

20 – 26 January 2019

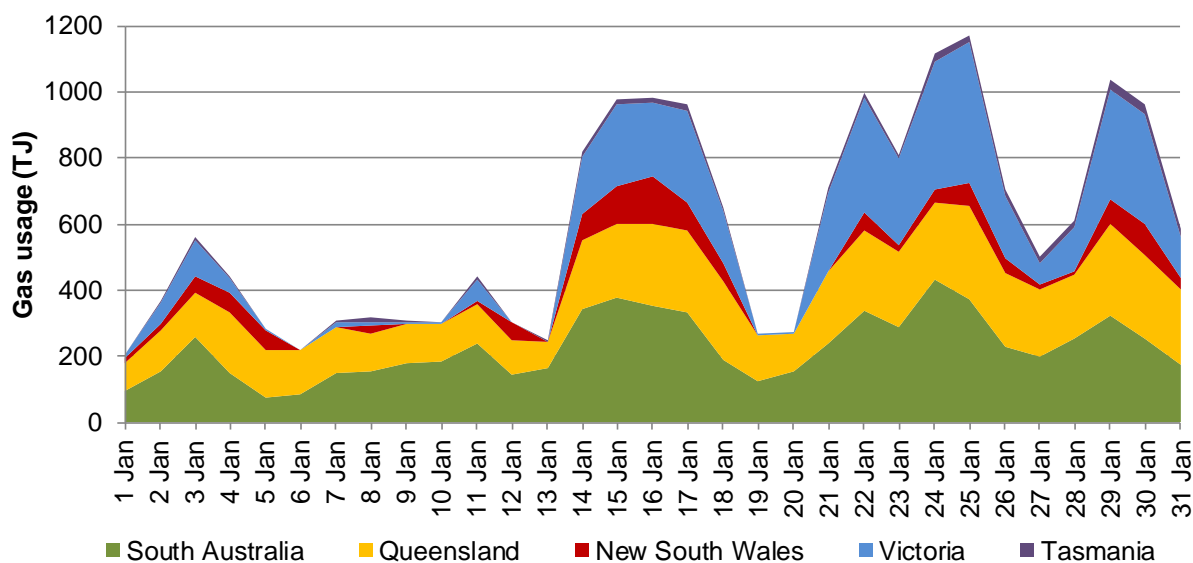
Weekly Summary

The average price rose in Brisbane, decreased in Adelaide, and remained stable in Victoria and Sydney compared to the previous week.

Mainland gas generation increased again this week, with the exception of NSW. This follows a large increase in GPG gas usage during the previous week. Gas usage was particularly high in Victoria and South Australia on 24 and 25 January, driving the amount of gas required for electricity generation across the east coast to 1117 TJ and 1173 TJ on the respective days, as shown in the figure below. Extremely high temperatures drove high electricity demand on those days, which led to load shedding in each region, cutting off electricity supply to customers in both states. This contributed to significantly higher GPG gas usage than normal for the month of January, with average levels in Victoria over the preceding decade around 1.8 PJ across the month (up to a maximum of 3.2 PJ), compared to 4.3 PJ in 2019. SA also used over 600 TJ more in 2019 than its highest January GPG usage since 2008.

While Victorian gas market prices did not appear to be driven upwards on 24 and 25 January gas days, the higher demand for gas generation across the east coast did appear to have an influence on prices in other regions. Prices over those two days ranged from \$10.60/GJ to \$12/GJ in the Adelaide, Brisbane and Sydney STTMs. In Adelaide, ex post prices also increased by more than \$2/GJ on both days, with additional supply nominated to offset unscheduled backhaul on the Moomba to Adelaide Pipeline, most likely providing additional fuel for gas powered generation.

Summary Figure: Gas Powered Generation (GPG) gas usage¹



¹ Estimates of gas demand from gas-fired generation derived from AEMO's NEM data and heating capacity rates for plant from an ACIL Tasman study on the long and short run marginal costs of NEM generators.

Long term statistics and explanatory material

The AER has published an [explanatory note](#) to assist with interpreting the data presented in its weekly gas market reports. The AER also publish a range of [longer term statistics](#) on the performance of the gas sector including gas prices, production, pipeline flows and consumer demand.

Market overview

Figure 1 sets out the average daily prices (\$/GJ) for the current week, and demand levels, compared to historical averages. Regions shown include the Victorian Declared Wholesale Market (**VGM or Victorian gas market**) and for the Sydney (**SYD**), Adelaide (**ADL**) and Brisbane (**BRI**) Short Term Trading Market hubs (**STTM**).

Figure 1: Average daily prices and demand – all markets (\$/GJ, TJ)²

	Victoria		Sydney		Adelaide		Brisbane	
	Price	Demand	Price	Demand	Price	Demand	Price	Demand
20 Jan - 26 Jan 2019	9.78	389	10.89	233	10.34	32	10.45	121
% change from previous week	0	5	0	-1	-4	-5	3	-1
18-19 financial YTD	9.62	568	9.93	247	9.88	61	9.76	78
% change from previous financial YTD	26	-7	21	-2	27	-2	36	-12

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)³

	Moomba		South East Queensland		Wallumbilla	
	Price	Quantity	Price	Quantity	Price	Quantity
20 Jan - 26 Jan 2019	-	-	9.58	150	10.01	115
% change from previous week	-	-	-3	-25	0	-42
18-19 financial YTD	9.40	61	9.74	6789	9.79	3757
% change from previous financial YTD	76	408	36	26	29	59

² Average daily quantities are displayed for each region. The weighted average daily imbalance price applies for Victoria.

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

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

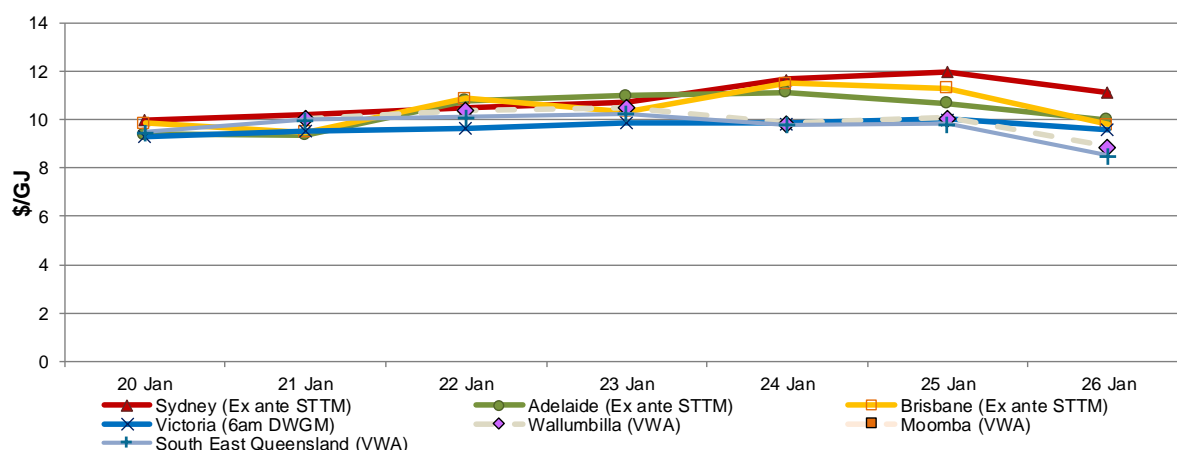


Figure 4 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

Figure 4: Average ancillary payments (\$000)

	Victoria Ancillary Payments*	Sydney MOS	Adelaide MOS	Brisbane MOS
20 Jan - 26 Jan 2019	-	12.63	3.16	1.51
% change from previous week	-	39	-15	51
18-19 financial YTD	-	20.28	4.52	1.18
% change from previous financial YTD	-	-36	-27	-54

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

	Moomba		South East Queensland		Wallumbilla*	
	VWA price	Quantity	VWA price	Quantity	VWA price	Quantity
Balance of day	-	-	9.48	88.0	9.65	30.0
Daily	-	-	9.70	2.0	10.07	34.0
Day ahead	-	-	9.71	53.0	10.18	50.6
Weekly	-	-	9.90	7.0	-	-
Monthly	-	-	-	-	-	-
Total	-	-	9.58	150.0	10.01	114.6

* 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	1513	876	1743	4132
Export Pipeline Flows	1490	884	1245	3618
% change from previous week (pipeline flows)	-3	8	-2	0
18-19 financial YTD Flows	1412	816	1268	3496

* 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 Powered Generation (GPG) and electricity market outcomes in Victoria and South Australia on 24 and 25 January

In South Australia, GPG gas usage was very high on the 24th and 25th.⁴ This gas usage on the 24th was the second highest level recorded, the highest since January 2009 when there was administered pricing in both regions, severe drought across south-eastern Australia and record breaking heatwaves. Temperatures nearing 50 degrees⁵ across the state, following several consecutive days of high daily and overnight temperatures, led to high demand for electricity.

Similarly in Victoria, record GPG gas usage was recorded on 24 and 25 January.⁶ This resulted amid 43 degree temperatures in Melbourne (and higher further inland) driving high air conditioning demand.

Figure 1.5 shows additional supply to the Victorian market was provided through injections from the Eastern Gas Pipeline (via Vic Hub) and gas storage from Iona (by 26 January, Iona's storage level was around 730 TJ lower than the end of the previous week). Planned maintenance at the Brooklyn Compressor station on 24 January was cancelled, allowing higher delivery capacity on the South West Pipeline.

On 24 January, hot weather in both regions saw peak electricity demand reach 2994 MW in South Australia and 9281 MW in Victoria, which was around 400 MW and 1200 MW below record demand in the respective regions. Electricity prices were high, with spot prices at or close to the price cap (\$14,500/MWh) across the afternoon and evening period.

On 25 January, Victorian electricity prices spiked above \$5000/MWh for the 11 am and 11.30 am spot pricing intervals, and at 11.30 am in South Australia.

⁴ Gas usage for GPG on 25 January was the 8th highest level it has been at 373 TJ, and the 7th highest day occurred the previous week on 15 January (379 TJ).

⁵ The mean daily temperature across the state was 45.69 degrees, the hottest day on record for the state (the previous record was 45.26 degrees set in January 1960). Record highs here also recorded in other locations across the state, with Port Augusta reaching 49.5 degrees.
Source BOM: <http://www.bom.gov.au/climate/current/month/sa/archive/201901.summary.shtml>

⁶ The previous week had the 6th highest GPG gas usage level at 349 TJ on 22 January, and the following week had the 9th highest day at 337TJ on 30 January.

Separate \$5000 pricing reports will be released covering electricity market outcomes around these high priced events.

Figures 7 and 8 below illustrate the gap in local generation and demand requirements.⁷

Figure 7: Victorian generation output and local demand (MW)

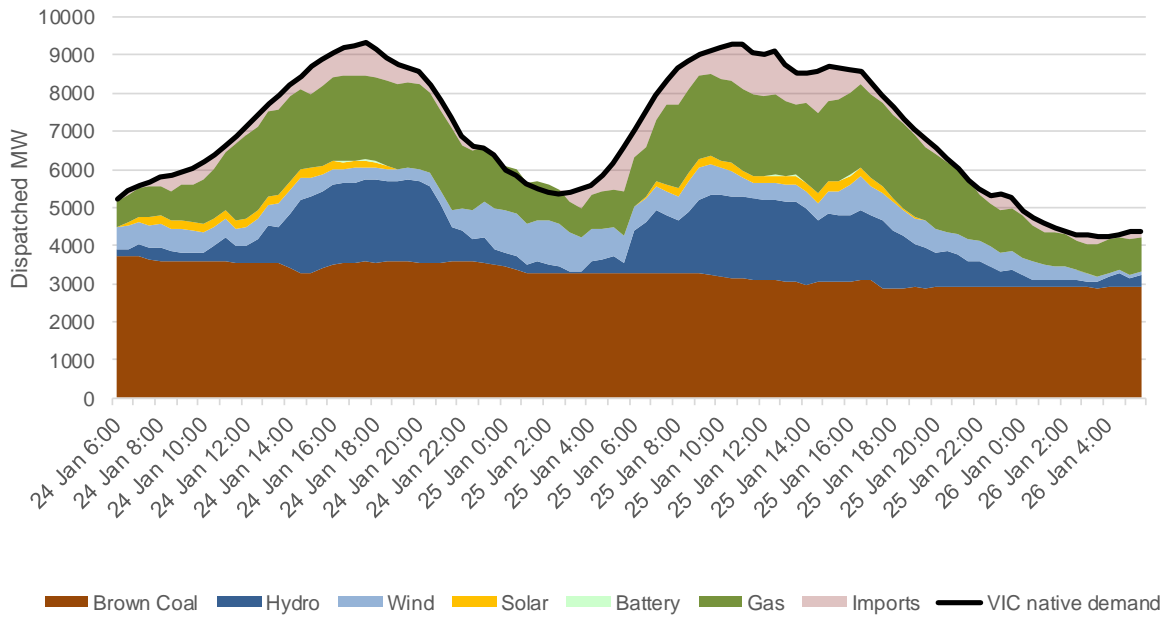
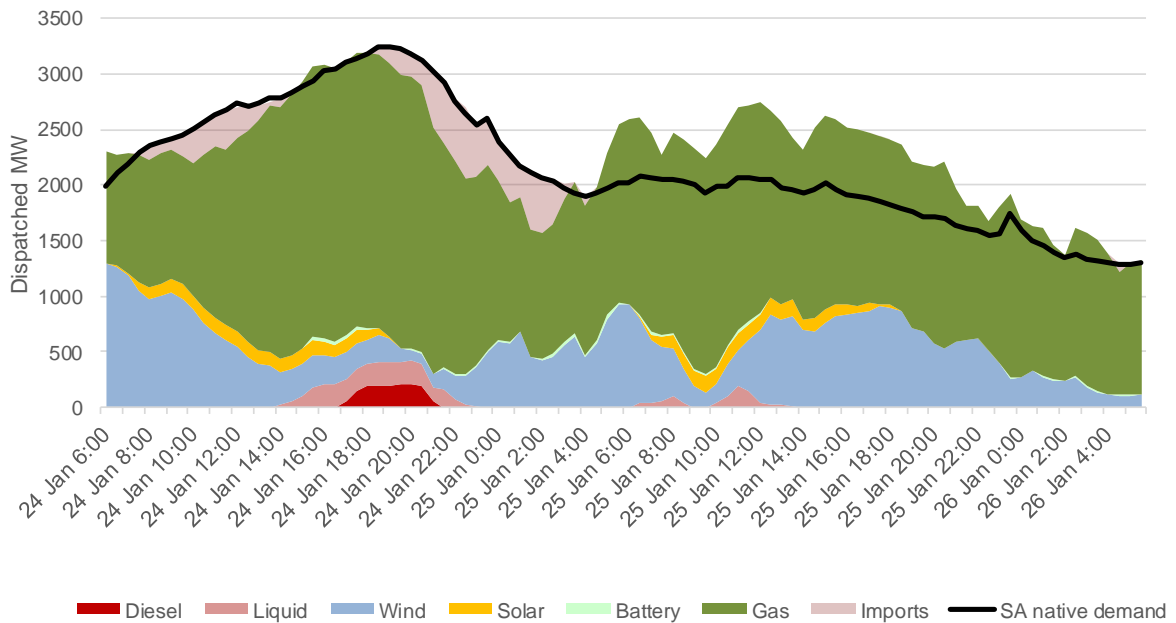


Figure 8: South Australian generation output and local demand (MW)



⁷ Actual generation is displayed for gas days 24 and 25 January 2019 (from 6 am, or the 6:30 spot interval in the NEM)

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 price⁸ which is the schedule at which most gas is traded.

The main drivers⁹ 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 forecasts¹⁰, 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)

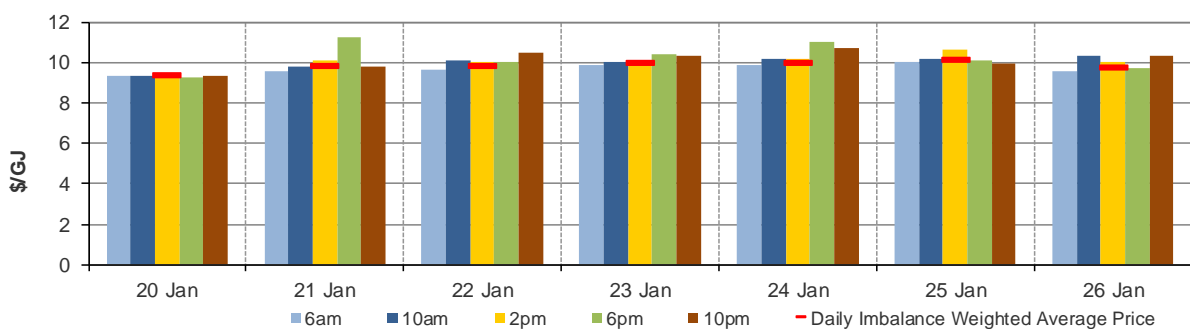
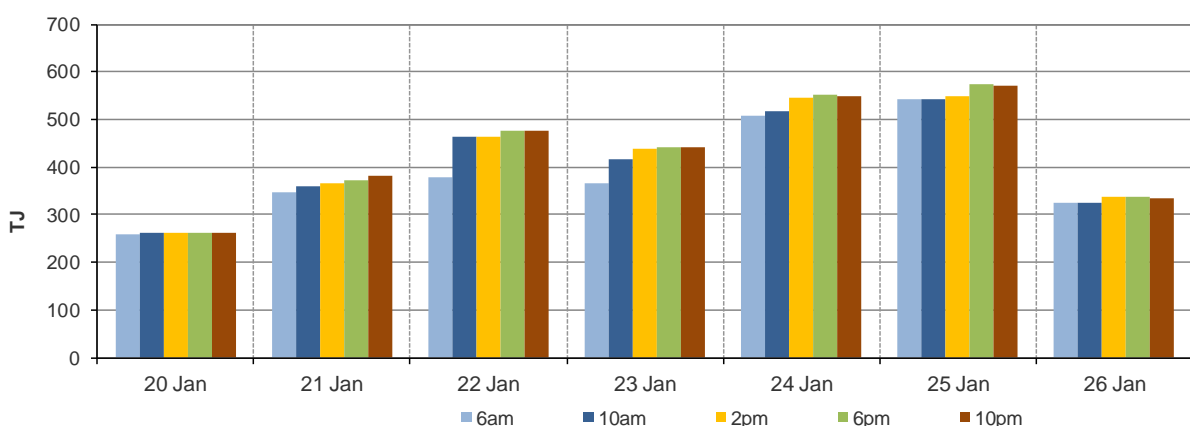


Figure 1.2: Demand forecasts (TJ)



⁸ 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.

⁹ 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.

¹⁰ 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)

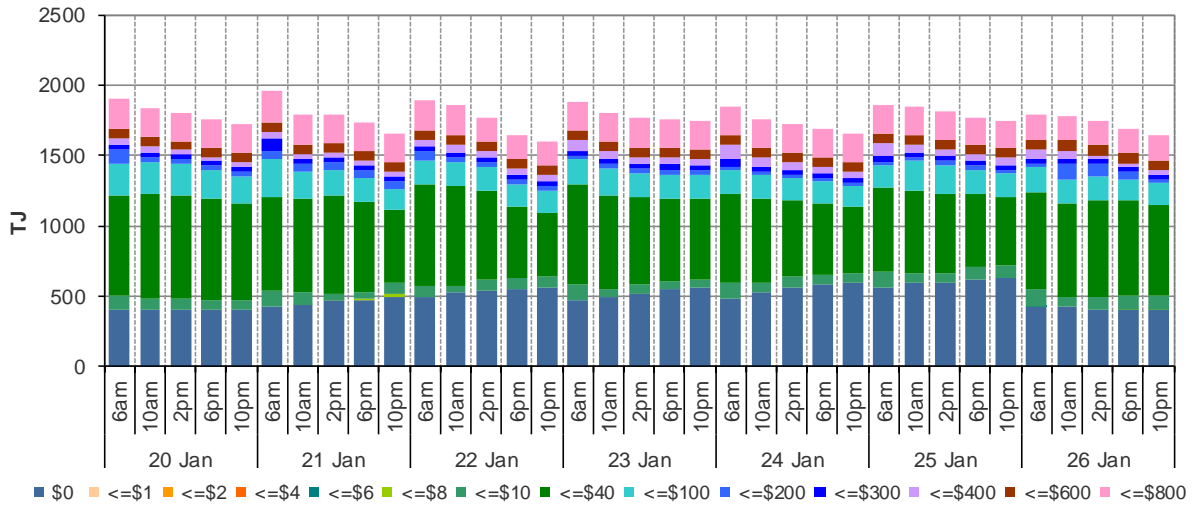


Figure 1.4: Withdrawal bids by price bands (TJ)

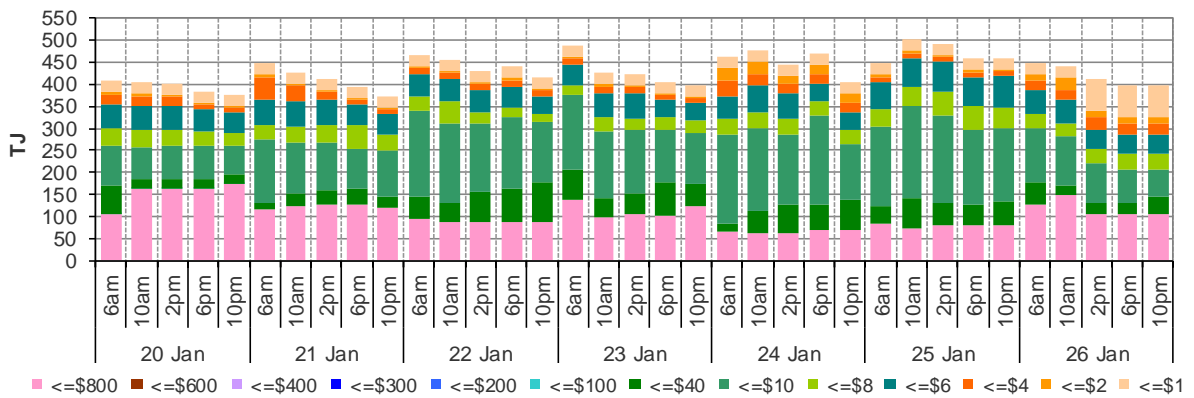
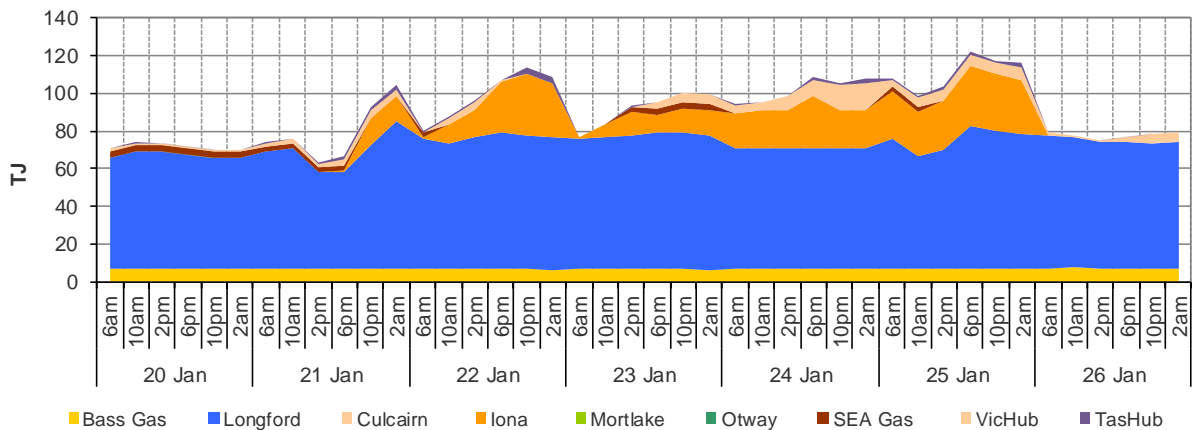


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.¹¹ 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](#).

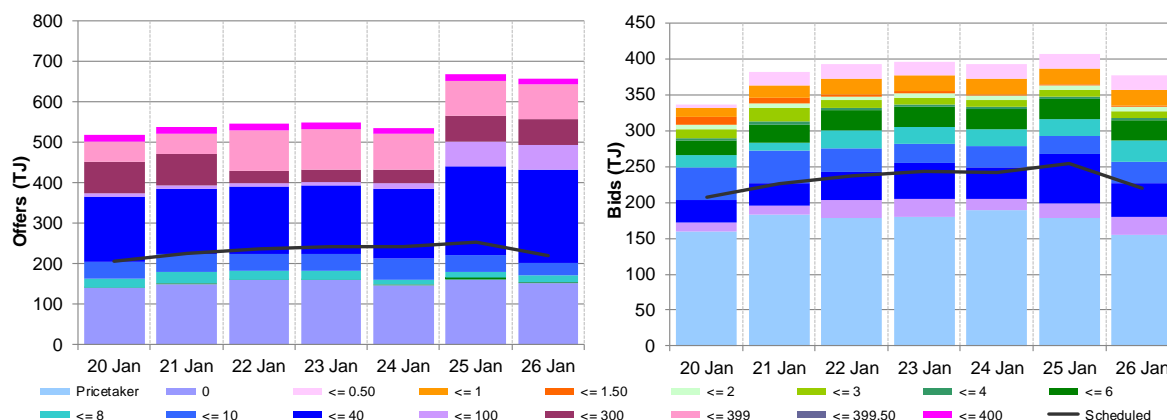
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.¹²

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	10.20	10.50	10.70	11.69	12.00	11.15
Ex ante quantity (TJ)	207	227	236	243	242	254	220
Ex post price (\$/GJ)	10.50	10.26	10.64	12.19	12.70	12.50	11.10
Ex post quantity (TJ)	213	234	244	262	251	259	218

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



¹¹ 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.

¹² 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)

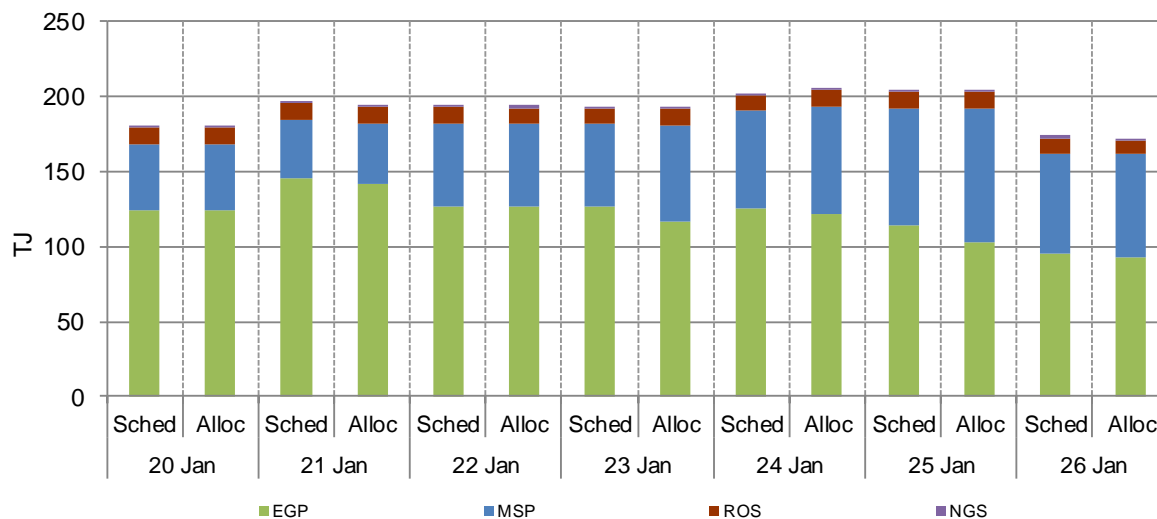
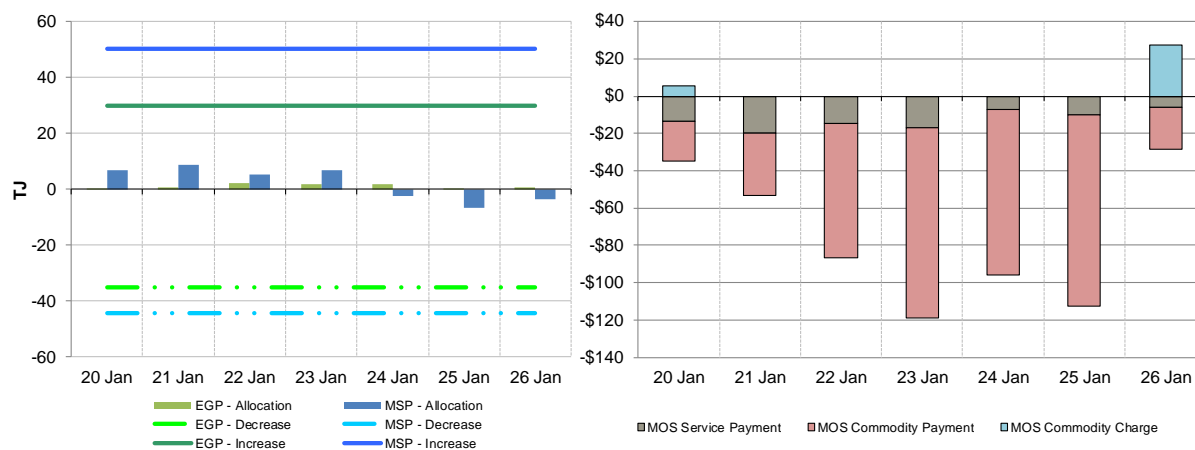


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)¹³



¹³ The commodity cost of MOS illustrated on the right of the figure represents the commodity quantity at the D+2 ex ante price. Commodity payments and charges for a given gas day relate to quantities traded two days earlier. That is, the commodity cost for services provided on Sunday will appear in the chart for Tuesday, when the D+2 price is set. In contrast, service payments are shown alongside the day they occurred.

3. Adelaide STTM

The Adelaide STTM hub functions in the same way as the Sydney STTM hub. The same data that was presented for the Sydney hub is presented for the Adelaide hub in the figures below.

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

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Ex ante price (\$/GJ)	9.40	9.37	10.81	10.99	11.15	10.69	10.00
Ex ante quantity (TJ)	27	36	36	35	30	32	26
Ex post price (\$/GJ)	9.27	9.19	10.99	11.02	13.23	12.99	9.60
Ex post quantity (TJ)	24	33	38	37	38	43	23

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

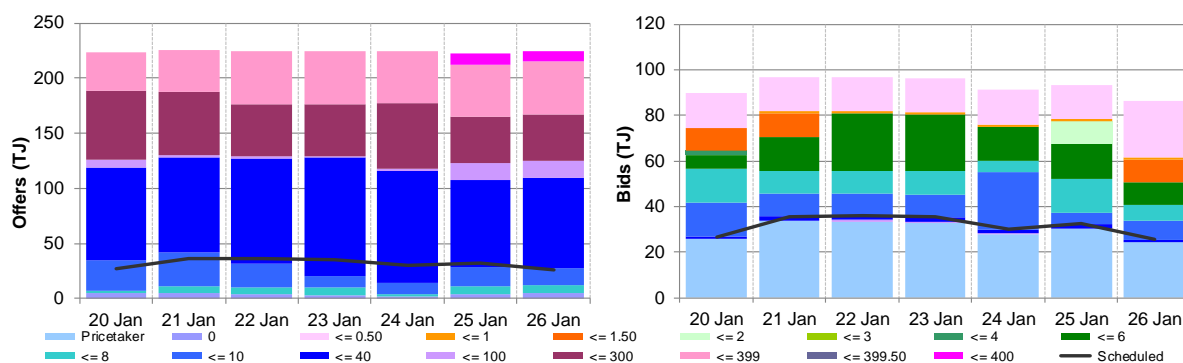


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

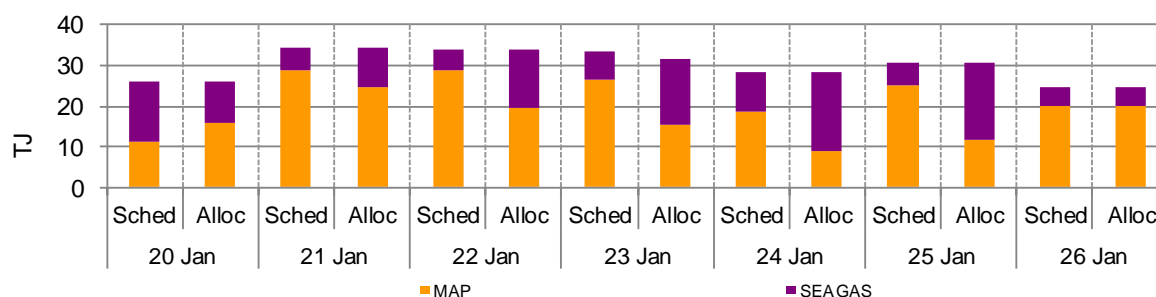
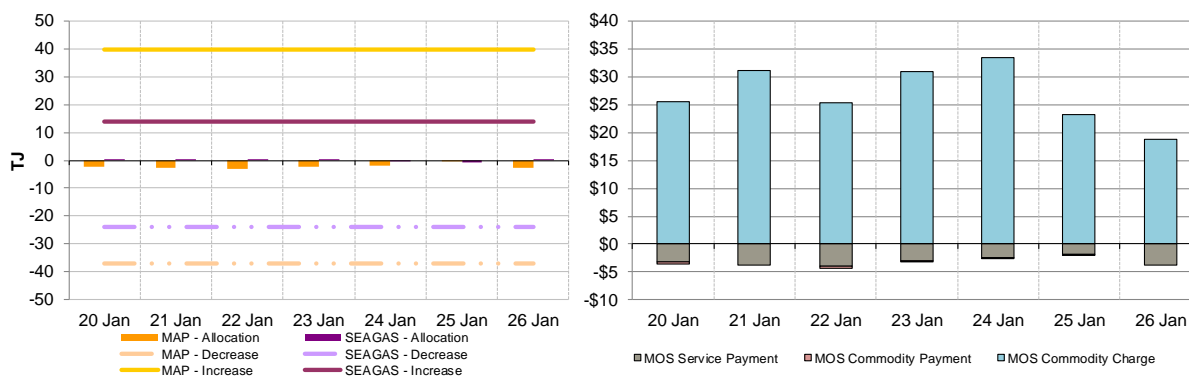


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	9.85	9.50	10.89	10.33	11.50	11.31	9.80
Ex ante quantity (TJ)	101	129	132	126	127	124	110
Ex post price (\$/GJ)	10.96	11.14	10.89	10.33	10.96	10.95	9.99
Ex post quantity (TJ)	106	135	132	125	125	121	117

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

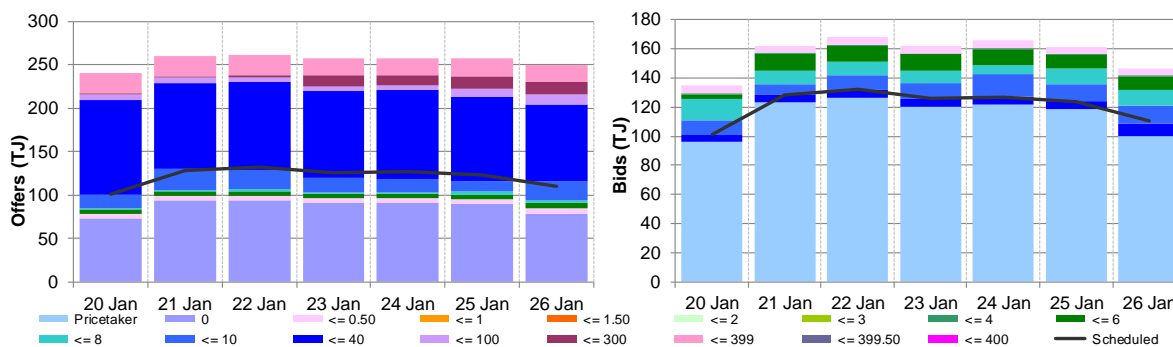


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

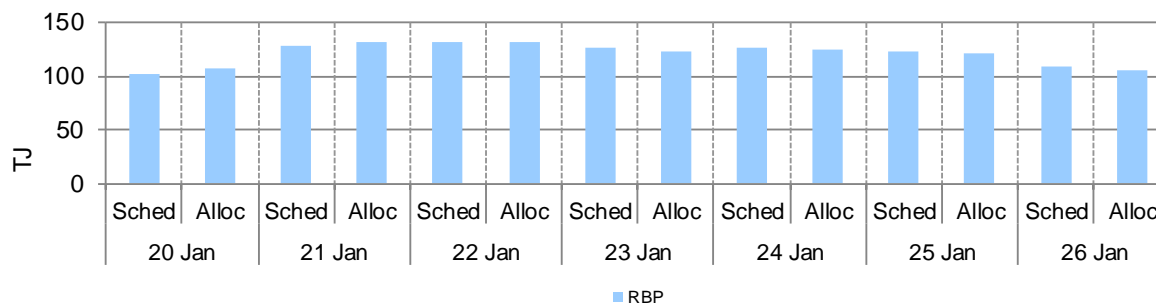
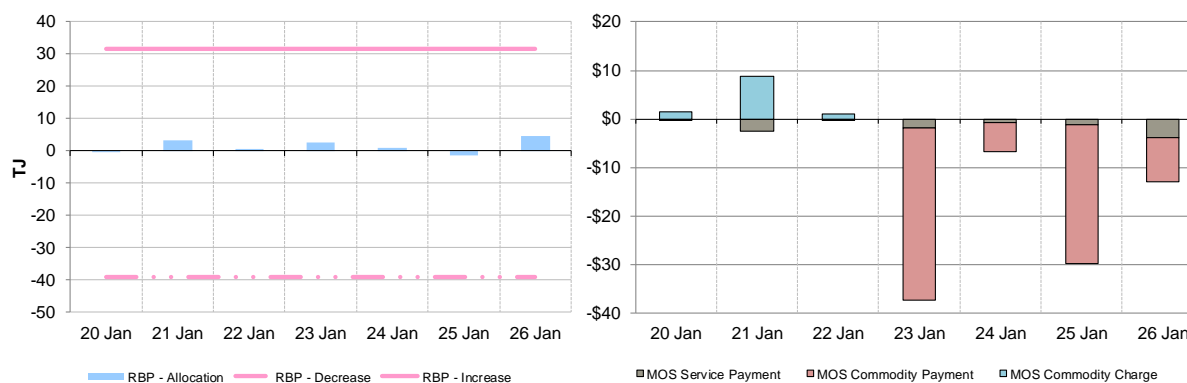


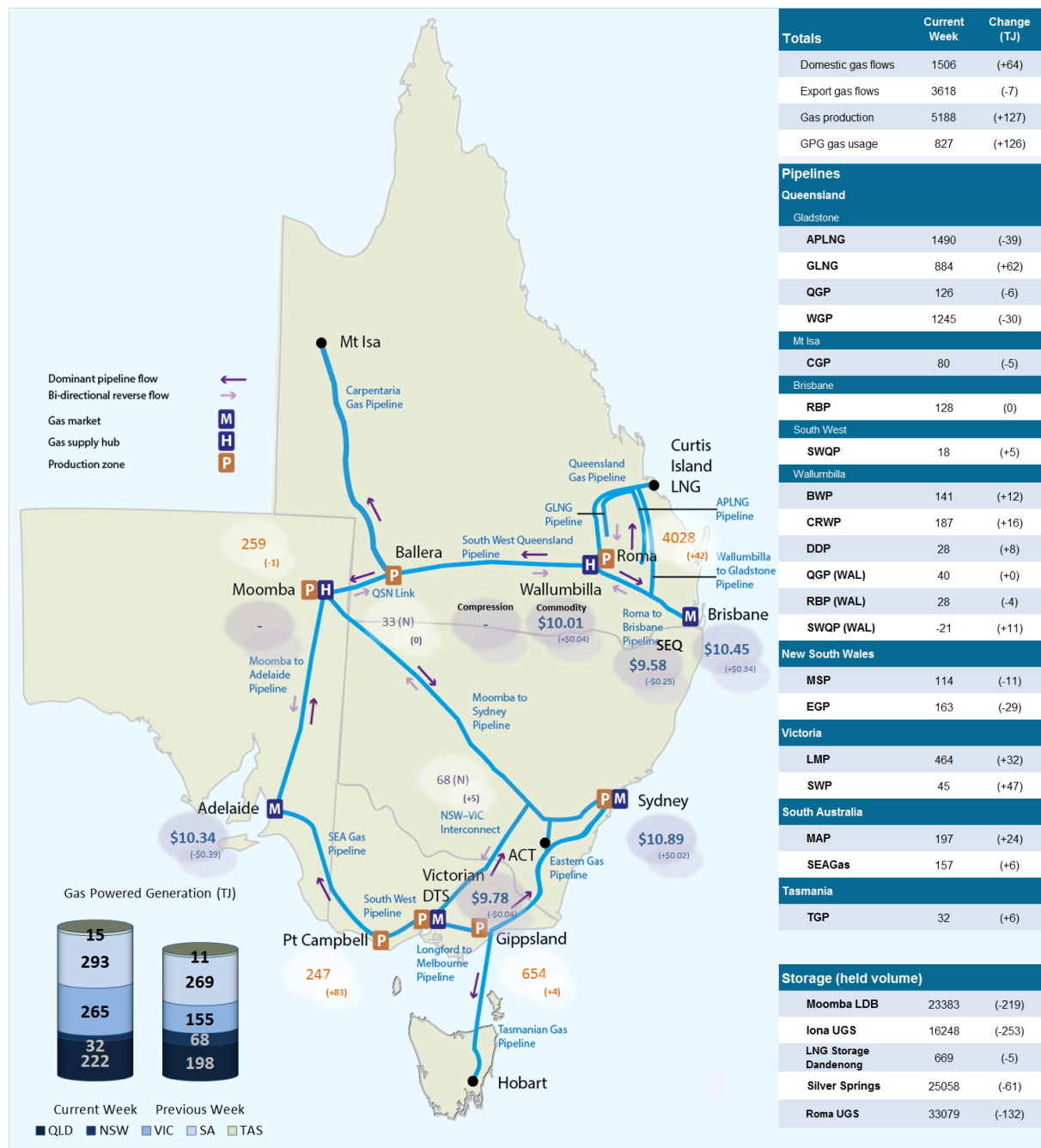
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week¹⁴ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices¹⁵ 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)¹⁶



¹⁴ 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.

¹⁵ Export gas flows are calculated as the total of: the APLNG pipeline; the GLNG pipeline; and the Wallumbilla to Gladstone pipeline.

¹⁶ GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.

¹⁵ 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.

¹⁶ Net flows are shown for Bulletin Board facilities, as outlined in the [user guide](#).

6. Gas Supply Hub

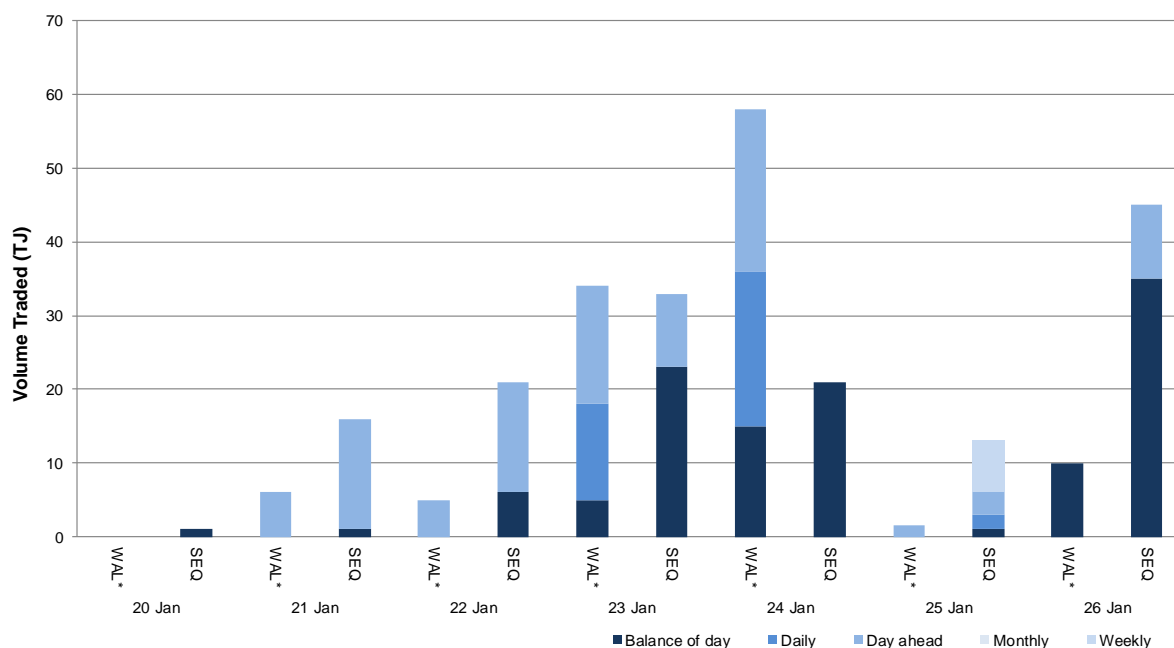
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).¹⁷

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 56 trades for 264.6 TJ of gas at a volume weighted price of \$9.77/GJ. These consisted of 23 trades at WAL (114.6 TJ at \$10.01/GJ) and 33 trades at SEQ (150 TJ at \$9.58/GJ). There were 2 spreads traded.

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.¹⁸

Figure 6.1: GSH traded quantities



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¹⁷ Additional information on trading locations and available products is detailed in the [user guide](#).

¹⁸ Non-netted (off-market) trades, allowing the selection of specific delivery point at a trading location, are included with other Wallumbilla trades (WAL*).