

18 – 24 April 2021

Weekly Summary

Average prices increased significantly over the latter half of this week. This coincided with increased demand in Sydney and Victoria from last week, while market demand in Brisbane and Adelaide remained relatively stable. Gas Power Generation demand also increased in all regions, with a significant rise South Australia from the previous week (Figure 5.1).

High schedule prices in Victoria on 20 and 21 April resulted from higher than expected demand, with market outcomes contributing to higher prices across the east coast. Prices in Brisbane, Sydney and Adelaide peaked on 22 April, with participants adjusting market offers across their portfolios. The Adelaide market experienced the largest increase reaching \$12.50/GJ on 22 April, followed by Brisbane and Sydney respectively jumping to \$9.59/GJ and \$9.26/GJ on the day.

Higher east coast gas prices appeared to be influenced by a number of factors, including production issues at Moomba on 21 and 22 April, a maintenance outage at Iona across the week, and a period of high National Electricity Market prices and east coast Gas Power Generation demand.

Reduced supply due to lower Moomba production impacted exporters, with some significant reductions in pipeline flows to LNG facilities on Curtis Island. Over the same period there was also an increase in trading levels on the GSH and DAA¹ around Wallumbilla, and a significant shift in pipeline flows on the SWQP, at Wallumbilla and Moomba, bringing larger quantities of gas west and south respectively from 20 to 23 April.²

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**).

¹ DAA capacity levels won on the auction for delivery over 20 and 21 April were notably higher on the RBP, SWQP, MSP and MAPS (see figure 7.1)

² QSN Link flows (at Moomba) were around 140-175 TJ/d south from 21 to 23 April, reversing the flow direction of gas having been shipped into Queensland over the preceding days.

Figure 1: Average daily prices and demand – all markets (\$/GJ, TJ)³

	Victoria		Sydney		Adelaide		Brisbane	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand
18 Apr - 24 Apr 2021	7.10	568	7.50	253	9.03	59	7.94	99
% change from previous week	19	4	14	10	38	-1	16	1
20-21 financial YTD	5.26	510	5.55	249	5.92	55	5.71	105
% change from previous financial YTD	-25	-6	-21	6	-22	1	-8	19

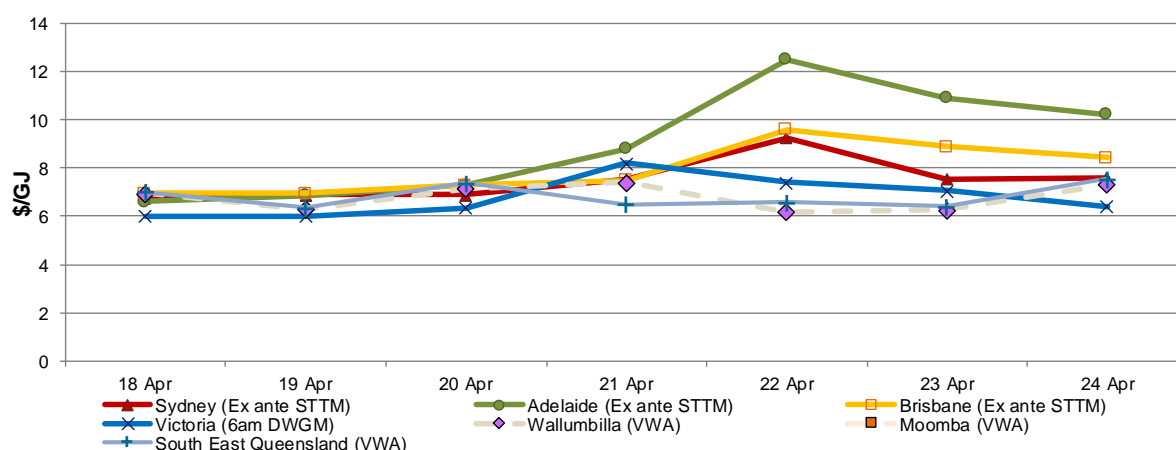
Figure 2 sets out price and demand information for the voluntary Wallumbilla and Moomba Gas Supply Hubs (GSH).

Figure 2: Average prices and total quantity – Gas supply hub (\$/GJ, TJ)⁴

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
18 Apr - 24 Apr 2021	-	-	6.58	322	6.82	895
% change from previous week	-	-	8	81	11	76
20-21 financial YTD	3.04	338	5.31	4456	5.35	11595
% change from previous financial YTD	-56	-34	-10	-39	-17	-12

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

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



³ Average daily quantities are displayed for each region. The weighted average daily imbalance price applies for Victoria.

⁴ 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
18 Apr - 24 Apr 2021	-	14.64	2.39	0.59
% change from previous week	-	16	-71	70
20-21 financial YTD		19.44	7.94	4.01
% change from previous financial YTD		-7	94	142

* 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)⁵

	Moomba		South East Queensland		Wallumbilla*	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	-	-	7.22	46.0	7.48	158.5
Daily	-	-	6.60	78.0	6.49	412.0
Day ahead	-	-	7.04	44.0	7.97	121.4
Weekly	-	-	6.25	154.0	6.29	203.0
Monthly	-	-	-	-	-	-
Total	-	-	6.58	322.0	6.82	894.9

* includes non-netted (off-market) trades.

⁵ Further information about new product trading locations in Victoria (Culcairn) and Sydney (Wilton) is available in section 6. Gas Supply Hub).

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	1574	930	1770	4273
Export Pipeline Flows	1590	990	1250	3829
% change from previous week (pipeline flows)	-1	-2	-9	-4
20-21 financial YTD Flows	1472	1017	1317	3806

* 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.

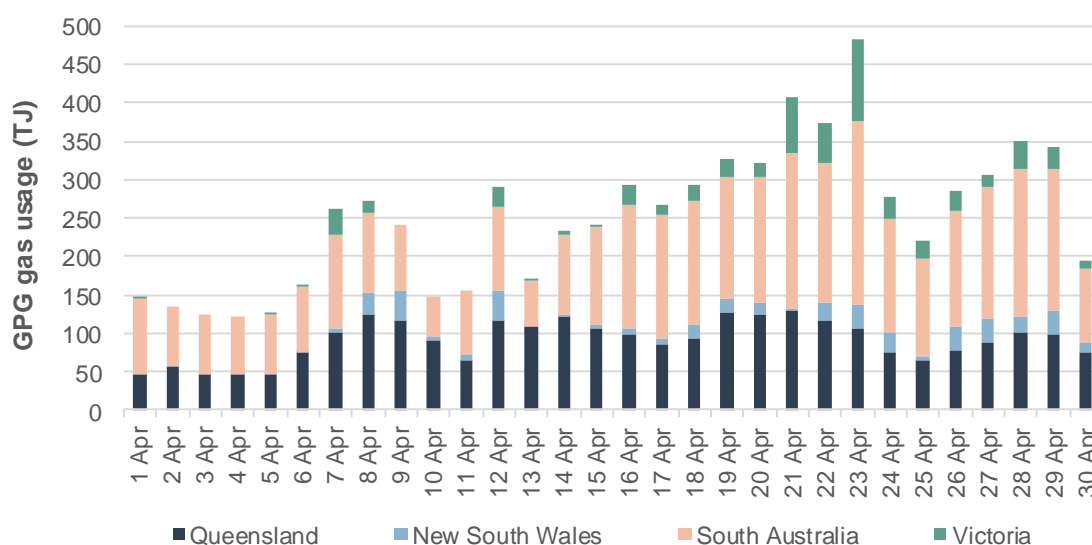
Detailed market analysis

Gas Power Generation requirements in the National Electricity Market (NEM)

The National Electricity Market (NEM) experienced particularly low levels of wind generation from mid-April. In South Australia, higher NEM prices were influenced by these low wind levels, driving higher GPG demand. While wind output increased somewhat in Victoria and South Australia on 20 and 22 April, it remained quite low across the week. South Australia was also exporting electricity to Victoria above forecast levels, particularly over peak morning and evening demand periods across the week, driving further increases to local gas generation requirements.⁶

Figure 7 shows the higher gas generation requirements in separate regions over individual days across the week compared to the rest of April.

Figure 7: Mainland gas powered generation over April (TJ)



Supply outages and changes to gas pipeline flows

The Iona underground gas storage facility in Victoria was scheduled to undergo planned maintenance from 8 April. The facility remained unavailable throughout the week.⁷

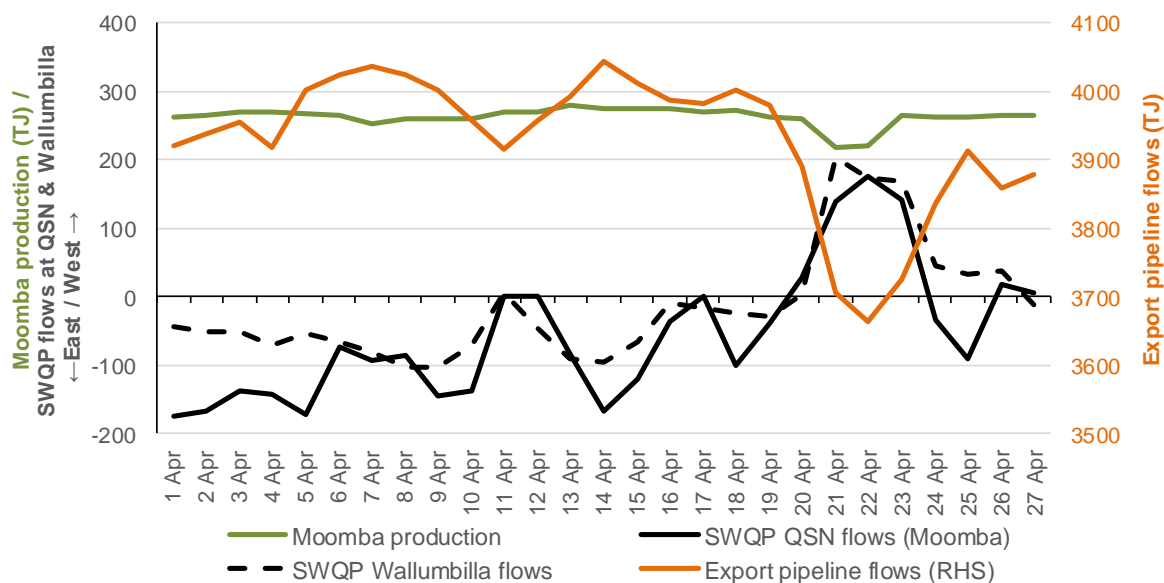
A drop in Moomba production (South Australia) occurred over 21 and 22 April, with supply output at the facility reducing by more than 40 TJ. This coincided with significant rebidding of offer capacity into higher price bands on both the MAP and MSP. These facilities supply the Adelaide and Sydney STTMs, with rebidding impacting the amount of lower priced capacity available from the 21 April gas day.

Figure 8 shows gas pipeline flows from Queensland gas fields to the three Queensland LNG export facilities at Curtis Island and also on the South West Queensland Pipeline connecting those fields to southern markets. This is shown alongside supply coming from the Moomba production facility.

⁶ This occurred alongside higher NEM prices in all mainland regions at around \$100-\$300/MWh during peak periods. Volume weighted average NEM prices were particularly high in Victoria and South Australia on 21 and 23 April. Spot prices were aligned across both regions over the period, and aligned with high prices across other mainland regions at peak times.

⁷ Planned maintenance at the Iona Underground Storage facility was scheduled across the month of April commencing on the 8th. The facility came back online from 30 April.

Figure 8: Gas flows on export pipelines, from the Moomba production facility, and on South West Queensland Pipeline segments (TJ)



The figure appears to show a larger rebalancing in pipeline flows – to flow gas south on the SWQP – than a change in production in Moomba, this could reflect participant uncertainty as to the length of the outage, or the combination of expected gas demand rising from 20 April.

Victoria

On 20 April, forecast demand was just over 600 TJ with expected cold weather. Actual temperatures reducing faster than expected drove demand forecast increases in successive schedules, with demand significantly under forecast prior to the 6 pm scheduling interval. As a result, increased forecast demand from 6 pm (including overrides applied by AEMO) above 710 TJ drove the schedule price to \$22/GJ.⁸ A planned outage taking place at Iona limited alternative supply options, with additional supply being provided by interstate supply points.⁹

On 21 April, similar circumstances with colder temperatures and demand forecasts above 700 TJ saw schedule prices spiking to levels around \$20/GJ at 10 am and 10 pm scheduling intervals, with very narrow price bands around \$8-\$10/GJ over the afternoon scheduling windows.

Adelaide

Ex ante prices in Adelaide were significantly higher than forecast in provisional schedules from 21 to 24 April, reaching \$12.50/GJ on Thursday. While gas demand forecasts in the Adelaide distribution network were up by around 3-5 TJ on certain days, the main driver of higher prices was due to offers to supply Adelaide being rebid into higher price bands.¹⁰

Despite offers to supply on the Moomba to Adelaide Pipeline (MAP) being shifted to higher prices, scheduled (ex ante) MAP supply quantities actually increased on 22 April. This resulted from a significant decrease in cheaper supply offers on SEAGas to Adelaide¹¹, with

⁸ A lack of similar historical demand circumstances may have influenced difficulties in profiling demand across the day.

⁹ System points at Culcairn (NSW/northern Victoria), SEAGas (SA/western Victoria), VicHub (NSW/eastern Victoria) and TasHub (Tasmania/southern Victoria).

¹⁰ In addition to the upwards shift in the supply costs due to rebidding, the supply curve for the 22 April gas day was significantly steeper for demand above 58 TJ (ex ante demand was just below 62 TJ).

¹¹ Only 4 TJ of gas on SEAGas was available in the ex ante schedule below \$11/GJ. Rebidding behaviour indicates the reduced availability of cheaper SEAGas supply offers for 22 April was associated with reserving gas supply for generation in the NEM.

high forecast levels of gas electricity generation expected alongside low wind and solar levels.¹²

Ex ante prices reduced on subsequent days as SEAGas offers remained relatively stable and rebids shifted additional capacity into mid-range price bands, flattening the supply curve and bringing prices into closer alignment with provisional schedules. However, renominations on the gas days from 21 April show a concerted effort to provide additional supply to the hub from the Moomba region, with Figure 3.3 illustrating higher net supply into the hub being allocated (ex post) on the MAP over consecutive days.¹³

Brisbane

Provisional prices in Brisbane were forecast just below \$7/GJ across the week, yet price increases occurred in ex ante schedules to \$8-9/GJ despite minimal changes in market demand levels.

Transportation capacity on the RBP and commodity gas obtained from upstream markets did not help to suppress increased ex ante prices in the hub, with a number of participants shifting gas into higher prices and reducing offered quantities. This change is likely to have occurred because of portfolio positions across different markets being optimised including exposure to higher southern market prices. Numerous participants with uncontrollable demand on the affected days did not offer supply to the market. Bid stacks in Brisbane featured relatively large volumes between \$6-\$10/GJ and probably provided confidence for participants to take market exposure.

The Brisbane price peaked on 22 April alongside the Adelaide and Sydney STTMs, with the main driver appearing to result from efforts to divert supply south, particularly towards Adelaide.

Sydney

Ex ante demand in Sydney increased from provisional schedules across the week due to additional backhaul bids being cleared.¹⁴ This influenced market prices being driven higher on 21 and 22 April.¹⁵ Rebidding for 23 and 24 April gas days led to lower than forecast prices set in provisional schedules, as offered supply quantities shifted into cheaper price bands (particularly on the EGP).¹⁶

On 22 April, higher ex post demand was largely driven by the majority of participants under forecasting in the hub. The combination of gas demand increasing by 17 TJ and higher priced supply offers drove the ex ante price from \$9.26/GJ to \$10.51/GJ ex post.¹⁷

¹² In addition to high forecast requirements, higher than forecast South Australian GPG demand supported increased electricity exports to Victoria during high priced periods across multiple regions in the NEM.

¹³ Whilst there was more supply scheduled using cheaper SEAGas offers for 22 April, renominations swapping allocated supply into the Adelaide STTM from SEAGas over to the MAP during the gas day appeared to be related to providing more upstream gas generation supply across peak electricity demand periods in the NEM.

¹⁴ There was a significant increase to upstream EGP demand on 22 April, while the majority of additional backhaul was scheduled on the MSP on other days.

¹⁵ From 21 April, participants shifted offers out of lower price bands (MSP), resulting in the price increasing above \$9/GJ on 22 April. Portfolio optimisation saw relatively cheaper gas supply into Sydney diverted from the MSP over to the EGP (for gas priced under \$10/GJ from 21 April).

¹⁶ The D-2 provisional price for 23 April reached almost \$10/GJ, however rebidding to shift offered capacity into lower price bands in the D-1 schedule set the ex ante price set much lower at \$7.55/GJ. There was a similar trend for 24 April compared to D-3 and D-2 forecasts in the provisional schedules.

¹⁷ Additional demand of 4 TJ in increased MSP backhaul added to higher than forecast hub demand of close to 13 TJ. Figure 2.3 shows additional supply was provided mainly from the EGP, while some supply was renominated over to the Newcastle storage facility, and the bulk of the remaining supply was provided using balancing gas services (MOS) on both the EGP and MSP (11.8 TJ).

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 price¹⁸ which is the schedule at which most gas is traded.

The main drivers¹⁹ 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 forecasts²⁰, 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)

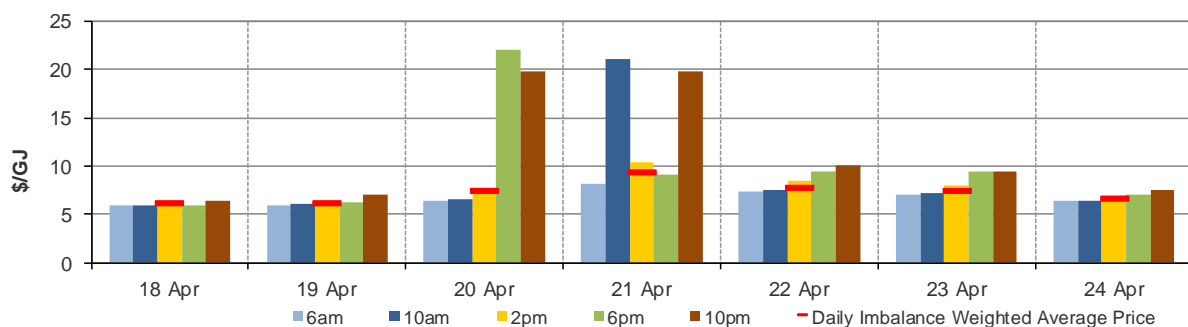
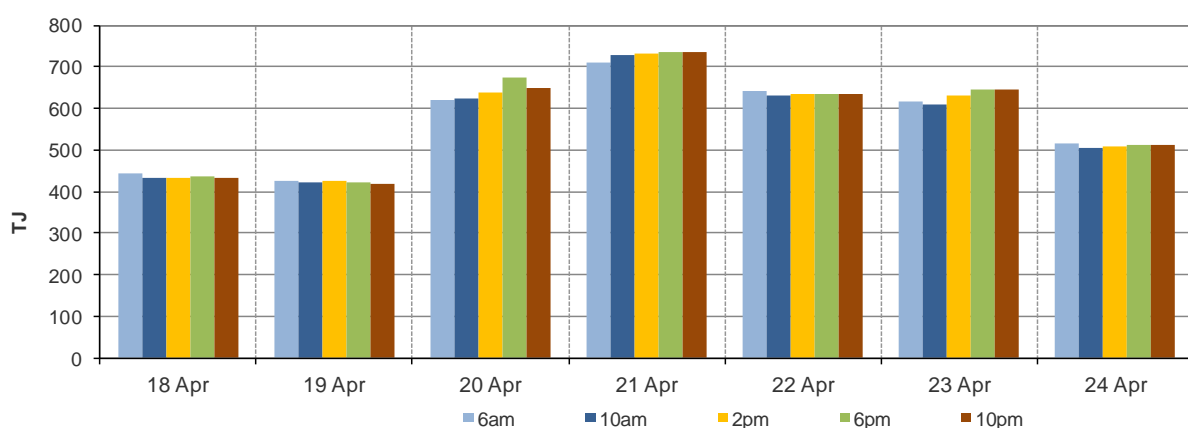


Figure 1.2: Demand forecasts (TJ)



¹⁸ 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.

¹⁹ 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.

²⁰ 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)

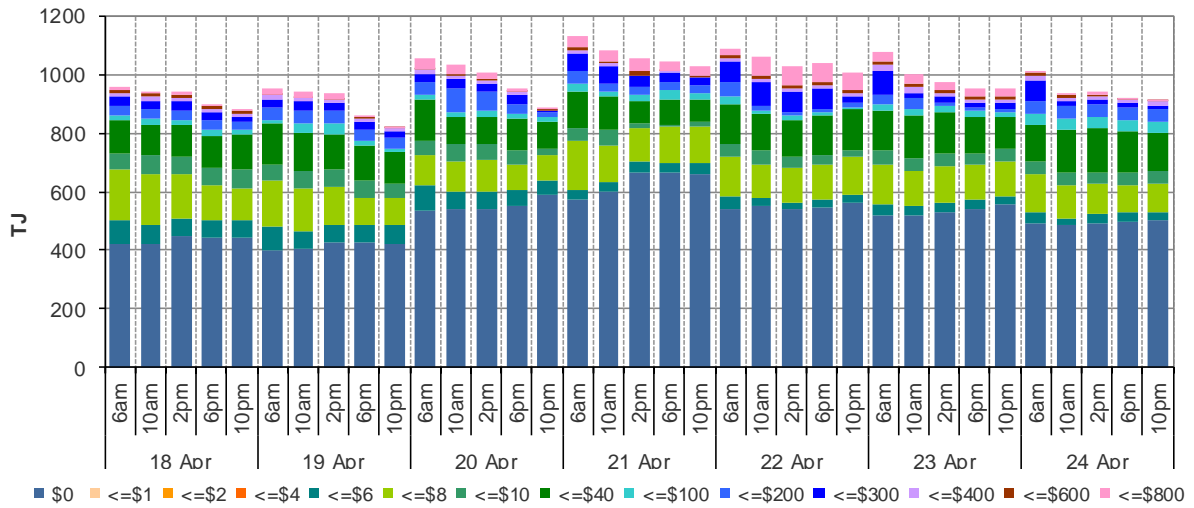


Figure 1.4: Withdrawal bids by price bands (TJ)

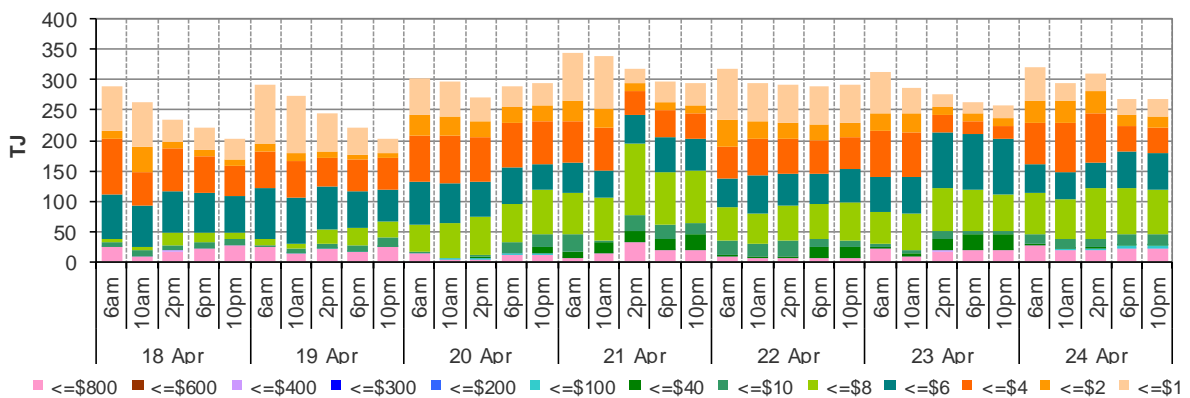
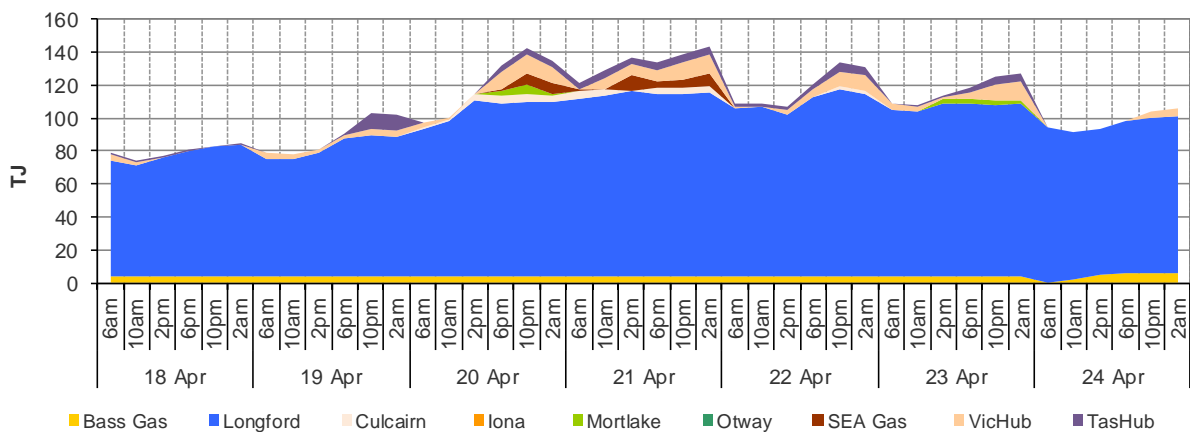


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.²¹ 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](#).

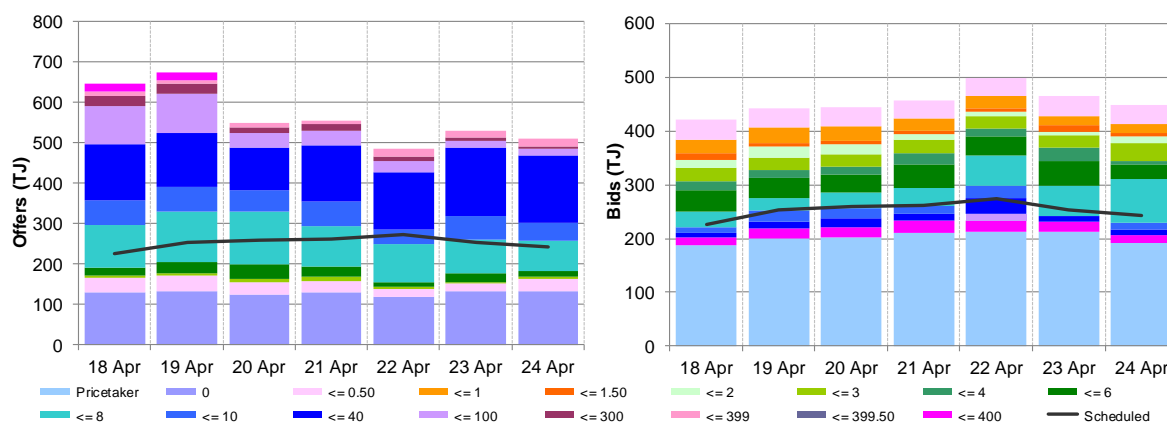
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.²²

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)	6.79	6.88	6.90	7.55	9.26	7.55	7.60
Ex ante quantity (TJ)	227	254	259	261	275	253	243
Ex post price (\$/GJ)	6.98	6.98	6.98	7.75	10.51	7.60	7.80
Ex post quantity (TJ)	238	268	267	272	292	270	262

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



²¹ 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.

²² 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)²³

Figure 2.3 shows the daily scheduled and allocated quantities sorted by facility for Sydney this week. For a more detailed description of this figure, please refer to the user guide.

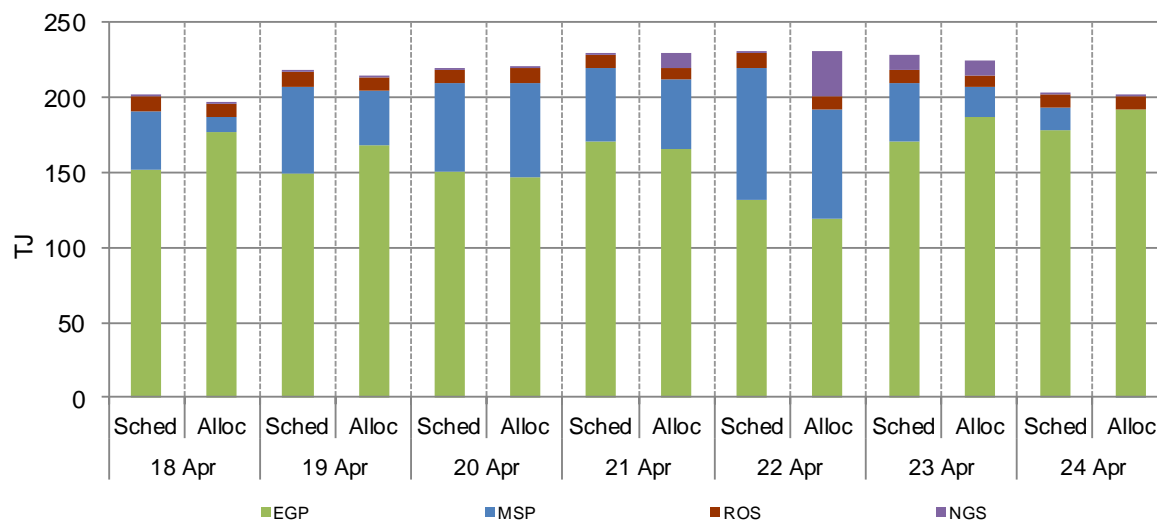
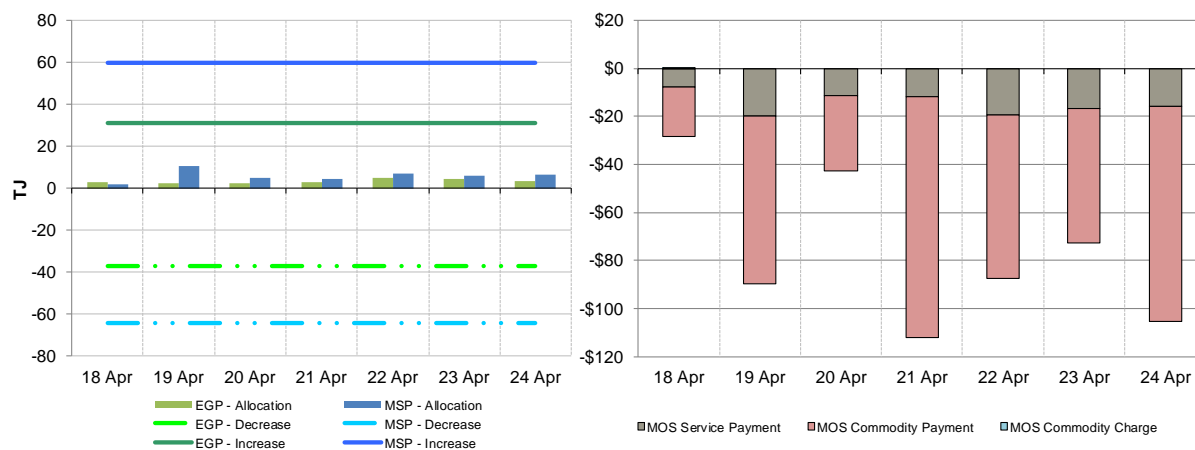


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)²⁴



²³ Net flows supplying the hub are calculated as forward haul (supply) minus backhaul (pipeline demand). On 24 April, negative net allocations (excluding MOS allocations) were recorded on the MSP (-0.3 TJ). This was the result of increased nominations to backhaul gas on the MSP (19.2 TJ) combined with a reduction in scheduled MSP supply (6 TJ), offset by additional EGP supply (15.2 TJ). The higher MSP backhaul demand was supplied from linepack, with the pipeline physically delivering 14.3 TJ to the Wilton delivery point (just under half of this supply was allocated as increase MOS).

²⁴ 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)	6.60	6.87	7.30	8.80	12.50	10.92	10.23
Ex ante quantity (TJ)	49	63	61	71	62	58	51
Ex post price (\$/GJ)	6.60	6.92	7.38	8.80	12.50	11.00	9.00
Ex post quantity (TJ)	49	64	64	71	63	59	45

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

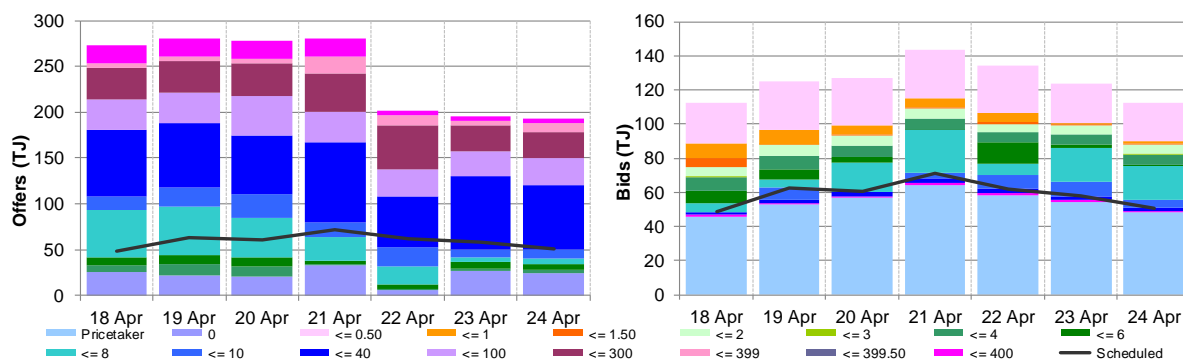


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

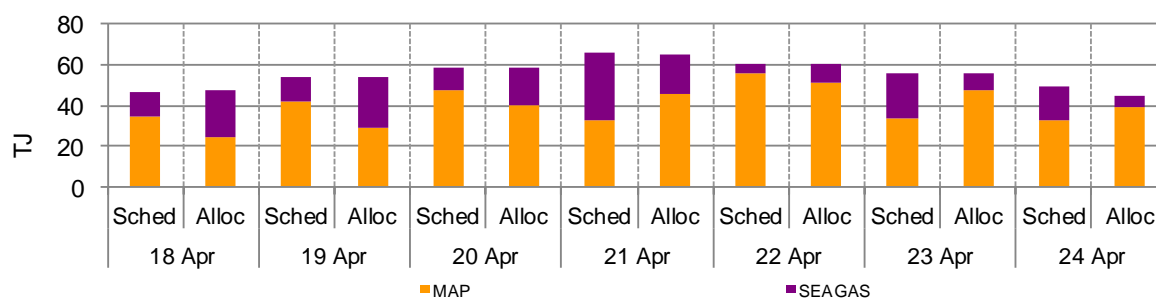
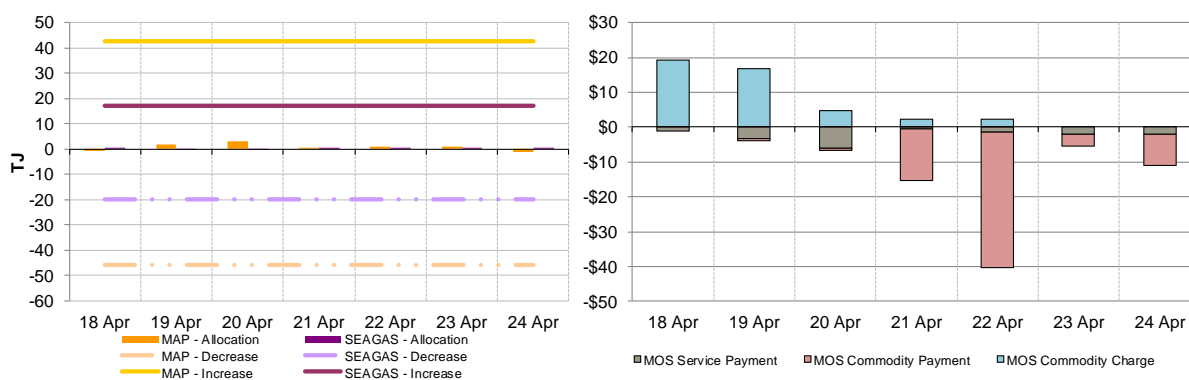


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	6.96	6.96	7.29	7.49	9.59	8.90	8.42
Ex ante quantity (TJ)	78	111	119	119	106	87	76
Ex post price (\$/GJ)	6.96	6.96	7.29	7.67	8.41	8.87	8.25
Ex post quantity (TJ)	77	112	120	121	95	87	74

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

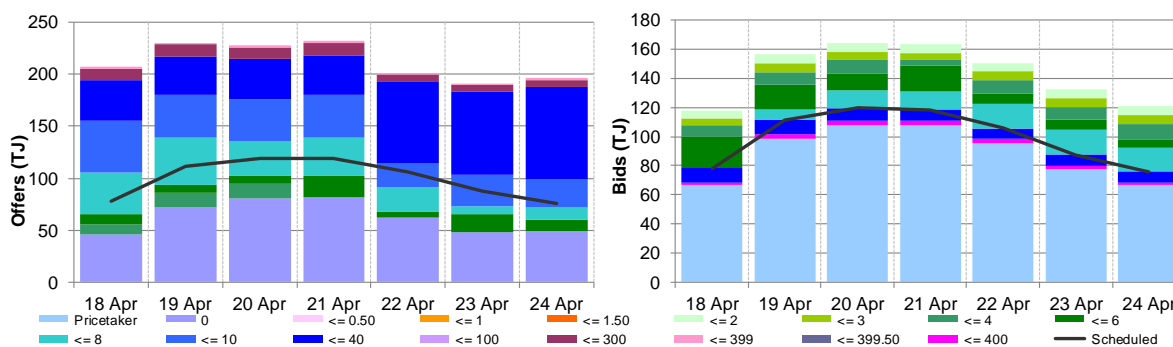


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

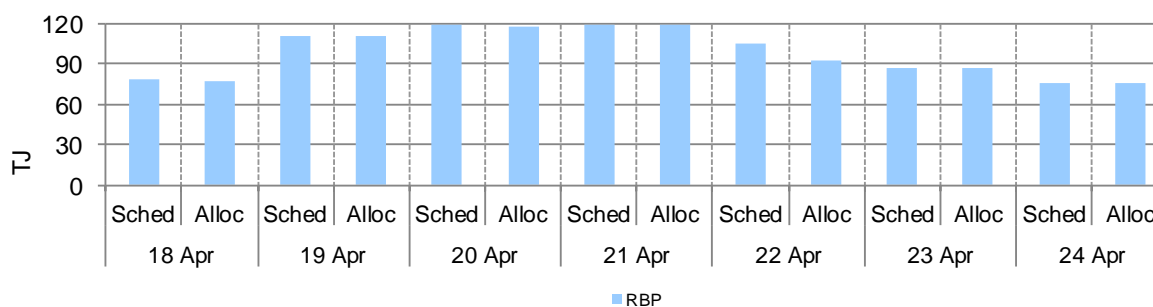
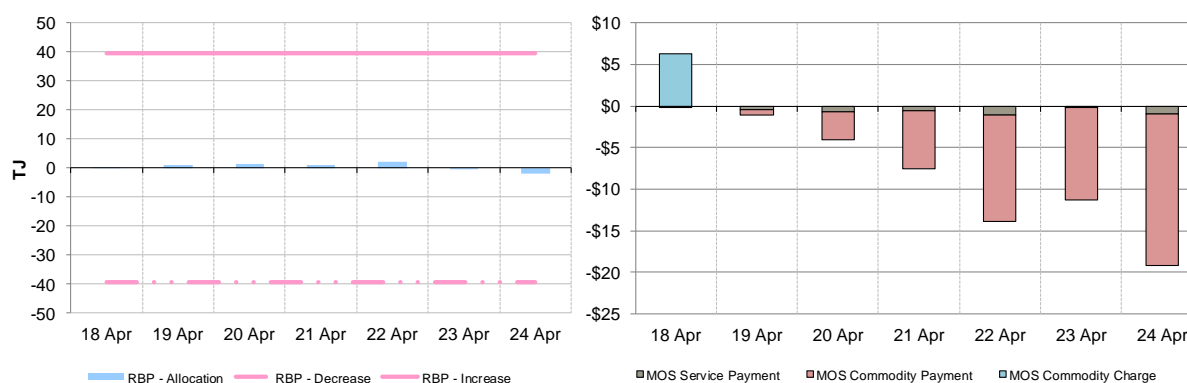


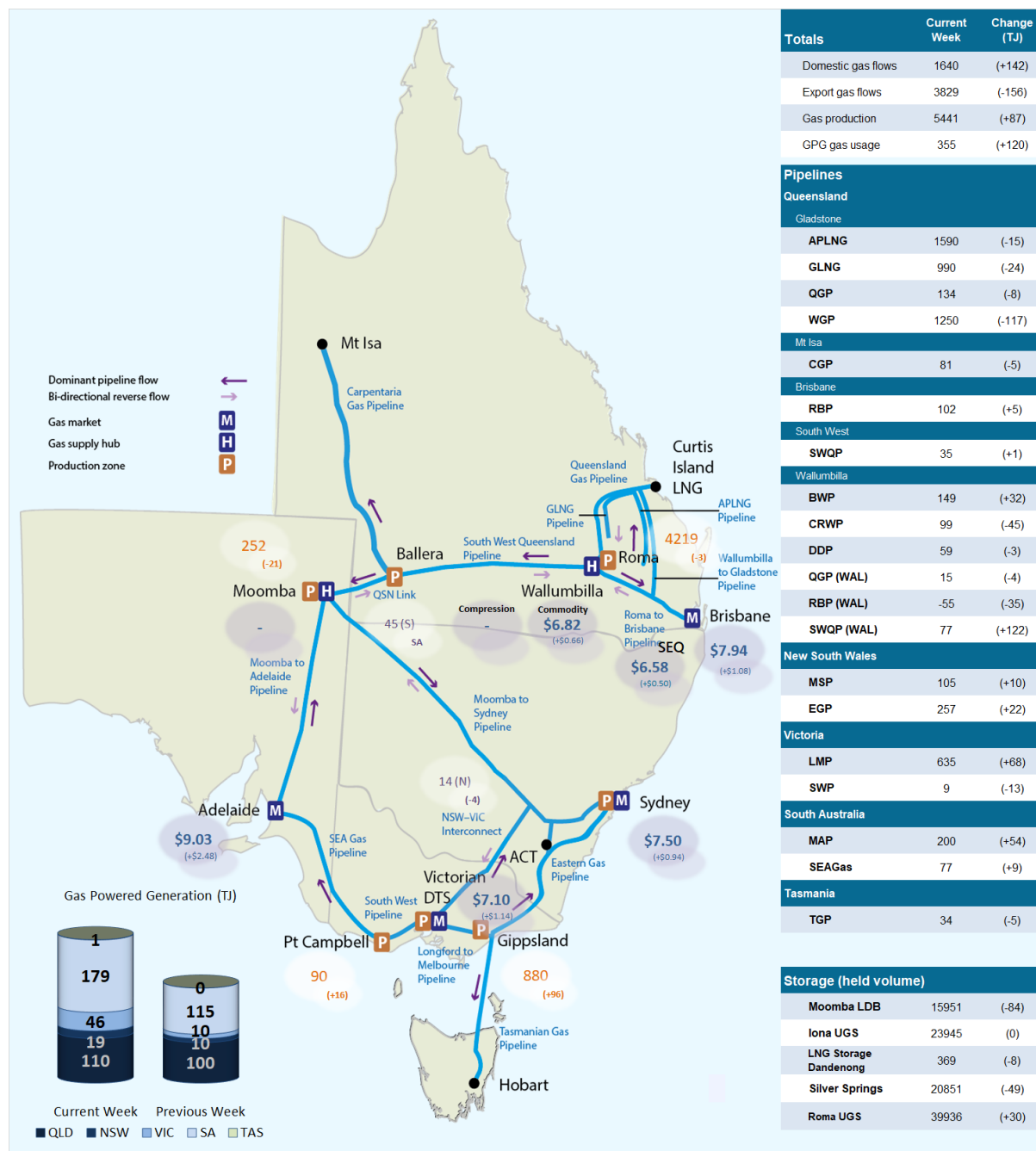
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week²⁵ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices²⁶ 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)²⁷



²⁵ 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.

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.

²⁶ 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.

²⁷ Net flows are shown for Bulletin Board facilities, as outlined in the [user guide](#).

6. Gas Supply Hub

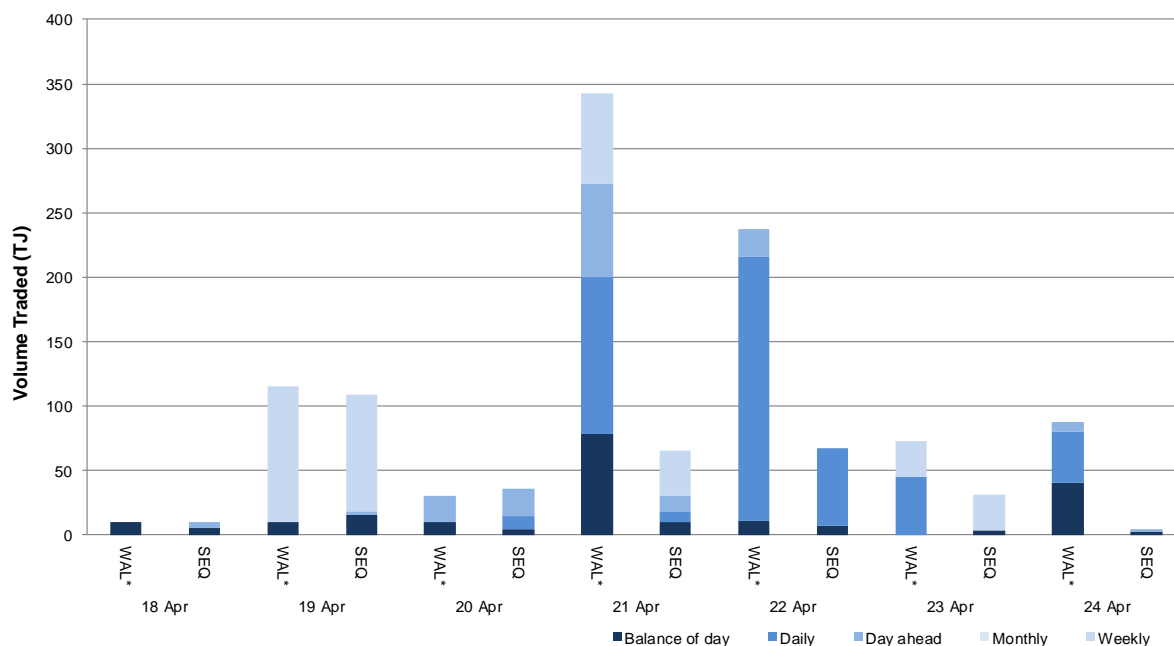
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).²⁸

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**). On 28 January 2021, trading locations at Wilton (Sydney) and Culcairn (Victoria) were introduced.

This week there were 102 trades for 1216.9 TJ of gas at a volume weighted price of \$6.76/GJ. These consisted of 63 trades at WAL (894.9 TJ at \$6.82/GJ) and 39 trades at SEQ (322 TJ at \$6.58/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.²⁹

Figure 6.1: GSH traded quantities



²⁸ Additional information on trading locations and available products is detailed in the [user guide](#).

²⁹ Non-netted (off-market) trades, allowing the selection of specific delivery point at a trading location, are included with other Wallumbilla trades (WAL*). Non-netted trades at Moomba are shown separately (MOO) from MAP and MSP.

