

## 21 – 27 April 2019

### Weekly Summary

Average prices dropped significantly during the week across all markets. Sydney saw the largest fall with the average price \$1.86/GJ lower than the week prior, while Victoria dropped \$1.50/GJ, Adelaide \$1.34/GJ and Brisbane \$1.09/GJ. This occurred in Victoria and Adelaide despite average demand increasing 17 and 13 per cent respectively (**Figure 1**).

Gas Supply Hub prices also fell this week, with the average price at SEQ now below \$8/GJ, however the amount traded at the two hubs fell overall from 376 TJ to 295 TJ (**Figure 2**).

Storage levels at Iona Underground Storage increased over the week with average inflows of 771 TJ. The storage facility saw an increase from 17.6 PJ at the beginning of the week to 18.3 PJ on 27 April with storage levels now at 71 per cent of capacity (**Figure 5.1**).<sup>1</sup>

### 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)<sup>2</sup>**

	Victoria		Sydney		Adelaide		Brisbane	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand
21 Apr - 27 Apr 2019	8.80	459	8.93	215	9.37	51	8.08	74
% change from previous week	-15	17	-17	-8	-13	13	-12	-8
18-19 financial YTD	9.71	507	10.02	242	10.03	56	9.59	87
% change from previous financial YTD	23	-4	19	-1	26	-4	33	-9

<sup>1</sup> Storage numbers displayed in figure 5.1 are average daily storage levels for the current and previous week.

<sup>2</sup> 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)<sup>3</sup>**

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
21 Apr - 27 Apr 2019	-	-	7.92	77	8.31	218
% change from previous week	-	-	-10	-31	-9	-17
18-19 financial YTD	7.22	95	9.47	9850	9.41	7145
% change from previous financial YTD	35	692	31	26	23	88

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

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

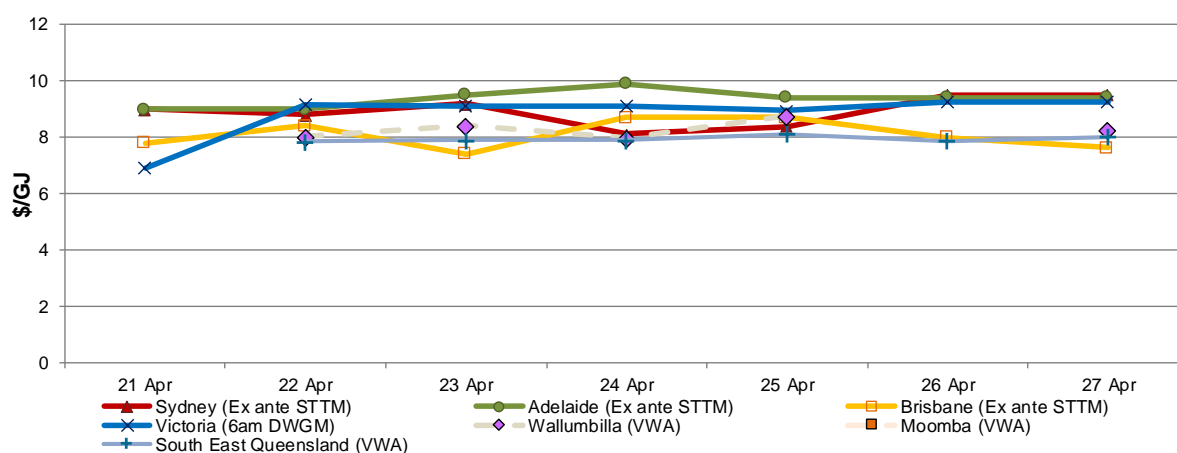


Figure 4 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

**Figure 4: Average ancillary payments (\$000)**

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
21 Apr - 27 Apr 2019	-	57.14	5.68	0.83
% change from previous week	-	327	136	-21
18-19 financial YTD		18.82	3.96	1.10
% change from previous financial YTD		-39	-29	-52

\* 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.

<sup>3</sup> 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
<b>Balance of day</b>	-	-	7.83	23.0	8.25	10.0
<b>Daily</b>	-	-	7.89	12.0	8.30	27.0
<b>Day ahead</b>	-	-	7.97	42.0	8.34	11.0
<b>Weekly</b>	-	-	-	-	-	-
<b>Monthly</b>	-	-	-	-	8.32	170.0
<b>Total</b>	-	-	<b>7.92</b>	<b>77.0</b>	<b>8.31</b>	<b>218.0</b>

\* 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	1511	812	1764	4087
Export Pipeline Flows	1552	916	1342	3810
% change from previous week (pipeline flows)	9	0	-6	1
18-19 financial YTD Flows	1425	837	1283	3544

\* 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

### **Sydney STTM MOS Payments**

On the 23, 25 and 27 April the Sydney market experienced large decrease MOS requirements, resulting in a number of large service payments. This was due to numerous over forecasting errors within the Sydney hub across the 3 specified days (**Figure 2.4**).

The forecasting error on 23 April stemmed from a single participant over forecasting their gas consumption by 28.1 TJ. On 25 and 27 April a number of participants, including those with large customer loads, over forecast their collective demand by 26.4 TJ and 19.3 TJ respectively. This combined with a number of participant's smaller forecast errors (<1 TJ) exacerbating requirements for decrease MOS.

The result of these over forecasts was substantial daily service payments. 23 April saw MOS service payments of \$90,749, which were lower due to the EGP providing some of the decrease allocations (6.7 TJ) allowing for the bid stacks to be activated on both the MSP and EGP. Costs shot up significantly on 25 April however with the decrease occurring solely on the MSP and the cost of gas spiking from \$6.45/GJ to \$11.60/GJ after exceeding 28 TJ of the service available in the MSP's decrease MOS stack.<sup>4</sup> This led to a payment of \$149,141 for the gas day. 27 April had a smaller over forecast than the prior days and required MOS service payments of \$69,817.

### **Southern State Prices**

The southern states have been experiencing higher prices than their northern counterparts recently as GPG continued to have a major impact on southern prices well into the autumn months. With the continued reduction in GPG gas usage over recent weeks, southern prices appear to be converging closer to the northern gas prices. In addition to this lower usage, Longford production is back to nameplate capacity, meaning that less gas needs to be transported from the northern states to meet southern demand.

These two factors are likely reasons for downward pressure on southern prices, where the Sydney STTM and the Victorian gas market are now only \$0.62/GJ and \$0.49/GJ higher than the price at Wallumbilla, which this week averaged \$8.31/GJ (**Figures 1 & 2**). Adelaide average prices still remains slightly more elevated at \$9.37/GJ but have still reduced significantly over recent weeks.

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<sup>4</sup> MOS services are pay as bid. The last 4.7 TJ of the decrease service requirement on the MSP accounted for \$55,792 of the total cost.

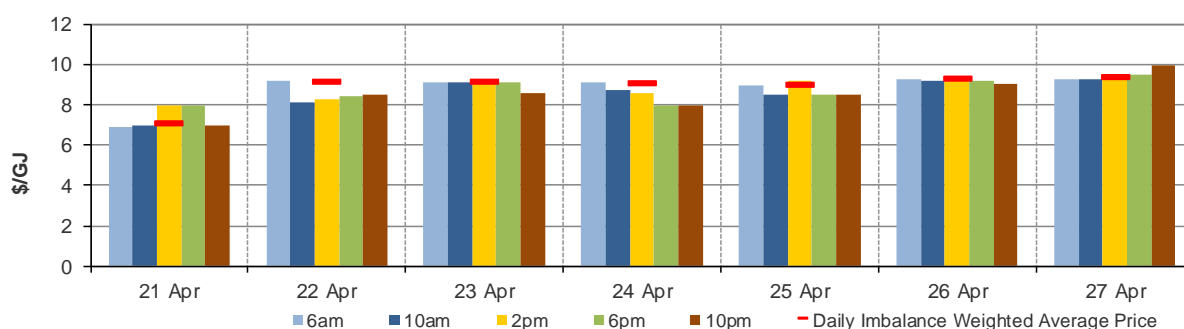
## 1. Victorian Declared Wholesale Market

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<sup>5</sup> which is the schedule at which most gas is traded.

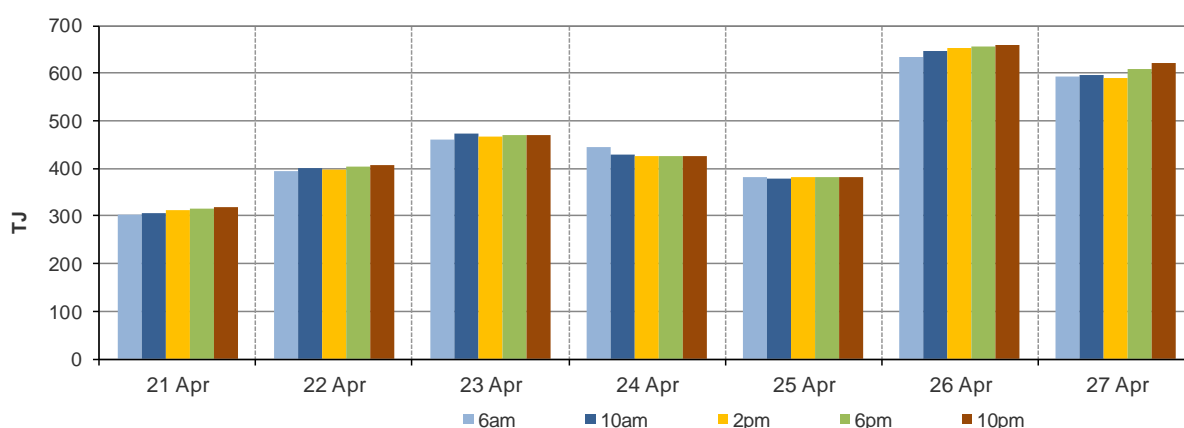
The main drivers<sup>6</sup> of price are demand forecasts and bids to inject or withdraw gas from the market. Figures 1.1 to 1.4 below show the daily prices, demand forecasts<sup>7</sup>, and injection/withdrawal bids for each of the five pricing schedules. Figure 1.5 provides information on which system 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)**

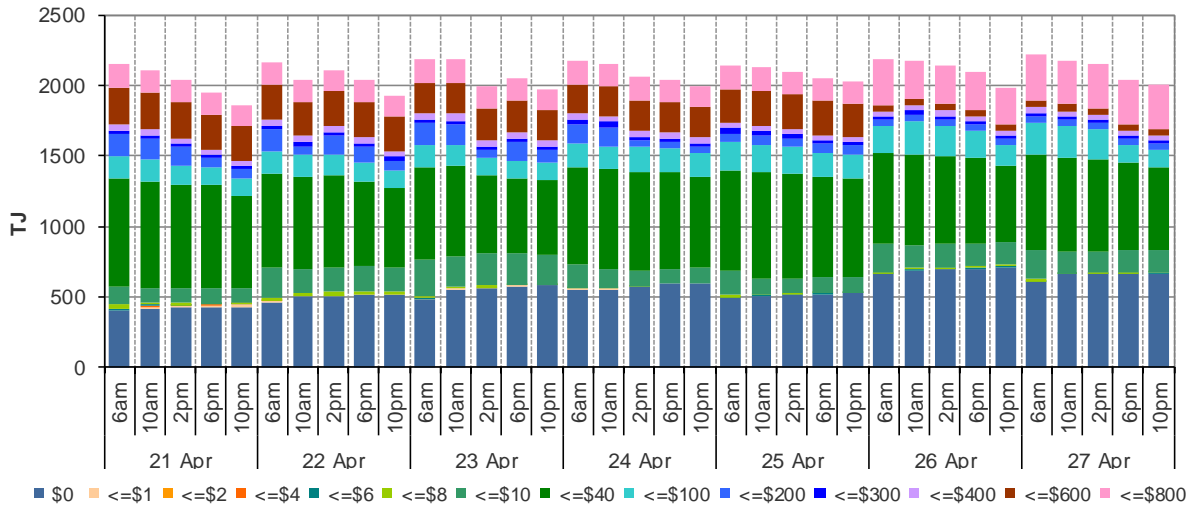


<sup>5</sup> Prices for subsequent schedules are applied only to the differences in scheduled quantities (imbalances) to calculate the weighted price. The 6 am price applies to the entire scheduled quantity in the initial schedule.

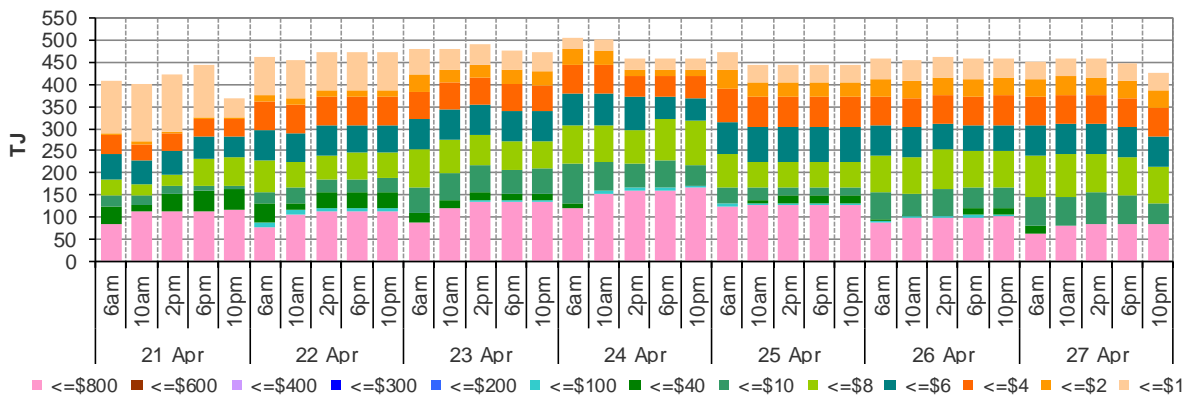
<sup>6</sup> The price might also be affected by transmission or production (contractual) constraints limiting how much gas can be delivered from a locale or System Injection Point (SIP) from time to time.

<sup>7</sup> 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.

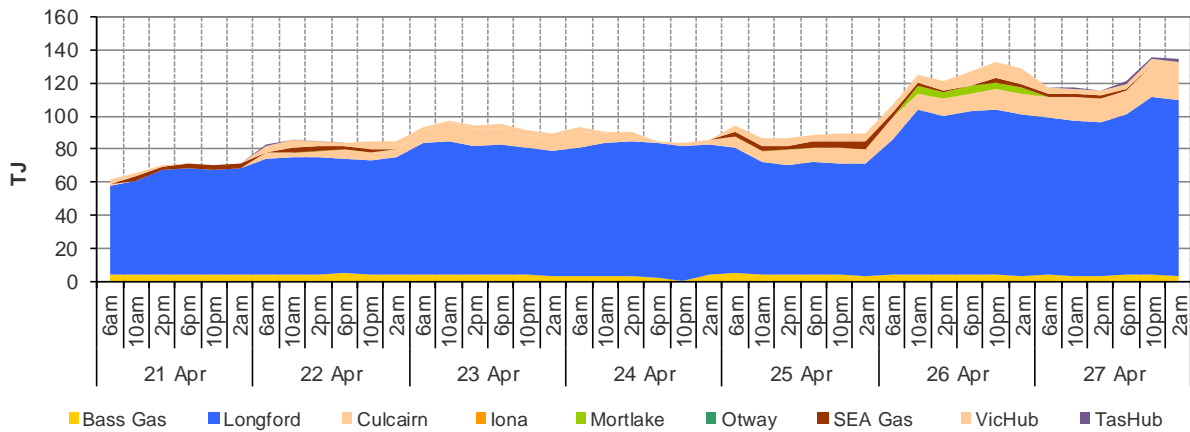
**Figure 1.3: Injection bids by price bands (TJ)**



**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.<sup>8</sup> 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](#).

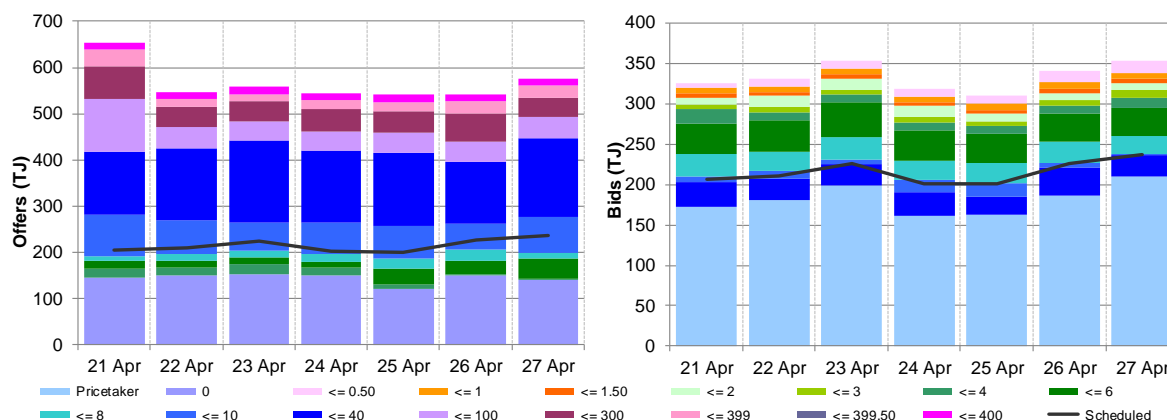
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.<sup>9</sup>

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)	9.00	8.80	9.18	8.11	8.38	9.50	9.51
Ex ante quantity (TJ)	206	210	226	201	201	226	237
Ex post price (\$/GJ)	8.60	8.68	8.00	7.80	7.80	9.31	8.90
Ex post quantity (TJ)	193	202	195	187	169	218	216

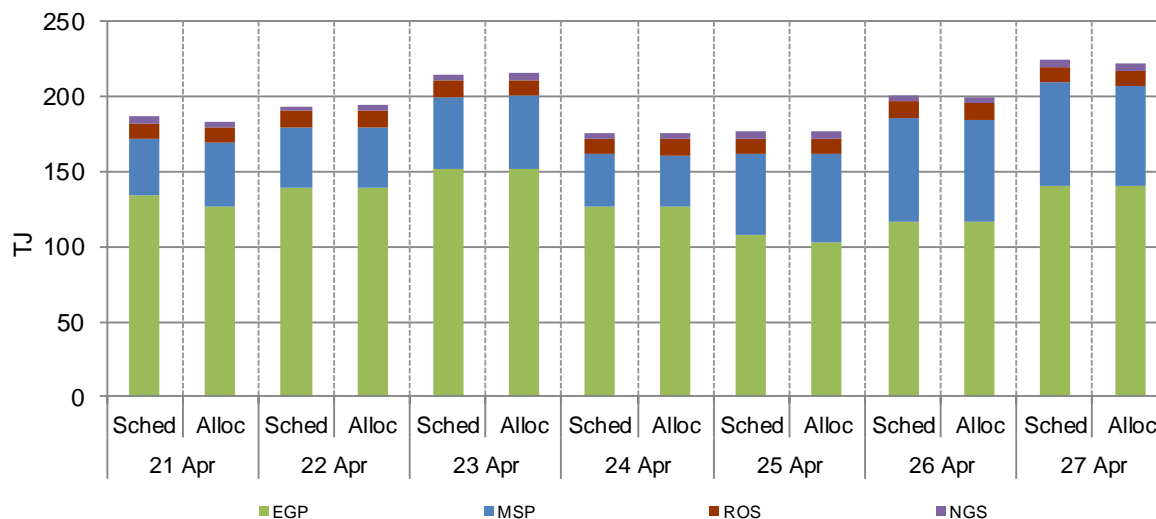
**Figure 2.2: SYD daily hub offers and daily hub bids in price bands (\$/GJ)**



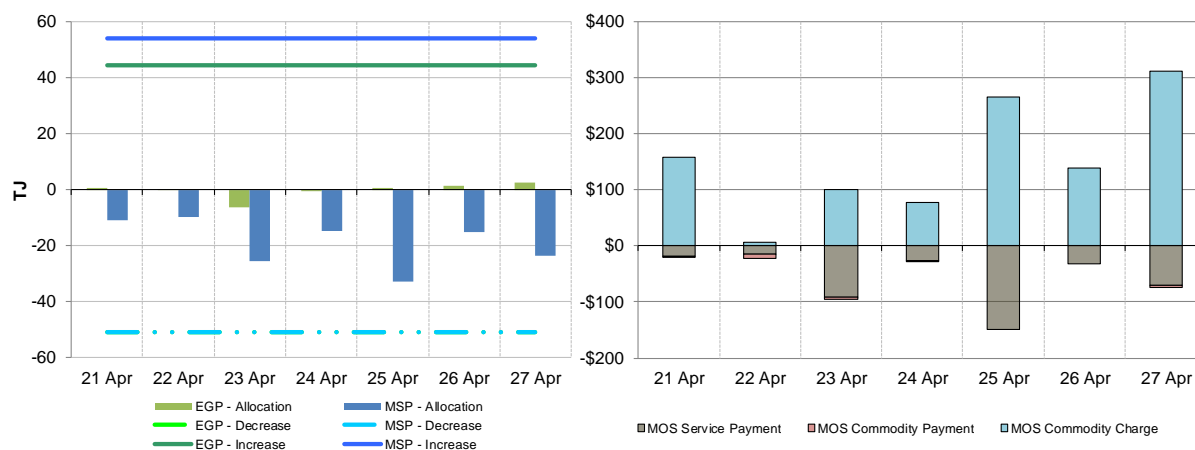
<sup>8</sup> The main driver of the amount of gas scheduled on a gas day is the 'price-taker' bid, which is forecast hub demand that cannot respond to price and which must be delivered, regardless of the price.

<sup>9</sup> 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)<sup>10</sup>**



<sup>10</sup> 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.



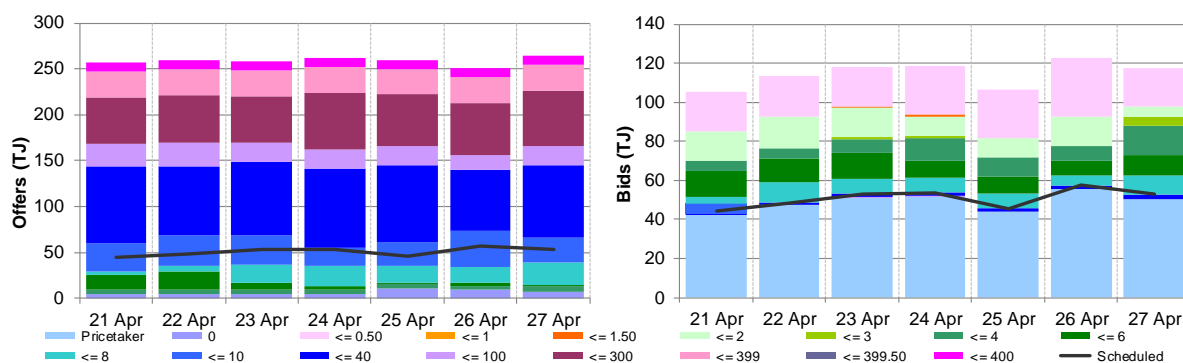
### 3. Adelaide STTM

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.

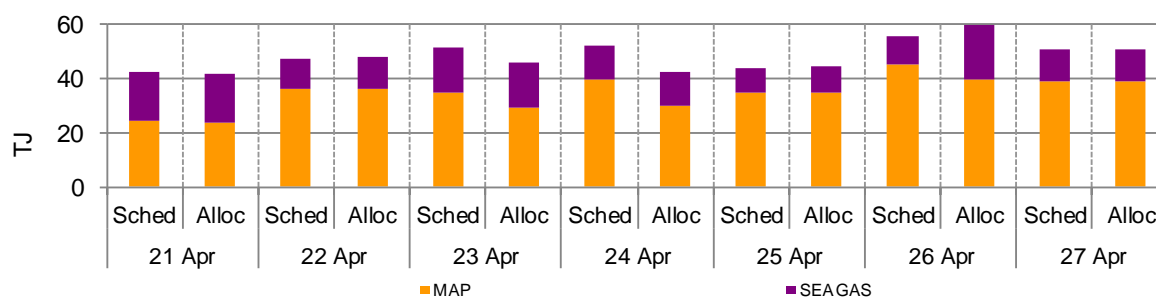
**Figure 3.1: ADL STTM daily ex ante and ex post prices and quantities**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price (\$/GJ)	9.00	8.99	9.51	9.90	9.41	9.41	9.40
Ex ante quantity (TJ)	44	48	53	54	46	57	53
Ex post price (\$/GJ)	8.90	8.80	9.20	9.75	9.21	9.33	9.33
Ex post quantity (TJ)	39	44	48	46	43	54	49

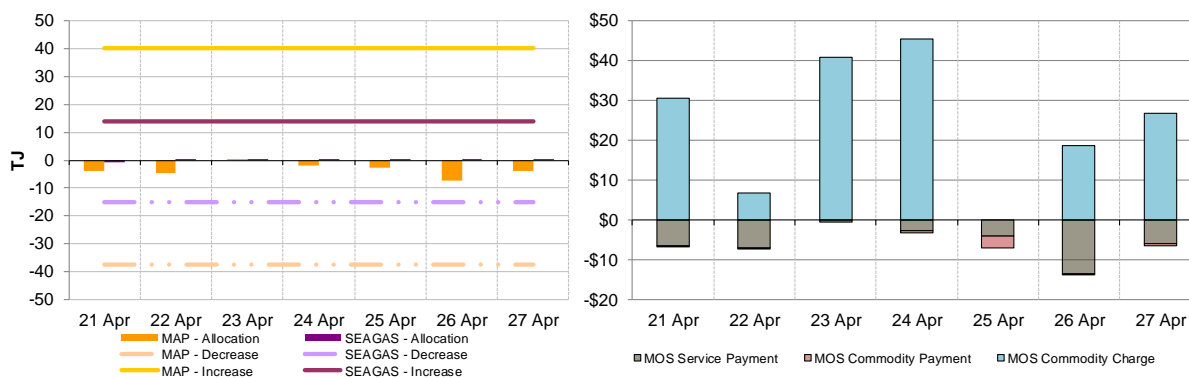
**Figure 3.2: ADL daily hub offers and daily hub bids in price bands (\$/GJ)**



**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)**



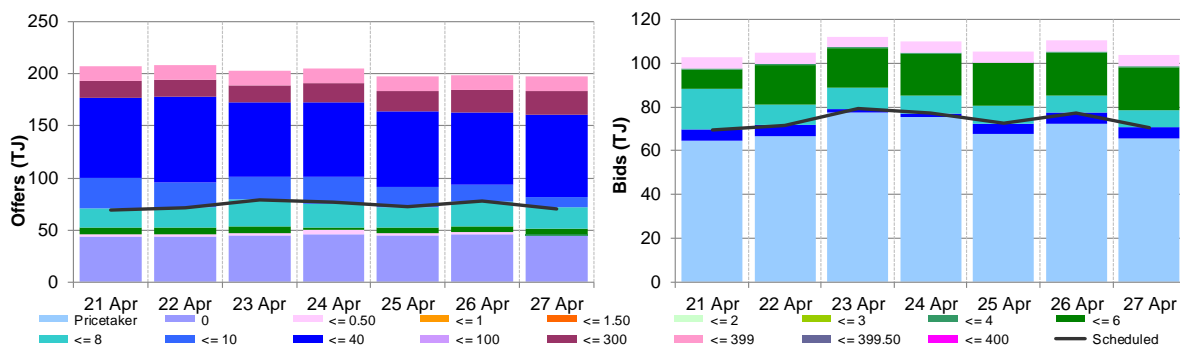
## 4. Brisbane STTM

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.

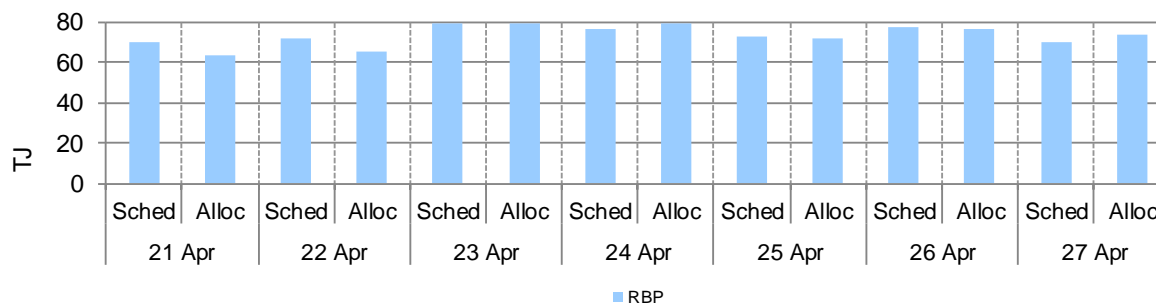
**Figure 4.1: BRI STTM daily ex ante and ex post prices and quantities**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price (\$/GJ)	7.80	8.40	7.39	8.70	8.70	7.99	7.61
Ex ante quantity (TJ)	70	72	79	77	72	78	71
Ex post price (\$/GJ)	7.10	7.53	8.40	8.70	7.39	7.99	9.18
Ex post quantity (TJ)	61	66	80	79	70	78	75

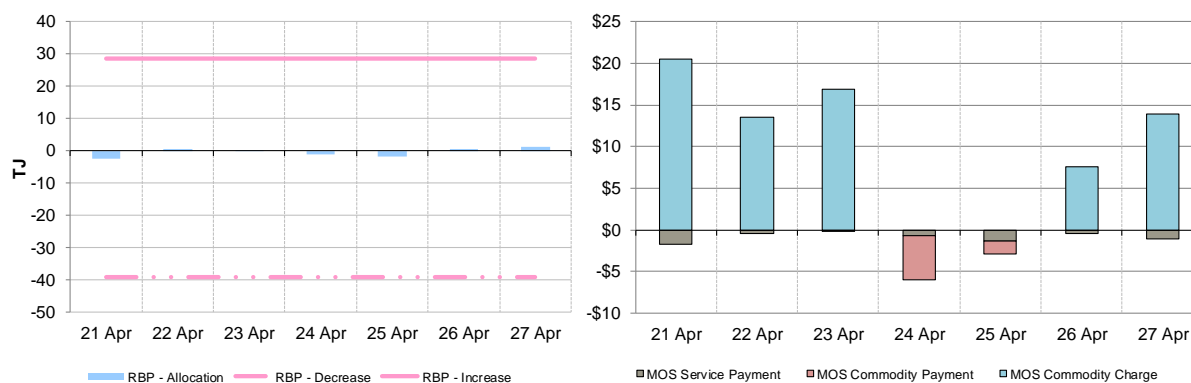
**Figure 4.2: BRI daily hub offers and daily hub bids in price bands (\$/GJ)**



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



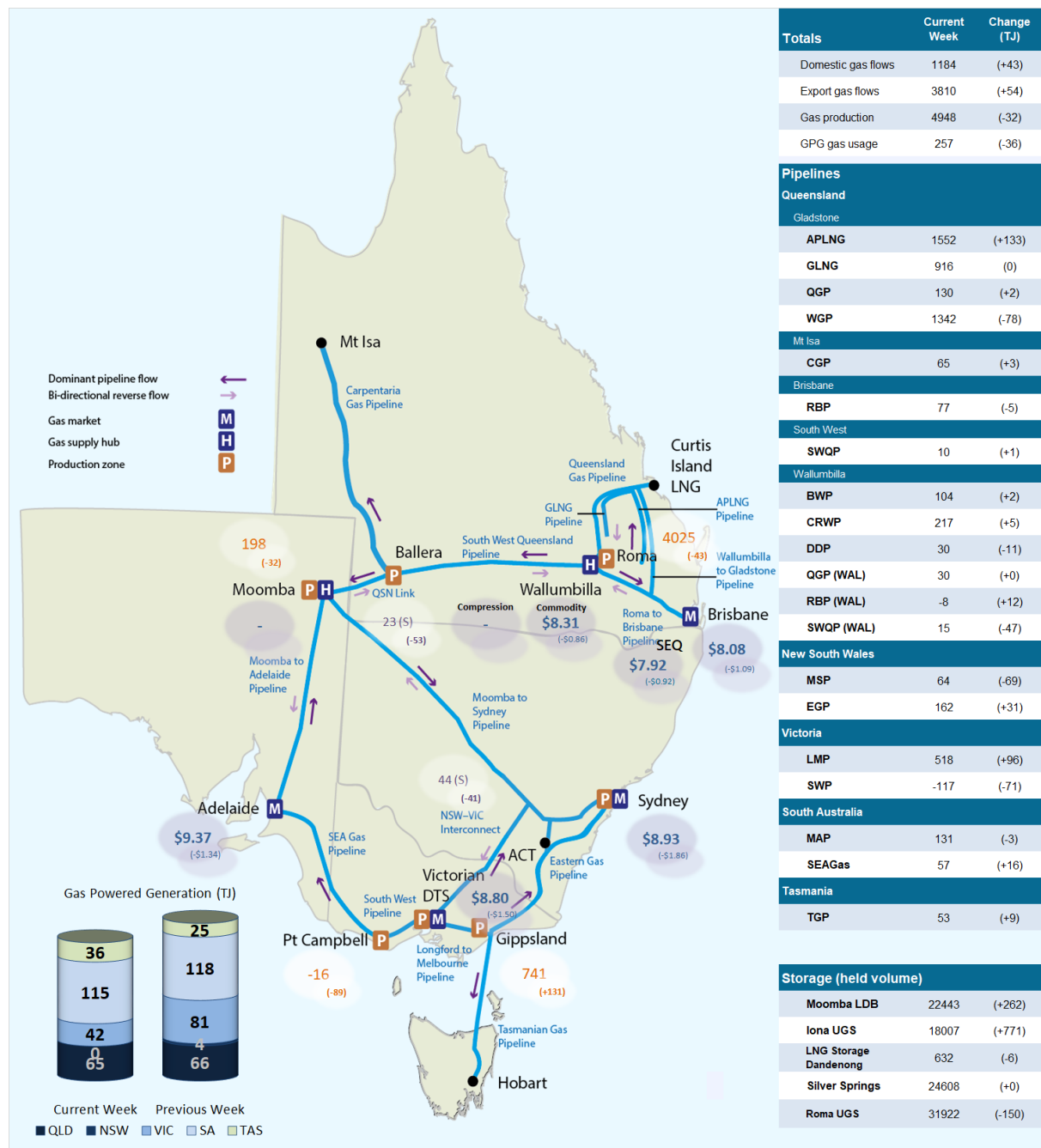
**Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)**



## 5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week<sup>11</sup> from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices<sup>12</sup> 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)<sup>13</sup>



<sup>11</sup> 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.

<sup>12</sup> Export gas flows are calculated as the total of: the APLNG pipeline; the GLNG pipeline; and the Wallumbilla to Gladstone pipeline.

<sup>13</sup> GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.

<sup>12</sup> 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.

<sup>13</sup> Net flows are shown for Bulletin Board facilities, as outlined in the [user guide](#).

## 6. Gas Supply Hub

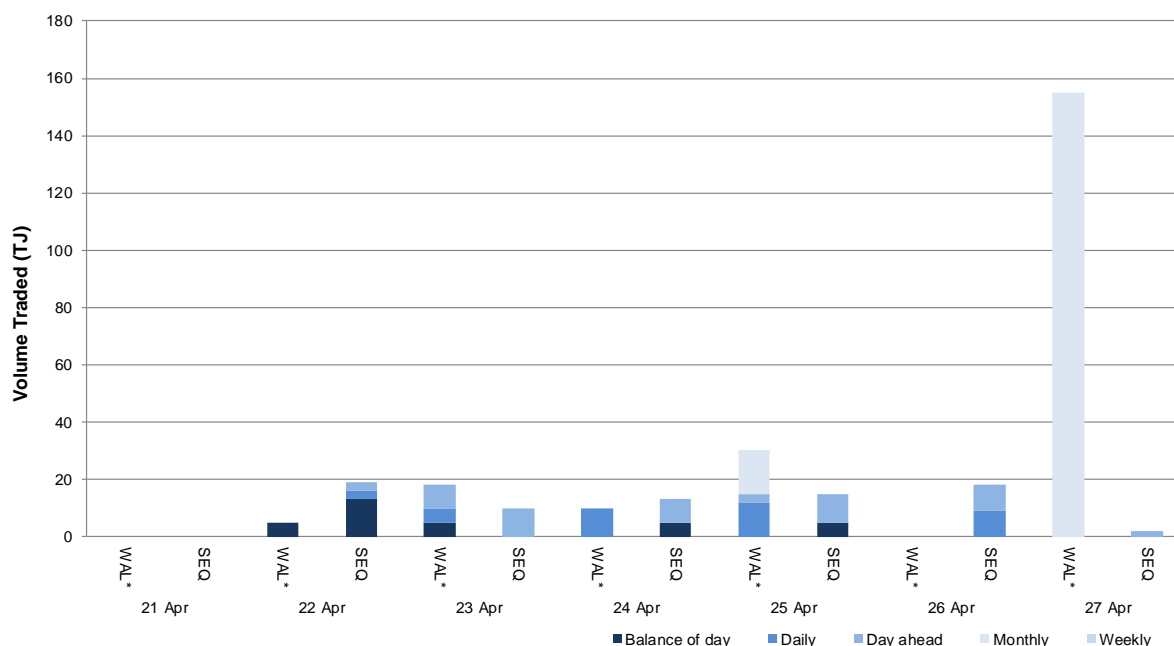
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).<sup>14</sup>

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 33 trades for 295 TJ of gas at a volume weighted price of \$8.21/GJ. These consisted of 17 trades at WAL (218 TJ at \$8.31/GJ) and 16 trades at SEQ (77 TJ at \$7.92/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.<sup>15</sup>

**Figure 6.1: GSH traded quantities**



## Australian Energy Regulator May 2019

<sup>14</sup> Additional information on trading locations and available products is detailed in the [user guide](#).

<sup>15</sup> Non-netted (off-market) trades, allowing the selection of specific delivery point at a trading location, are included with other Wallumbilla trades (WAL\*).