Gas Market Report

AUSTRALIAN ENERGY REGULATOR

17 – 23 July 2016

Weekly Summary

Average prices, and demand in southern markets, decreased this week compared to the previous week. Figure 2 shows the daily prices reduced to between $6/GJ – $10/GJ across most of the week, with the exception of Adelaide where ex ante prices remained above $14/GJ until mid-week.[1]

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
17 Jul - 23 Jul 2016	9.42	806	7.91	267	12.18	84	7.52	96	7.29	79	-	-
% change from previous week	-47	-17	-34	-13	-33	-12	-33	1	-24	-69	-	-
16-17 financial YTD	13.54	903	10.88	292	16.56	90	11.61	96	9.23	2717	-	-
% change from previous financial YTD	165	-11	98	-3	195	-2	133	-2	86	351	-	-

1 Figure 3.1 on page 9 shows that Adelaide prices reduced in the ex post schedule on most days this week.

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)

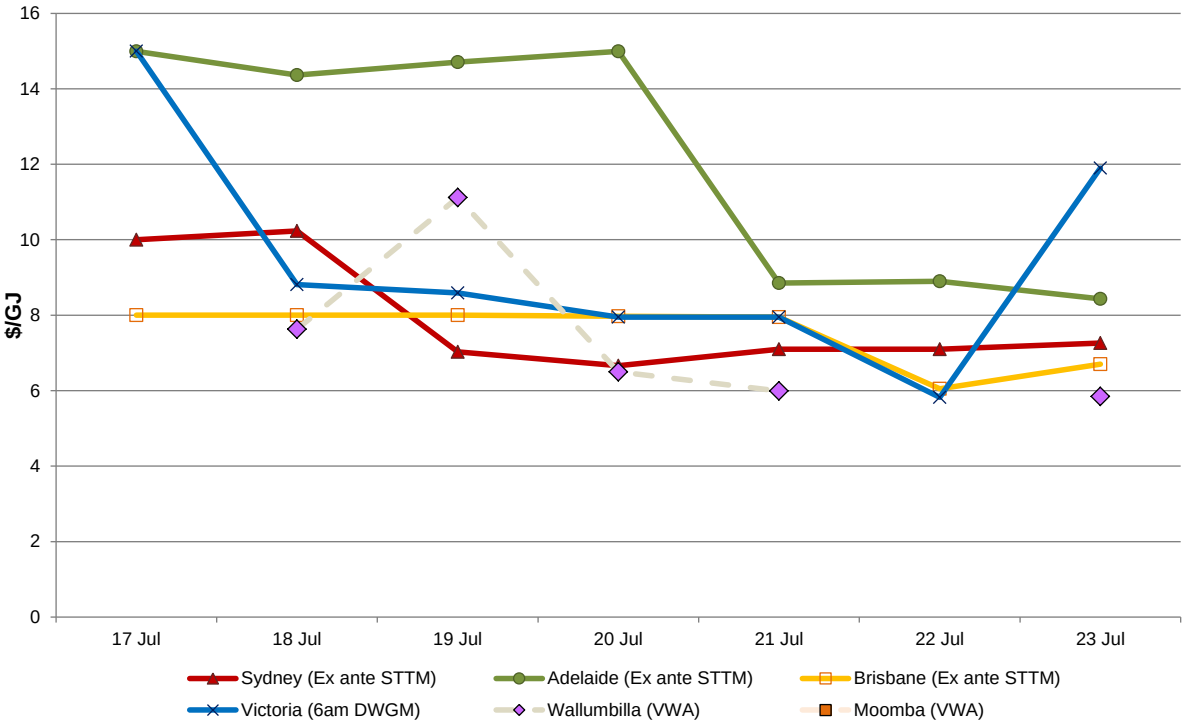


Figure 3 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

Figure 3: Average ancillary payments ($000)

	Victoria Ancillary Payments*	**Sydney** MOS	**Adelaide** MOS	**Brisbane** MOS
17 Jul - 23 Jul 2016	-	67.35	15.49	1.44
% change from previous week	-	-35	84	-6
16-17 financial YTD		81.69	15.74	1.32
% change from previous financial YTD		124	-16	-10

* 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.

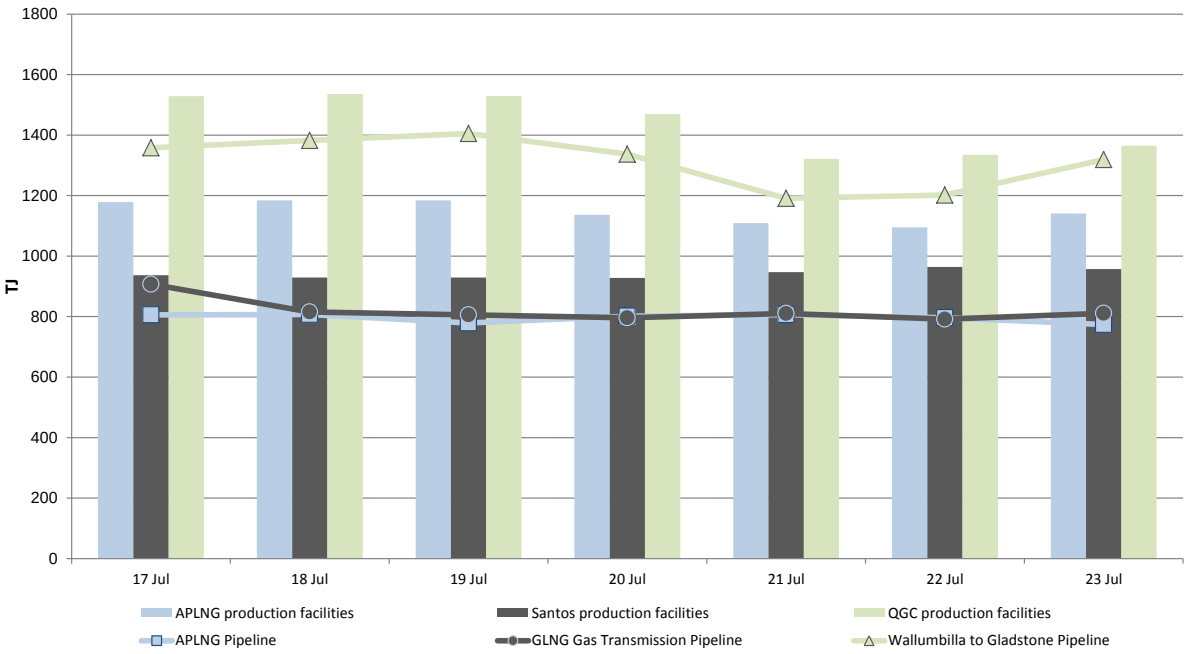
Figure 4: Gas supply hub products traded for the current week ($/GJ, TJ)*

	RBP		SWQP		MAP		MSP		QGP	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	6.17	21.6	-	-	-	-	-	-	-	-
Daily	-	-	12.00	5.0	-	-	-	-	-	-
Day ahead	6.44	37.0	9.43	15.0	-	-	-	-	-	-
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

Victoria

Following the higher prices during the previous week, imbalance prices in Victoria reduced to below $9/GJ but increased to just under $12/GJ again on Saturday as forecast demand climbed above 1 TJ.

Coinciding with this, flows on the South West Pipeline changed direction from Mon 18 July, delivering gas away from Melbourne towards Iona as participants withdrew gas from the

Victorian market to top-up its storage levels during the period of relatively lower prices this week.

Adelaide

Prices in Adelaide also decreased this week, falling below $10/GJ from 21 July, coinciding with a reduction in gas generation (Pelican Point power station, which was returned to service on 14 July, reduced its availability from the morning of 21 July).

Prices above $10/GJ early in the week were influenced by over forecast demand in the hub. Figures 3.1 and 3.4 illustrate the two effects of the lower actual demand as a combination of reduced ex post quantities (reduce supply nominations) or decrease MOS.[3]

Sydney

In Sydney, MOS service costs exceeded $50 000 on four occasions this week, reaching $146 258 on Tuesday 19 July. These costs were the result of over forecasting demand within the hub across the week combined with counteracting MOS allocations on the EGP and MSP.[4]

Queensland

While demand remained relatively stable in Brisbane, prices also decreased in the STTM by roughly half compared to the previous fortnight.[5] This followed a decrease in the price of trades at Wallumbilla during the previous week, while trade levels in the gas supply hub also reduced significantly.

Demand Forecasting

In Sydney and Adelaide this week over forecasting of demand had an impact on prices being (higher) than they otherwise would have been and led to significant MOS service payments, particularly in Sydney. The AER is reviewing participant demand forecasting across markets, and the apparent trend towards over forecasting as identified earlier in the year[6] as part of preparing its Significant Price Variation reports for high priced June and July gas days.

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3 Supply to the hub was reduced across most days this week, either through renominations during the day or through the provision of decrease MOS services. These instances arose due to a combination of reductions in back haul (17 and 19 July) and over forecast hub demand (all days except 17 July).

4 Similar to the previous week, increase MOS on the EGP and decrease MOS on the MSP was allocated on most days resulting in higher service costs.

5 The average daily price this week was around $7.50/GJ, compared to $13.17/GJ during the fortnight prior.

6 http://www.aer.gov.au/system/files/Significant%20price%20variation%20report%20-%2013%20and%2023%20January%202016%20%28Sydney%20STTM%29.pdf

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

The main drivers[8] 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[9], 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)

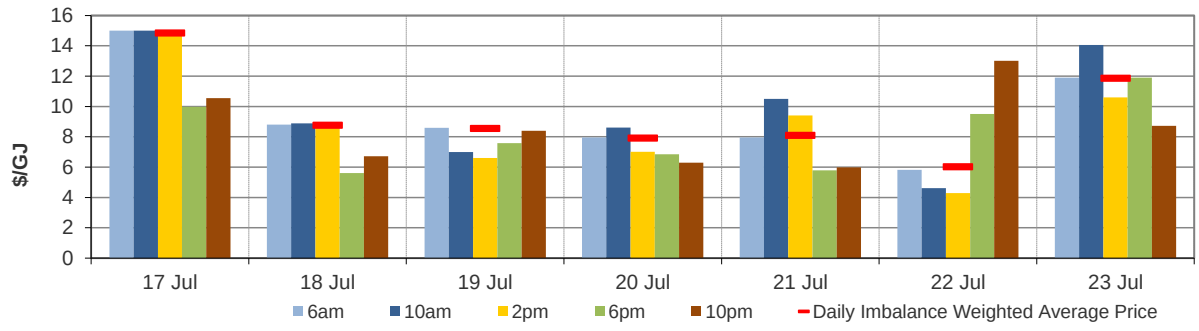
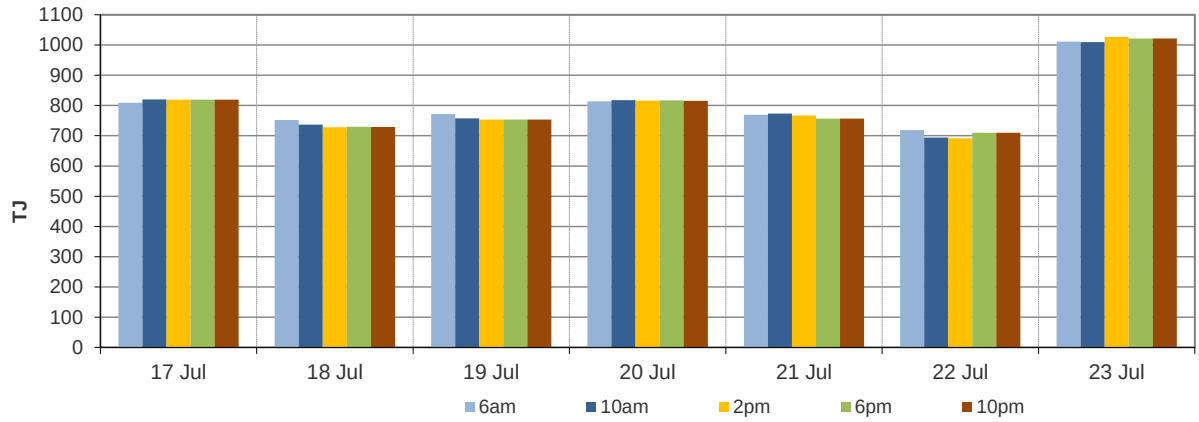


Figure 1.2: Demand forecasts (TJ)



7 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.

8 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.

9 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)

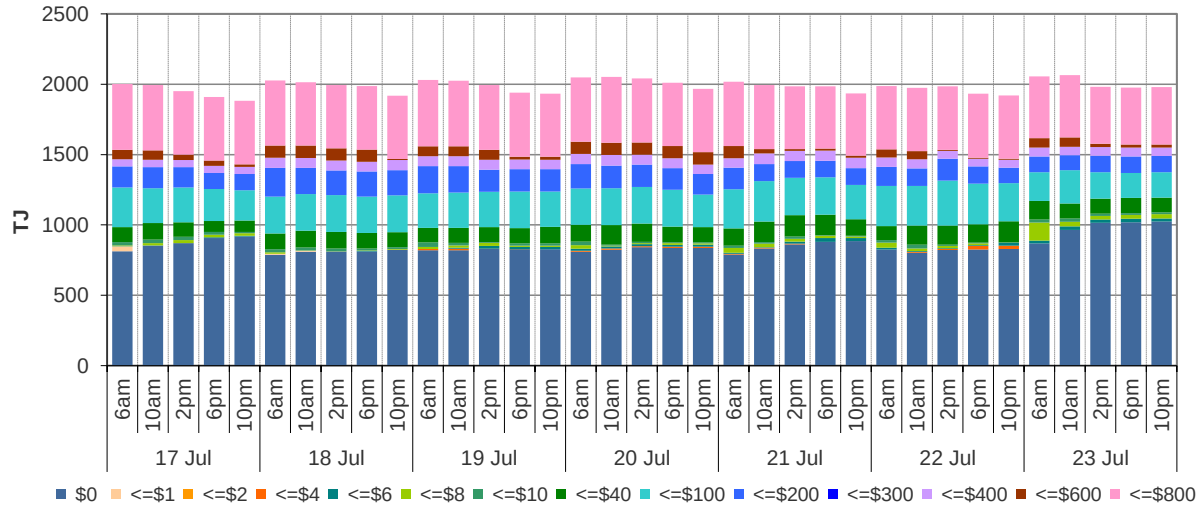


Figure 1.4: Withdrawal bids by price bands (TJ)

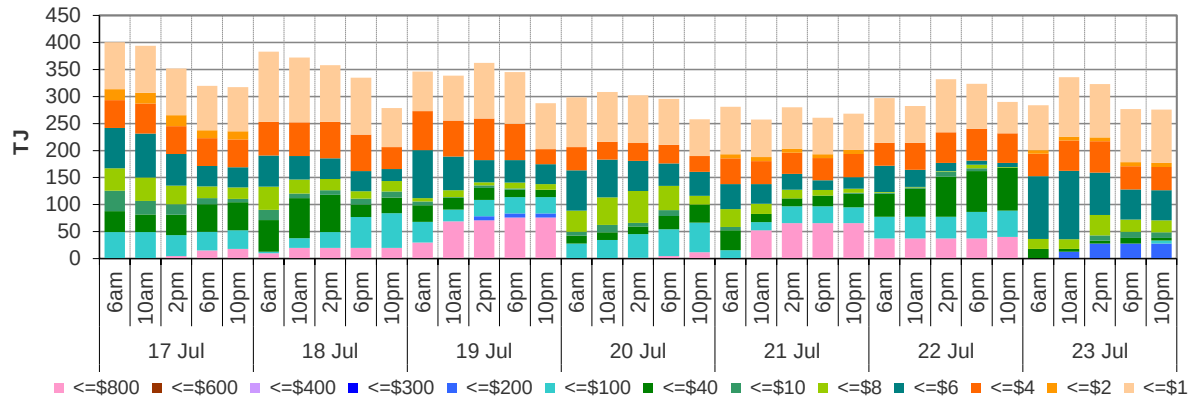
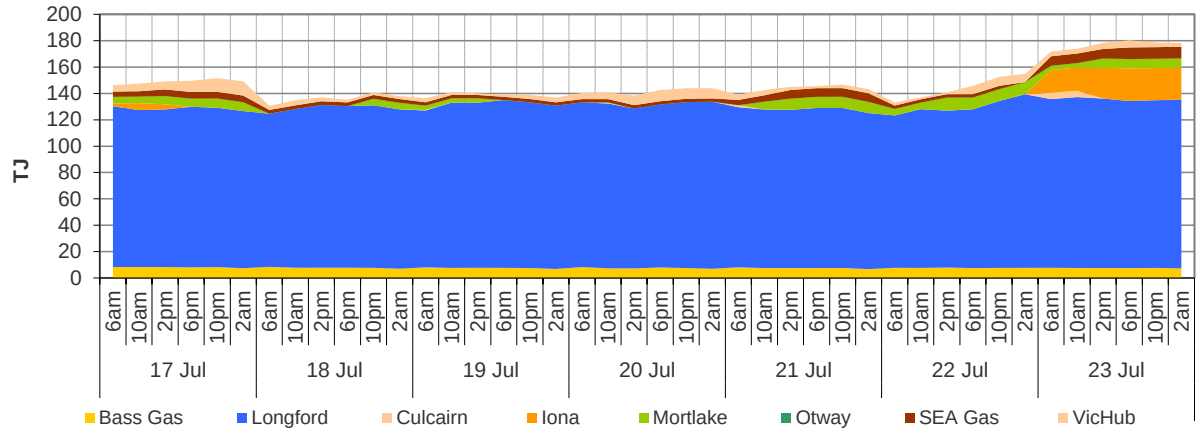


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.[10] 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.

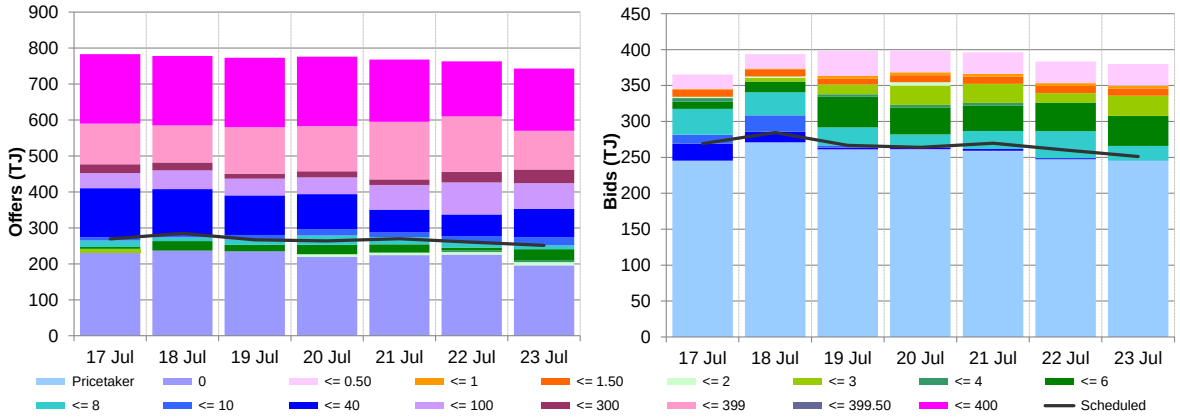
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.[11]

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 ($/GJ)	10.00	10.23	7.03	6.66	7.10	7.10	7.26
Ex ante quantity (TJ)	269	285	267	264	270	260	251
Ex post price ($/GJ)	9.52	9.62	6.50	6.60	7.05	6.58	6.51
Ex post quantity (TJ)	264	271	243	257	267	242	242

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



[10] 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.

[11] 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)

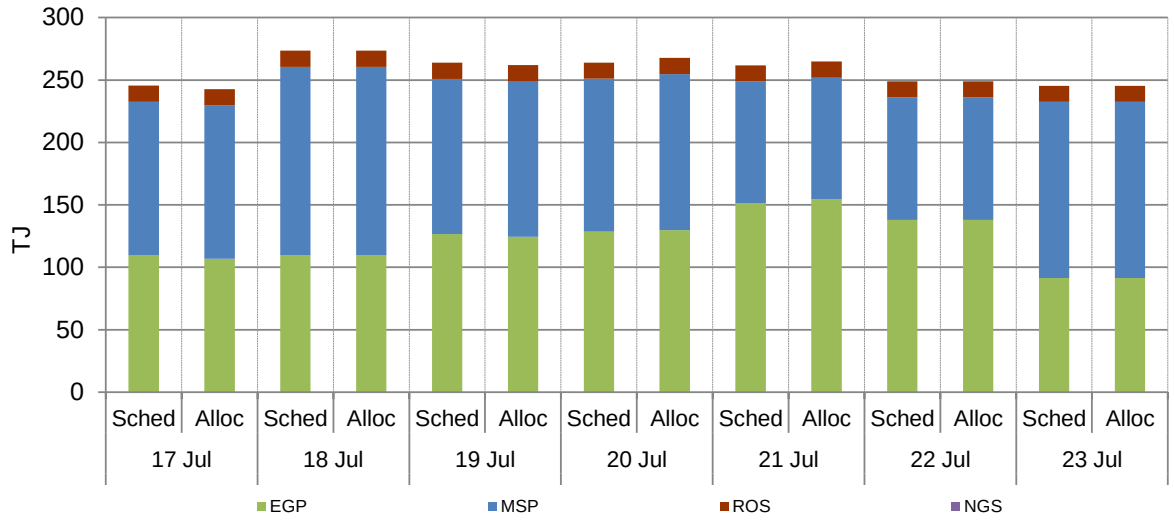
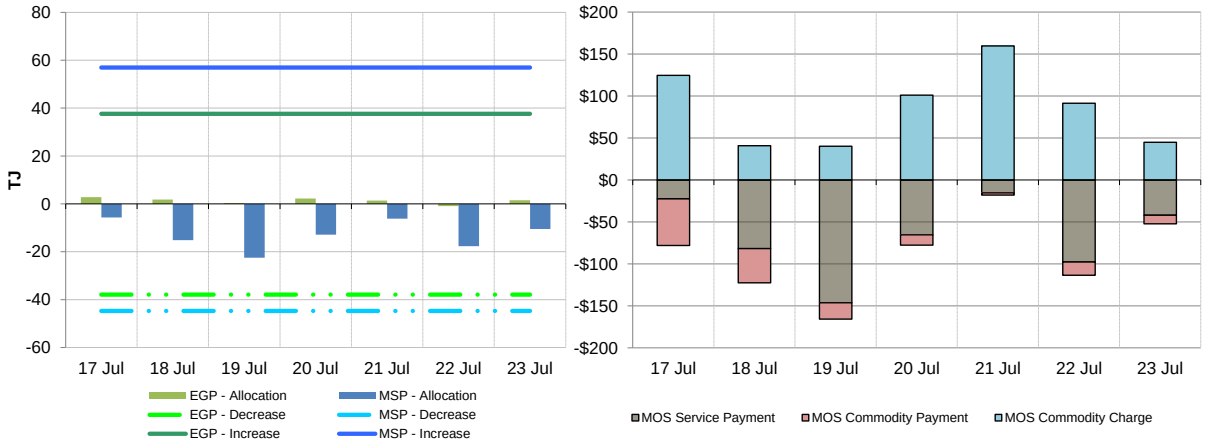


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges ($000)[12]



[12] 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 ($/GJ)	14.99	14.36	14.71	14.99	8.85	8.90	8.43
Ex ante quantity (TJ)	80	94	93	84	75	82	79
Ex post price ($/GJ)	11.60	11.00	9.79	14.69	8.50	8.03	7.64
Ex post quantity (TJ)	75	88	81	80	65	77	72

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

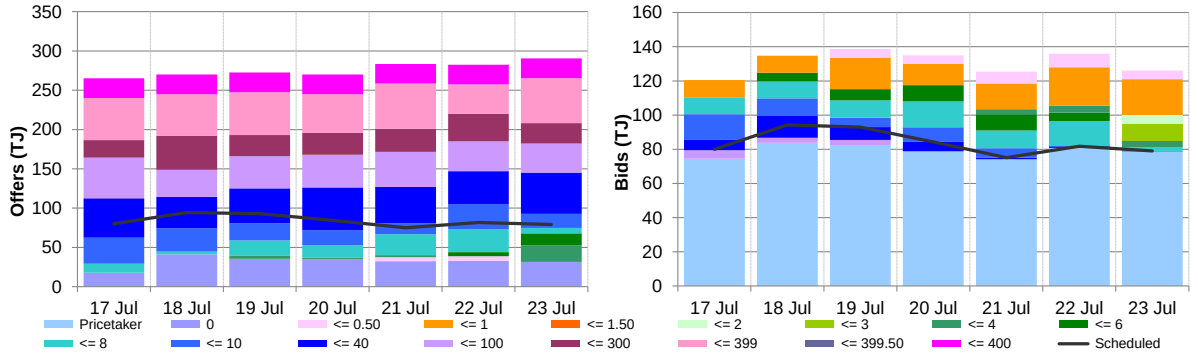


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

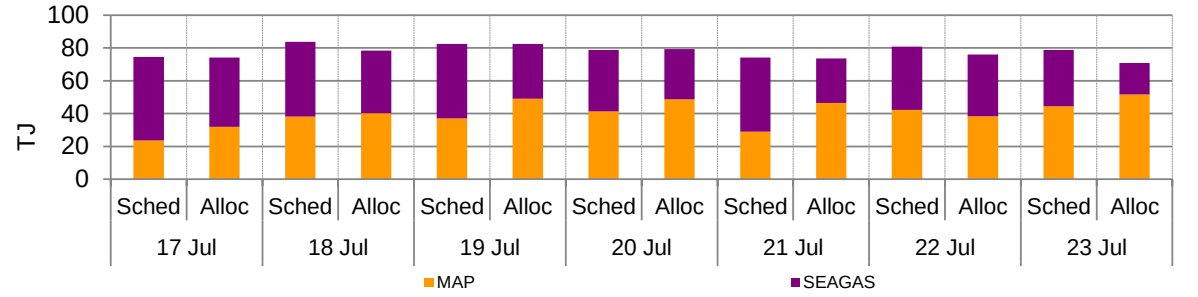
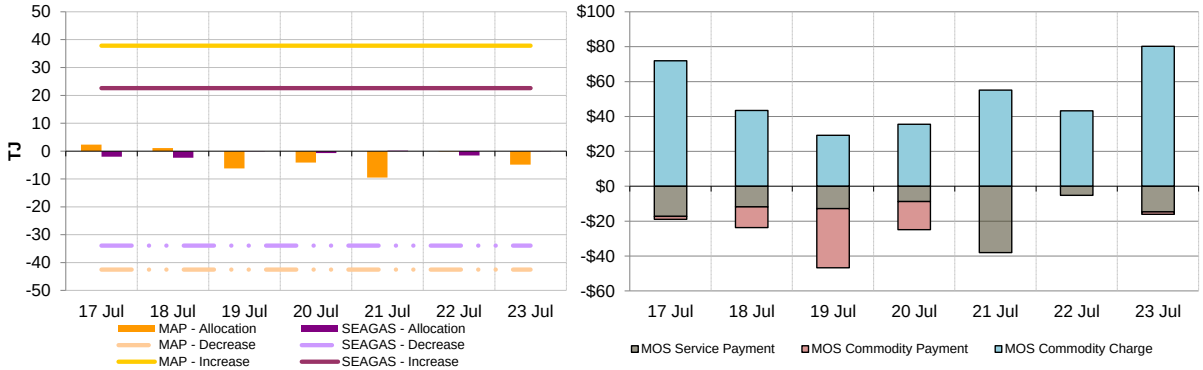


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges ($000)



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 ($/GJ)	8.00	8.00	8.00	7.97	7.95	6.05	6.70
Ex ante quantity (TJ)	83	99	103	102	102	98	88
Ex post price ($/GJ)	8.00	8.00	8.00	7.97	6.15	6.05	5.10
Ex post quantity (TJ)	84	102	104	100	99	92	79

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

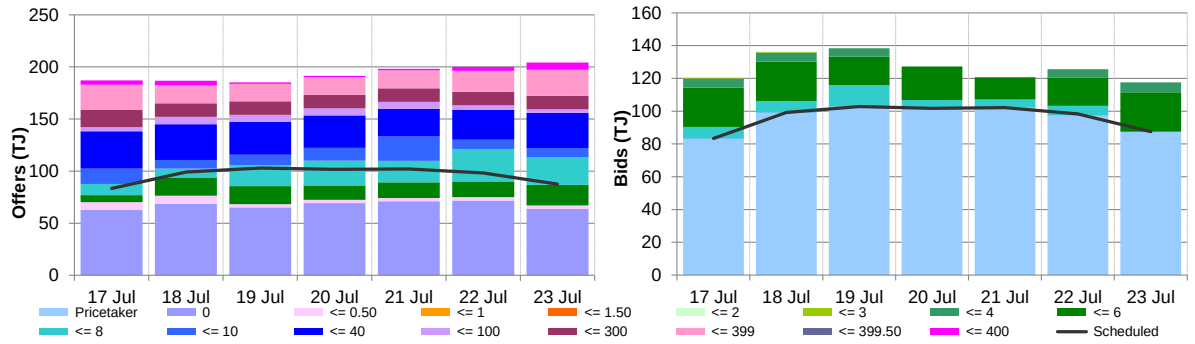


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

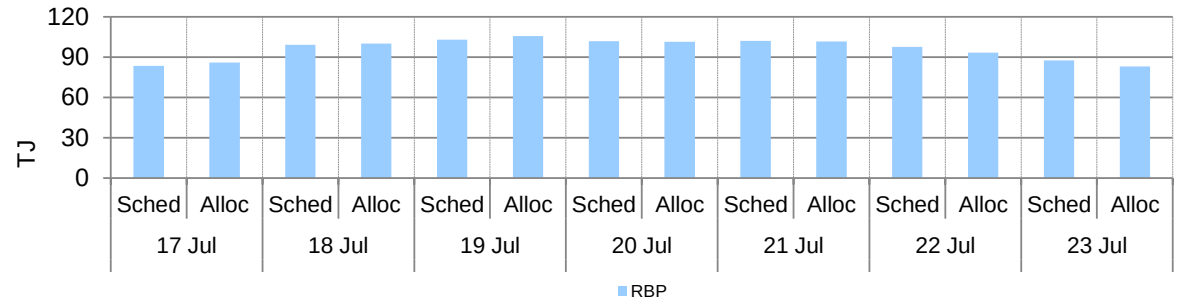
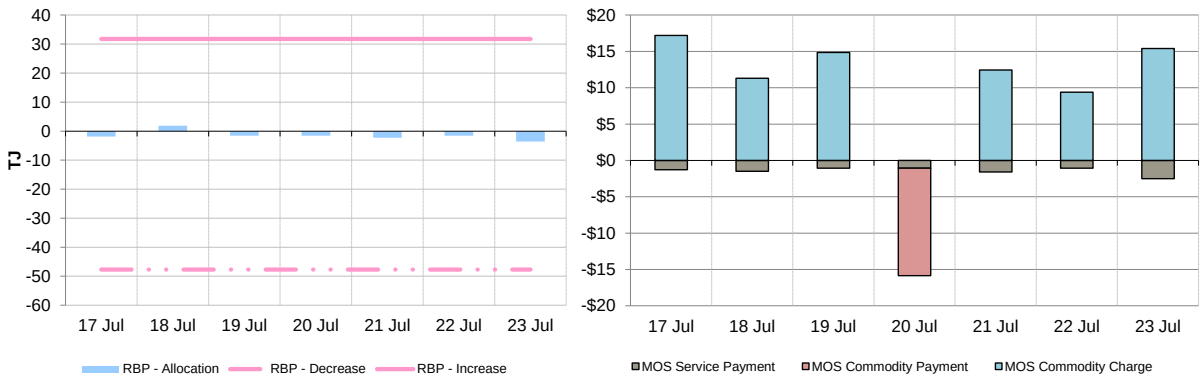


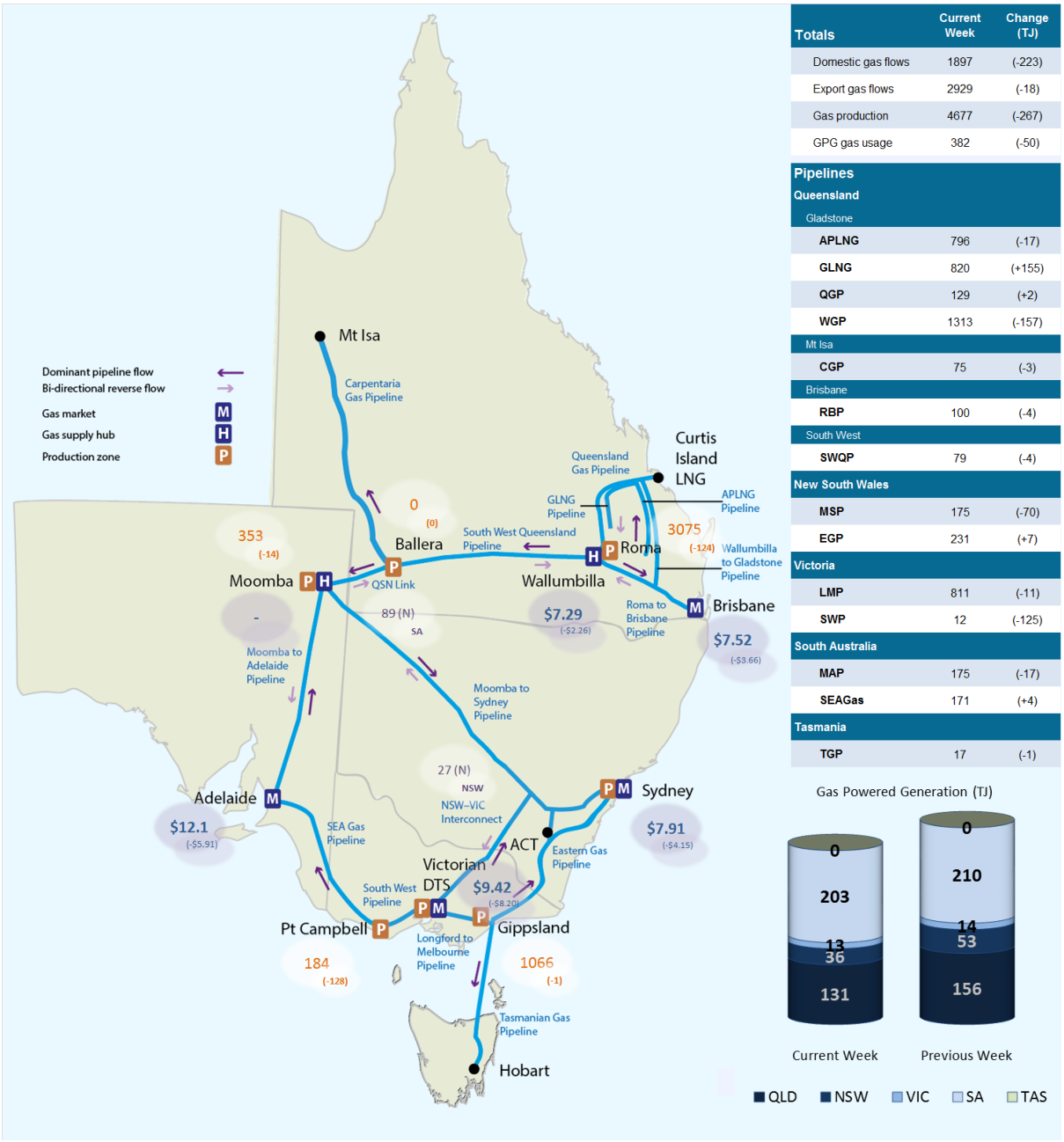
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges ($000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week[13] from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices[14] 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)



Totals	Current Week	Change (TJ)
Domestic gas flows	1897	(-223)
Export gas flows	2929	(-18)
Gas production	4677	(-267)
GPG gas usage	382	(-50)
Pipelines		
Queensland		
Gladstone		
APLNG	796	(-17)
GLNG	820	(+155)
QGP	129	(+2)
WGP	1313	(-157)
Mt Isa		
CGP	75	(-3)
Brisbane		
RBP	100	(-4)
South West		
SWQP	79	(-4)
New South Wales		
MSP	175	(-70)
EGP	231	(+7)
Victoria		
LMP	811	(-11)
SWP	12	(-125)
South Australia		
MAP	175	(-17)
SEAGas	171	(+4)
Tasmania		
TGP	17	(-1)

13 **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.
GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.

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

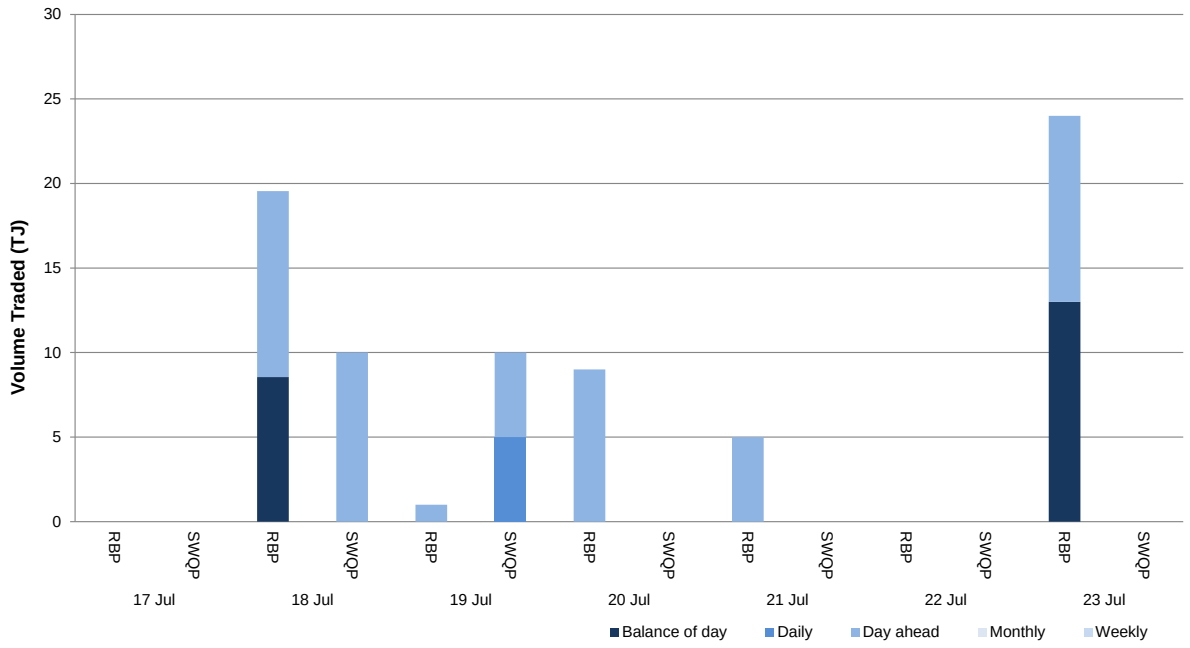
6. Gas Supply Hub

The Gas Supply Hub **(GSH)** was established in March 2014 for the trading of gas at Wallumbilla. The GSH is a voluntary market[15] for the supply of gas traded[16] 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 17 trades for just under 79 TJ of gas this week at a volume weighted price of $7.29/GJ. The majority of these trades occurred at lower prices on the RBP (58.6 TJ valued around $6.34/GJ) with 3 higher priced trades on the SWQP (20 TJ valued around $10.08/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.

Figure 6.1: GSH traded quantities



Australian Energy Regulator
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15 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.

16 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.