Gas Market Report

AUSTRALIAN ENERGY REGULATOR

29 May – 4 June 2016

Weekly summary

Following high prices in all markets last week, average prices increased this week in all regions. The most significant increases occurred in Victoria and Brisbane where gas prices were 31 per cent and 26 per cent higher.

In addition to higher market demand influencing price increases, higher GPG output in Victoria and Brisbane (and continued high output in Adelaide) occurred across the week. This coincided with a number of baseload generation outages in the National Electricity Market (NEM). Low temperatures would have further contributed to higher gas market demand in the southern regions.

There have also been recent increases to flows on the LNG export pipelines. GLNG's 2nd train came online in the previous week, and the conclusion of an outage on an APLNG train, influenced higher export demand over the past fortnight. Figure 5.1 shows the large increase in average daily production at Roma coinciding with the higher export levels and GPG demand.

Following a lull in trades at Wallumbilla across May, there was an increase in traded quantities this week with a number of trades on the RBP matched at $7/GJ or higher.

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) in 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)** for the current week compared to historical averages.

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

Region	Victoria	Sydney	Adelaide	Brisbane
29 May - 04 Jun 2016	7.48	7.57	8.31	6.99
% change from previous week	31	13	13	26
15-16 financial YTD	4.60	4.74	5.46	4.39
% change from previous financial YTD	28	40	47	88

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[1]   The weighted average daily imbalance price applies for Victoria.

Figure 2 compares average weekly gas prices, ancillary market payments and scheduled injections against historical averages for the Victorian gas market.

Figure 2: Victorian Gas Market

	Price ($/GJ)	Ancillary payments ($000)*	BOD forecast demand quantity (TJ)
29 May - 04 Jun 2016	7.48	-	911
% change from previous week	31	-	26
15-16 financial YTD	4.60	-	531
% change from previous financial YTD	28	-	0

* Note: only positive ancillary payments, reflecting system constraints will be shown here.

More detailed analysis on the VGM is provided in section 1.

Figures 3 to 5 show average ex ante and ex post gas prices, Market Operator Service **(MOS)** balancing gas service payments together with the related daily demand quantities against historical averages for the Sydney, Adelaide and Brisbane STTM hubs, respectively.

Figure 3: Sydney STTM

	Ex ante price ($/GJ)	Ex post price ($/GJ)	MOS payments ($000)	Ex ante quantity (TJ)	Ex post quantity (TJ)
29 May - 04 Jun 2016	7.57	7.65	28.81	266	269
% change from previous week	13	23	-11	5	7
15-16 financial YTD	4.74	4.41	27.66	235	230
% change from previous financial YTD	40	30	80	-2	-4

Figure 4: Adelaide STTM

	Ex ante price ($/GJ)	Ex post price ($/GJ)	MOS payments ($000)	Ex ante quantity (TJ)	Ex post quantity (TJ)
29 May - 04 Jun 2016	8.31	8.68	33.82	73	74
% change from previous week	13	16	243	11	11
15-16 financial YTD	5.46	5.54	9.47	59	60
% change from previous financial YTD	47	52	-26	-4	-3

	Ex ante price ($/GJ)	Ex post price ($/GJ)	MOS payments ($000)	Ex ante quantity (TJ)	Ex post quantity (TJ)
29 May - 04 Jun 2016	6.99	7.13	1.24	89	90
% change from previous week	26	31	-20	0	2
15-16 financial YTD	4.39	4.39	1.57	83	83
% change from previous financial YTD	88	99	-8	-37	-37

More detailed analysis of the STTM hubs is found in sections 2 to 4.

Section 5 provides analysis on production and pipeline flows on the National Gas Bulletin Board **(Bulletin Board)**, as well as gas powered generation **(GPG)** volumes in each state, and section 6 provides information on the Gas Supply Hub **(GSH)** at Wallumbilla.

Detailed market analysis

High prices and gas demand

High market demand drove higher prices in all regions this week. High GPG gas usage also contributed to driving higher prices. GPG levels increased most significantly in Adelaide, Victoria and Brisbane, while levels in Sydney were also relatively high at around 107 TJ/day.

Figure 6 shows the increase in GPG gas usage levels compared to the previous fortnight in South Australia, Victoria and Queensland. These are compared against temperatures in Adelaide, Victoria and Brisbane, and gas prices in each market.

Figure 6:   GPG gas usage in Adelaide, Victoria and Brisbane (TJ)
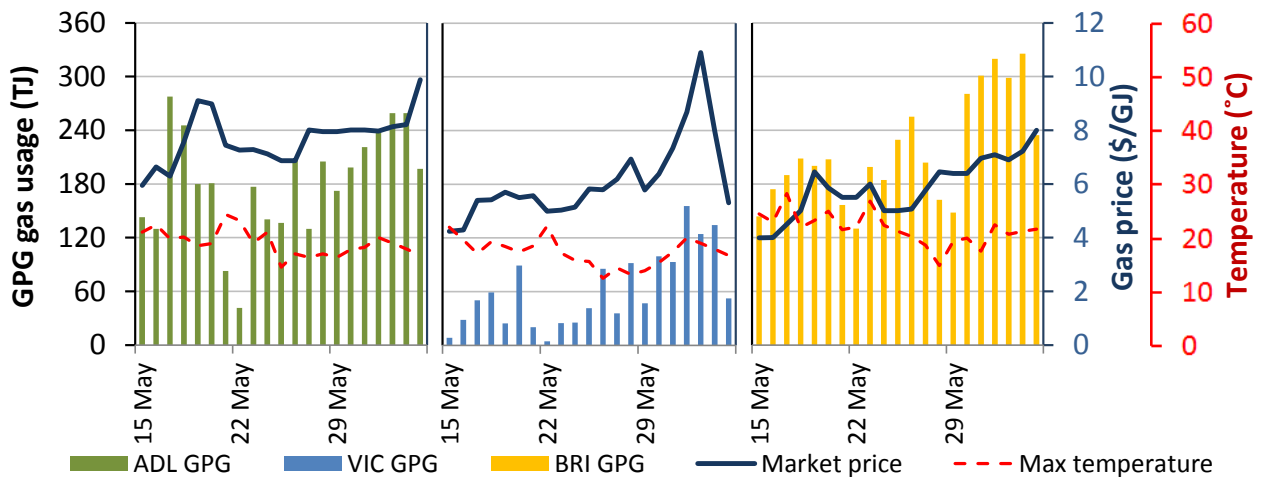
A number of high schedule prices occurred in Victoria from 31 May – 3 June, triggering LNG injections from 1 – 3 June. On Thursday 2 June, the price in Victoria reached its peak at $10.90/GJ during planned maintenance on the Gooding compressor at Longford. This also coincided with a price spike to $9.80/GJ in the Sydney hub.

Supply supplemented by injections at Newcastle

Figure 2.3 on page 8 shows a sustained delivery of 30 – 40 TJ/day of gas was supplied to the Sydney market from the Newcastle Gas Storage (NGS) facility.[2]

Counteracting MOS in Adelaide

Figure 3.4 on page 9 shows high levels of counteracting MOS in Adelaide leading to large service costs on the 30 May and 4 June gas days. Net requirements on the respective days were 4.5 TJ (increase) and 1 TJ (decrease). However, counteracting increase allocations for the services on the MAP and decrease allocations on SEAGas led to absolute MOS quantities of just under 18 TJ on both days. This resulted in service payments of $96 676 and $83 969 respectively.

Recent developments on the Bulletin Board and Gas Supply Hub

On 1 June, the new Wallumbilla zone was declared on the Gas Bulletin Board and the Moomba Gas Supply Hub commenced operation.

A number of new and facilities will report flows against the Wallumbilla demand zone (WAL) from this point onwards. Furthermore, flows reported for the South West Queensland Pipeline (SWQP) will now be split between those flows to the west of Wallumbilla (the SWQ zone) and those to or from the newly declared WAL zone. Changes to data previously reported for the SWQ zone are outlined under figure 5.1 on page 11.

Figure 7 shows the facilities which will now report data against the Wallumbilla demand zone.

Figure 7:   Bulletin Board facilities reporting gas flows at Wallumbilla[3]

Pipeline Name	Default Flow From	Default Flow To
Roma - Brisbane Pipeline	Wallumbilla	Brisbane
Queensland Gas Pipeline	Wallumbilla	Gladstone and Rockhampton
South West Queensland Pipeline	Wallumbilla	Moomba
Comet Ridge to Wallumbilla Pipeline	Wallumbilla	Roma (Comet Ridge)
Berwyndale to Wallumbilla Pipeline	Roma (Berwyndale)	Wallumbilla
Darling Downs Pipeline	Darling Downs	Wallumbilla
Spring Gully Pipeline	Spring Gully	Wallumbilla

Gas Supply Hubs

The new Moomba Gas Supply Hub started on June 1, there were no trades over the first four days.

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[2]   The facility has only supplied gas at or below 20 TJ/day on a dozen previous occasions since its commissioning in June 2015.

[3]   For more information pertaining to these new facilities visit www.gasbb.com.au.

29 May – 4 June 2016

## 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.

Figure 1.1:   Prices by schedule
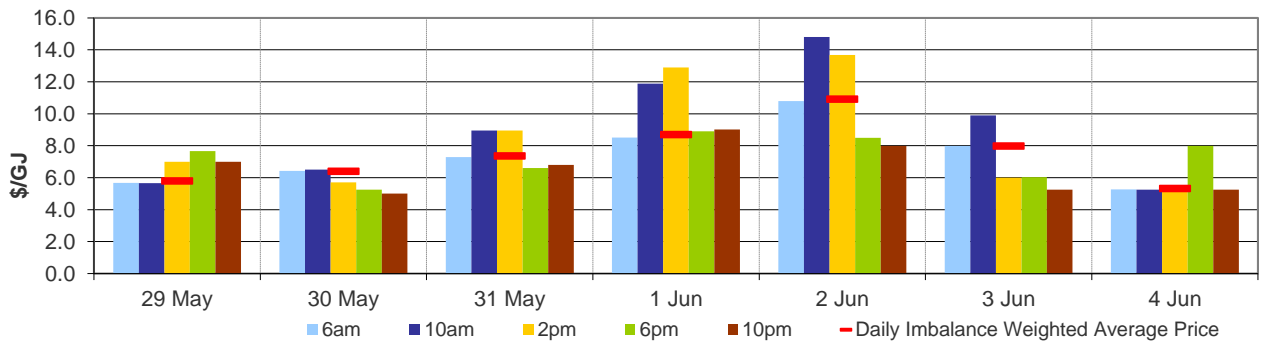

Figure 1.2:   Demand forecasts

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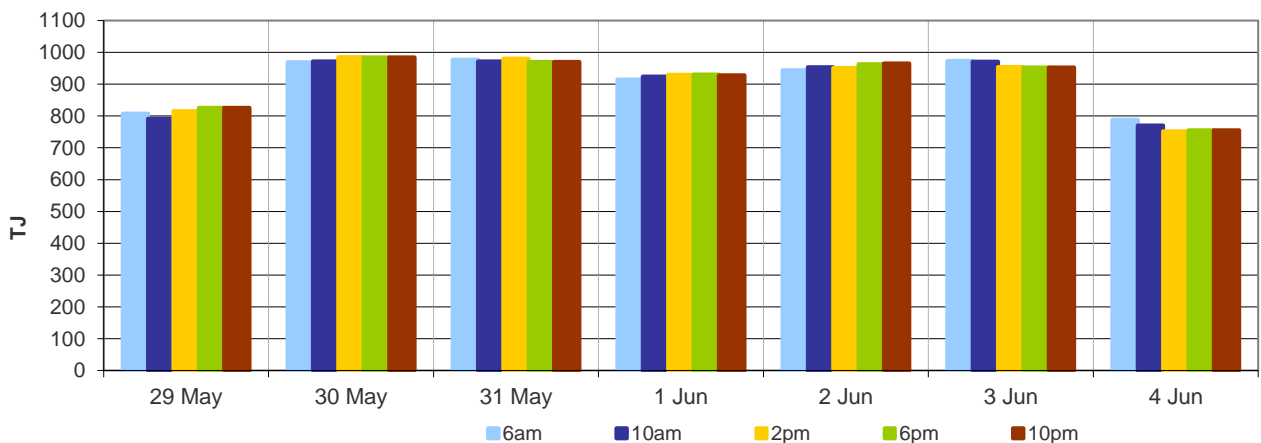
[4]   Prices for subsequent schedules are applied only to the differences in scheduled quantities (imbalances) to calculate the weighted price. The 6 am price applies to the entire scheduled quantity in the initial schedule.
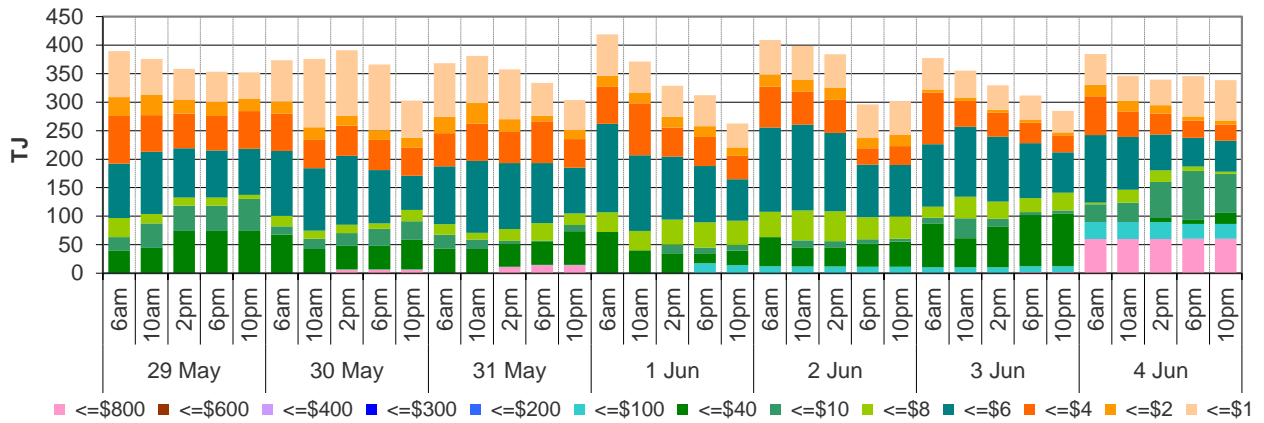
[5]   The price might also be affected by transmission or production (contractual) constraints limiting how much gas can be delivered from a locale or System Injection Point (SIP) from time to time.

[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.
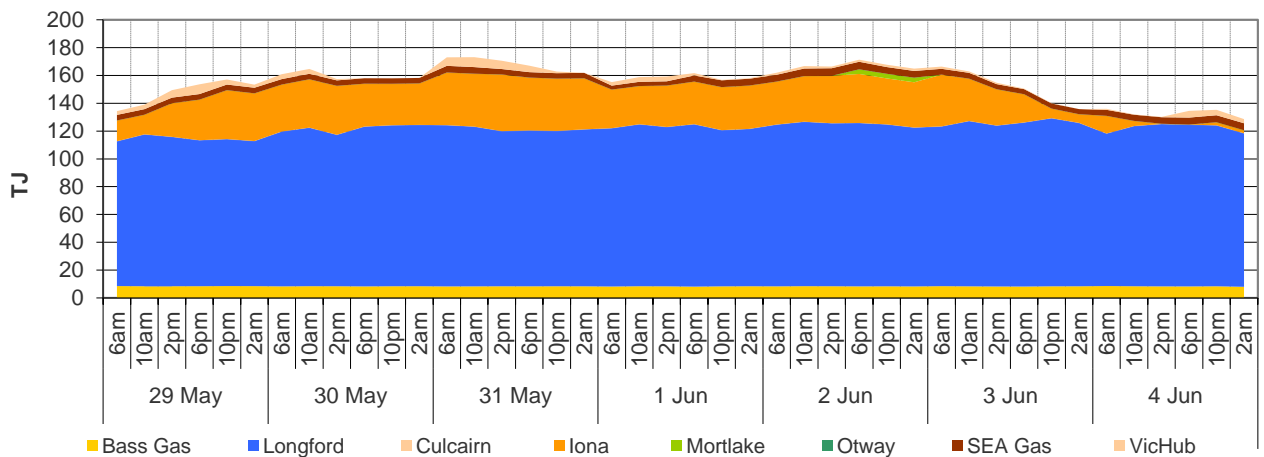
Figure 1.3:   Injection bids by price bands

Legend: $0, <=$1, <=$2, <=$4, <=$6, <=$8, <=$10, <=$40, <=$100, <=$200, <=$300, <=$400, <=$600, <=$800
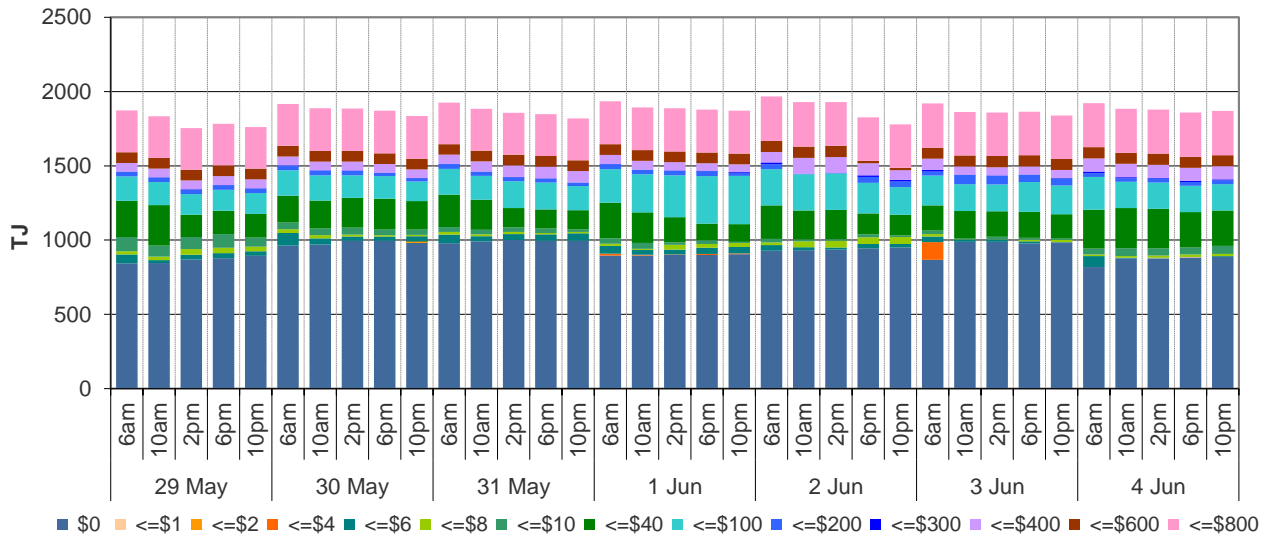
Figure 1.4:   Withdrawal bids by price bands

Legend: <=$800, <=$600, <=$400, <=$300, <=$200, <=$100, <=$40, <=$10, <=$8, <=$6, <=$4, <=$2, <=$1

Figure 1.5:   Metered Injections by System Injection Point

Legend: Bass Gas, Longford, Culcairn, Iona, Mortlake, Otway, SEA Gas, VicHub

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 ($/GJ)	6.40	7.45	6.45	7.00	9.80	8.45	7.45
Ex ante quantity (TJ)	255	276	276	272	277	271	234
Ex post price ($/GJ)	6.40	8.90	7.00	7.41	8.92	7.45	7.45
Ex post quantity (TJ)	257	287	290	281	274	259	235

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

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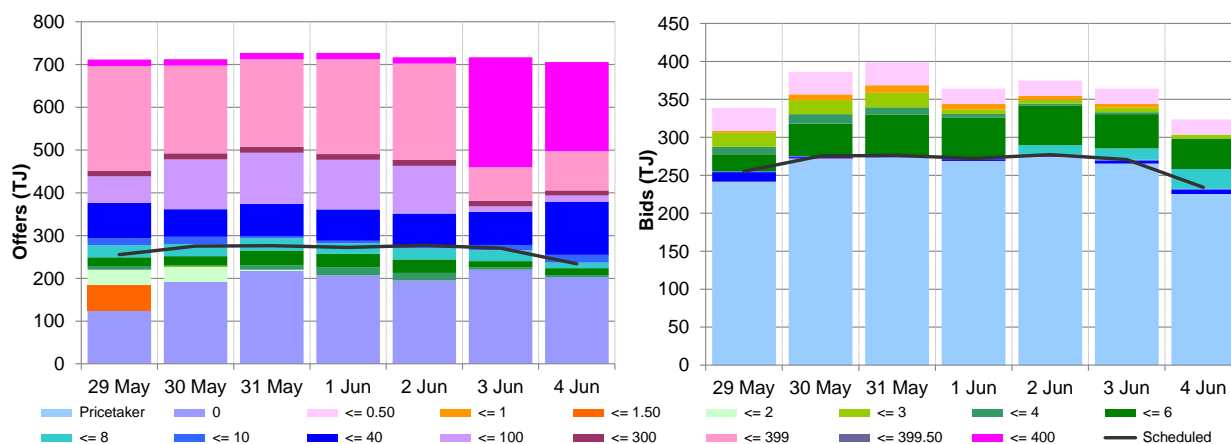
[7] The main driver of the amount of gas scheduled on a gas day is the 'price-taker' bid, which is forecast hub demand that cannot respond to price and which must be delivered, regardless of the price.

[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)
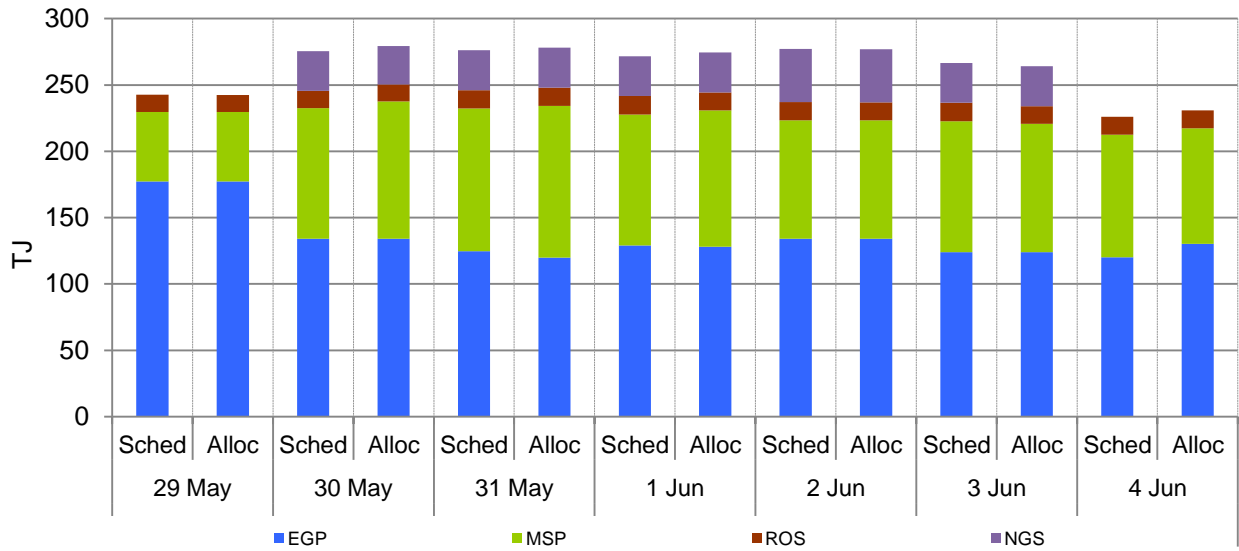
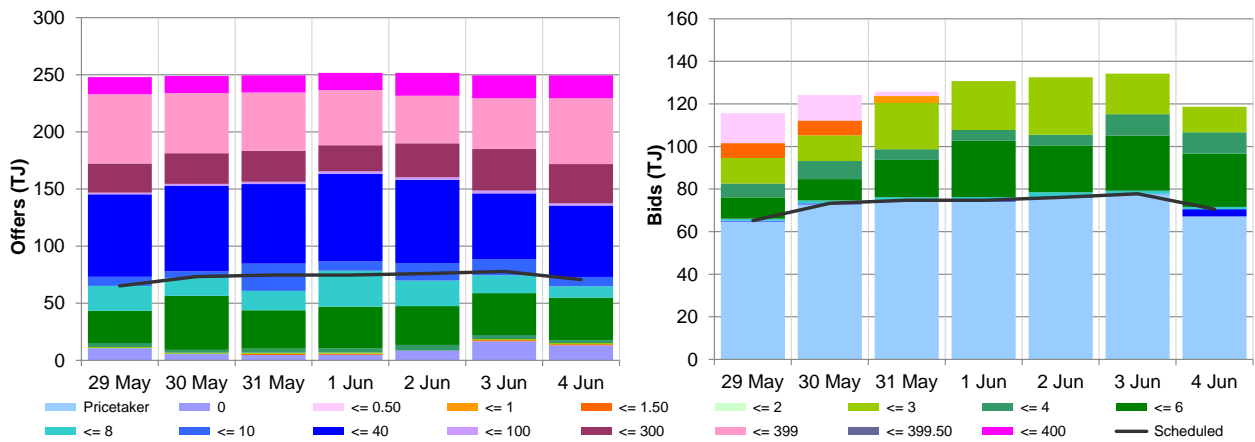## Figure 2.4:   SYD MOS allocations (TJ), service payments and commodity payments/charges ($000)
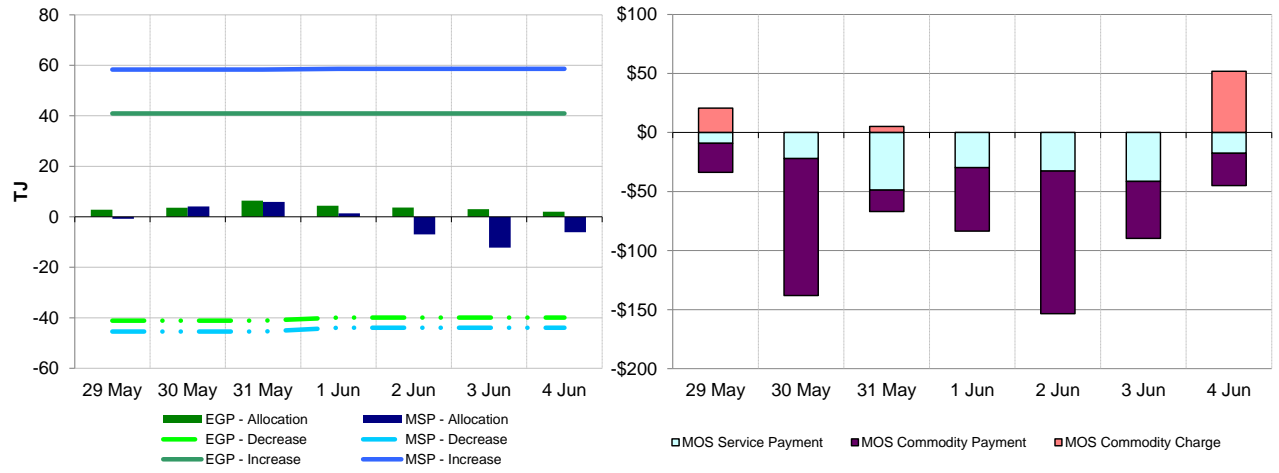
3. Adelaide STTM

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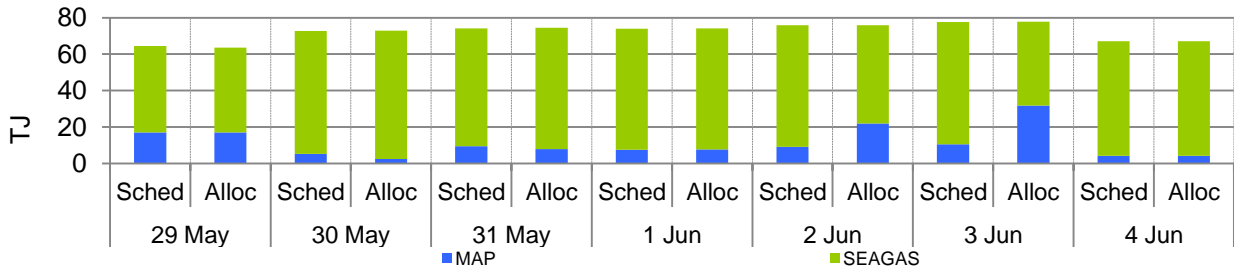
Figure 3.1: ADL STTM daily ex ante and ex post prices and quantities

|	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price ($/GJ)	7.95	8.01	8.01	7.97	8.13	8.21	9.88
Ex ante quantity (TJ)	65	73	75	75	76	78	71
Ex post price ($/GJ)	8.01	10.74	8.09	7.97	8.13	8.05	9.79
Ex post quantity (TJ)	67	83	76	73	77	75	70

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)
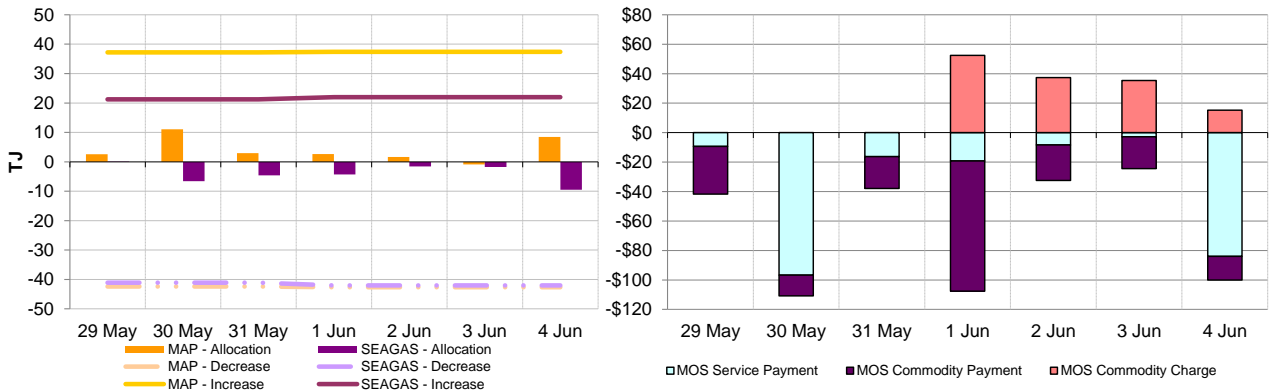
# 4. Brisbane STTM

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 ($/GJ)	6.39	6.39	6.96	7.09	6.90	7.22	8.00
Ex ante quantity (TJ)	74	90	94	92	95	98	77
Ex post price ($/GJ)	6.39	6.39	6.96	7.93	7.04	7.22	8.00
Ex post quantity (TJ)	74	91	94	96	99	96	78

Figure 4.2: BRI daily hub offers and daily hub bids in price bands ($/GJ)
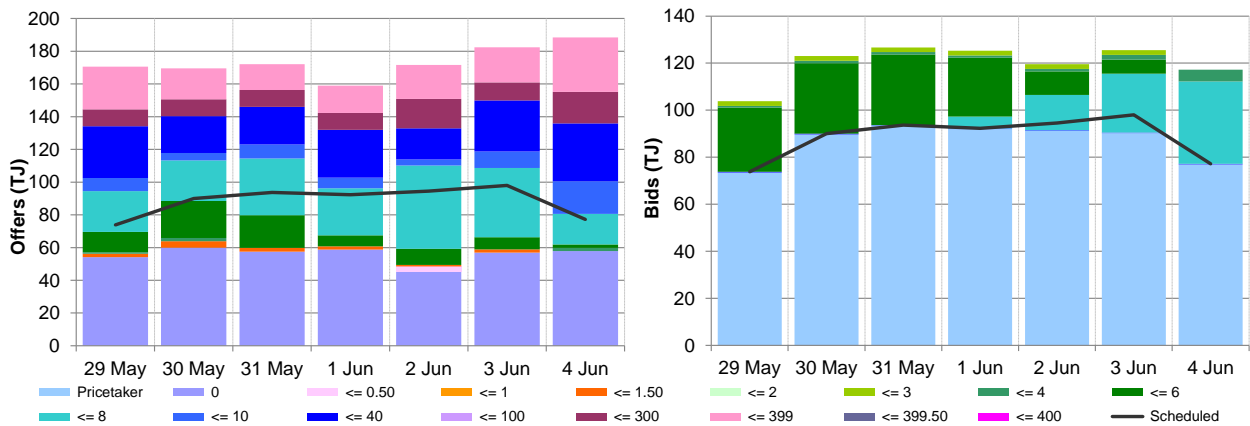
## Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)
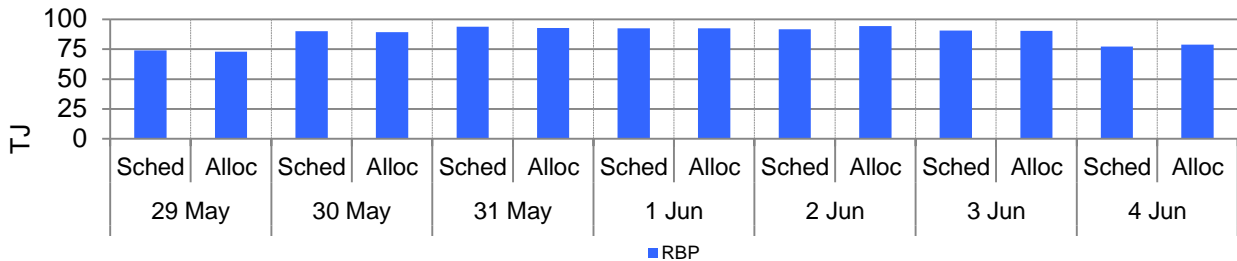
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges ($000)
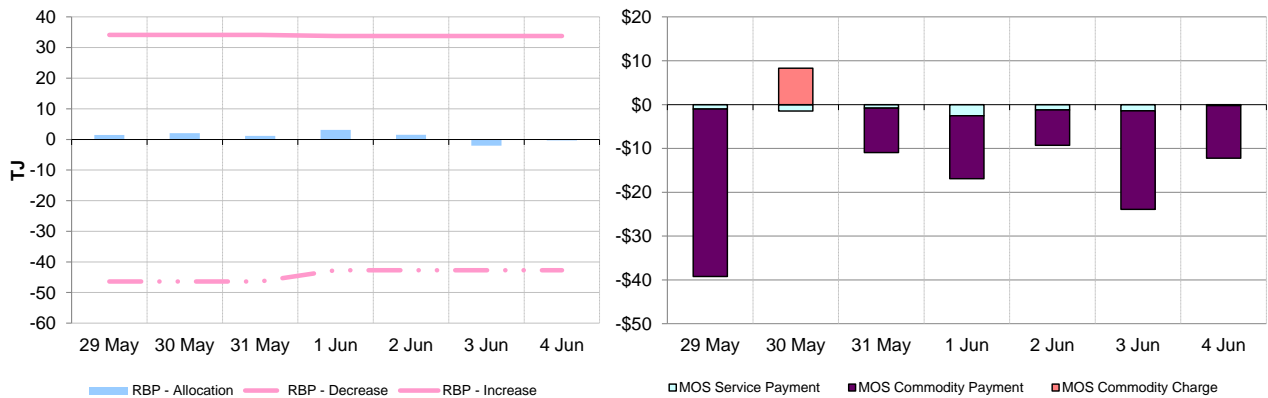
5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week[9] from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily scheduled volumes and prices[10] are provided for gas markets and gas powered generation for each region.

Figure 5.1: Gas market data ($/GJ, TJ/day); Production, Consumption and Pipeline flows (TJ)[11]

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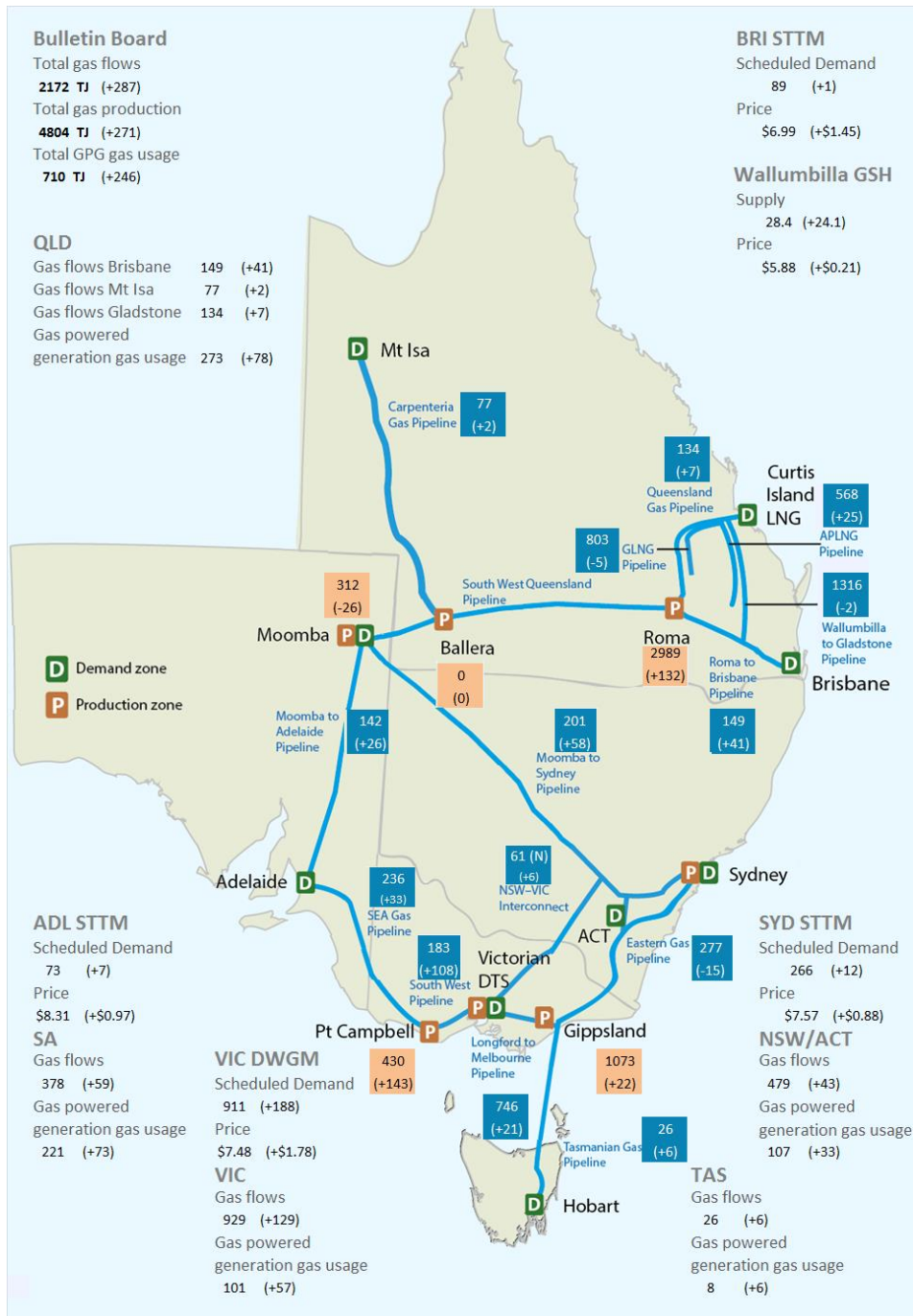
9 Gas flows shown under regional headings: **SA** = MAP + SEAGAS, **VIC** = SWP + LMP – negative(NSW-VIC), **NSW/ACT** = EGP + MSP, **TAS** = TGP, **QLD (Brisbane)** = RBP, **QLD (Mt Isa)** = CGP, **QLD (Gladstone)** = QGP.
GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.
Roma included export LNG production from October 2014 and LNG pipeline flows are shown from October 2015.

10 Wallumbilla supply is the average daily volume of gas 'traded', while price is a volume weighted average.

11 **From 1 June 2016, South West Queensland Pipeline flows (reported against the SWQ zone) were altered to no longer include deliveries to (or from) the Queensland Gas Pipeline, Roma to Brisbane Pipeline, Comet Ridge to Wallumbilla Pipeline and Berwyndale to Wallumbilla Pipeline. From this date onwards, flows for the Wallumbilla (WAL) zone will be reported separately on a number of pipelines in the region (outlined in figure 7 on page 4).**

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6. Gas Supply Hub

The Gas Supply Hub **(GSH)** was established for the trading of gas at Wallumbilla because it is located in close proximity to significant gas supply sources and demand locations and is a major transit point between Queensland and the gas markets on Australia's east coast. The GSH is a voluntary market[12] for the supply of gas traded between separate participants, with products listed for sale and purchase at delivery points on three major connecting pipelines at Wallumbilla – the Queensland Gas Pipeline **(QGP)**, the South West Queensland Pipeline **(SWQP)** and the Roma to Brisbane Pipeline **(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 and weekly).

Trading activity at Wallumbilla increased this week to 19 trades for 199 TJ of gas at a volume weighted price of $5.88/GJ. Trades consisted of balance-of-day, day-ahead and daily products on the RBP (71.2 TJ at $6.30/GJ) and the SWQP (127.8 TJ at $5.64/GJ), with one trade on the RBP reaching a near record price of $8/GJ.[13]

The Moomba hub commenced operation from 1 June 2016. There were no cleared trades in the hub during the week.

Figure 6.1 shows volumes traded[14] on each gas day and trading day for the current week.

Figure 6.1: Volume Traded (by Gas Day and by Trading Day)

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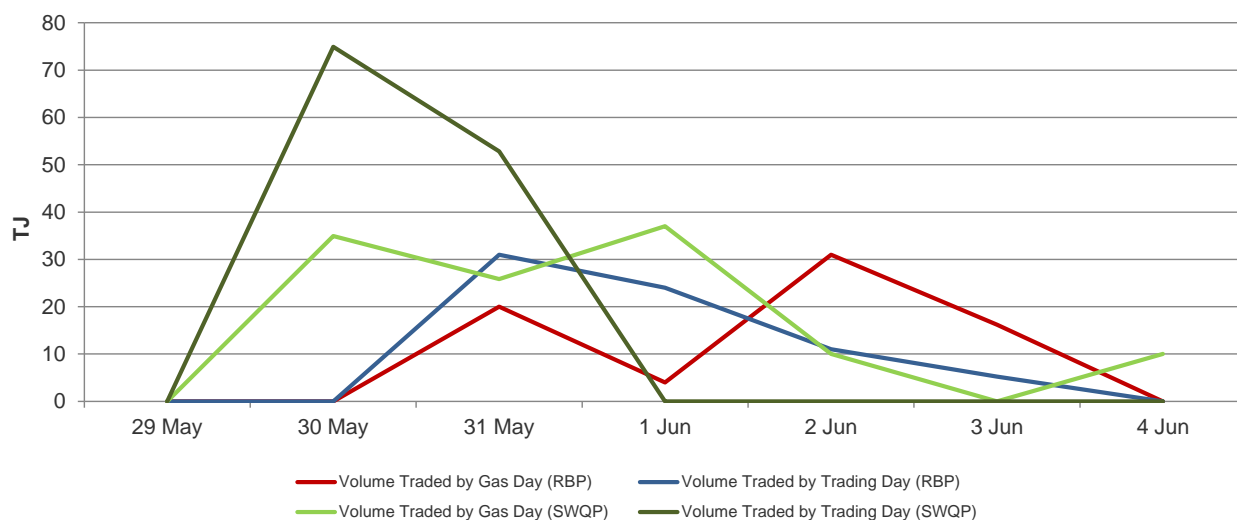
[12] Market trade is facilitated through an electronic trading platform, with standardised terms and conditions and a market settlement facility for the short-term trading of physical gas and related products. The market is designed to complement existing bilateral gas supply arrangements and gas transportation 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.

[13] Prices have not exceeded $8/GJ since July 2015. The record high price for gas traded at Wallumbilla was $8.50/GJ on 12 January 2015.

[14] Volumes shown for weekly products include the 'daily' volume for each relevant 'gas day', and the 'weekly' volume for each relevant 'trading day'.