

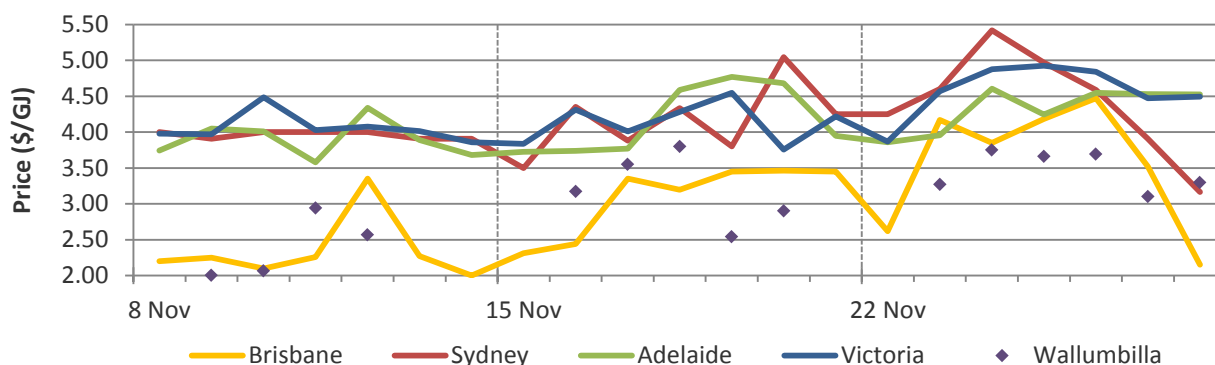
22 – 28 November 2015

Weekly summary

Figure 1 shows that average prices were higher in all markets than for the previous week. The biggest price increase occurred in the Brisbane hub, at 15 per cent above the previous week's average (following the 32 per cent average price increase discussed in the previous Weekly Report).

The Weekly Summary figure shows daily prices in each gas market for the current week and the fortnight prior.

Weekly Summary: APLNG and GLNG pipeline flows and production and price in Queensland



Looking at the Weekly Summary figure, it appears that higher prices in Queensland influenced prices in southern markets. From 21 November, flows on the QSN Link reversed to flow into Queensland following a ramp up of GLNG supply to Curtis Island. This led to reduced flows south on the Moomba to Sydney Pipeline. At the same time, demand increased in Sydney¹ and Victoria² driving up prices from 24 November.

The Significant Markets Events section discusses other factors that may have influenced prices in Sydney and Victoria.

¹ The demand in Sydney on 24 November increased by almost 40 TJ compared to levels two days prior, setting the price at its highest point for the week at \$5.42/GJ. This also led to an increase in the daily flow compared to the previous day on the Vic-NSW interconnect, having an apparent effect of driving up the price in Victoria on the day.

² Demand in Victoria on 26 November increased significantly as cooler temperatures reached the region, with the 6am forecast for the gas day almost 160 TJ higher than that set the previous morning (see figure 1.2). This followed a warm 33 degree maximum in Melbourne on the previous day, and resulted from a change to the warmer weather blowing towards Victoria from the north dissipating, as a south-westerly wind change affected the region.

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) in 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**) for the current week compared to historical averages.

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

Region	Victoria	Sydney	Adelaide	Brisbane
22 Nov - 28 Nov 2015	4.58	4.41	4.32	3.57
% change from previous week	11	6	4	15
15-16 financial YTD	4.42	4.66	5.03	3.74
% change from previous financial YTD	28	45	44	105

Figure 2 compares average weekly gas prices, ancillary market payments and scheduled injections against historical averages for the Victorian gas market.

Figure 2: Victorian Gas Market

	Price (\$/GJ)	Ancillary payments (\$000)*	BOD forecast demand quantity (TJ)
22 Nov - 28 Nov 2015	4.58	-	409
% change from previous week	11	-	13
15-16 financial YTD	4.42	-	693
% change from previous financial YTD	28	-	7

* Note: only positive ancillary payments, reflecting system constraints will be shown here.

More detailed analysis on the VGM is provided in section 1.

Figures 3 to 5 show average ex ante and ex post gas prices, Market Operator Service (**MOS**) balancing gas service payments together with the related daily demand quantities against historical averages for the Sydney, Adelaide and Brisbane STTM hubs, respectively.

³ The weighted average daily imbalance price applies for Victoria.

Figure 3: Sydney STTM

	Ex ante price (\$/GJ)	Ex post price (\$/GJ)	MOS payments (\$000)	Ex ante quantity (TJ)	Ex post quantity (TJ)
22 Nov - 28 Nov 2015	4.41	4.07	22.39	214	206
% change from previous week	6	23	-10	-2	1
15-16 financial YTD	4.66	4.43	22.91	249	245
% change from previous financial YTD	45	34	54	-6	-9

Figure 4: Adelaide STTM

	Ex ante price (\$/GJ)	Ex post price (\$/GJ)	MOS payments (\$000)	Ex ante quantity (TJ)	Ex post quantity (TJ)
22 Nov - 28 Nov 2015	4.32	4.57	5.71	52	57
% change from previous week	4	2	30	6	4
15-16 financial YTD	5.03	5.12	9.84	71	72
% change from previous financial YTD	44	48	-23	-1	1

Figure 5: Brisbane STTM

	Ex ante price (\$/GJ)	Ex post price (\$/GJ)	MOS payments (\$000)	Ex ante quantity (TJ)	Ex post quantity (TJ)
22 Nov - 28 Nov 2015	3.57	3.36	1.56	80	77
% change from previous week	15	11	30	-3	-7
15-16 financial YTD	3.74	3.68	1.33	91	90
% change from previous financial YTD	105	132	13	-43	-43

More detailed analysis of the STTM hubs is found in sections 2 to 4.

Section 5 provides analysis on production and pipeline flows on the National Gas Bulletin Board (**Bulletin Board**), as well as gas powered generation (**GPG**) volumes in each state, and section 6 provides information on the Gas Supply Hub (**GSH**) at Wallumbilla.

Significant Market Events or Issues this week

Queensland LNG projects

Figure 6: QCLNG production and pipeline flows

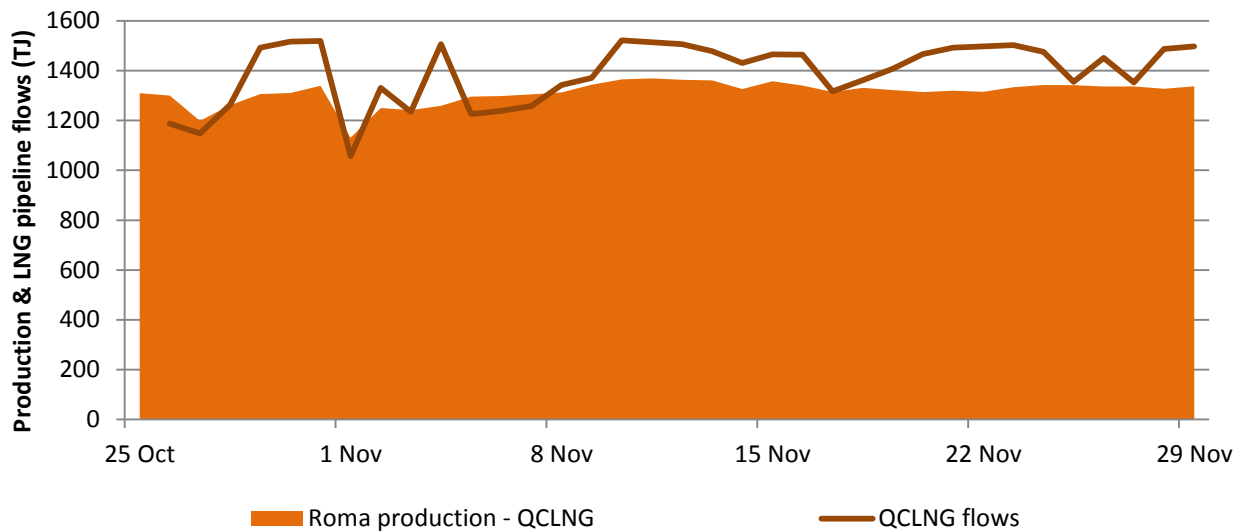


Figure 6 shows that QCLNG production has remained stable at high levels reflecting the two LNG trains that are up and running.⁴

Figure 7: APLNG production and pipeline flows

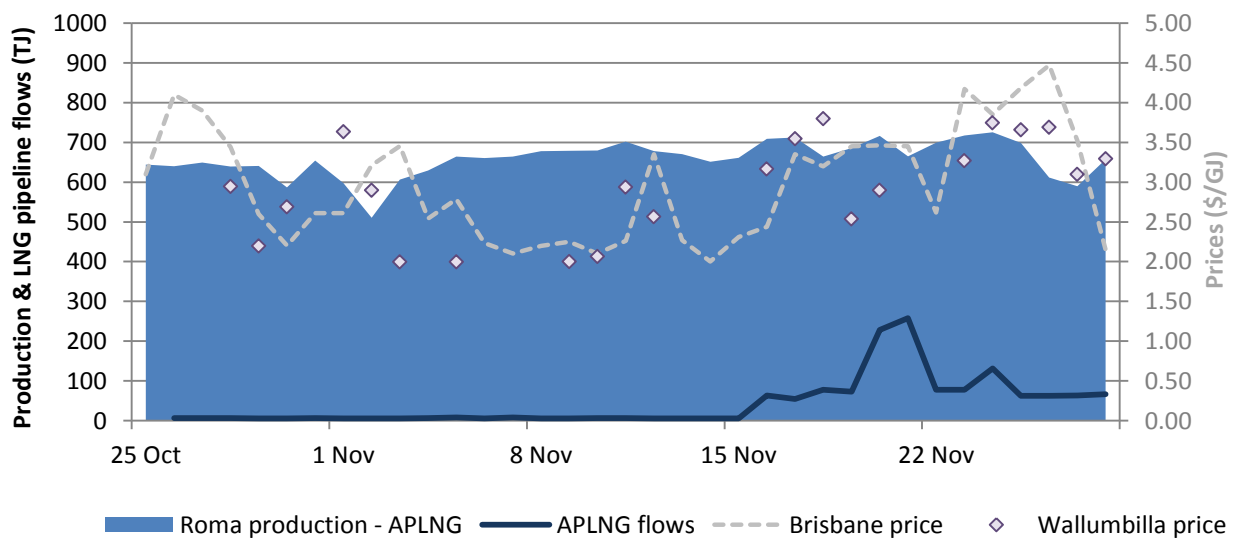


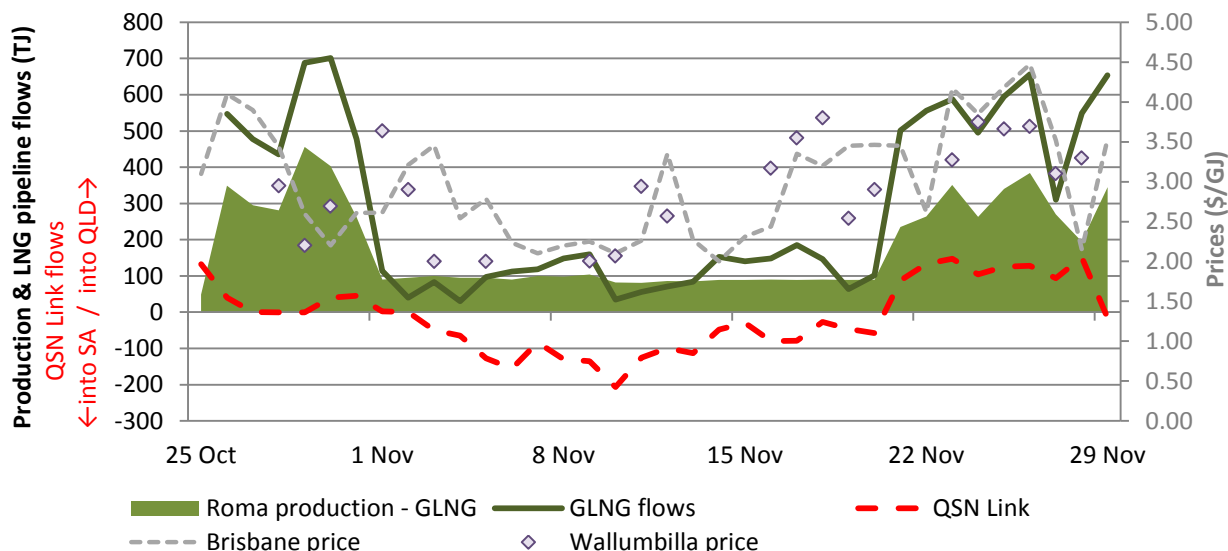
Figure 7 shows that, while production from APLNG facilities has remained relatively stable recently, there have been increases in LNG pipeline flows (the dark blue line). This could indicate it is preparing to ship LNG from its first train in line with its expected start-up timeframe from the end of December 2015.⁵ The increased pipeline flows appeared to have some influence in driving up prices, as reported in the previous weekly.⁶

⁴ Queensland Curtis LNG (QCLNG) commenced shipment from its first LNG export train from 5 January 2015, followed by the commencement of exports from its second train from 12 July 2015.

⁵ Australia Pacific LNG (APLNG) is scheduled to commence exports around December 2015–Q1 2016 and Q2–Q3 2016 from its two upcoming LNG trains.

⁶ The increase in prices in Brisbane may be related to export gas not being available to the domestic market.

Figure 8: GLNG production and pipeline flows*



* Negative QSN flows denoting flows into Queensland have been displayed above the x-axis

Figure 8 shows that GLNG decreased production at its Roma facilities from the end of October following a shutdown of its Curtis Island export facility at Gladstone.⁷ This led to flows from Moomba on the QSN Link to revert to their default flow direction into South Australia for most of November. Flows from Moomba reversed again into Queensland following the ramp-up of LNG train exports from 21 November.⁸ This seemed to affect prices, with both the Brisbane and Wallumbilla hubs increasing following the ramp up.

Longford injections and supply to the Eastern Gas Pipeline

On the 25 November gas day, Longford over injected by around 50 TJ into the Victorian Gas Market during the initial schedules and backed off the plant from around 6 pm (as demonstrated by injection quantities and line pack levels⁹ in figure 9).¹⁰

A planned SCADA upgrade by Jemena, which was projected to be completed by 6 pm, remained unresolved by 11 pm leading to a rollback of the old SCADA system. The delay in bringing compressors back online to deliver gas on the Eastern Gas Pipeline (EGP) led to Longford being rapidly ramped back from around 8 pm due to the higher quantity of gas in the system following the prior over injections.

This resulted in a number of alert notifications for off-specification gas, with low odourisation levels detected from the exceptionally low flows being measured through the Longford metering station.

The following gas day, issues with ramping back up injections at the production facility caused Longford to request a supply point constraint (425 TJ/d) and an Amber Linepack Capacity Adequacy (LCA) flag for the EGP on the Bulletin Board. The Amber flag notification indicated a possible curtailment of load due to the under-delivered quantity of gas, which was subsequently resolved with shippers supplying gas to the Sydney hub.

The increase in participants' demand forecasts in Victoria on the day led to higher scheduled quantities (see figure 1.2). However over forecasting led to the 10 pm schedule price falling to \$0.50/GJ (see figure 1.1).

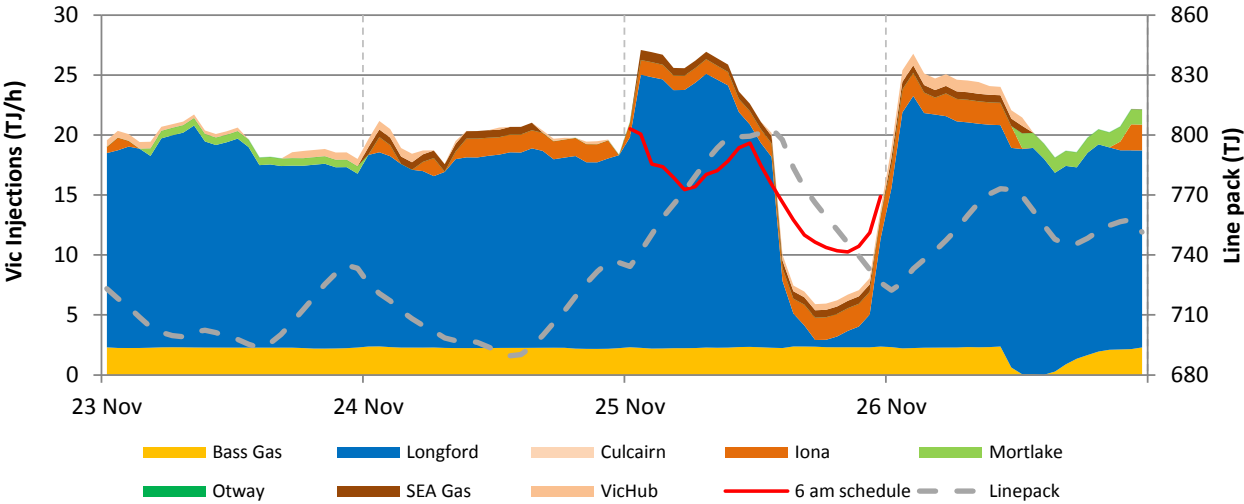
⁷ Gladstone LNG (GLNG) commenced shipping from 16 October 2015, with its second train scheduled to commence around Q2 2016.

⁸ Flows into Queensland from Moomba reached record levels on Monday 23 November (-147.5 TJ) and Saturday 28 November (-151.1 TJ). This is also demonstrated in figure 8.

⁹ Previous gas days are displayed in the chart to provide a comparison against the high level of gas in the system.

¹⁰ Longford has a standard ramp down supply constraint applied for injections after 8 pm.

Figure 9: Victorian Gas Market hourly injections, network line pack levels, and scheduled flows for 25 November



STTM MOS quantities

The requirement for decrease MOS in the Sydney hub was around 7 TJ on a number of occasions across the week, exceeding 16 TJ on Friday 27 November due to over forecasting (at a cost of just over \$50 000, see figure 2.4).

On Saturday 28 November, just over 7 TJ of increase MOS was required in the Adelaide hub despite only a minimal forecast error. This was largely the result of pipeline renominations, with 3.3 TJ of additional supply on the Moomba to Adelaide Pipeline offset by 10 TJ of unscheduled backhaul on SEAGas. This supply shortfall and slightly under forecast demand led to the requirement (see figure 3.3).

22 – 28 November 2015

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 price¹¹ which is the schedule at which most gas is traded.

The main drivers¹² 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 forecasts¹³, 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.

Figure 1.1: Prices by schedule

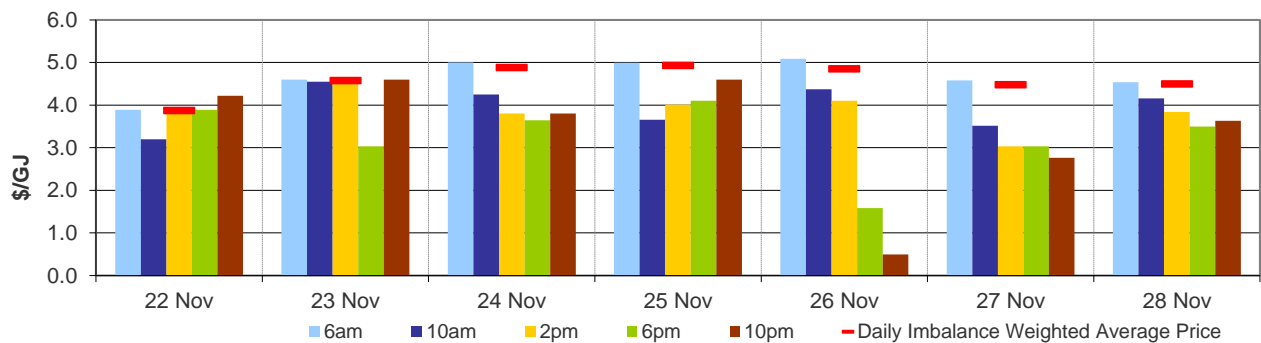
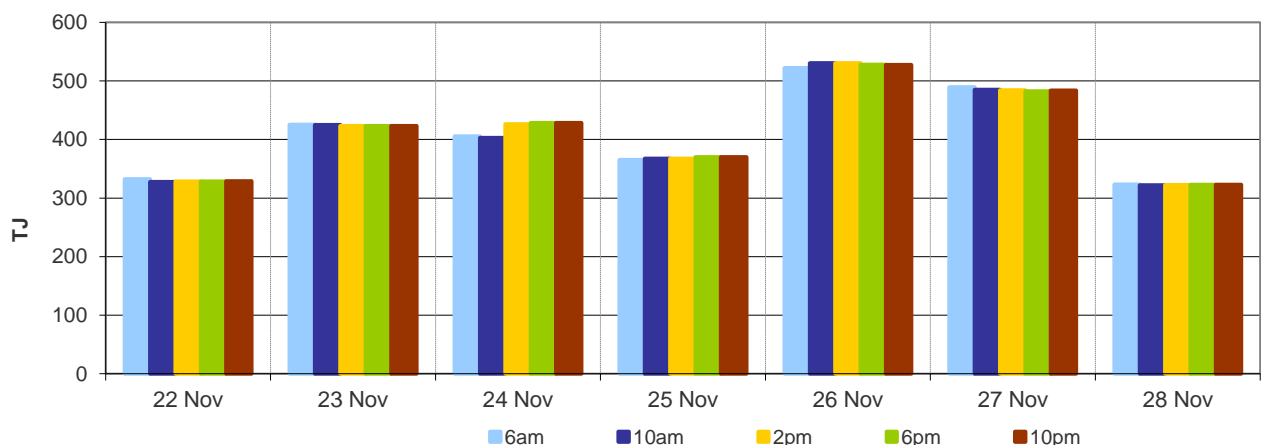


Figure 1.2: Demand forecasts



¹¹ 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.

¹² 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.

¹³ 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

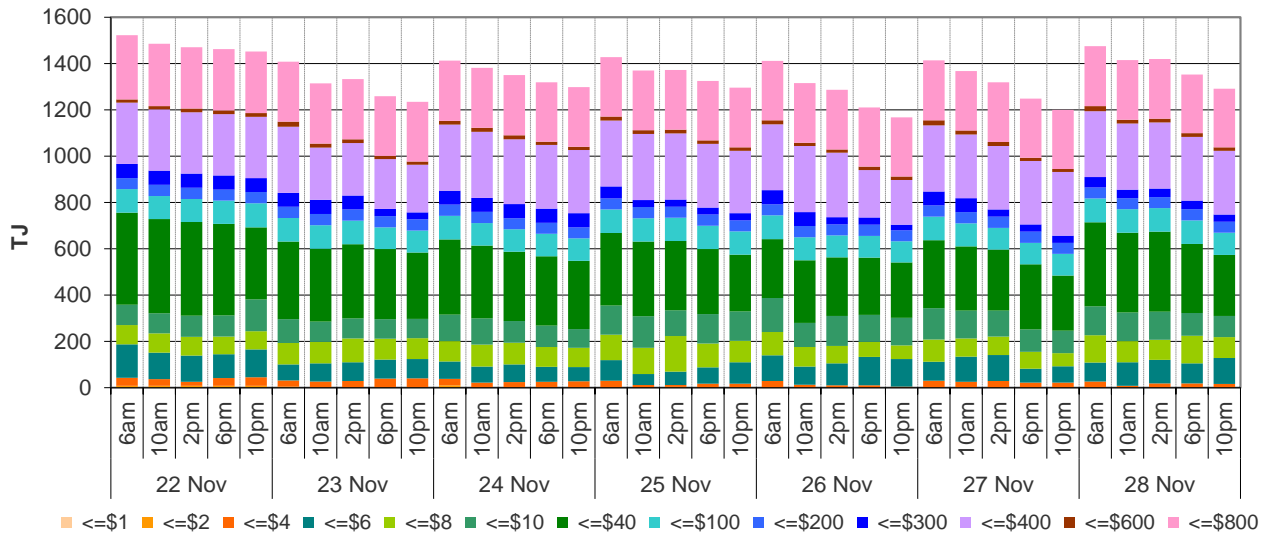


Figure 1.4: Withdrawal bids by price bands

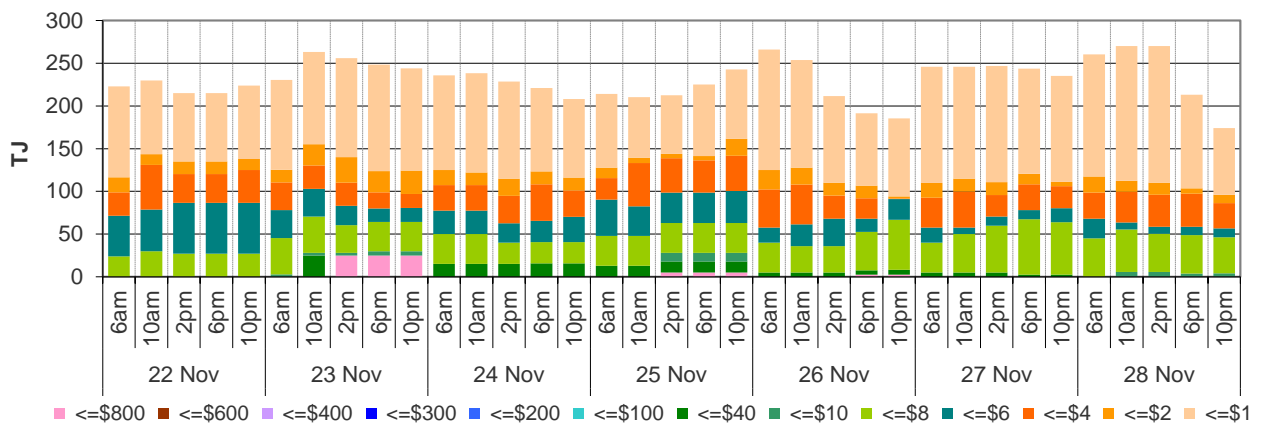
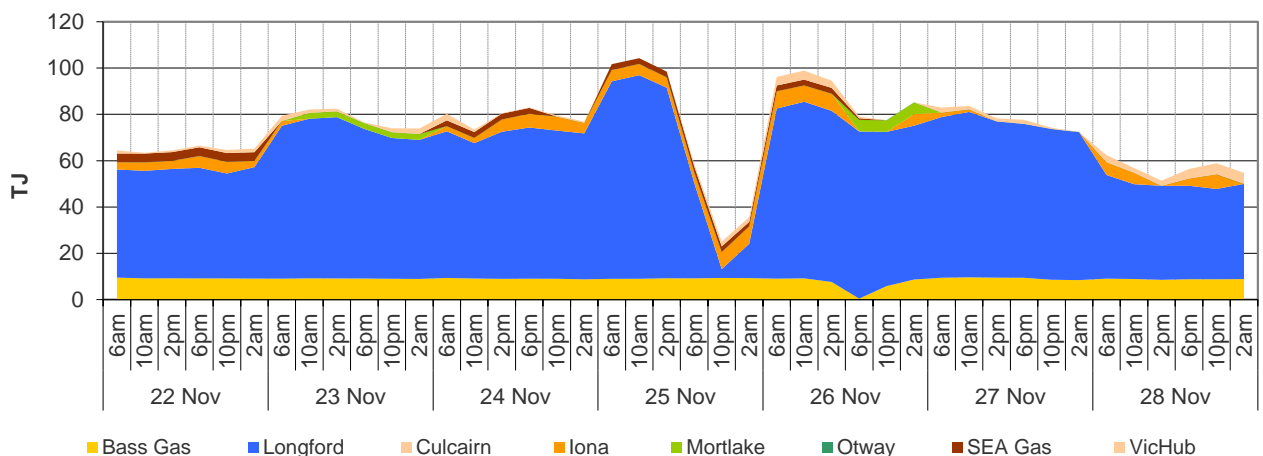


Figure 1.5: Metered Injections by System Injection Point



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.¹⁴ 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](#).

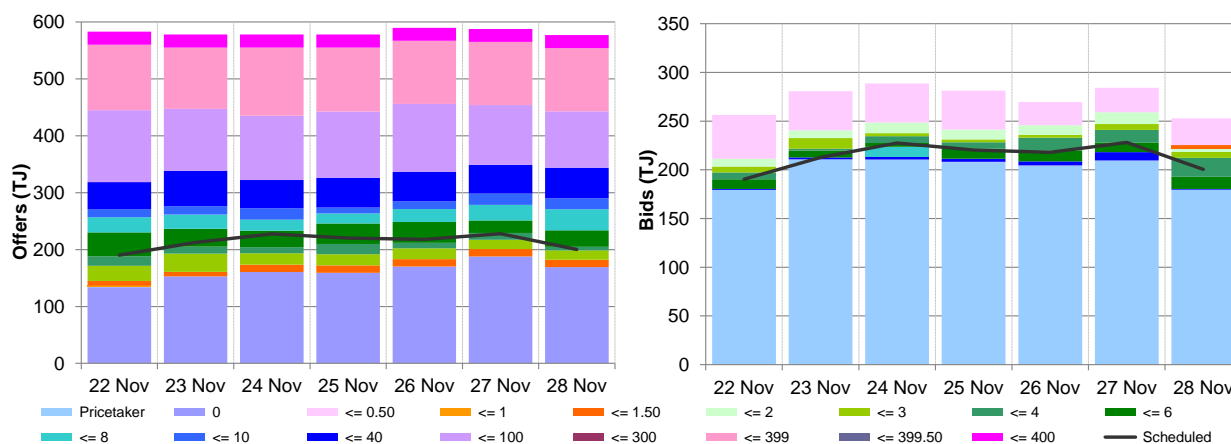
Market Operator Service balancing gas (MOS) payments arise because the amount of gas nominated on pipelines for delivery on a gas day will either exceed or fall short, by some amount, of the amount of gas consumed in the hub. In such circumstances, MOS payments are made to participants for providing a service to park gas on a pipeline or to loan gas from a pipeline to the hub.¹⁵

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)	4.25	4.60	5.42	4.97	4.59	3.91	3.17
Ex ante quantity (TJ)	190	213	228	220	218	228	200
Ex post price (\$/GJ)	4.50	4.50	5.02	4.29	3.91	3.15	3.17
Ex post quantity (TJ)	194	205	223	211	209	205	197

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



¹⁴ 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.

¹⁵ 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)

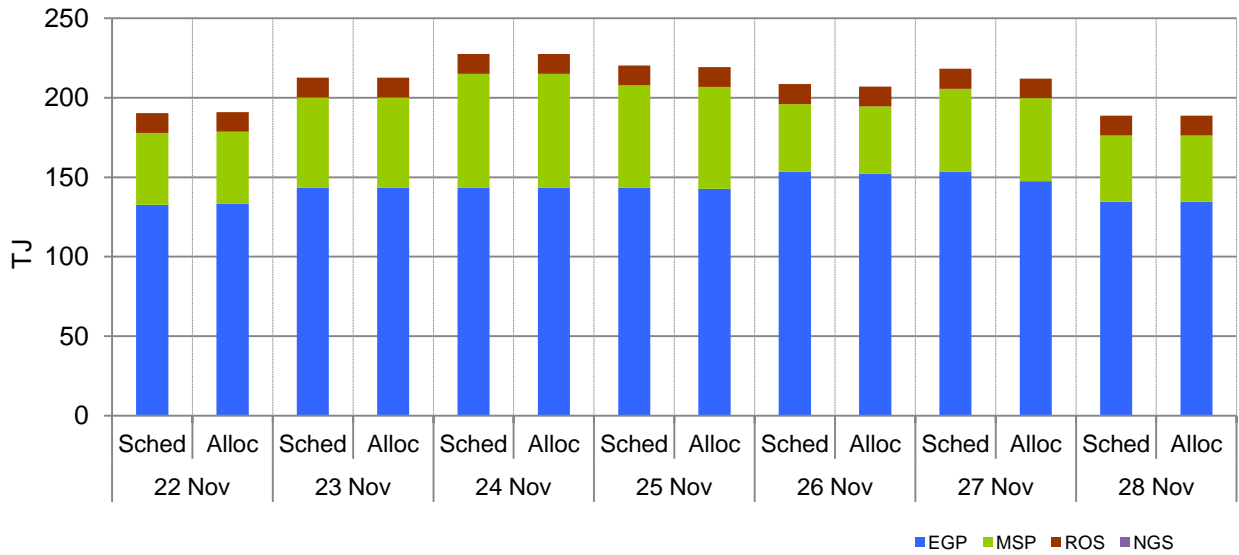
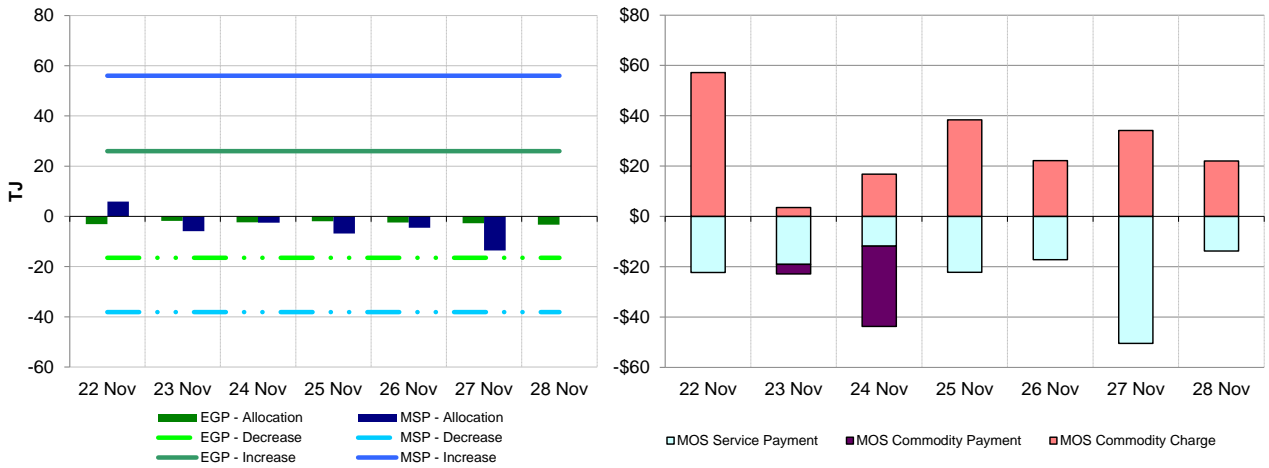


Figure 2.4: SYD MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	3.86	3.96	4.60	4.25	4.55	4.53	4.53
Ex ante quantity (TJ)	44	57	53	51	59	54	43
Ex post price (\$/GJ)	3.80	3.96	5.07	4.27	4.98	4.98	4.96
Ex post quantity (TJ)	44	56	60	53	67	65	54

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

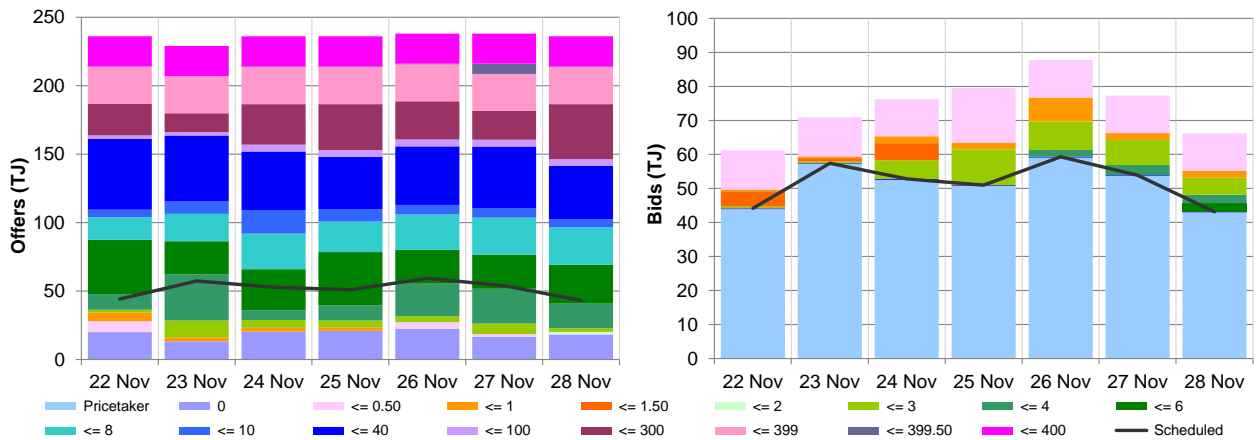


Figure 3.3: ADL net scheduled and allocated gas hub supply (excluding MOS)

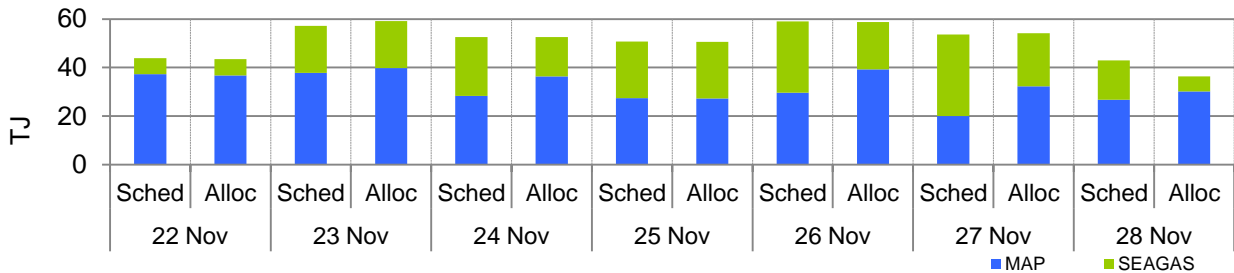
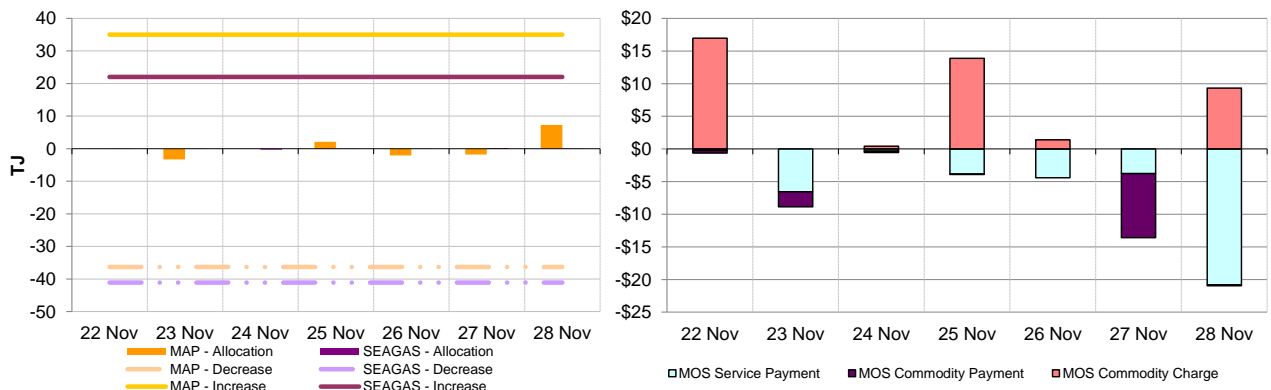


Figure 3.4: ADL MOS allocations (TJ), service payments and commodity payments/charges (\$000)



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)	2.62	4.17	3.85	4.18	4.47	3.52	2.15
Ex ante quantity (TJ)	75	84	80	83	88	81	70
Ex post price (\$/GJ)	2.21	3.51	3.51	3.82	4.19	3.52	2.75
Ex post quantity (TJ)	72	80	74	78	81	83	74

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

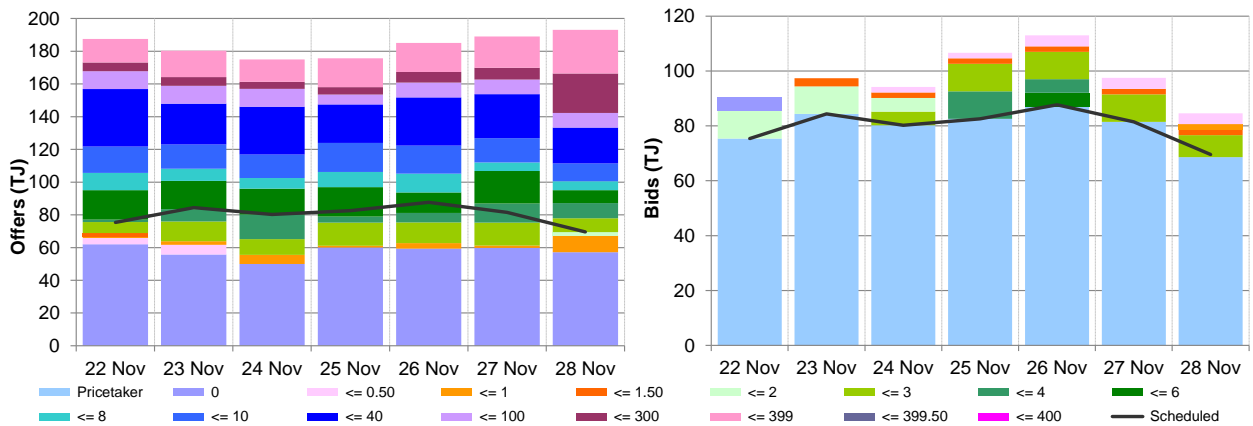


Figure 4.3: BRI net scheduled and allocated gas hub supply (excluding MOS)

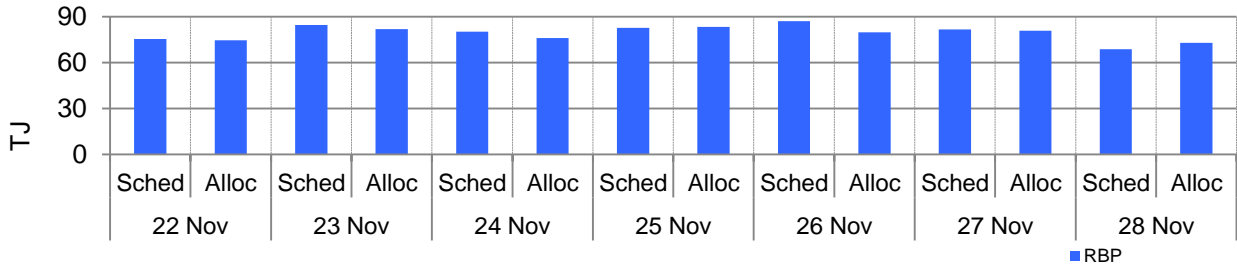
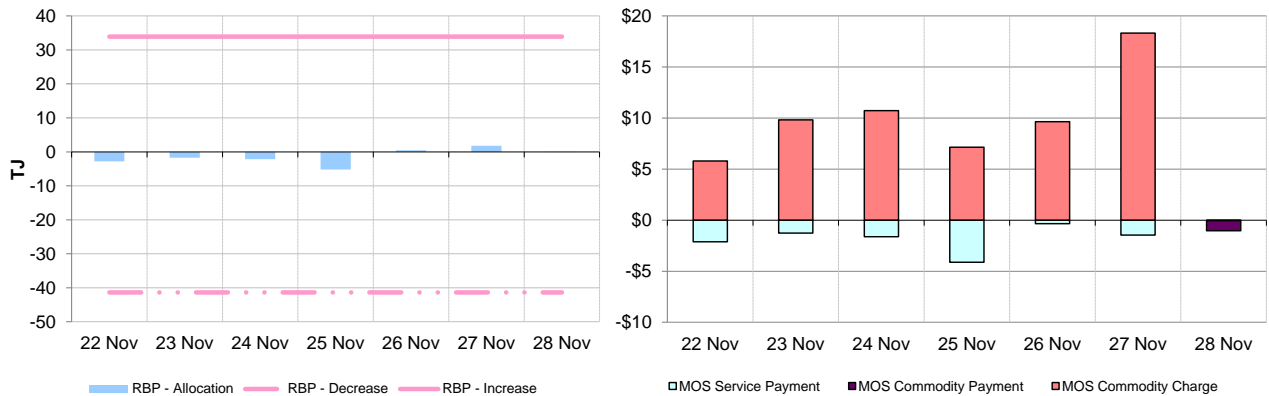


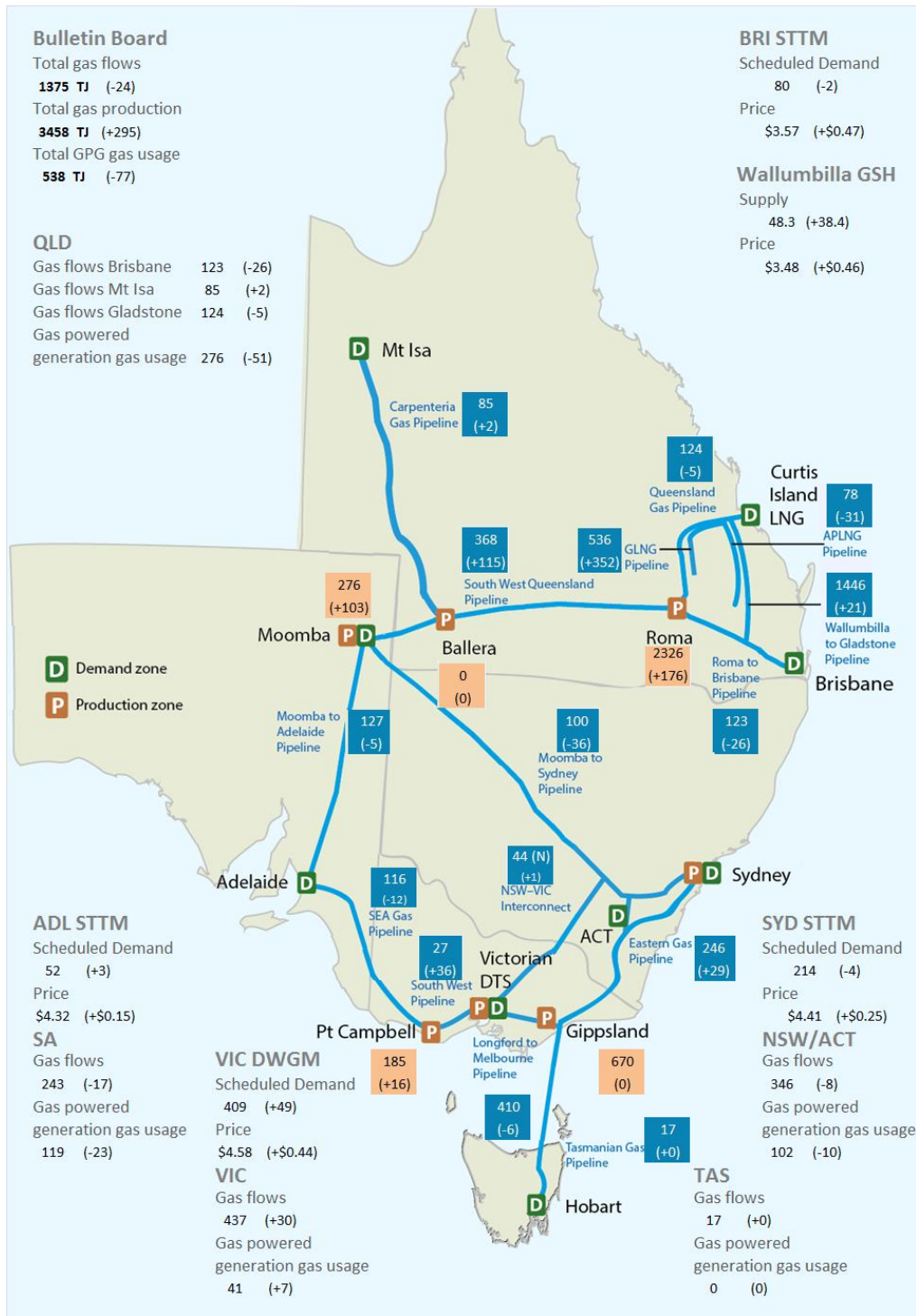
Figure 4.4: BRI MOS allocations (TJ), service payments and commodity payments/charges (\$000)



5. National Gas Bulletin Board

Figure 5.1 shows average daily actual flows for the current week¹⁶ from the Bulletin Board (changes from the previous week's average are shown in brackets). Average daily scheduled volumes and prices¹⁷ are provided for gas markets and gas powered generation for each region.

Figure 5.1: Gas market data (\$/GJ, TJ/day); Production, Consumption and Pipeline flows (TJ)



¹⁶ Gas flows shown under regional headings: **SA** = MAP + SEAGAS, **VIC** = SWP + LMP – negative(NSW-VIC), **NSW/ACT** = EGP + MSP, **TAS** = TGP, **QLD (Brisbane)** = RBP, **QLD (Mt Isa)** = CGP, **QLD (Gladstone)** = QGP
 GPG volumes may include gas usage that does not show up on Bulletin Board pipeline flows.

¹⁷ Roma included export LNG production from October 2014 and LNG pipeline flows are shown from October 2015.
 Wallumbilla supply is the average daily volume of gas 'traded', while price is a volume weighted average.

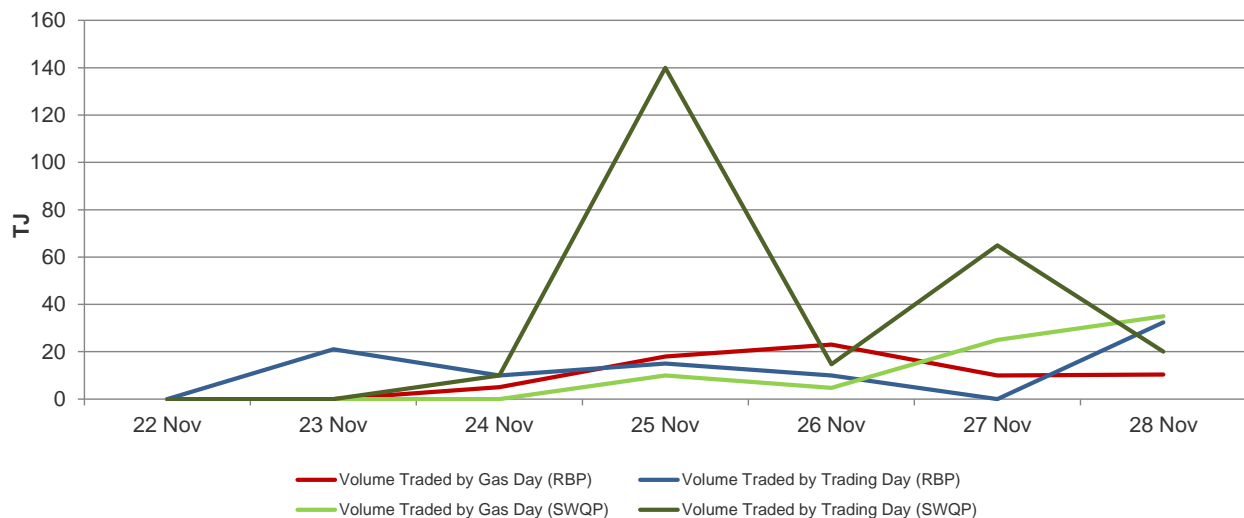
6. Gas Supply Hub

The Gas Supply Hub (**GSH**) was established for the trading of gas at Wallumbilla because it is located in close proximity to significant gas supply sources and demand locations and is a major transit point between Queensland and the gas markets on Australia’s east coast. The GSH is a voluntary market¹⁸ for the supply of gas traded between separate participants, with products listed for sale and purchase at delivery points on three major connecting pipelines at Wallumbilla – the Queensland Gas Pipeline (**QGP**), the South West Queensland Pipeline (**SWQP**) and the Roma to Brisbane Pipeline (**RBP**). There are separate products for each pipeline (each pipeline is considered a trading location, and each has a number of delivery points) and delivery period (daily, day-ahead, balance-of-day and weekly).

There were 21 trades this week for 338 TJ of gas at a volume weighted price of \$3.48/GJ (88.4 TJ on RBP at \$3.50/GJ, 249.7 TJ on SWQP at \$3.47/GJ). This was the fourth highest quantity of gas traded over a weekly reporting period¹⁹ and set a new daily record for the amount of gas traded on 25 November.²⁰ Trades consisted of daily, day-ahead and balance of day products on both pipelines, and the first instance of weekly products being traded this financial year on SWQP.²¹

Figure 6.1 shows volumes traded²² on each gas day and trading day for the current week.

Figure 6.1: Volume Traded (by Gas Day and by Trading Day)



¹⁸ Market trade is facilitated through an electronic trading platform, with standardised terms and conditions and a market settlement facility for the short-term trading of physical gas and related products. The market is designed to complement existing bilateral gas supply arrangements and gas transportation agreements, through the placement of anonymous offers (to sell) or bids (to buy) at specified quantity and price increments, which are automatically matched on the exchange to form transactions.

¹⁹ The reporting period covered in AER weekly reports (the previous AER weekly reporting period record for traded quantity in the GSH was 141 TJ on 2 October 2015, when 121 TJ of gas was traded on the RBP).

²⁰ On 25 November, 155 TJ of gas was traded. This was largely due to the record quantity of gas traded on the SWQP (140 TJ, the previous SWQP daily trade record was 105 TJ on 4 September 2014). The 70 TJ of gas was matched in one ‘weekly’ product trade, equalling the previous ‘weekly’ record set on 4 September 2014.

²¹ The previous ‘weekly’ product trade occurred on 19 June 2015 on the SWQP.

²² Volumes shown for weekly products include the ‘daily’ volume for each relevant ‘gas day’, and the ‘weekly’ volume for each relevant ‘trading day’.