

2 – 8 August 2020

Weekly Summary

There were significant demand increases in southern markets this week in association with a cold weather event. Demand in Victoria jumped 13 percent on the previous week and Adelaide 9 percent. Demand in the Sydney market increased by only 1 percent but included a record demand day on 6 August.

Very high demand in Victoria on 4 August and 7 August exceeded forecasts, resulting in declaration of threats to system security by AEMO on these days and scheduling of emergency gas from the Dandenong LNG storage facility (see **Figure 7** and **Figure 5.1**).

Prices increased 9 percent in Victoria, 10 percent in Sydney and 5 percent in Adelaide from the previous week. From \$4.24/GJ on 3 August, the Victorian daily price increased to \$6.07/GJ on 5 August but then edged down across the remainder of the week (see detailed analysis).

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 publishes 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
02 Aug - 08 Aug 2020	5.00	1024	4.47	336	6.40	90	3.42	116
% change from previous week	9	13	10	1	5	9	1	0
20-21 financial YTD	4.76	969	4.28	326	6.23	82	3.43	114
% change from previous financial YTD	-44	3	-49	11	-31	5	-55	31

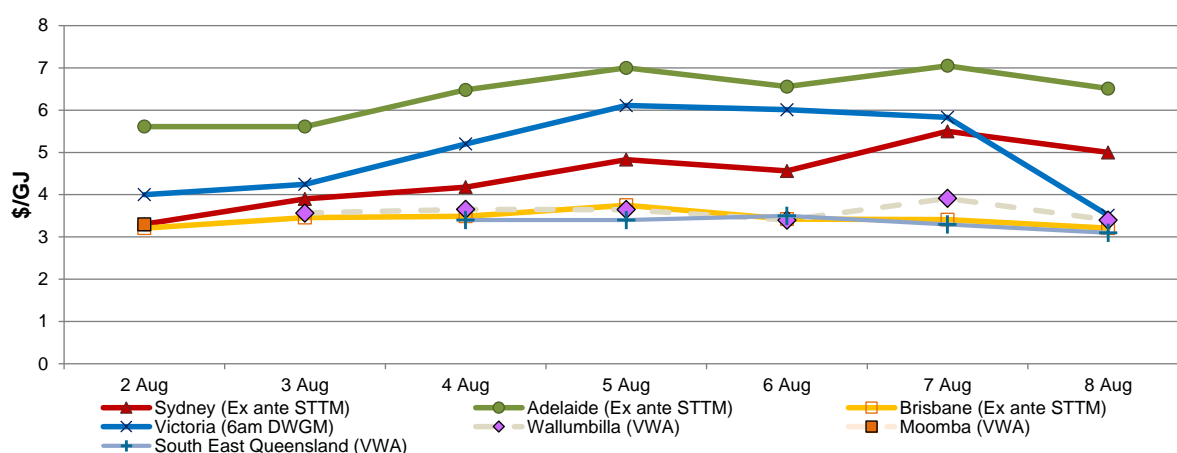
Figure 2 sets out price and demand information for the voluntary Wallumbilla and Moomba Gas Supply Hubs (GSH).

Figure 2: Average prices and total quantity – Gas supply hub (\$/GJ, TJ)²

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
02 Aug - 08 Aug 2020	3.30	16	3.31	73	3.77	343
% change from previous week	7	-61	-6	115	18	63
20-21 financial YTD	3.42	169	3.37	1149	3.47	2638
% change from previous financial YTD	-55	191	-51	46	-54	51

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

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



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

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).

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

Figure 4: Average daily ancillary payments (\$'000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
02 Aug - 08 Aug 2020	32.53	25.31	4.59	2.31
% change from previous week	-	18	-33	343
20-21 financial YTD		21.54	17.00	0.98
% change from previous financial YTD		-46	205	19

* 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 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 total traded for the current week (\$/GJ, TJ)

	Moomba		South East Queensland		Wallumbilla*	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	-	-	3.26	21.0	3.48	17.2
Daily	-	-	-	-	3.59	115.0
Day ahead	3.30	16.0	3.38	17.0	3.56	85.0
Weekly	-	-	3.30	35.0	4.11	126.0
Monthly	-	-	-	-	-	-
Total	3.30	16.0	3.31	73.0	3.77	343.2

* 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	1524	846	1533	3903
Export Pipeline Flows	1318	459	1275	3051
% change from previous week (pipeline flows)	-11	-6	1	-5
20-21 financial YTD Flows	1381	602	1262	3245

* 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

Threats to System Security in Victoria

After much milder weather over the preceding days, a cold front swept through South East Australia on 4 August, bringing the coldest conditions for the 2020 year-to-date, including a 10 degree day in Melbourne—the lowest daily maximum temperature in the city for the year. The cold weather persisted through the working week, creating very high Victorian gas demand for household heating, including above-forecast demand.

Above-forecast demand in Victoria on 4 August resulted in low gas pressure at the Dandenong city gate (in Melbourne's outer east), causing AEMO to declare a Threat to System Security and schedule 35 TJ of emergency gas injections from the Dandenong LNG storage facility. Similar conditions prevailed on 7 August, leading AEMO to schedule 71 TJ of emergency gas from the Dandenong facility. Under the market rules, threat declarations enable AEMO to schedule out-of-merit-order gas (as opposed to scheduling gas on a least cost basis).

Emergency gas was scheduled despite high daily injections from the Longford Gas Plant (Victoria's major gas supplier). Longford injections pushed toward the facility's nameplate rating of 1115 TJ, averaging 973 TJ across the days 4 – 7 August. These were Longford's highest injection levels since August 2019.

Victorian events reveal COVID-19 impacts

The accuracy of gas demand forecasting has been challenged during the COVID-19 pandemic. Community lockdowns and work-from-home arrangements have altered residential demand profiles, with prolonged morning demand peaks on most days. Cold weather events are likely to encourage persistent higher demand throughout the gas day, with households responding to small weather changes in the form of increased or decreased gas heating demand. Demand forecasting methods are therefore adjusting to demand profiles that have deviated from historical trends.

Victorian wholesale prices and ancillary service costs were contained

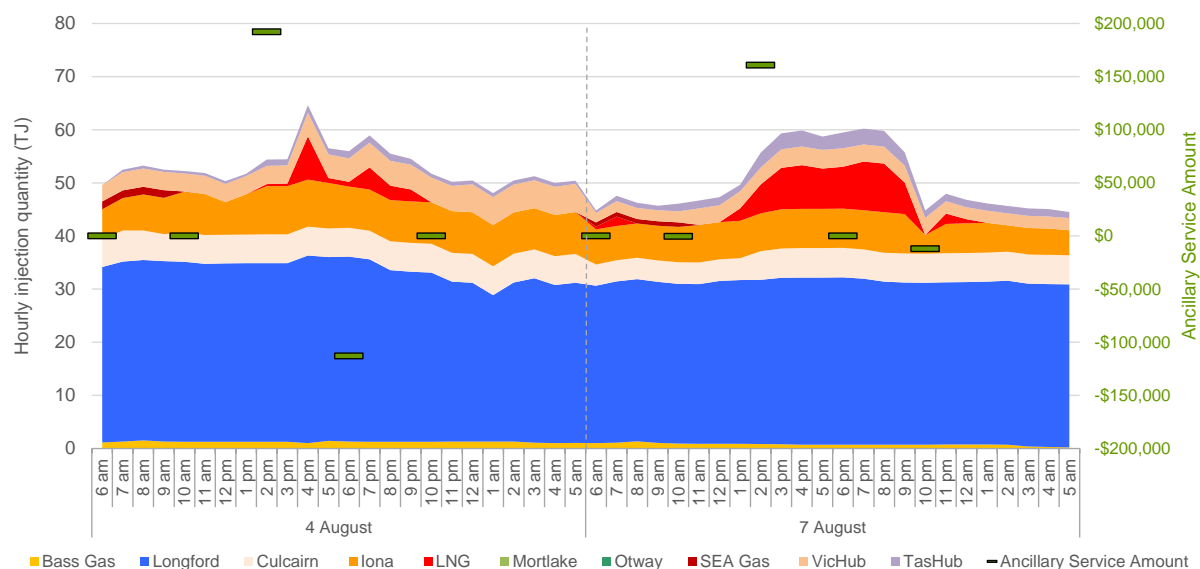
Impacts on the Victorian spot price were not significant. From a low of \$4.24/GJ on Monday 3 August, the price climbed to a high of \$6.07/GJ on Wednesday 5 August and then edged downwards, delivering an average daily price of \$5.00/GJ for the week.

Ancillary service payments accrued to \$79,331 over the 4 August gas day and \$148,355 over the 7 August gas day.³

Figure 7 shows the hourly injection profile across the 4 and 7 August gas days, and the resulting ancillary costs associated with out of merit order injection requirements.

³ To ensure system security, out of merit order injections may be required, resulting in ancillary payments. Any deviation in costs arising from more expensive gas injections in the operating schedule are generally recouped through uplift payments. Uplift payments relate to a number of different areas including, but not limited to, deviations and demand forecast variations, and congestion limits.

Figure 7: Victorian Hourly Injection Profile and Ancillary Service Amounts



Total injection requirements from Dandenong LNG were slightly lower than scheduled on 4 August, reaching 26 TJ, and close to the scheduled requirement at 70 TJ on 7 August. Out of merit order injections for the 2 pm schedule on 4 August resulted in \$192,178 of ancillary service costs, which were largely offset by uplift payments in the following schedule. On 7 August, service costs for the 2 pm schedule reached \$160,726 and were reduced by a significantly lower amount than 4 August, largely in the end of day schedule.

Record demand in the Sydney market

Record demand of 382 TJ was recorded in the Sydney market on 6 August, passing the previous record of 377 TJ from 9 June 2011. This appears to be a by-product of Victoria’s cold weather, with market participants looking to move gas from the lower priced Sydney market (\$4.56/GJ on 6 August) to the higher priced Victorian market (\$5.97/GJ on 6 August). This involves backhauling gas off the Eastern Gas Pipeline at Sydney and supplying gas into Victoria at the VicHub injection point.

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 price⁴ which is the schedule at which most gas is traded.

The main drivers⁵ 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 forecasts⁶, 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)

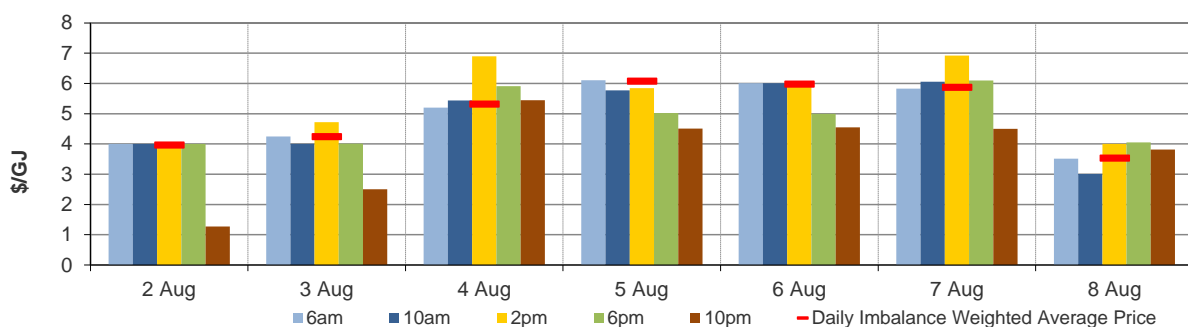
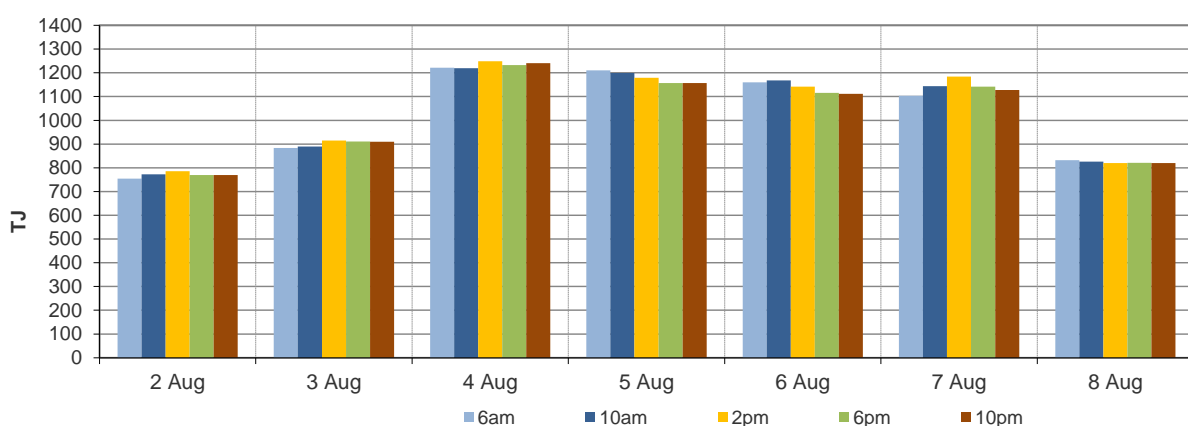


Figure 1.2: Demand forecasts (TJ)



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)

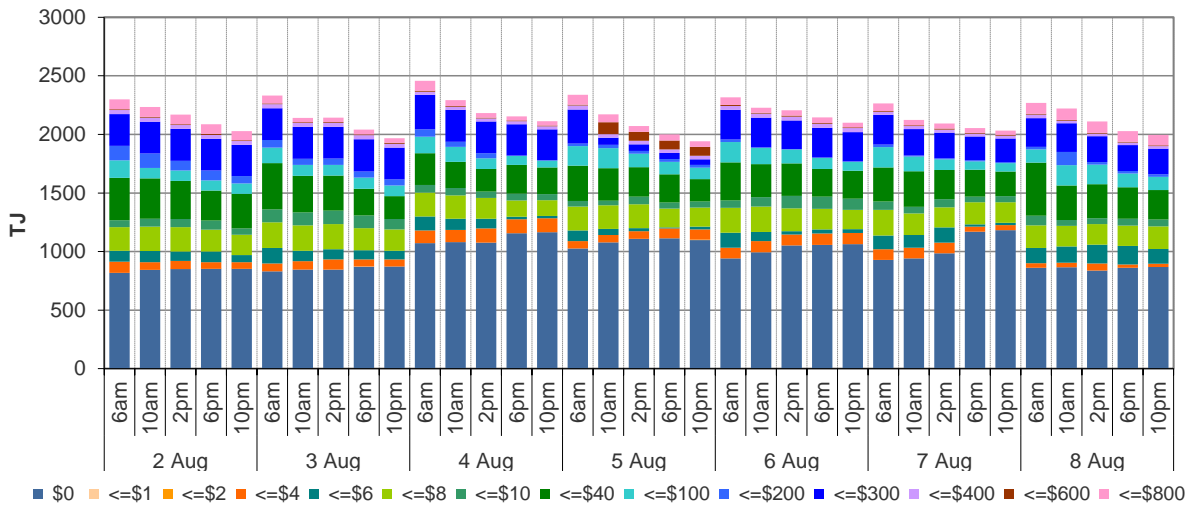


Figure 1.4: Withdrawal bids by price bands (TJ)

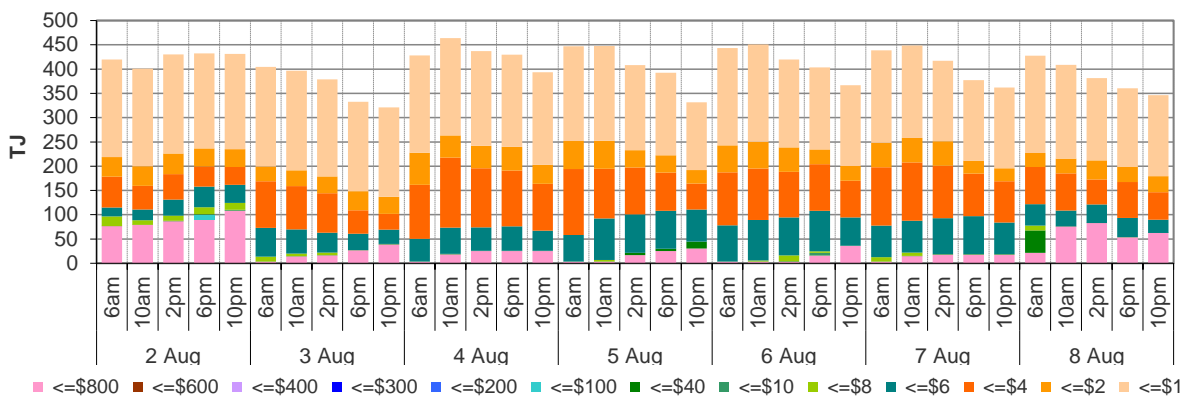
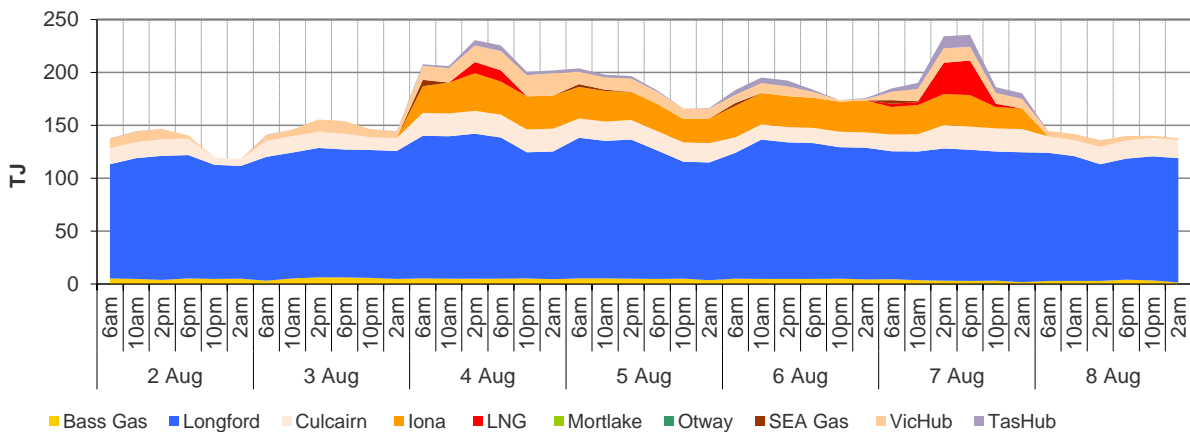


Figure 1.5: Metered Injections by System Injection Point (TJ)



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](#).

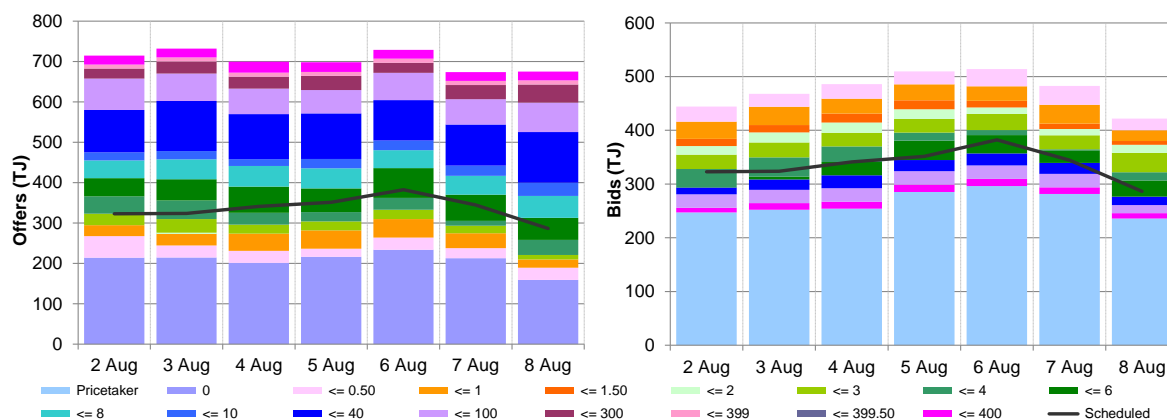
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing 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)	3.30	3.90	4.18	4.83	4.56	5.50	5.00
Ex ante quantity (TJ)	323	324	341	351	382	344	287
Ex post price (\$/GJ)	2.89	3.99	4.25	4.76	4.50	5.56	5.14
Ex post quantity (TJ)	313	334	348	350	378	355	296

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)

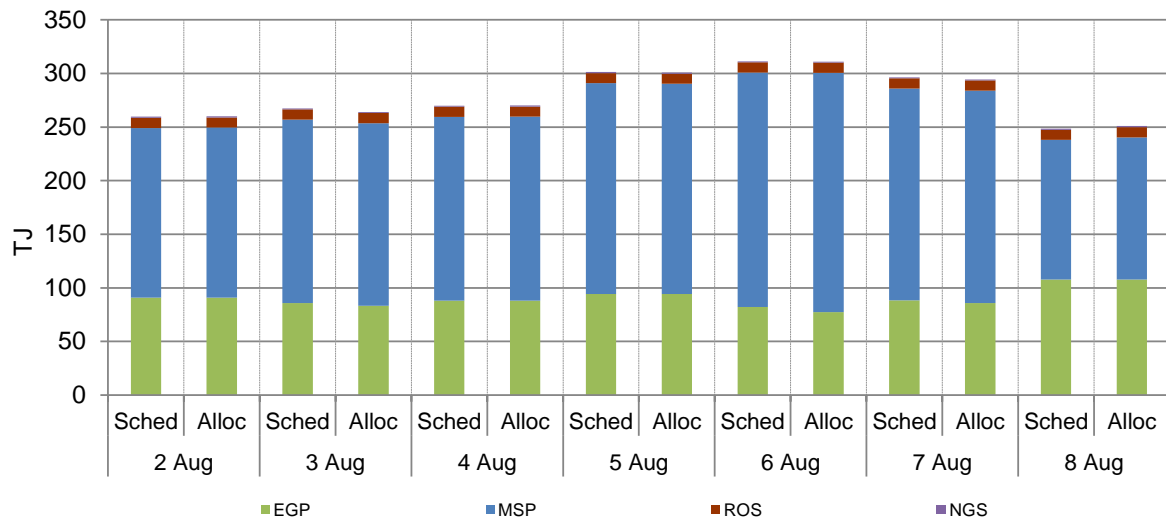
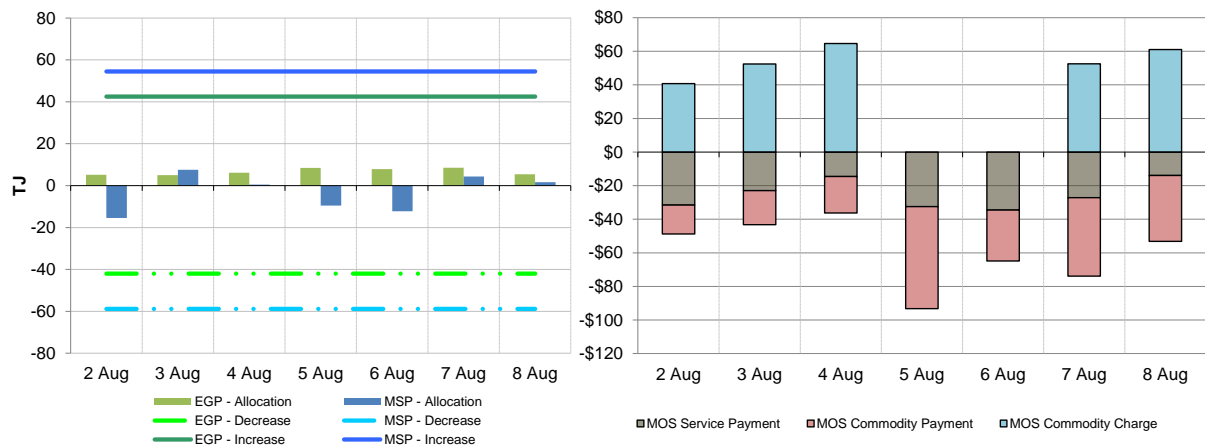


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)⁹



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)	5.61	5.61	6.48	7.00	6.56	7.05	6.51
Ex ante quantity (TJ)	79	86	90	92	100	97	85
Ex post price (\$/GJ)	4.78	5.61	6.20	7.00	6.56	7.05	6.05
Ex post quantity (TJ)	68	84	87	92	99	98	83

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

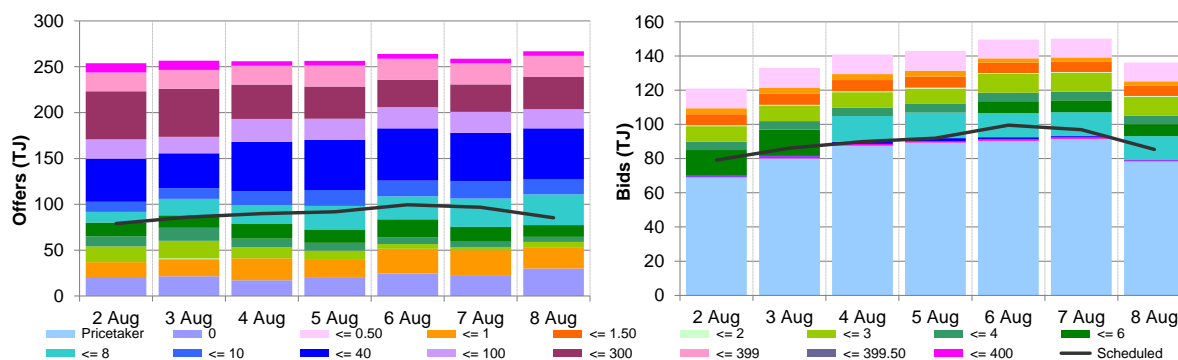


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

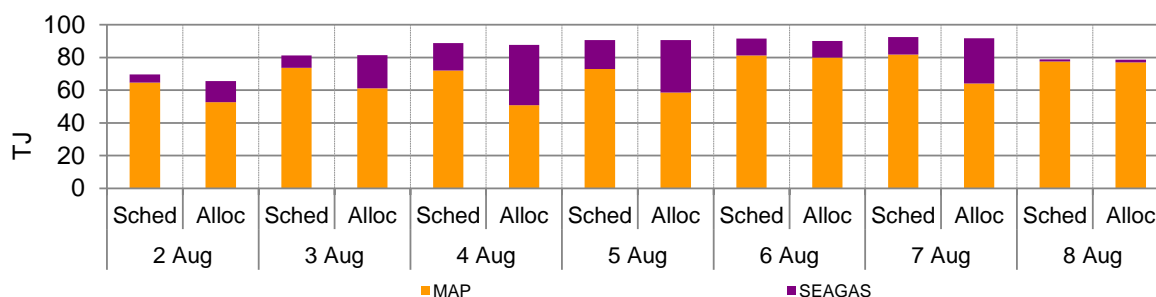
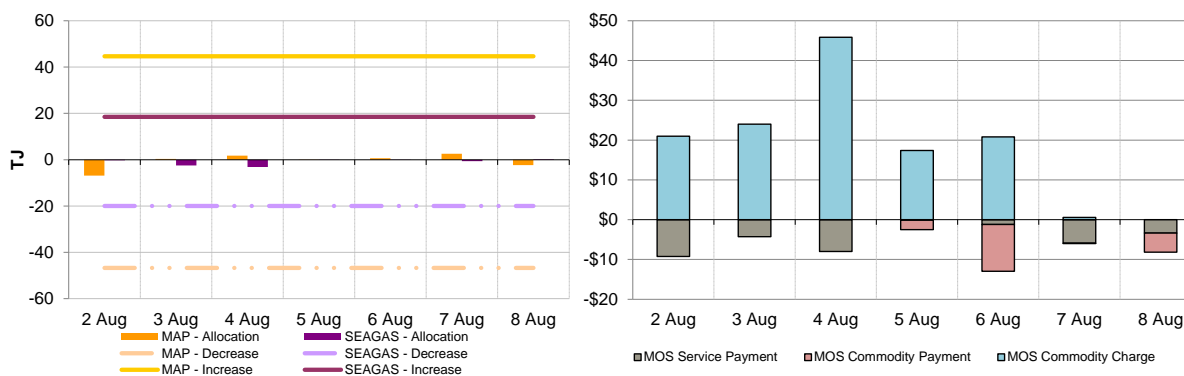


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	3.21	3.46	3.49	3.75	3.42	3.41	3.21
Ex ante quantity (TJ)	107	120	121	119	121	118	106
Ex post price (\$/GJ)	3.39	3.80	4.80	5.29	4.98	5.24	4.75
Ex post quantity (TJ)	109	127	132	135	135	137	123

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

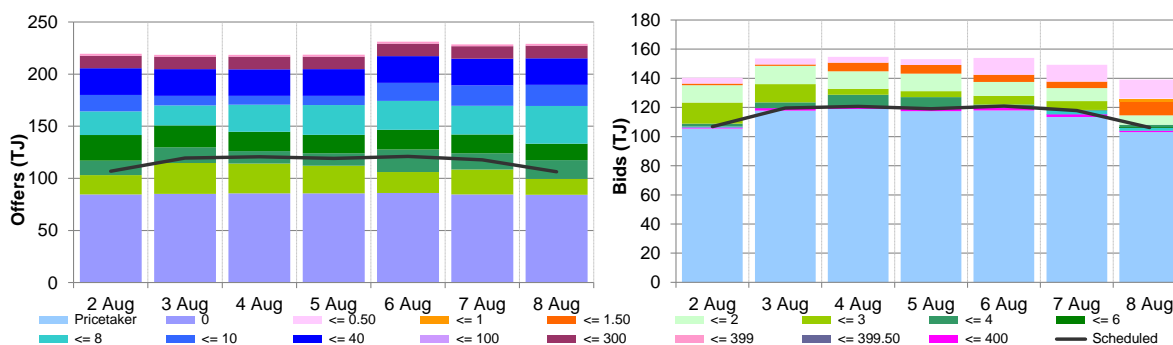


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

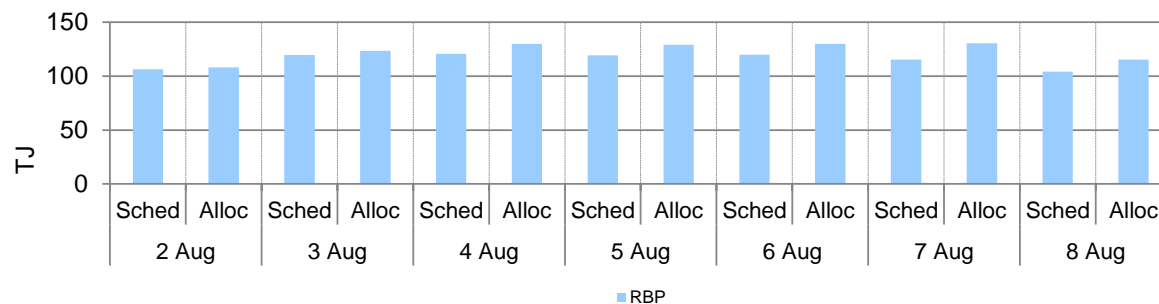
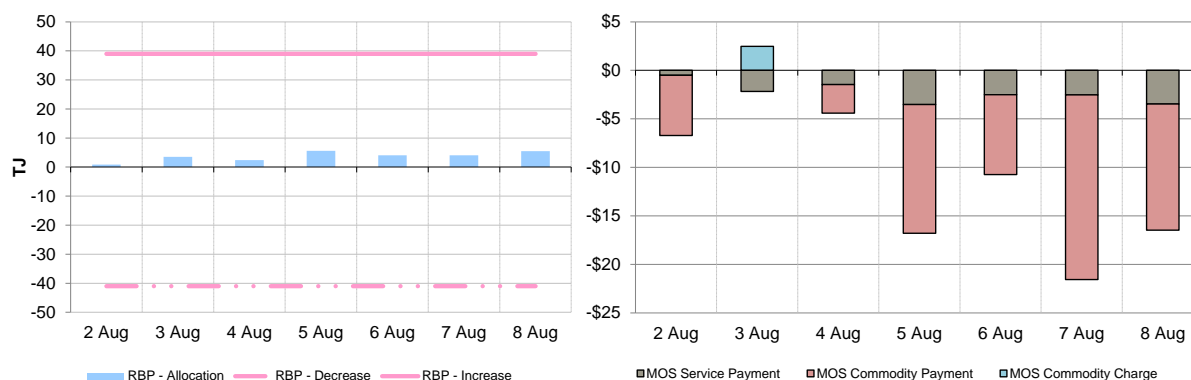


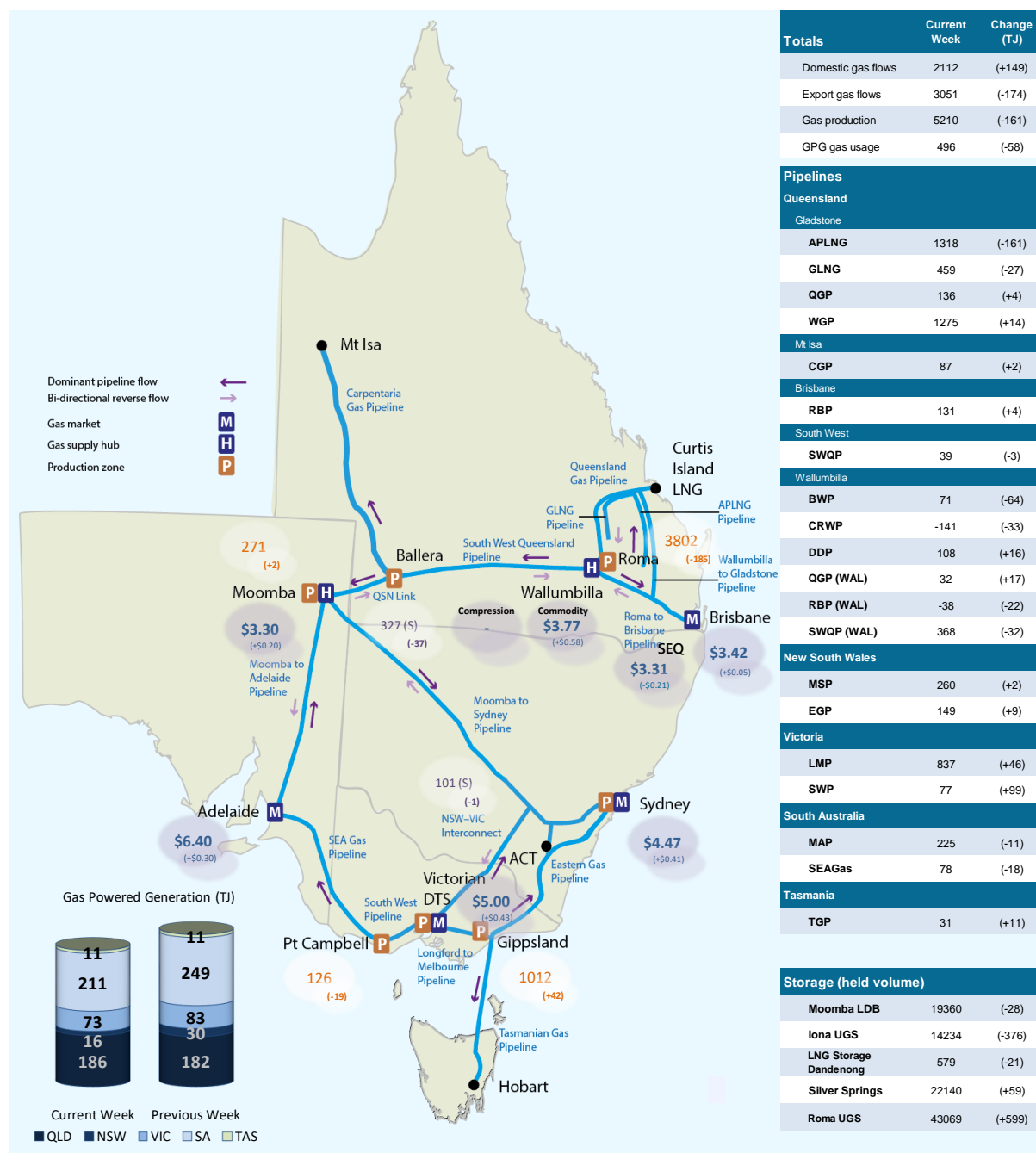
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week¹⁰ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices¹¹ 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



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.

¹¹ Export gas flows are calculated as the total of: the APLNG pipeline; the GLNG pipeline; and the Wallumbilla to Gladstone pipeline.

¹² 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

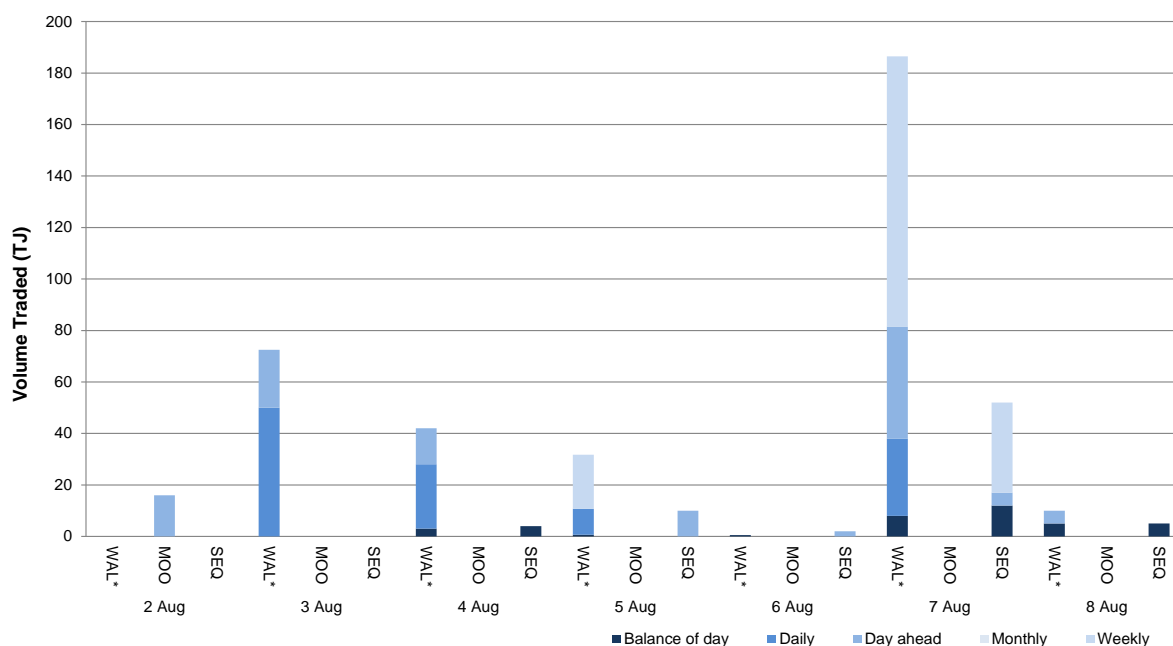
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (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 50 trades for 432 TJ of gas at a volume weighted price of \$3.67/GJ. These consisted of 39 trades at WAL (343 TJ at \$3.77/GJ) and 10 trades at SEQ (73 TJ at \$3.31/GJ). There were no spread products traded this week. 0 between SEQ and WAL and 0 between MSP and WAL.

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



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*).

7. Day Ahead Auction

The DAA is a centralised auction platform providing the release of contracted but un-nominated transportation capacity on designated pipelines and compression facilities across eastern Australia. The auction, enables transportation facility users to procure residual capacity on a day-ahead basis after nomination cut-off, with a zero reserve price and compressor fuel provided.

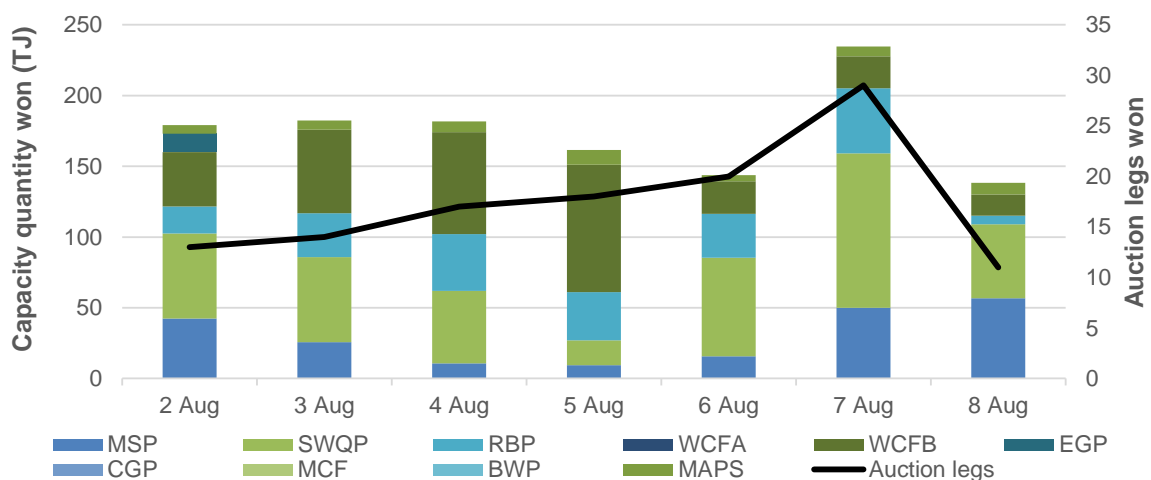
Participants may bid in to the DAA in order to procure the following services:

- park services;
- forward haul pipeline services with products offered in both directions on bi-directional pipelines;
- interruptible backhaul services; and
- stand-alone compression services.

This week, 13 participants took part in the DAA, winning 1221 TJ of capacity across 6 different facilities.

Figure 7.1 shows the quantities of gas and auction legs won through the DAA by auction date, with gas deliverable the following gas day up to the level of capacity procured. Auction legs reflect each individual facility transaction.¹⁵

Figure 7.1: DAA traded quantities and auction legs won



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¹⁵ Additional information is available in the [user guide](#) to the AER gas weekly report.