

2 – 8 December 2018

Weekly Summary

Prices decreased across the east coast with mostly small changes in price and demand changes in the STTM hubs. The exception was a 21 percent increase in demand in Brisbane and a 10 per cent fall in demand in Adelaide.

Roma Underground Storage started reporting on the Bulletin Board from the start of December. As shown in Figure 5.2, the storage level averaged 34 PJ this week. This is 63 percent of its nameplate storage capacity (54 PJ).

On 7 December, there were 5 quarterly Victorian Gas futures contracts for 2019 traded between \$10.57-11.06/GJ on the ASX. This marks continued development in the market as interest from the year is sustained in 2019. On 23 August 2018, there were 98 futures contracts open for hedging or speculation on the ASX exchange. This has since increased significantly with 449 open contracts recorded at the end of November.

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)¹

| | Victoria | | Sydney | | Adelaide | | Brisbane | |
|-----------------------------|----------|--------|--------|--------|----------|--------|----------|--------|
| | Price | Demand | Price | Demand | Price | Demand | Price | Demand |
| 02 Dec - 08 Dec 2018 | 10.15 | 330 | 10.37 | 216 | 11.15 | 46 | 10.17 | 57 |
| % change from previous week | -1 | 1 | -6 | -1 | -1 | -10 | -2 | 21 |

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

| | Victoria | | Sydney | | Adelaide | | Brisbane | |
|--------------------------------------|----------|--------|--------|--------|----------|--------|----------|--------|
| | Price | Demand | Price | Demand | Price | Demand | Price | Demand |
| 18-19 financial YTD | 9.54 | 644 | 9.75 | 258 | 9.72 | 67 | 9.69 | 71 |
| % change from previous financial YTD | 25 | -7 | 19 | -1 | 27 | -2 | 39 | -17 |

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 Dec - 08 Dec 2018 | - | - | 9.84 | 535 | 9.46 | 198 |
| % change from previous week | - | - | 1 | 369 | -4 | 421 |
| 18-19 financial YTD | 9.40 | 61 | 9.74 | 5590 | 9.80 | 2717 |
| % change from previous financial YTD | 76 | 408 | 39 | 22 | 33 | 36 |

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

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

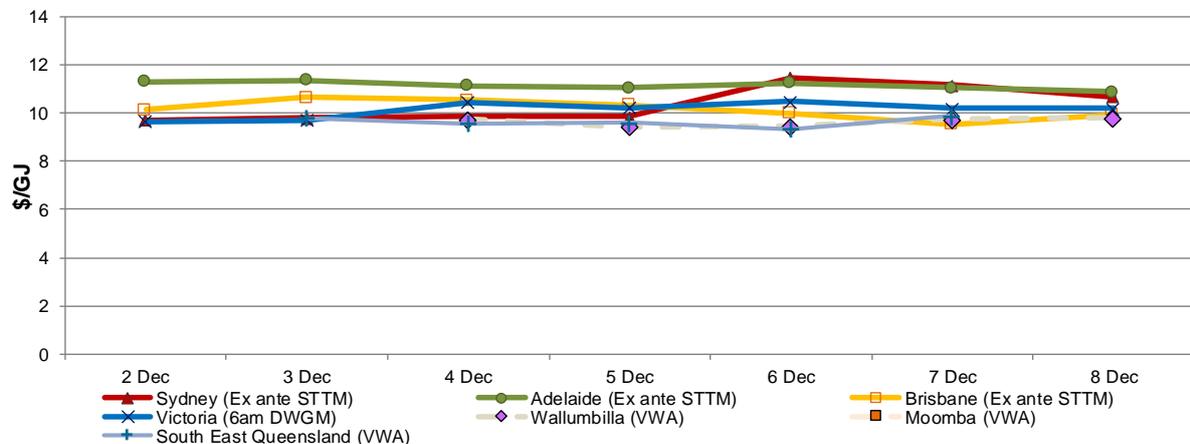


Figure 4 compares average ancillary market payments (VGM) and balancing gas service payments (STTM) against historical averages.

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: Average ancillary payments (\$000)

| | Victoria Ancillary Payments* | Sydney MOS | Adelaide MOS | Brisbane MOS |
|--------------------------------------|---------------------------------|---------------|-----------------|-----------------|
| 02 Dec - 08 Dec 2018 | - | 8.89 | 2.90 | 1.35 |
| % change from previous week | - | -33 | -5 | 146 |
| 18-19 financial YTD | | 22.64 | 4.78 | 1.14 |
| % change from previous financial YTD | | -36 | -32 | -59 |

* 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 | - | - | 9.55 | 18.0 | 9.53 | 45.0 |
| Daily | - | - | 9.72 | 67.0 | 9.75 | 2.0 |
| Day ahead | - | - | 9.53 | 30.0 | 9.81 | 11.0 |
| Weekly | - | - | 9.90 | 420.0 | 9.40 | 140.0 |
| Monthly | - | - | - | - | - | - |
| Total | - | - | 9.84 | 535.0 | 9.46 | 198.0 |

* 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 | 1488 | 891 | 1569 | 3948 |
| Export Pipeline Flows | 1517 | 870 | 1166 | 3553 |
| % change from previous week (pipeline flows) | 1 | 1 | -6 | -1 |
| 18-19 financial YTD Flows | 1379 | 801 | 1256 | 3435 |

* 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

Queensland

Figure 1 shows a small price drop in the Brisbane market despite an increase in demand of 21 percent. This corresponds with a 22 percent fall in demand for gas powered electricity generation in Queensland (see Figure 5.1) which offsets Brisbane's demand increase. Lower daily temperatures in Brisbane across the week associated with lower electricity demand for cooling during hot weather.

Brisbane's increase in demand is mainly driven by the return of fertilizer manufacturer Incitec Pivot, following its nearly two month outage since 1 October 2018. Incitec Pivot's return to production this week has ramped-up gas deliveries to its manufacturing plant on Gibson Island in Brisbane. Actual gas flows to Gibson Island ramped-up from around 2 TJ at the start of the week to 20 TJ near the end of the week. This is likely to continue upwards towards flow levels of above 30 TJ per day, seen prior to the outage.

Adelaide

While Figure 1 shows overall demand for gas in Adelaide decreased by 10 percent this week, Figure 5.2 shows a small increase of 4 TJ in demand for gas powered electricity generation in South Australia. This is likely attributed with higher daily temperatures in Adelaide this week. Maximum daily temperatures of close to 40 degrees persisted across several days and the highest minimum temperature in December was recorded on Friday 7 December.

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 price³ which is the schedule at which most gas is traded.

The main drivers⁴ 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 forecasts⁵, 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)

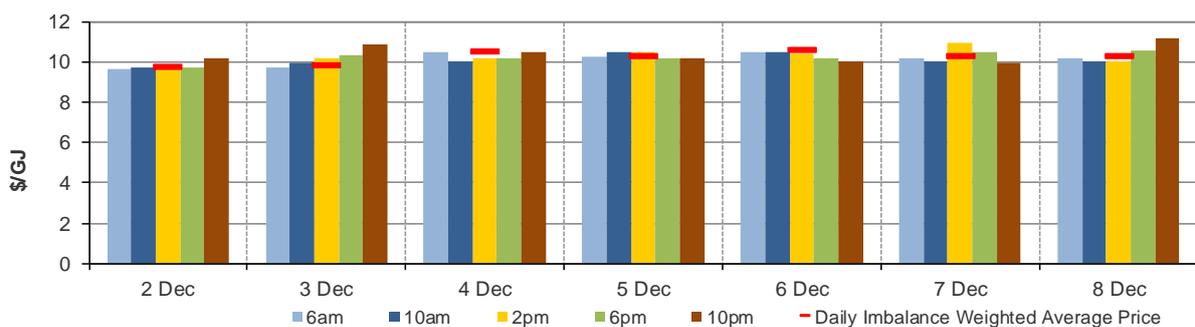
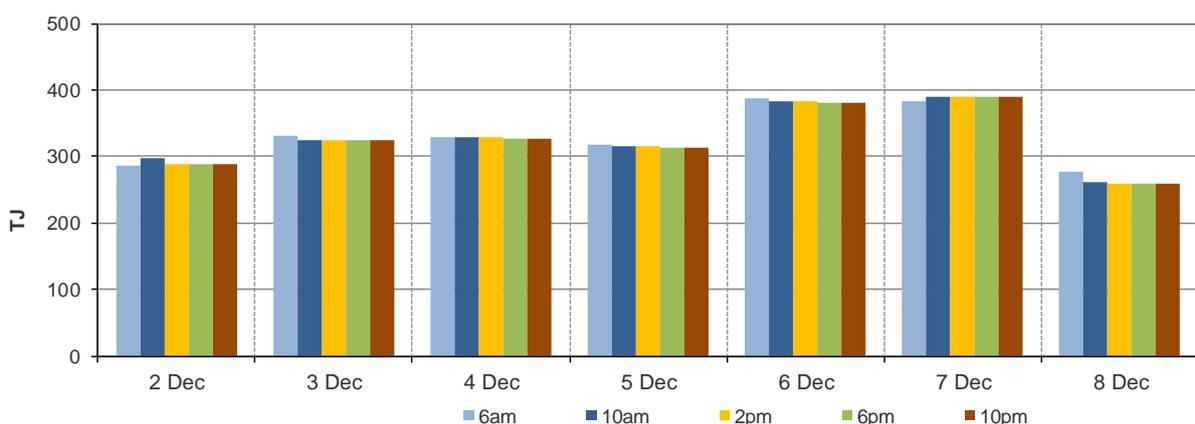


Figure 1.2: Demand forecasts (TJ)



³ 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.

⁴ 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.

⁵ 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)

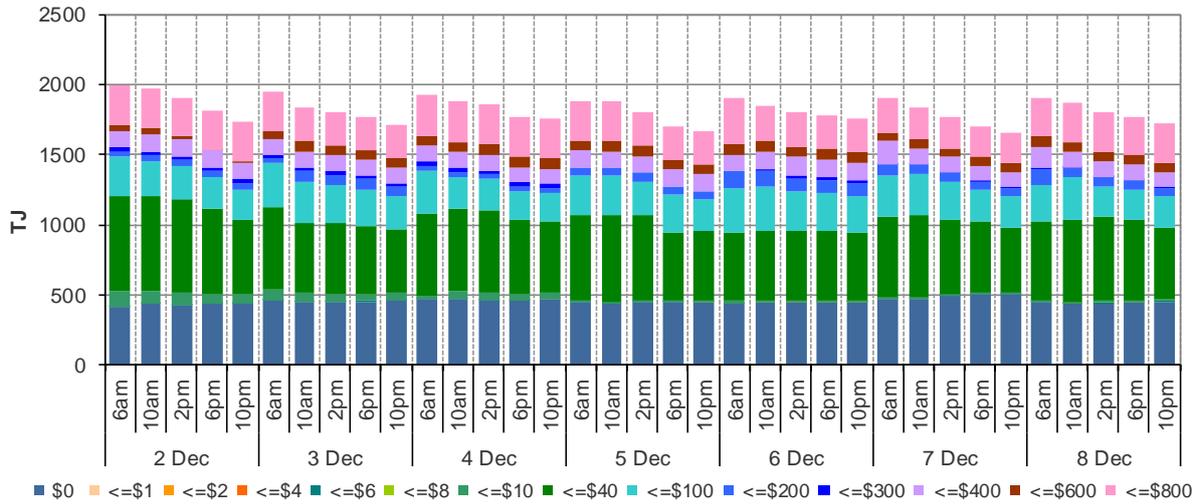


Figure 1.4: Withdrawal bids by price bands (TJ)

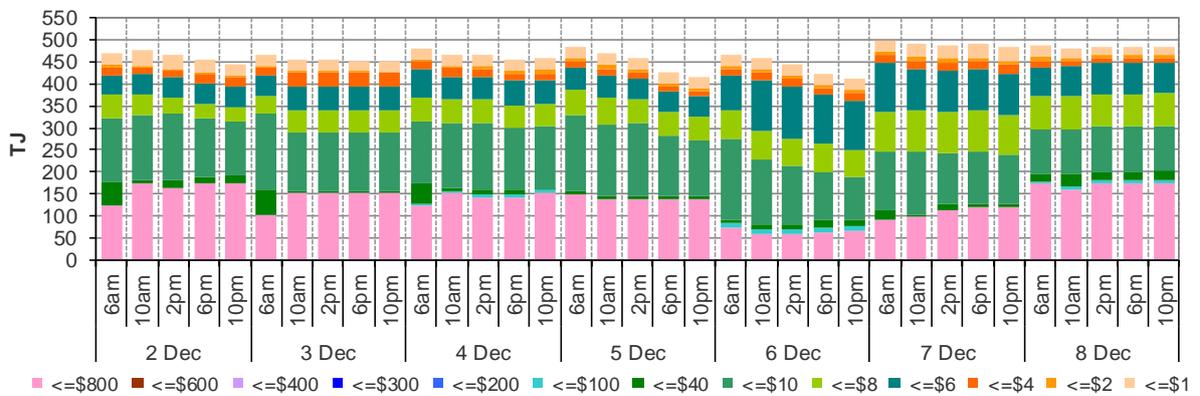
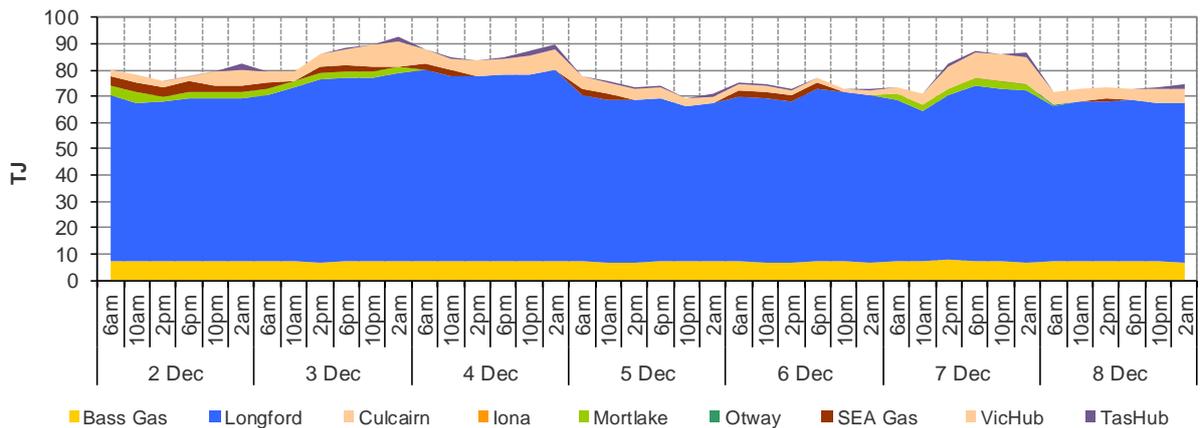


Figure 1.5: Metered Injections by System Injection Point (TJ)



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.⁶ 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](#).

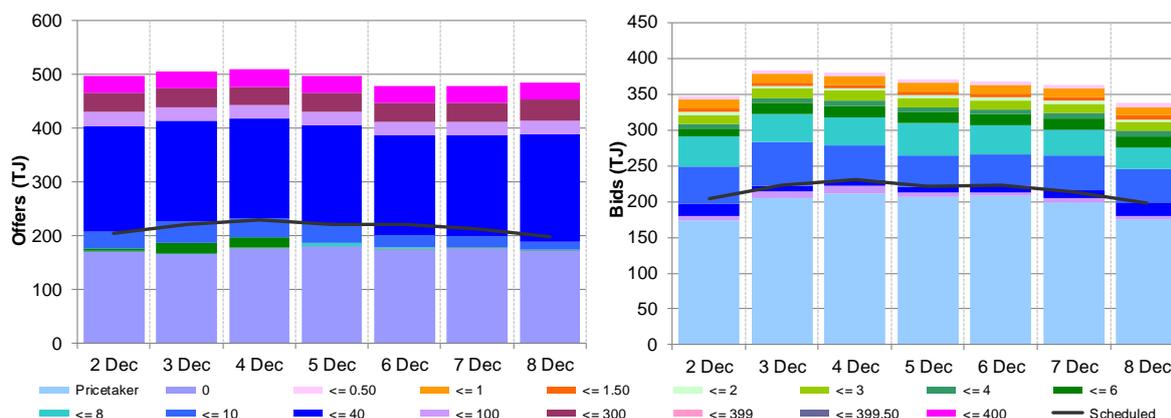
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.⁷

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) | 9.73 | 9.80 | 9.87 | 9.85 | 11.48 | 11.18 | 10.70 |
| Ex ante quantity (TJ) | 204 | 223 | 230 | 221 | 223 | 214 | 198 |
| Ex post price (\$/GJ) | 9.73 | 9.80 | 9.87 | 10.23 | 12.16 | 11.35 | 11.13 |
| Ex post quantity (TJ) | 205 | 220 | 231 | 226 | 232 | 221 | 203 |

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



⁶ 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.

⁷ 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)

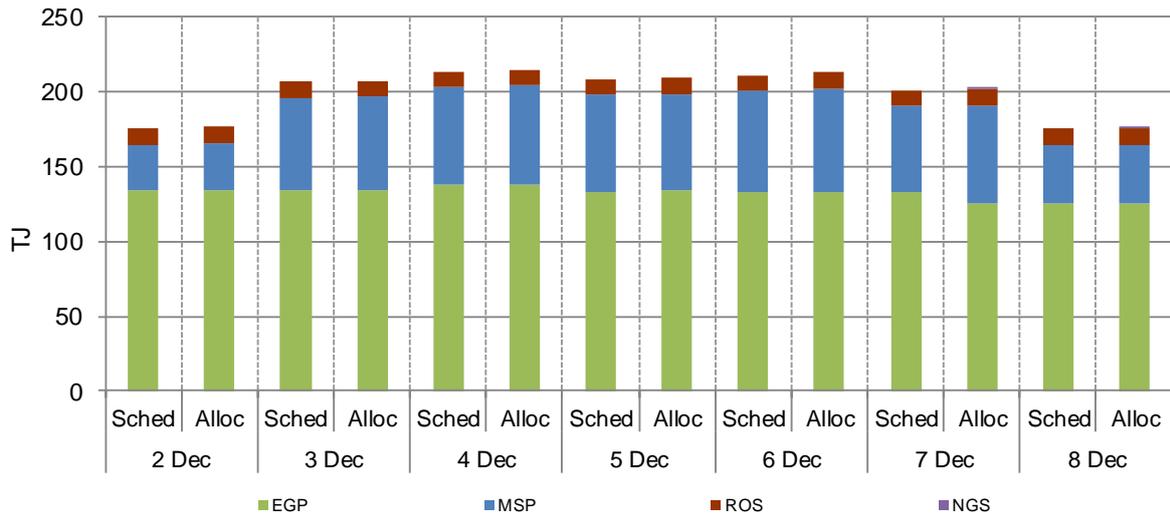
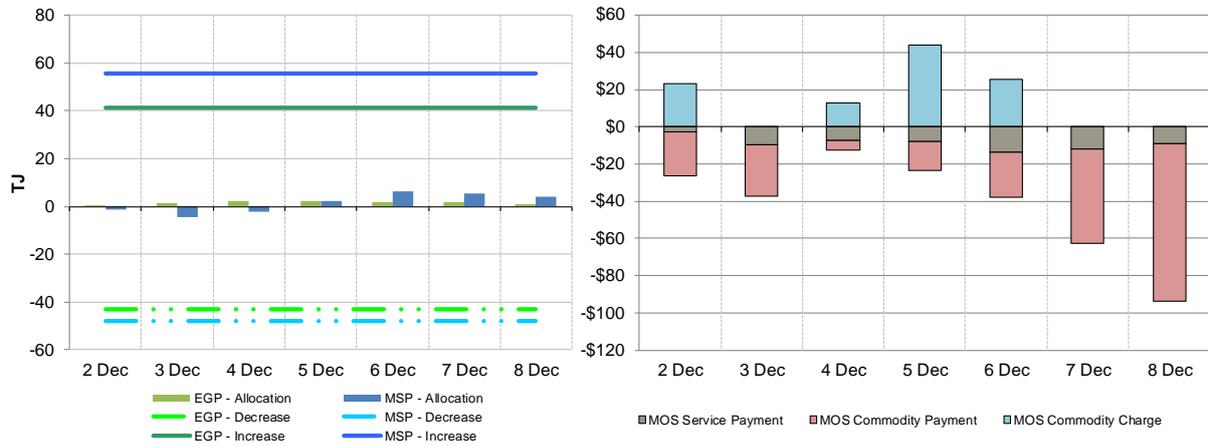


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)⁸



⁸ 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) | 11.30 | 11.37 | 11.15 | 11.05 | 11.26 | 11.06 | 10.89 |
| Ex ante quantity (TJ) | 43 | 52 | 50 | 48 | 47 | 46 | 39 |
| Ex post price (\$/GJ) | 11.30 | 11.37 | 11.17 | 11.10 | 11.26 | 11.06 | 11.00 |
| Ex post quantity (TJ) | 45 | 53 | 53 | 49 | 46 | 45 | 41 |

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

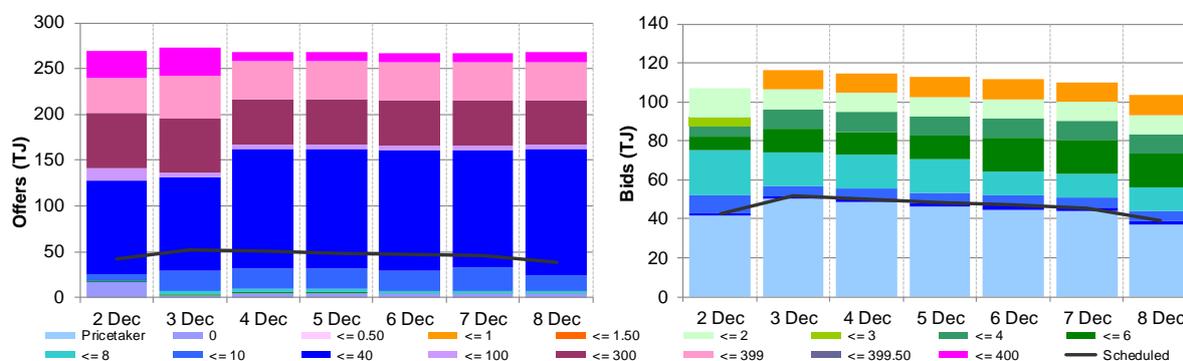


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

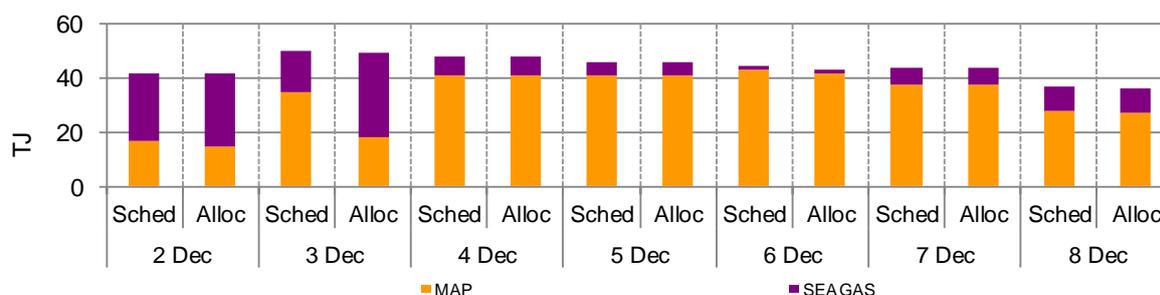
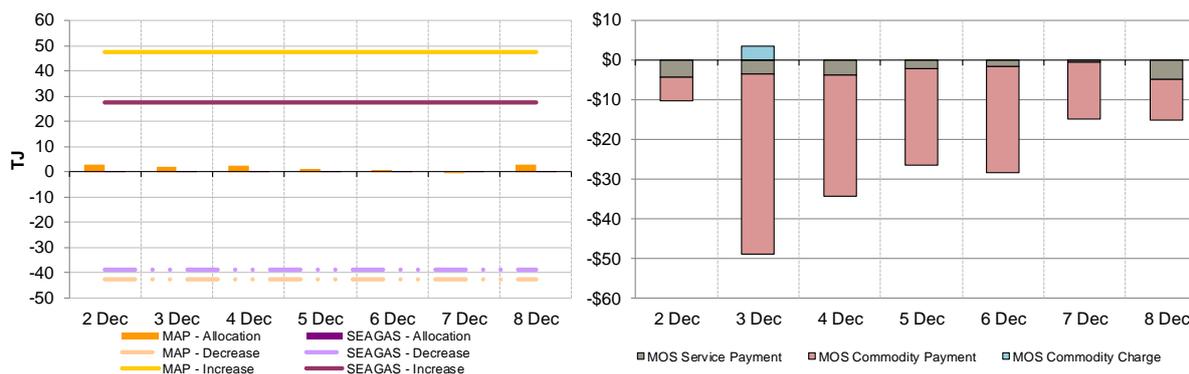


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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) | 10.13 | 10.65 | 10.55 | 10.35 | 10.00 | 9.53 | 9.95 |
| Ex ante quantity (TJ) | 41 | 54 | 57 | 62 | 69 | 65 | 50 |
| Ex post price (\$/GJ) | 10.30 | 10.99 | 10.55 | 10.35 | 10.00 | 10.25 | 10.44 |
| Ex post quantity (TJ) | 43 | 57 | 57 | 62 | 69 | 73 | 56 |

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

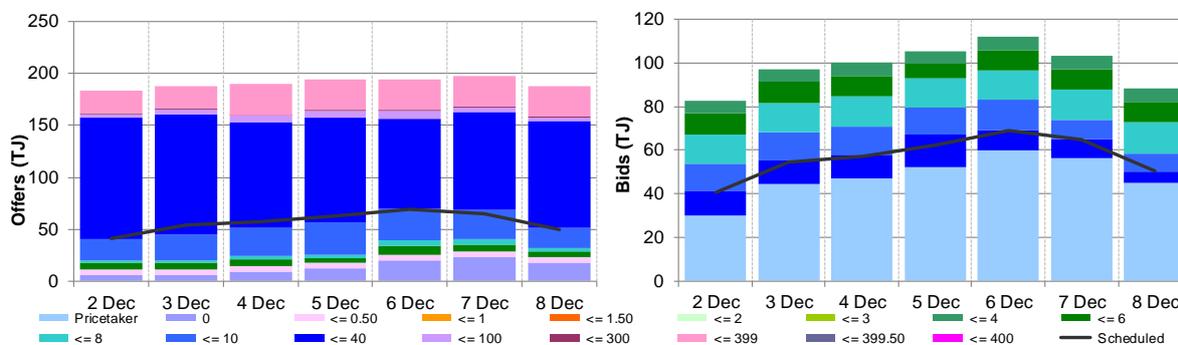


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

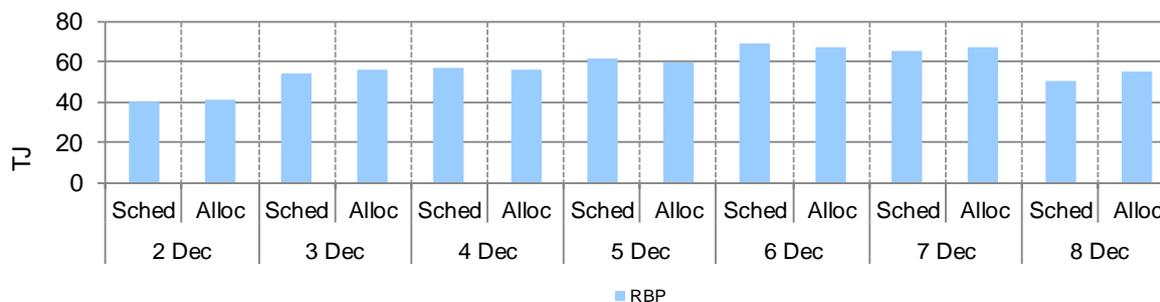


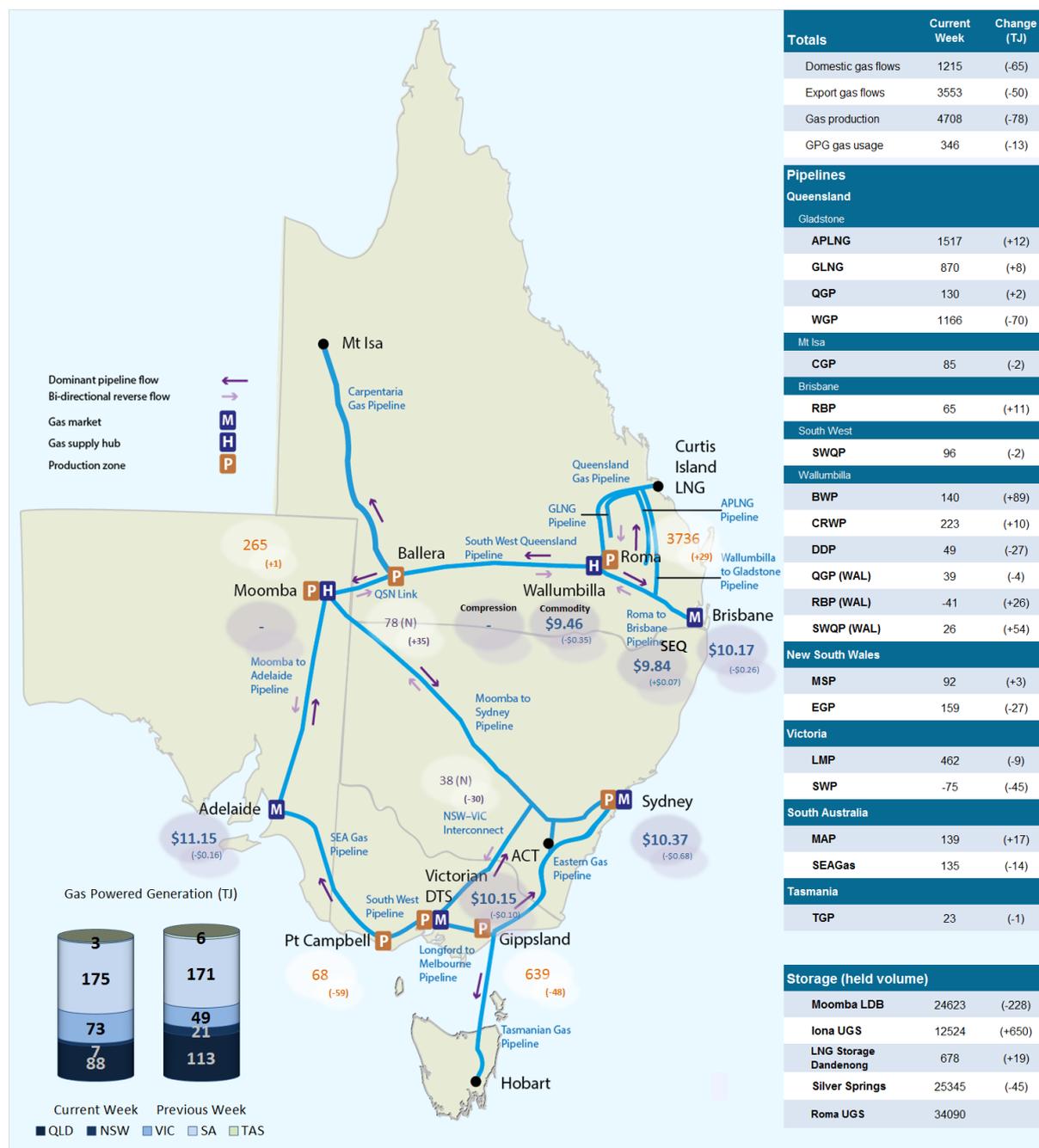
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week⁹ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily prices¹⁰ 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)¹¹



⁹ 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.

¹⁰ 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.

¹¹ Net flows are shown for Bulletin Board facilities, as outlined in the [user guide](#).

6. Gas Supply Hub

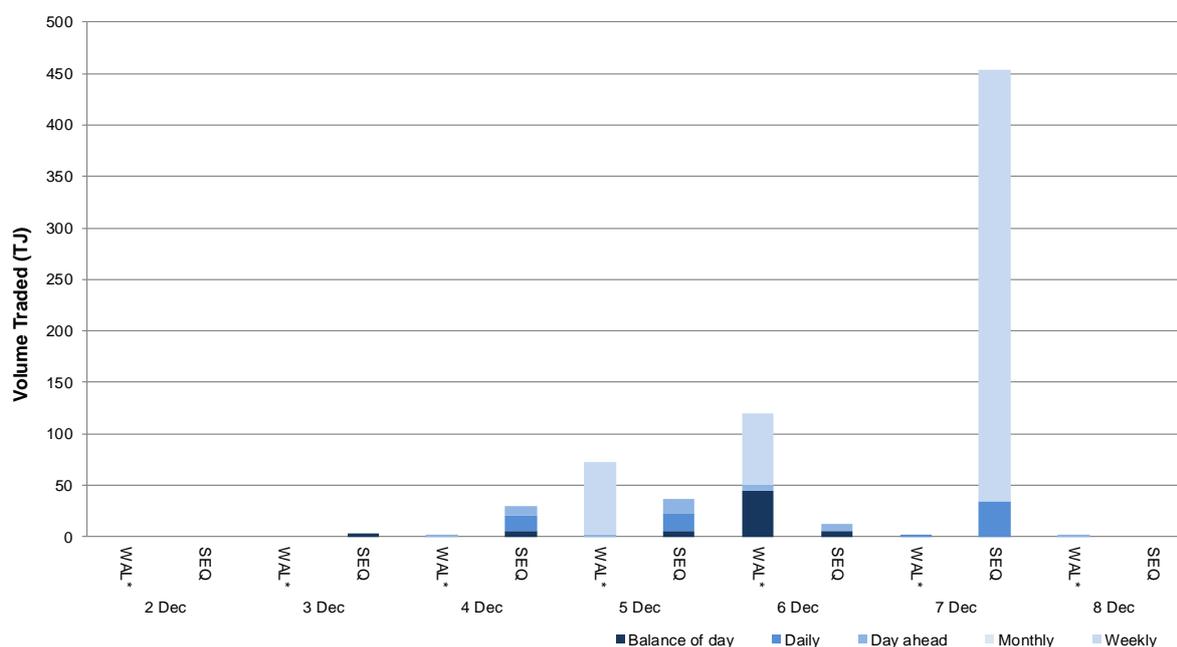
The gas supply hub was established at Wallumbilla in March 2014 to facilitate the voluntary trading of gas between participants, with products listed for sale and purchase at delivery points on three major connecting pipelines. There are separate products for each trading location and delivery period (daily, day-ahead, balance-of-day, weekly and monthly products).¹²

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 32 trades for 733 TJ of gas at a volume weighted price of \$9.74/GJ. These consisted of 9 trades at WAL (198 TJ at \$9.46/GJ) and 23 trades at SEQ (535 TJ at \$9.84/GJ). There were 4 spread trades.

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.¹³

Figure 6.1: GSH traded quantities



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¹² Additional information on trading locations and available products is detailed in the [user guide](#).

¹³ Non-netted (off-market) trades, allowing the selection of specific delivery point at a trading location, are included with other Wallumbilla trades (WAL*).