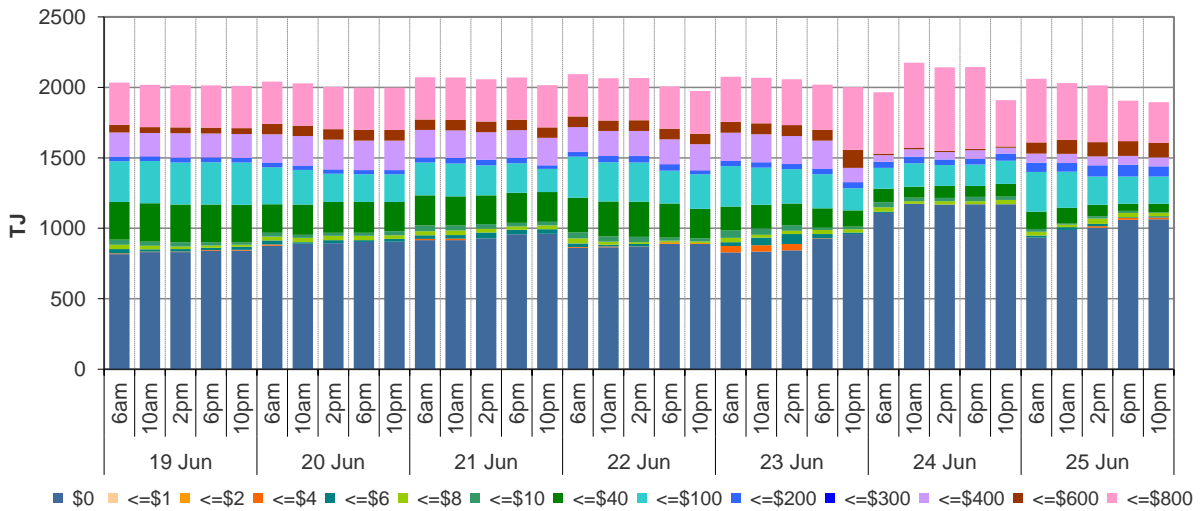


Figure 1.4: Withdrawal bids by price bands (TJ)

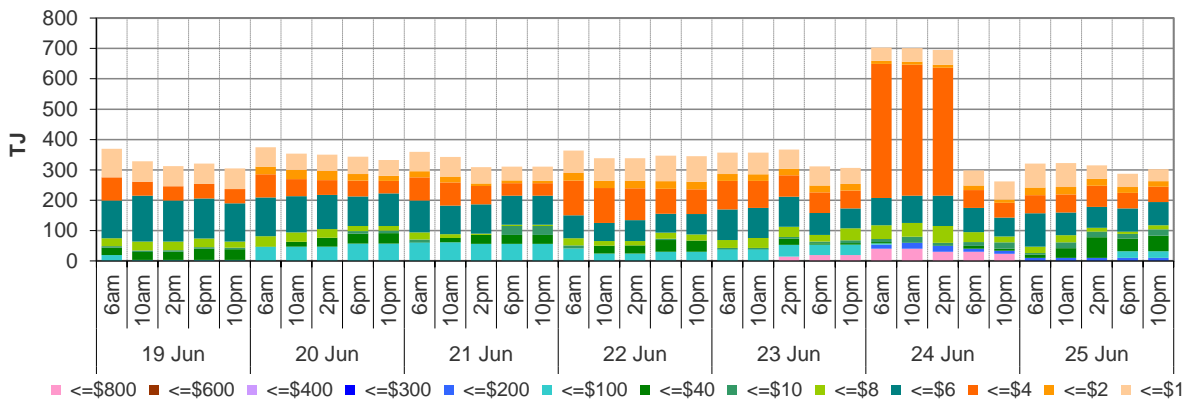
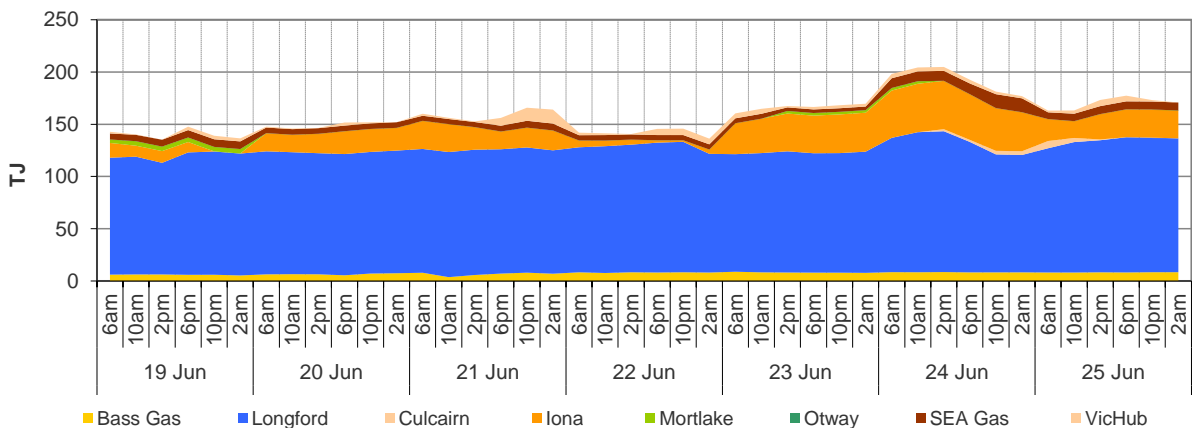


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.⁶ 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](#).

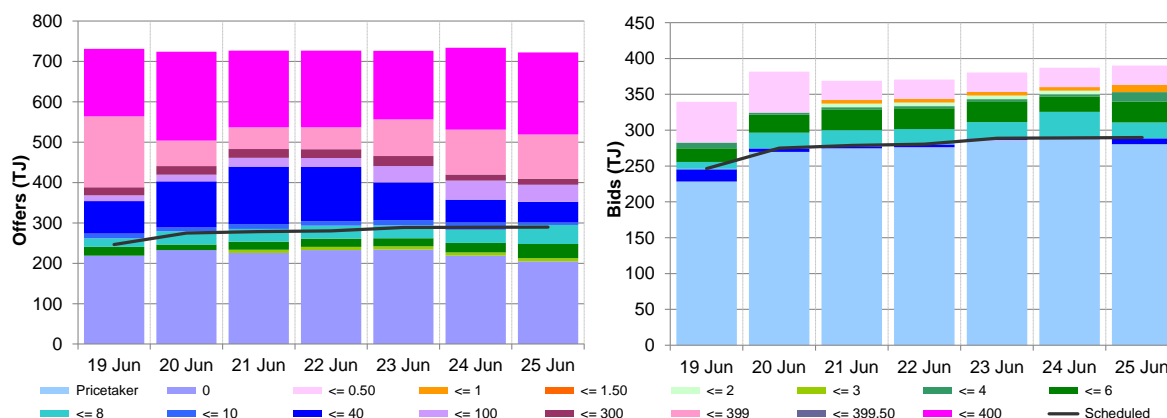
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.⁷

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)	6.51	7.20	7.39	7.39	7.50	9.41	7.61
Ex ante quantity (TJ)	246	275	279	280	289	289	290
Ex post price (\$/GJ)	6.80	6.63	7.39	7.39	7.31	9.41	8.99
Ex post quantity (TJ)	254	262	279	281	283	296	296

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



⁶ 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.

⁷ 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)

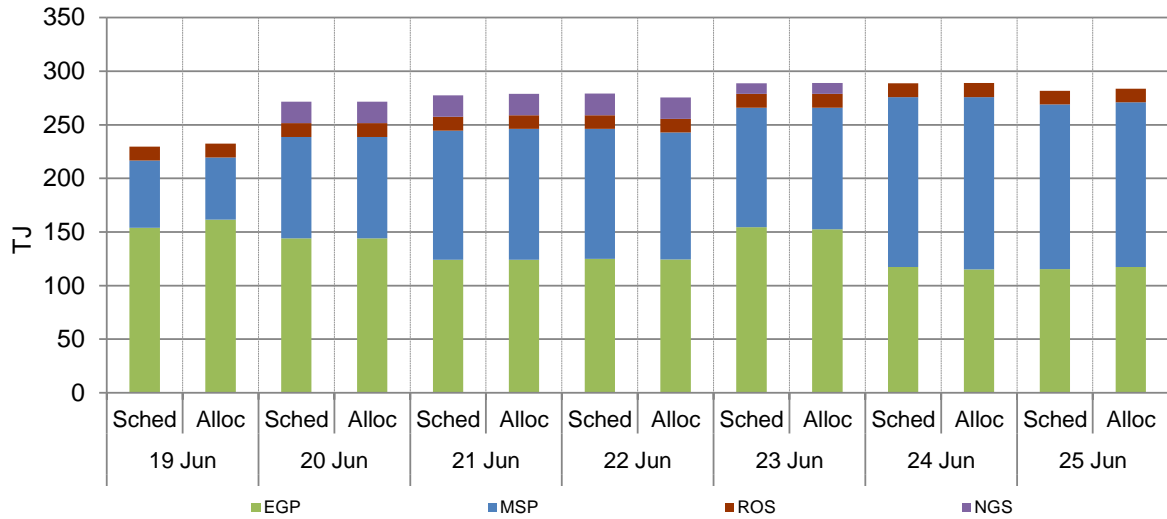
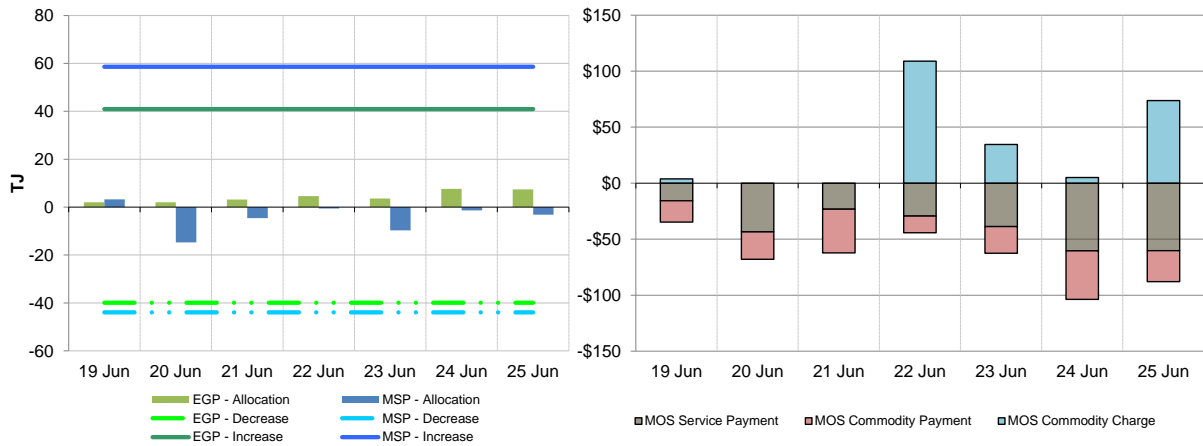


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)⁸



⁸ 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)	7.51	7.60	8.40	7.60	8.50	18.99	9.67
Ex ante quantity (TJ)	74	88	85	85	89	92	80
Ex post price (\$/GJ)	7.57	7.60	9.69	7.60	9.69	14.99	9.67
Ex post quantity (TJ)	74	88	92	86	96	91	79

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

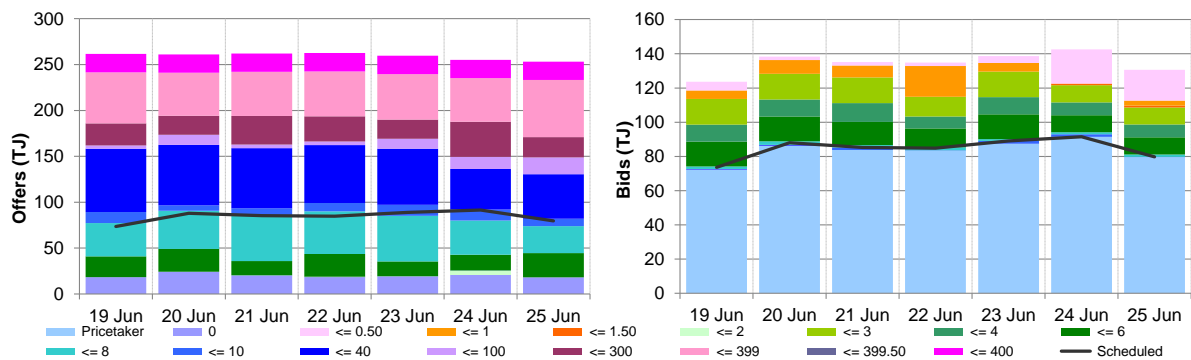


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

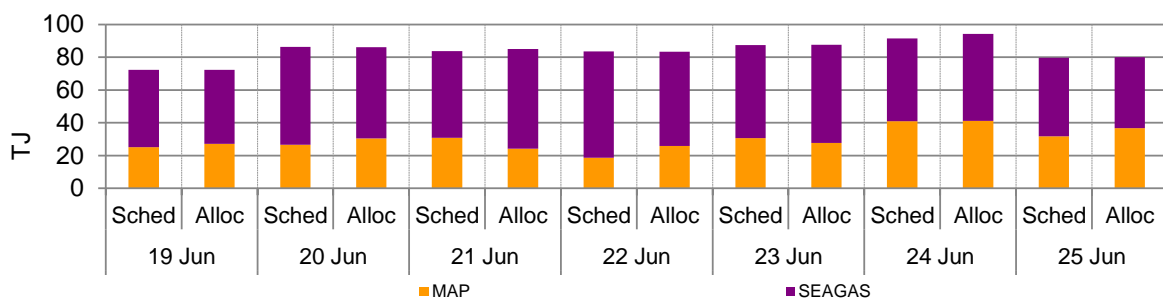
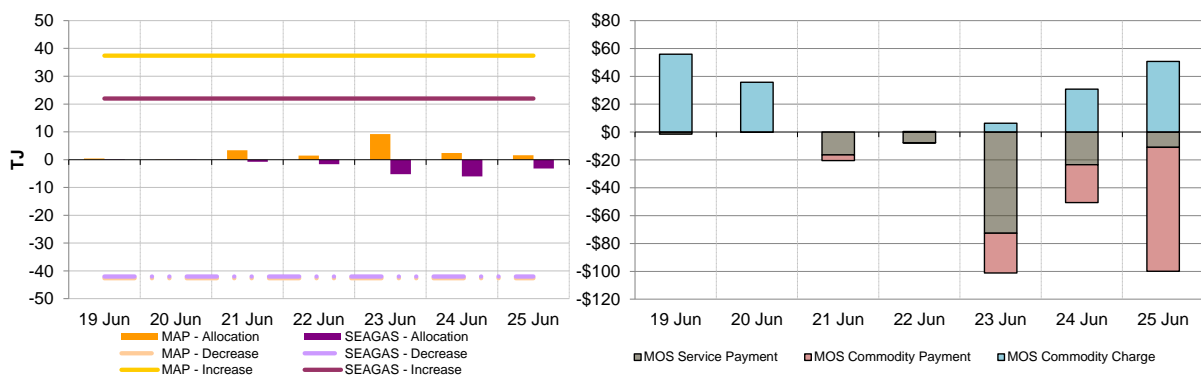


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	7.26	7.27	7.20	8.00	10.00	10.00	9.00
Ex ante quantity (TJ)	82	98	101	101	98	93	86
Ex post price (\$/GJ)	7.26	7.27	7.20	7.51	7.50	9.99	7.67
Ex post quantity (TJ)	77	95	101	99	94	90	76

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

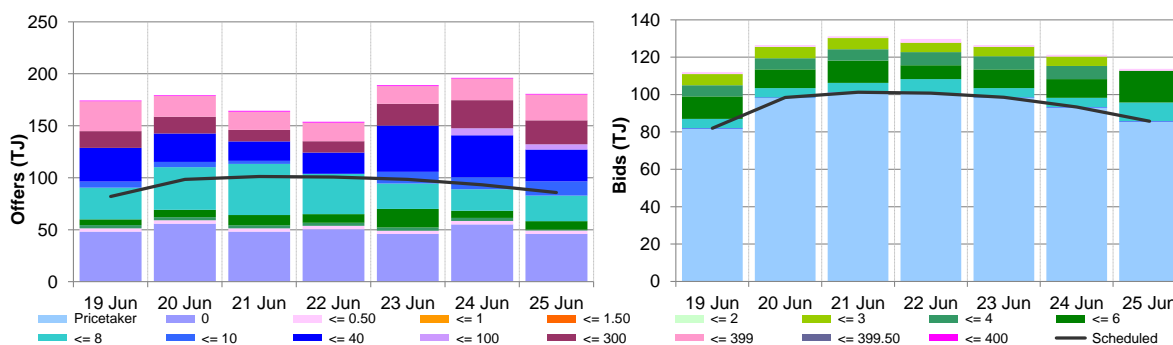


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

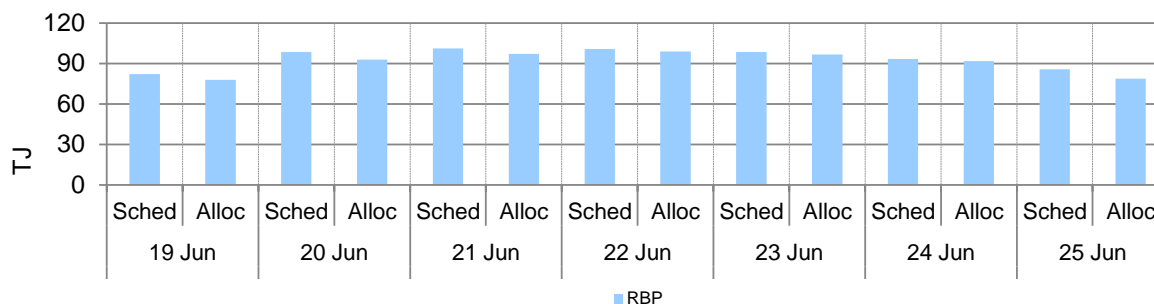
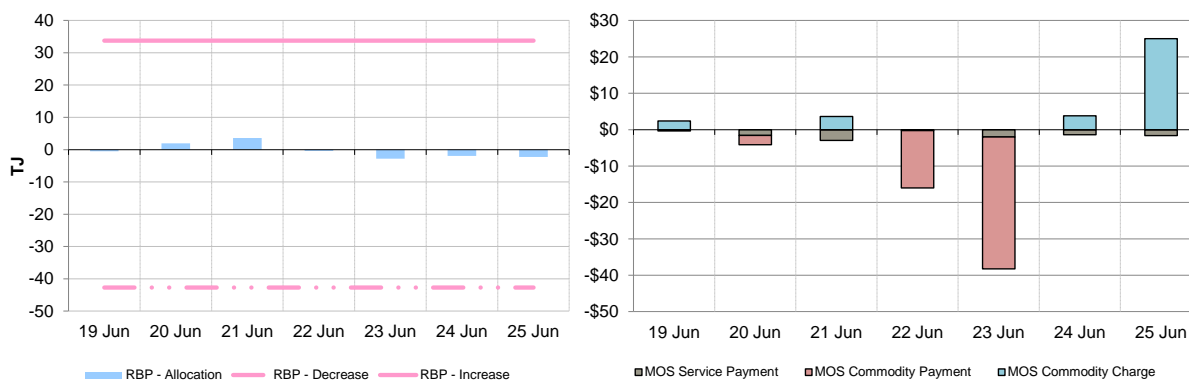


Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week⁹ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices¹⁰ 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)



⁹ **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.

¹⁰ **GPG volumes** may include gas usage that does not show up on Bulletin Board pipeline flows. GSH supply is the average daily volume of gas 'traded', while price is a volume weighted average.

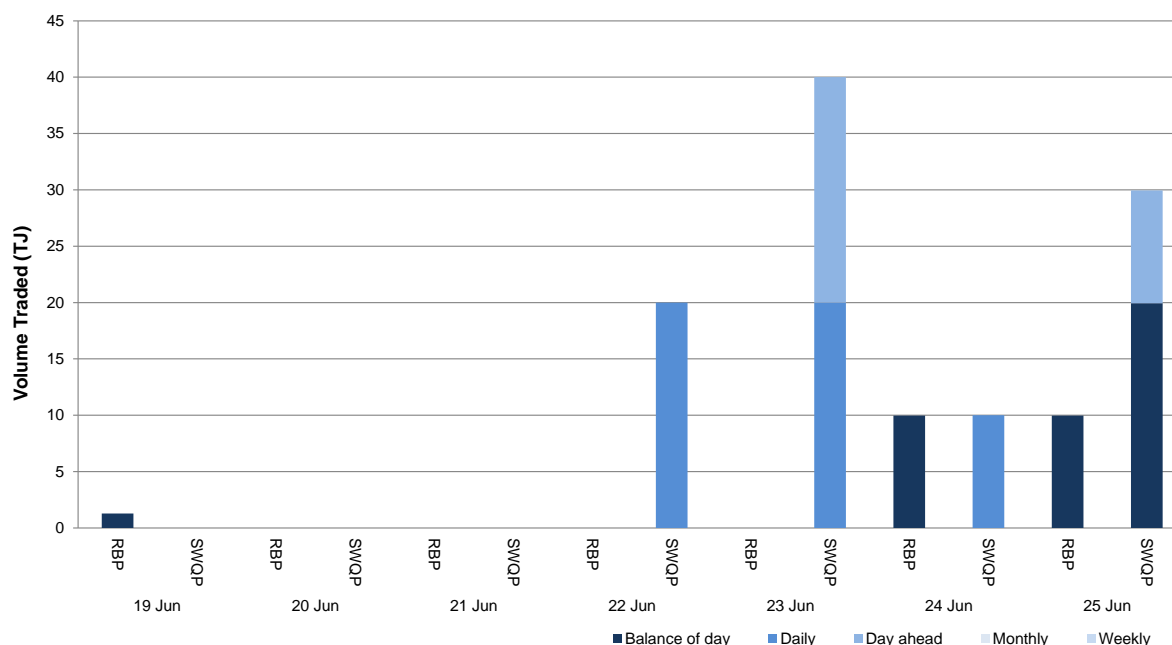
6. Gas Supply Hub

The Gas Supply Hub (**GSH**) was established in March 2014 for the trading of gas at Wallumbilla. The GSH is a voluntary market¹¹ for the supply of gas traded¹² 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 12 trades this week for 121 TJ of gas at a volume weighted price of \$9.07/GJ in the Wallumbilla hub. A number of high priced trades occurred on the SWQP up to \$10/GJ, leading to the highest volume weighted average price recorded at the facility over the week. Balance-of-day, day-ahead and daily traded products on the SWQP accounted for 100 TJ of trade in the GSH (\$9.33/GJ), while 3 balance of day trades on the RBP made up 21 TJ (\$7.82/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 (no trades at Moomba yet).

Figure 6.1: GSH traded quantities



Australian Energy Regulator July 2016

¹¹ 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.

¹² 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.