Significant price variation report

Winter (May to August) price variations in the Victorian Declared Wholesale Gas Market, and Adelaide, Sydney and Brisbane Short Term Trading Markets

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AUSTRALIAN ENERGY REGULATOR

Australian Competition and Consumer Commission
GPO Box 3131
Canberra ACT 2601

or publishing.unit@accc.gov.au

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

Tel: 1300 585 165

Email: marketperformance@aer.gov.au

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1 Obligation

The Australian Energy Regulator (AER) regulates energy markets and networks under national legislation and rules in eastern and southern Australia (known as the National Energy Market), as well as networks in the Northern Territory. Its functions include:

- monitoring wholesale electricity and gas markets to ensure energy businesses comply with the legislation and rules, and taking enforcement action where necessary;
- setting the amount of revenue that network businesses can recover from customers for using networks (electricity poles and wires and gas pipelines) that transport energy;
- regulating retail energy markets in Queensland, New South Wales, South Australia, Tasmania (electricity only), and the ACT;
- operating the Energy Made Easy website, which provides a retail price comparator and other information for energy consumers;
- publishing information on the performance of energy markets, including the annual State of the Energy Market report and biennial effective competition report, to assist stakeholders and the wider community.

In accordance with the National Gas Rules (the Rules), the AER is required to publish a report whenever there is a significant price variation (SPV) in the Victorian Declared Wholesale Gas Market (DWGM) or Short Term Trading Markets (STTM). The AER has published guidelines setting out what constitutes a SPV event.[1]

Outcomes that constitute a SPV in the STTM include when there is a variation of greater than $7/GJ between the price 2 days prior (D-2 provisional) and the price the day before (ex-ante or D-1 day ahead). Difference between the D-2 provisional and ex-ante prices have constituted 81 out of 84 of threshold breaches in Winter 2022 across the Adelaide, Sydney and Brisbane markets.

These SPV events, which started May 2022, are the first events since July 2021. As a result of the unprecedented rate of threshold breaches in winter 2022, the AER advised stakeholders on 3 June of our intention to immediately revise from $7/GJ to $14/GJ the price variation reporting threshold to minimise reporting on multiple events (downwards movement in prices). There were no concerns raised with this approach, and as such the thresholds for STTM schedule price variations were increased to $14/GJ from 22 June.

Over winter 2022 there were also 2 instances of D-1 and D+1 price variation exceeding $7/GJ in Adelaide in May, while the one high price threshold breach occurred in the Victorian DWGM when the daily price shot up to $53.57/GJ on 12 May.

[1] Under Rule 355 of Part 19 of the National Gas Rules (Gas Rules), the AER is required to identify and report on any significant price variations (SPVs) in the DWGM. The Victorian SPV reporting triggers are published in the DWGM Significant Price Variation Guideline.

Under Rule 498 of Part 20 of the Gas Rules, the AER is required to identify and report on any significant price variations (SPVs) in the STTM. The STTM reporting triggers are published in the STTM Significant Price Variation Guideline.

2 Summary

Over the period from May to August of 2022 both international and domestic gas markets have seen record price volatility. Trading on domestic short term gas markets in Brisbane, Sydney and Adelaide is organised through the creation of provisional trading schedules 3 days, 2 days and 1 day before the gas day. These ex-ante schedules are referred to as D-3, D-2 and D-1 and the final ex-post referred to as D+1 is created 1 day after the gas day. In the ordinary course of events, gas prices are consistent between the schedules. However, over the course of winter 2022 price changes in the short term markets were large enough to trigger our reporting thresholds.

Large price variations give rise to concerns about the conduct of the market. The AER has investigated all instances of significant price variations and found that these variations are explainable by the extraordinary market conditions over winter.

All significant price variations identified by the AER were reported in the AER's weekly gas publications. This report consolidates previous reporting into market circumstances during the relevant period. As discussed in Section 4 of this report, winter 2022 saw gas market prices at unprecedented levels which highlights counter price gas flows, scarcity of storage and high international prices. A summary of our findings related to significant price variations (SPVs) is set out below.

Upwards price variations from D-2 to D-1 and D-1 to ex-post in May

- Through May there were many price variations consistent with prices rising steeply across east coast markets with markets experiencing unprecedented pricing and price rises.

High price day in Victoria on May 12

- A sharply higher price of over $50/GJ in Victoria on 12 May occurred as prices were rapidly increasing on the east coast and was also consistent with rebidding of gas at Iona and strong demand including withdrawals from Victoria for that day.

Downwards price variations from D-2 to D-1 from late May

- Over the period from late May there were two Exporter/Producers and one Trader who frequently did not submit offers in provisional D-2 schedules in Sydney.
- However, 'missing' offers until the D-1 schedule had less influence on price variations than was observed in the AER's July 2021 SPV report, as increased volume offers (above the volume offered at D-2) influenced prices more heavily this winter.

Other issues observed

- We have identified high levels of increase market operator service (MOS) over the 25 - 31 May period in Sydney and continued high levels of increase and decrease MOS in Sydney through June and July 2022, increasing MOS costs substantially for market participants.

Next Steps

The AER has previously noted bidding behaviour with offers only being made for the D-1 schedule in the context of the day ahead auction whereby participants may wait to see if they have won

capacity in the auction.[2] However, changes to offers for D-1 are unlikely to be solely related to the auction. In general, market outcomes are enhanced when market participants have access to information as early as possible. Given the frequency of price variations down between the D-2 and D-1 schedule the AER intends to investigate the behaviour further and to hold a forum in 2023 to discuss the cause of these variations. At the same time, we will consult on changes to the setting of SPV requirements (which have triggered 84 reports in less than 3 months).

We also plan to continue to investigate MOS causes further and, where relevant, demand forecasting which might be influencing MOS outcomes.

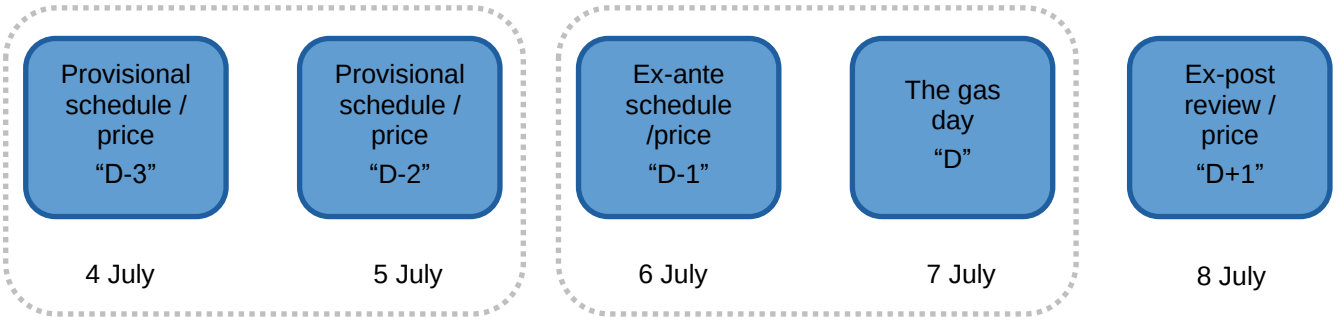
[2] AER pipeline capacity trading two-year review, March 2021.

3 Background

3.1 Spot market scheduling

Provisional, ex-ante and ex-post scheduling and pricing were relevant to 83 of the 84 price variations which occurred over Winter 2022. Pricing in the gas short term trading markets occurs through a published, 3-day, price discovery process. Figure 1 below shows schematically how this process operates using the 7 July gas day as an example. Participants make offers and bids first for the schedule three days prior (D-3), which produces a forecast price, then the D-2 schedule, and lastly final submissions including updated/new forecast quantities for the D-1 schedule.[3]

Figure 1 Short Term Trading Market schedule example timeline – 7 July



Provisional schedules provide indicative prices, however, the ex-ante schedule price sets the actual price paid (or sold) for gas supply scheduled to be traded each gas day in the market. The ex-post price is used to calculate prices when gas scheduled to be shipped or used is supplied or consumed differently to what was scheduled. It is based on what the price would have been if the gas used was scheduled in the market. Both the ex-ante price and ex-post prices are relevant to gas trade – a participant buying gas would pay the ex-ante price for any gas it is scheduled to buy and the ex-post price (if higher) for any gas it consumes above and beyond what it was scheduled to buy.

The AER continually monitors compliance with the NGR including rule 410(2) while taking into account the ability of participants to estimate how much gas they can supply or will use during periods of price volatility.

Rule 410(2) of the Rules sets out the timing for bids and offers into the STTMs:

[3] Gas quantities include price taker (uncontrollable participant demand forecast) bids, priced bids (for controllable demand), supply offer quantities (for each pipeline facility supplying the STTM hub), and other information such as pipeline capacity limitations.

After the gas day, a further ex-post pricing schedule accounts for changes between what was scheduled to be delivered and what was delivered. The focus of this SPV report is not on the ex-post schedule (as reporting thresholds were not reached for differences between ex-ante prices and ex-post prices).

Rule 410 – Timing of submissions of ex-ante offers, ex-ante bids and price taker bids

(1) *If a Trading Participant expects to supply quantities of natural gas to, or withdraw quantities of natural gas from, a hub on a gas day, the Trading Participant must submit to AEMO in good faith:*

(a) ex-ante offers, ex-ante bids or price taker bids for that gas day that reflect; or

(b) revisions to an earlier ex-ante offer, ex-ante bid or price taker bid for that gas day so as to reflect,

the Trading Participant's best estimate of the quantities of natural gas it expects to supply or withdraw on that gas day, as at each of the times specified in subrule (2).

(2) *Any submissions required in accordance with subrule (1) must be made no later than:*

(a) 7.5 hours after the start of the gas day that is 3 gas days before the relevant gas day; and

(b) if revised or not previously submitted, 7.5 hours after the start of the gas day that is 2 gas days before that gas day; and

(c) if revised or not previously submitted, 5.5 hours after the start of the gas day before that gas day.

In accordance with rule 410(2), participants must submit offers when they expect to supply gas on either the D-3, D-2 and D-1. In general market outcomes are optimised when market participants have access to information as early as possible i.e. from the D-3 schedule

3.2 East coast market supply and demand

East coast gas markets include the STTMs, with hubs located in Adelaide, Brisbane and Sydney, and the DWGM, located in Victoria (

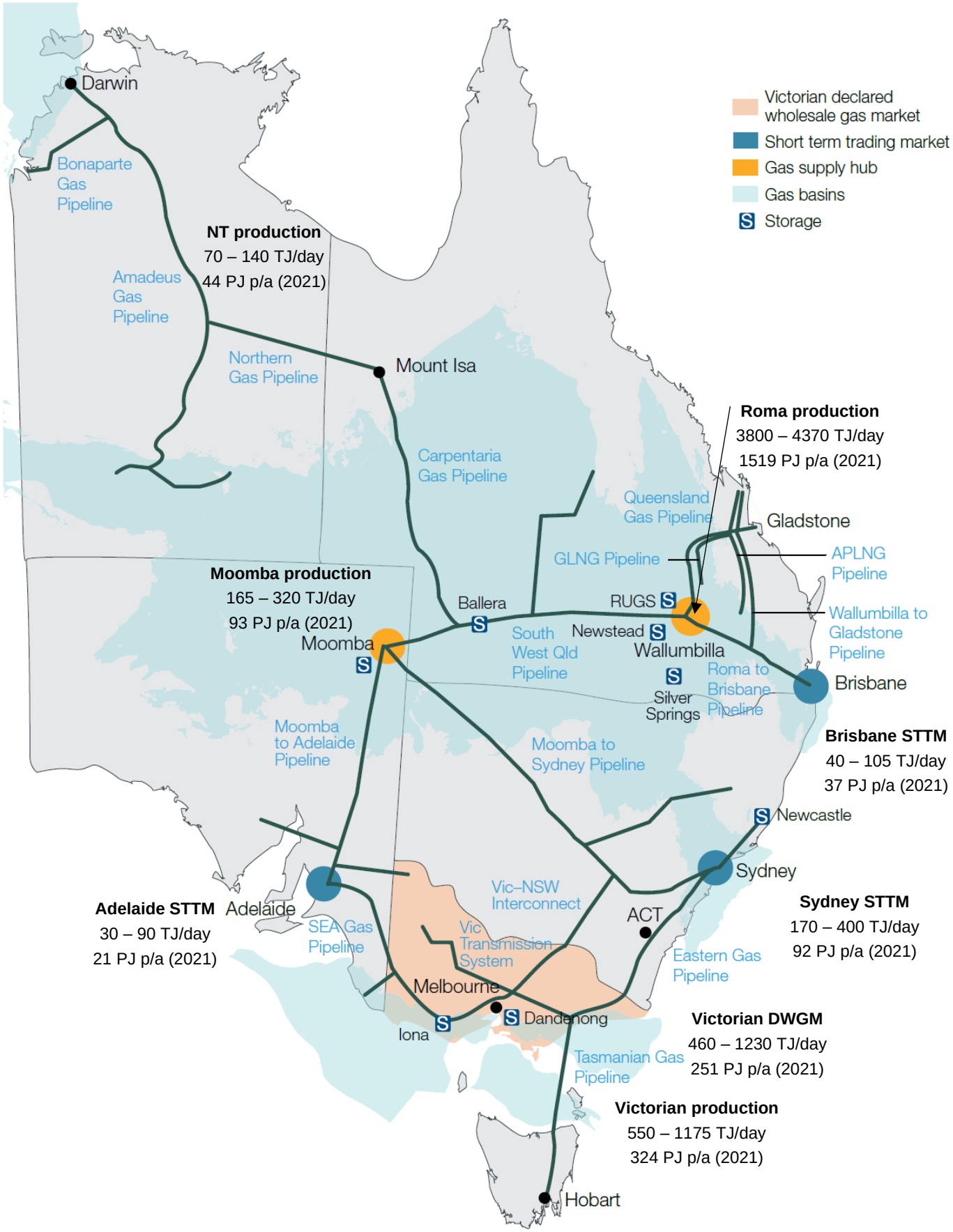
Figure 2). Voluntary markets facilitating the trade of upstream gas commodities and transportation services include the Gas Supply Hub (GSH), with locations at Wallumbilla and Moomba, and the Day Ahead Auction (DAA) covering pipeline and compression facilities across the east coast transmission system.

The east coast gas markets are largely supplied from production sources in Queensland (Roma), via onshore conventional and coal seam supply sources, and Victoria from offshore basins (primarily using the Longford production facility). There are also smaller supply sources on the east coast, with the largest located in South Australia at Moomba.

Domestic gas demand typically peaks in winter, influenced by higher demand from residential gas heating (largely driven by Victoria, where a significant proportion of the gas market is comprised of demand from residential gas customers). However, supply and demand requirements can also be influenced by the level of LNG exports being shipped by facilities located in Queensland, and levels of GPG across the eastern states (largely located upstream of the gas markets).[4]

[4] Generation assets in Victoria are largely located within the Declared Transmission System (DTS), and one generation asset in Queensland is located inside the Brisbane STTM. All other GPG are located upstream of the STTM.

Figure 2 East coast gas map with market demand and production quantity

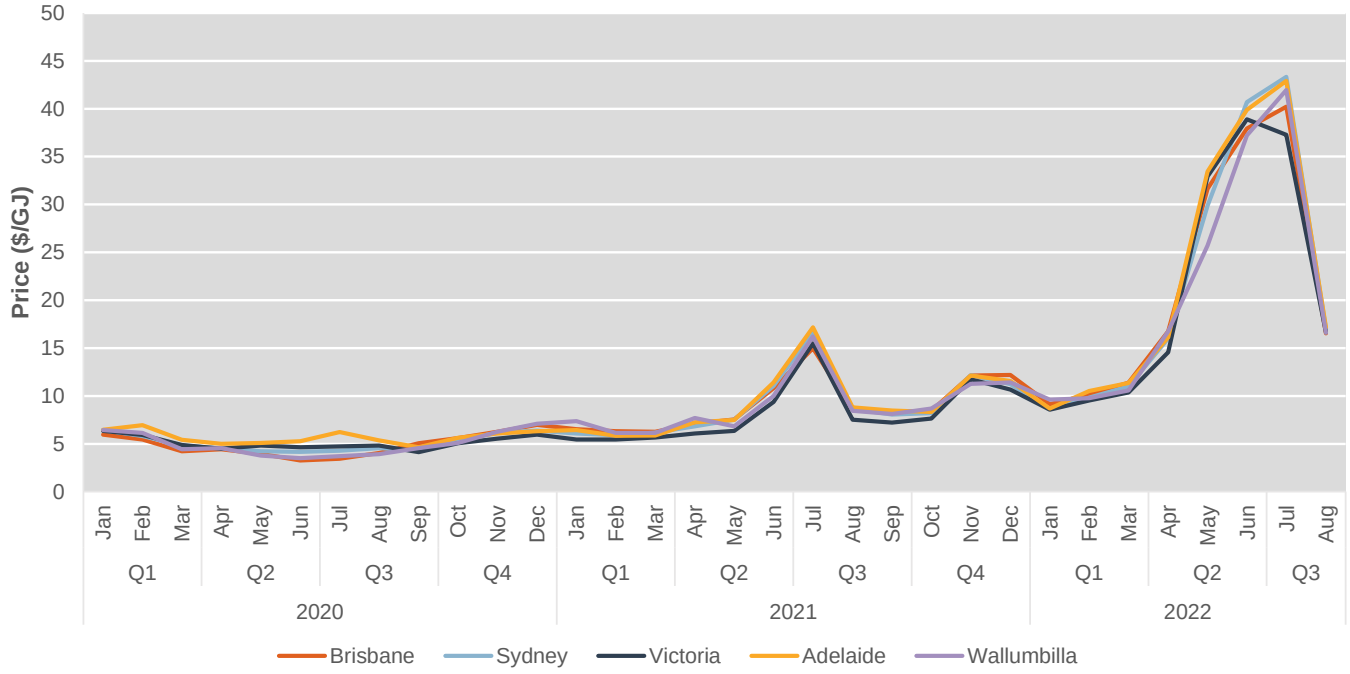


4 East coast gas market conditions over Winter 2022

4.1 Unprecedented price levels

Gas spot markets have been volatile, with prices hitting record highs (Figure 3) in all domestic spot markets on the east coast. LNG export pressures and reduced gas supply concurrent with consistent domestic demand led to scarcity pricing for the period May - July.

Figure 3 Domestic gas spot prices



Source: AER analysis using DWGM, STTM and GSH data.

Note: The Wallumbilla price is the day-ahead price.

From May, prices started to increase sharply. As highlighted in the AER gas weekly reports ex-ante prices increased in Adelaide, Brisbane, Sydney and Victoria over 7 - 21 May with prices 61-89 per cent higher across all markets from 8 - 14 May than the week before; and 4-10 per cent higher again for the week 15 - 21 May.[5] In other words, the price variations between D-2 and ex-ante schedules which occurred (see section 6.1) were consistent with rising prices.

4.2 Robust domestic demand and international prices

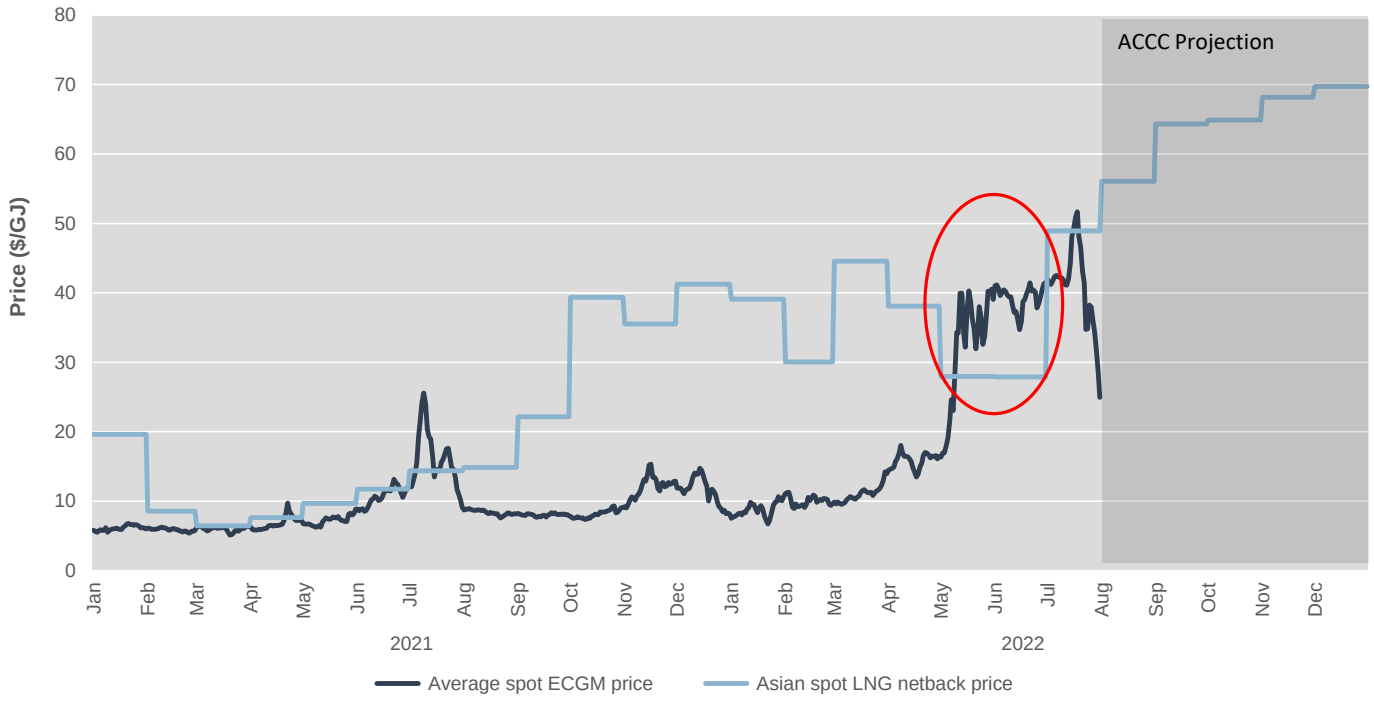
International LNG spot prices started out high in April following a period of high volatility amid security of supply concerns due to the Russian – Ukraine conflict. The prospect of Russian pipeline gas supply disruptions added greater urgency to Europe's attempt to rebuild its low gas storage levels, which put pressure on European prices. However, international prices dropped in May - June 2022. This coincided with the rebuild in European underground gas storage as flows from Russia to Europe remained stable.

[5] Gas report 8–14 May 2022 and Gas report 15–21 May 2022.

International prices increased again following the Freeport gas explosion which reduced US LNG exports. This occurred alongside reduced flows from Russia to Europe on the Nordstream 1 pipeline. The Asian gas price reached a daily maximum of $63.12/GJ and prices in Europe reached $83.15/GJ between May – July. In August, international prices increased further.

Based on the ACCC netback price, domestic prices were higher than international prices in May to June 2022 (Figure 4).

Figure 4 Domestic spot gas price and netback price



Source: AER analysis using DWGM, STTM and ACCC netback price series data.

Note: Daily east coast gas market (ECGM) and monthly LNG netback prices. The ACCC projection of forward netback prices were assessed on 16 August 2022. From May, domestic day ahead spot prices exceeded netback prices for the contemporaneous period of LNG prices assessments in May.

When domestic prices are higher than international prices, LNG producers should face greater incentives to sell into the domestic market and drive the domestic price down. It is not clear that this occurred in May to June 2022. In fact, the opposite occurred with gas flowing north in May to supply strong LNG exports from Gladstone in May and June 2022. Gas didn't flow south at higher levels until AEMO conducted the Gas Supply Guarantee on 1 June. Record Day Ahead Auction (DAA) activity brought gas south to meet demand.[6]

However, it may be the case that LNG producers committed to selling their available gas for export prior to May and could not supply to the domestic market despite the incentive of high prices. LNG producers maintained export volumes at a similar level to 2021 despite much higher domestic prices.

6 Pipeline capacity won on the Wallumbilla compression facilities, the Moomba to Sydney Pipeline (MSP) and the South West Queensland Pipeline (SWQP) increased significantly. These facilities and pipelines are commonly used to bring gas south using secondary capacity as they have been close to fully contracted.

The demand for gas in the domestic market in this high price period remained consistent. However, there was a shift in the composition of that demand. Industrial users were the most price sensitive, outbid by gas powered generators willing to pay higher prices to supply the National Electricity Market (NEM). From April to July, gas powered generators purchased spot gas at record levels, highlighting the extent of their spot exposure to cover unplanned generation.

4.3 Unprecedented gas market interventions

Winter 2022 featured unprecedented gas market intervention with several firsts including the setting of prices in Sydney and Gas Supply Guarantee conferences:

- Following the suspension of Weston Energy on 24 May from gas markets, the Sydney market was administered[7] with prices set (not capped) at ~$30/GJ due to Weston's large customer load. A subsequent emergency notice from the NSW government directed a change in this administered state to apply an Administered Price Cap (APC) of $40/GJ for 1 - 7 June.

- This subsequent change in pricing reduced the incentive for gas traders to direct gas away from Sydney toward other markets. The APC remained in place until 14 June as a result of cumulative prices exceeding the cumulative price threshold (CPT).

- Also as a result of Weston Energy's suspension, prices were capped in the Brisbane market at the APC at $40/GJ from 24 May – 7 June (10 business days).

- Unrelated directly to Weston Energy's suspension, prices in the Victorian market were also capped at $40/GJ from 30 May to 1 August because of high cumulative prices exceeding the cumulative price threshold (CPT).

- AEMO twice conducted industry conferences (on 1 June and 19 July) under the Gas Supply Guarantee (GSG) to ensure adequacy of gas supply. These were the first two uses of the GSG and issued numerous threats to system security for the Victorian Gas Market.

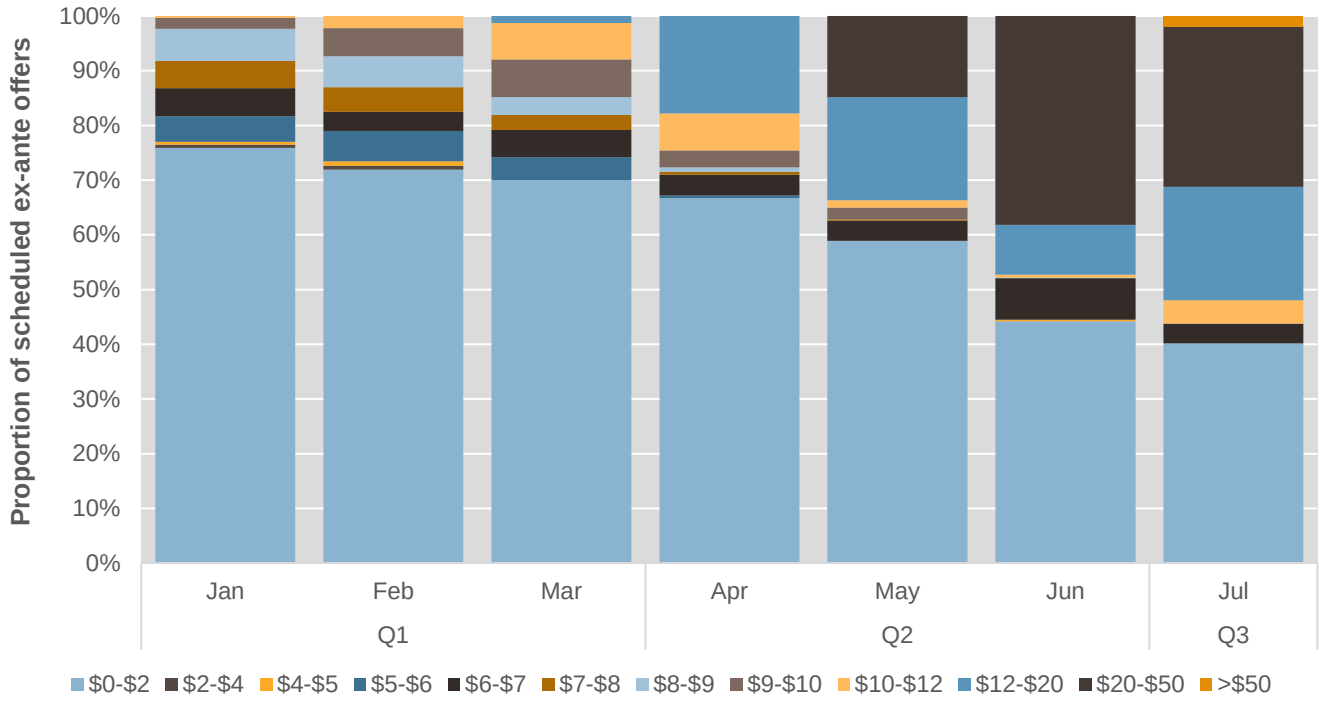
The AER supported market operations over this period writing to all Victorian registered

participants to remind them of requirements to respond to AEMO requests for information during a threat to system security. A complete list of market events over this period is in the Appendix.

4.4 Lower supply into spot markets (and price volatility)

In the domestic spot markets, retailers significantly reduced the supply of gas while overall gas demand from spot markets remained relatively constant. The first and most acute impact on participant behaviour occurred in Sydney following the failure of Weston Energy. Participant bidding behaviour in the Sydney short term trading market (STTM) from the end of May through June reflected a reluctance to offer gas beyond their own needs in a climate of uncertainty after administered pricing came into effect.

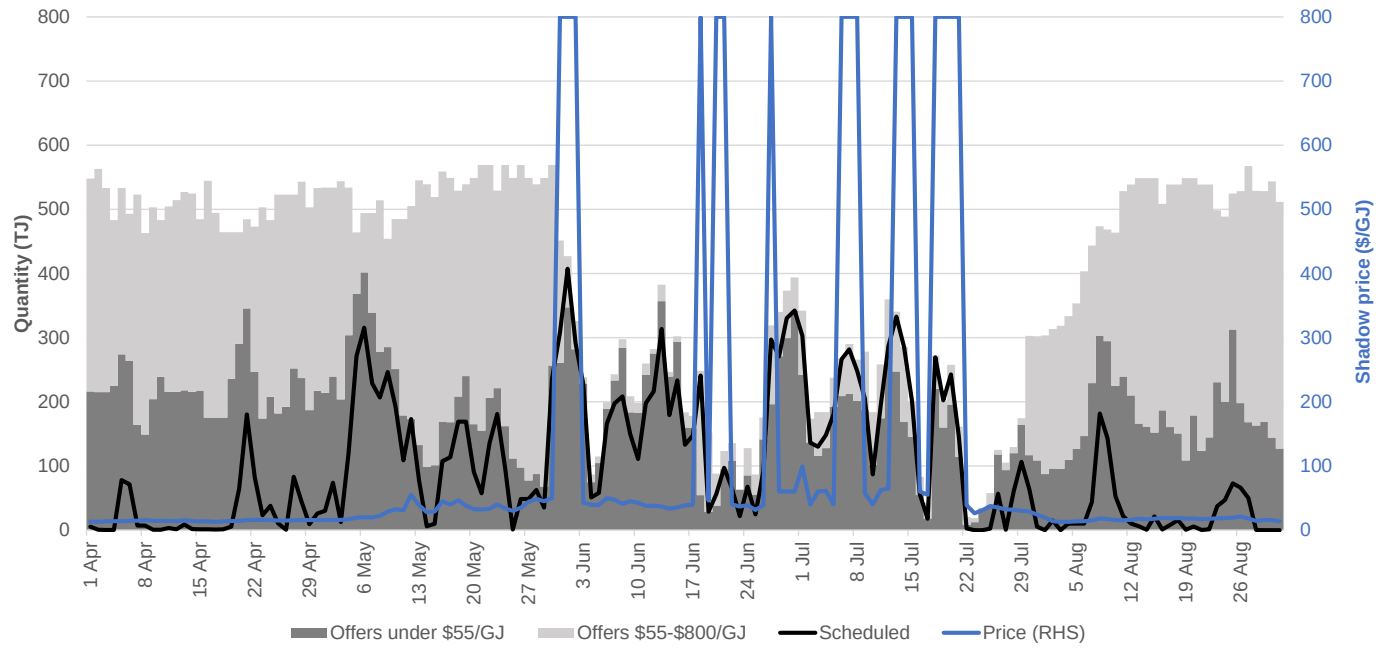
Figure 5 Ex-ante scheduled participant offers into Sydney STTM by price range



Source: AER analysis using STTM data.

Starting from late May low storage levels at Iona storage facility in Victoria resulted in Victorian retailers preserving storage by pricing injections at $800/GJ and reducing total volumes offered into the market (Figure 6)

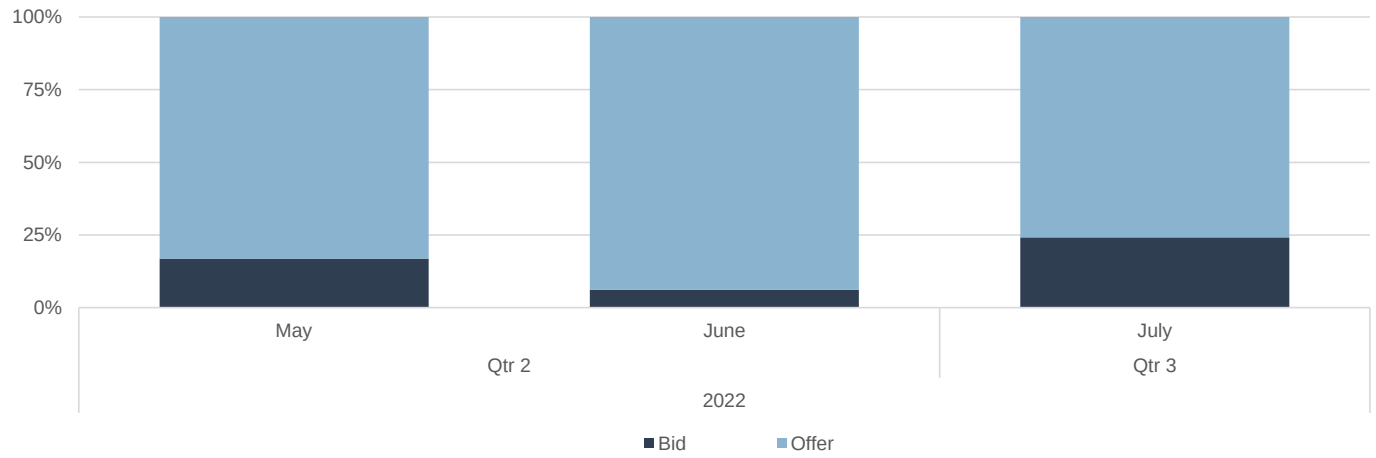
Figure 6 Injection bid price bands at Iona storage facility



Given the interconnected nature of east coast gas markets, the reductions in availability of gas for injection from Iona into the Victorian Gas Market would have reduced the available gas for offer into other markets, particularly in the south, tightening supply conditions.

Over the period from the beginning of May to the end of July prices across capital city spot markets were primarily influenced by the price of available supply. The chart below shows that for the three months from May to July offers set the gas price at the D-1 schedule most of the time and 94 per cent of the time in June. The primacy of offers in price setting is consistent with there being less cheap gas available.

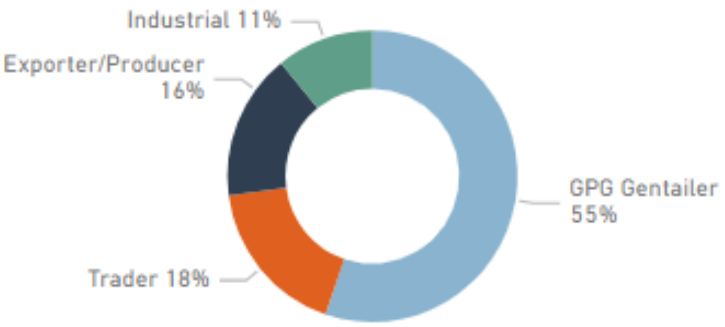
Figure 7 Price setting in STTMs (Brisbane, Sydney, Adelaide) at D-1 by type (bid or offer)



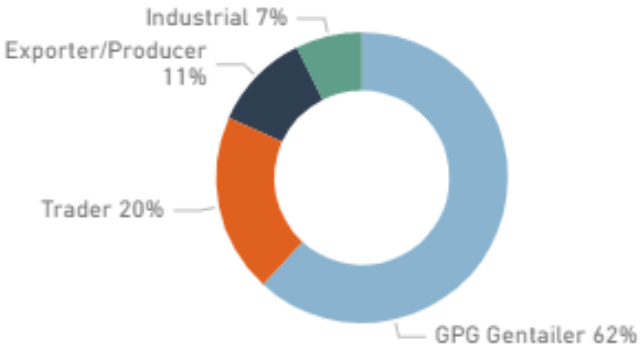
Retailers with wholesale gas portfolios were most active in setting prices across the STTMs. Figure 8 shows the proportion of the time different participant groups were setting prices in STTMs over May to July at the D-1 and D-2 schedules. The influence of retailers and traders was marginally reduced at the D-1 schedule compared to the D-2 schedule with exporter/producers and industrials increasing their influence closer to the gas day. Retailers were more influential in setting prices in winter 2022 than in winter 2021 when traders and exporter producers where able to find gas to undercut retailers at the D-1 schedule.

Figure 8 Price setting in STTMs by participant group

Price setting by group D-1 May-July 2022



Price setting by group D-2 May-July



In July 2021 when SPV events occurred, Exporter/Producers set the price 34 per cent of the time and Gentailers 37 per cent of the time whereas in June - July 2022 Exporter/Producers only set the price 16 per cent of the time and Gentailers 56 per cent.

4.5 High Market Operator Service payments in Sydney

Market Operator Service (MOS) is a daily mechanism for allocating balancing gas. This balancing gas is the difference between the gas nominated on pipelines for delivery and the actual quantities consumed in the hub. In such circumstances, MOS service 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. MOS service payments involve a payment for a MOS increase service when the actual quantity consumed in the hub exceeds final gas nominations for delivery to a hub. A payment for a MOS decrease service is required when the actual quantity delivered is less than final nominations.

When there are high MOS service requirements, it indicates that there is a large deviation between the volume of gas scheduled in comparison to the volume delivered on the day. Higher MOS service payments may indicate that the market is not operating efficiently and may occur alongside large variations between the ex-ante (D-1) and ex-post (D+1) price. In such situations, market schedules don't reflect actual demand and supply of gas to the fullest possible extent, limiting efficient price discovery before the gas day.

During the period 25 - 31 May when prices were set in Sydney, there were large volumes of increase MOS allocations in the Sydney market, making up for a shortfall in nominated supply. During this period MOS payments acted as additional payments for volumes supplied above the set market price creating an incentive to supply gas using MOS (although these incentives may have been offset by counteracting direct or opportunity costs of providing that gas).[8]

Following May there has also been a prevalence of high levels of MOS. Increase MOS on one pipeline and decrease MOS on another pipeline has been common too.

Overall, there has been a significant increase in Sydney market MOS service payments in 2022 in comparison to previous years. The higher MOS service payments have been driven partly by an increase in MOS prices but also in addition consistently higher MOS volumes (Table 1).

Table 1 MOS service payments and volumes in Sydney market

	2020			2021			2022		
	May	June	July	May	June	July	May	June	July
MOS Service Payment ($)	545,977	828,579	634,164	568,801	826,195	1,004,091	1,141,739	1,299,792	1,422,675
MOS volume (GJ)*	296,144	435,288	339,270	310,882	457,326	580,603	599,410	596,789	623,618
$/GJ for MOS	1.84	1.90	1.87	1.83	1.81	1.73	1.90	2.18	2.28

Source: AER analysis of STTM data.

*Note: Decrease MOS volumes allocated have been converted to absolute numbers.

We are continuing to examine pipeline nomination behaviour to determine drivers of large MOS allocations over the period.

[8] Direct costs may include the cost of procuring that gas if it came from line pack or the cost of not being able to use that gas for deliveries to a higher priced market.

5 Analysis

Over the period from 7 May to 3 August 2022 there were 84 instances where price variations breached AER reporting thresholds. Of those 84 instances, there was one instance of the Victorian price being greater than three times the previous 30-day rolling average and two instances of the D+1 price being $7/GJ larger than the D-1 price. The remainder of the significant price variations were due to variations in the price from D-2 to D-1.

5.1 May Price Variations

Price variations in May predominantly involved an increase in the price from D-2 to D-1 due to a tightening of the balance of supply and demand between the schedules in an east coast market where prices were rising daily (see section 6.1). There was also a day the price 'spiked' in Victoria on 12 May.

5.1.1 Significant Price Increases between D-2 and D-1 prices

The charts below show examples of significant price variations where the price increased from D-2 to D-1. Price increases happened across the Adelaide, Sydney and Brisbane markets with 35 increase price days compared to 4 price decrease days (in Sydney only in late May).

Figure 9 shows the increase in price from $29.99/GJ to $40.01/GJ between the D-2 and D-1 schedules in the Adelaide STTM on 13 May 2022, an atypical example whereby the increase in the schedule price resulting in a significant price variation was driven by an increase in forecast uncontrollable (price taker) demand. While supply offers around the level of gas scheduled D-2 were slightly higher in the ex-ante schedule, this would not have been enough to drive a significant increase in price, with the $10.02/GJ price variation driven primarily by higher demand.

Figure 9 Significant increase price variation Adelaide 13 May (higher demand example)

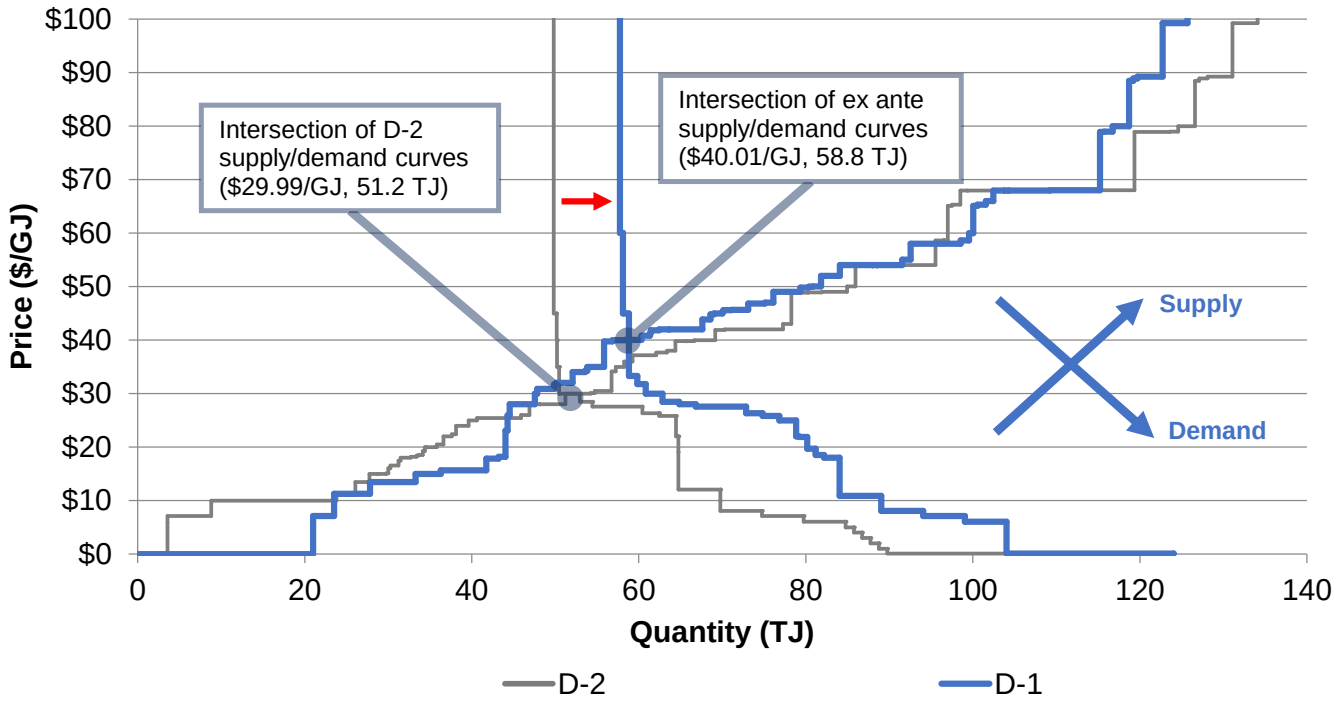
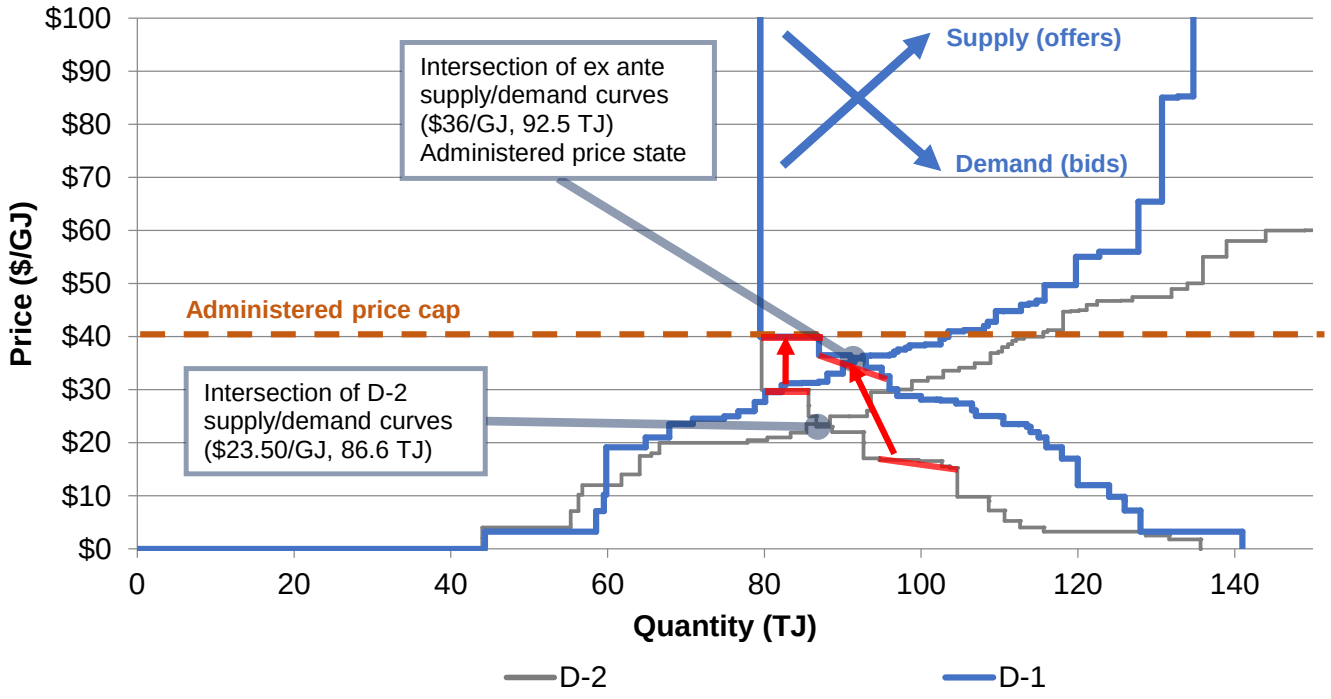


Figure 10 shows the increase in price from $23.50/GJ to $36/GJ between the D-2 and D-1 schedules in the Brisbane STTM on 26 May 2022. It is a typical example of an increase significant

price variation due to increased offer prices, and also includes an example of changes to controllable demand (priced bids) which affected the ex-ante price outcome. At the D-1 schedule there were less offers to supply gas into the market and the price of those offers increased compared to D-2. The quantity of gas demand rose and the amount buyers were willing to pay also increased. The change in both demand and supply between schedules resulted in more gas being supplied to the market at an overall higher price.

Figure 10 Significant increase price variation Brisbane 26 May



5.1.2 Victorian high-priced schedule

On 12 May, the 6 am (beginning of day) price in the Victorian declared wholesale gas market (DWGM) reached $55/GJ. This drove the weighted imbalance price above three times the average of the previous 30 days, exceeding the significant price reporting threshold for high prices in the Victorian market.[9]

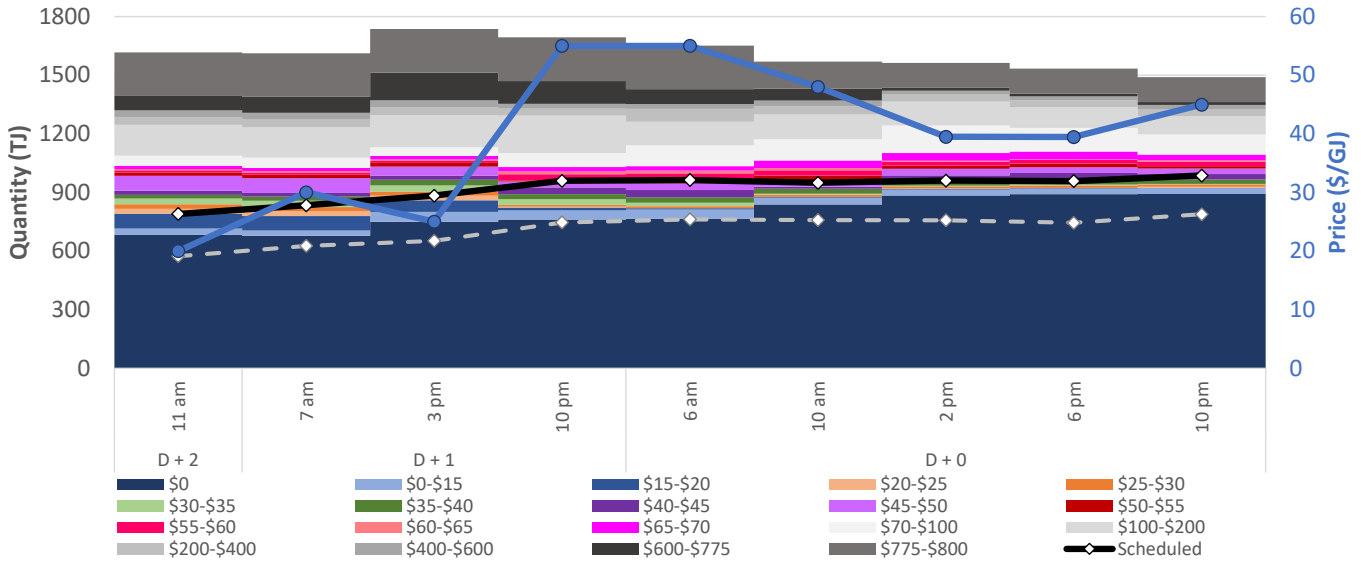
Leading up to the gas day, consecutive increases to demand forecasts drove successive increases in scheduled supply quantities the day prior (D-1). In the last day-ahead schedule (at the 10 pm bid cut-off time), participants' collective forecast demand quantities increased by 94.2 TJ, while injection bids (available supply capacity) in the $15-30/GJ price range decreased by 74.8 TJ, resulting in the final day-ahead forecast price increasing to $55/GJ (Figure 11).

Forecast daily demand was slightly higher in the following beginning of day schedule at 6 am (up 15.6 TJ to 762 TJ), while the injection offer profile remained relatively unchanged. As such, the 6 am price remained at the $55/GJ level forecast the day prior. Additional injection bid quantities at lower prices in subsequent schedules saw prices reduce during the gas day, however these remained high (above $39/GJ).

[9] The trade weighted imbalance price is skewed toward the quantity traded in the beginning of day schedule, with subsequent schedule prices weighted using the imbalance quantities (differences from the previous schedule).

High prices were also supported by 211 TJ of withdrawal bids from Victoria, which occurred despite the high prices. There was no significant rebidding of controllable withdrawals influencing the schedule price increases.

Figure 11 Victorian schedule prices, supply, demand, and injection offers on 12 May



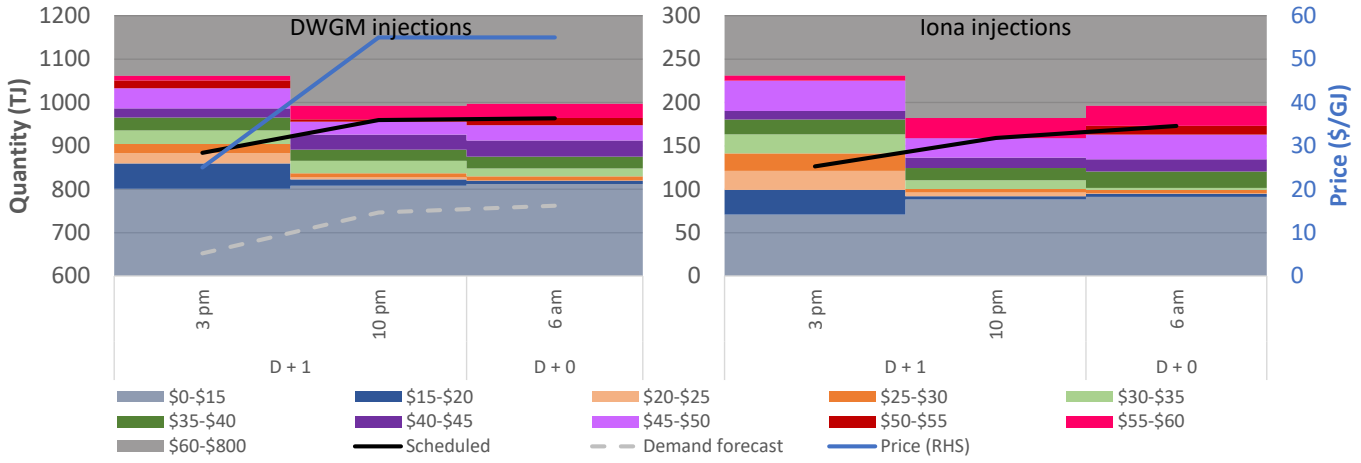
Notes: For gas day schedules, the relevant scheduling interval times are displayed in the figure, for schedule forecasts prior to the gas day (predictive 6 am forecasts), bid cut-off times are shown.

Scheduled quantities include participant demand forecasts (uncontrollable demand), cleared priced withdrawal bids (controllable demand) and other quantities that may be required to run gas compression for transportation, or provide adequate linepack to maintain system security.

Rebidding of injection offers reducing $15-30/GJ supply availability occurred predominantly at the Iona underground gas storage facility, with these offers in the last day-ahead schedule reduced by 58.5 TJ (Figure 12).[10] Rebidding of Iona capacity into higher prices was consistent with the large increases in prices which occurred across the week 8 - 14 May, with prices increasing by 89 per cent from the week before (prices on 14 May were also close to $40/GJ).

Figure 12 provides a comparison of offers across the Victorian market and supply quantities offered at the Iona system injection point, which account for most of the rebid $15-30/GJ capacity.

Figure 12 System total and Iona injection bid comparison

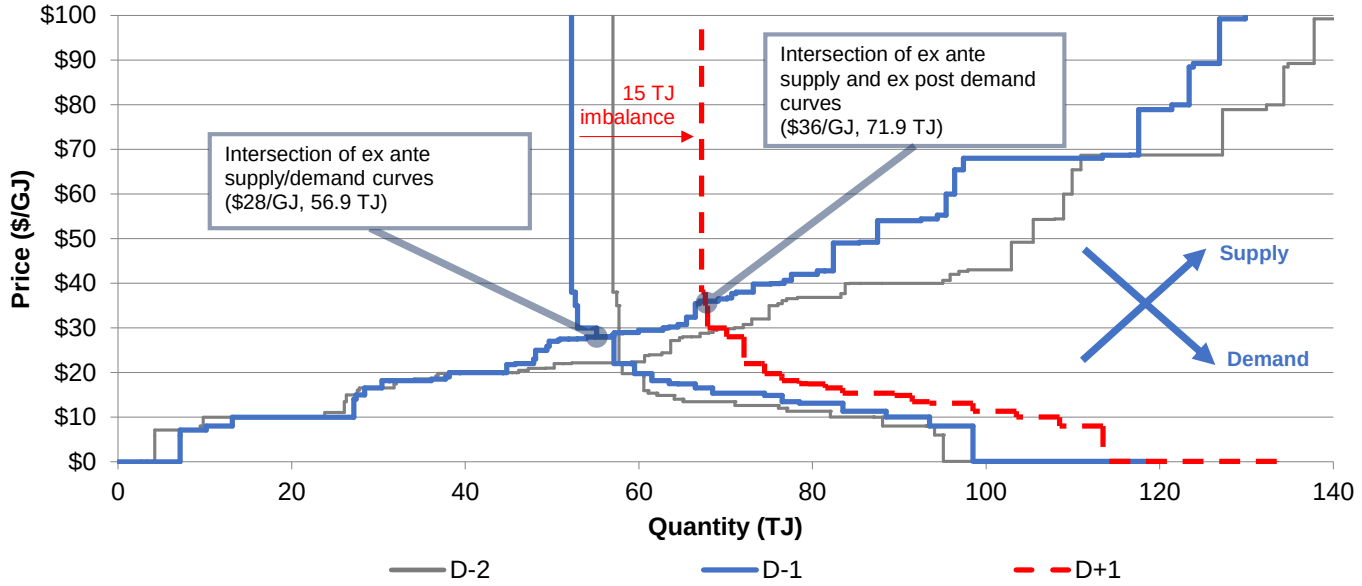


[10] Rebid capacity at $25-30/GJ was primarily reduced by Alinta Energy – 17.5 TJ less offered at $20-25/GJ, and EnergyAustralia – 40 TJ less offered at $15-20/GJ (25 TJ) and $25-30/GJ (15 TJ).

5.1.3 Adelaide ex-post price variations

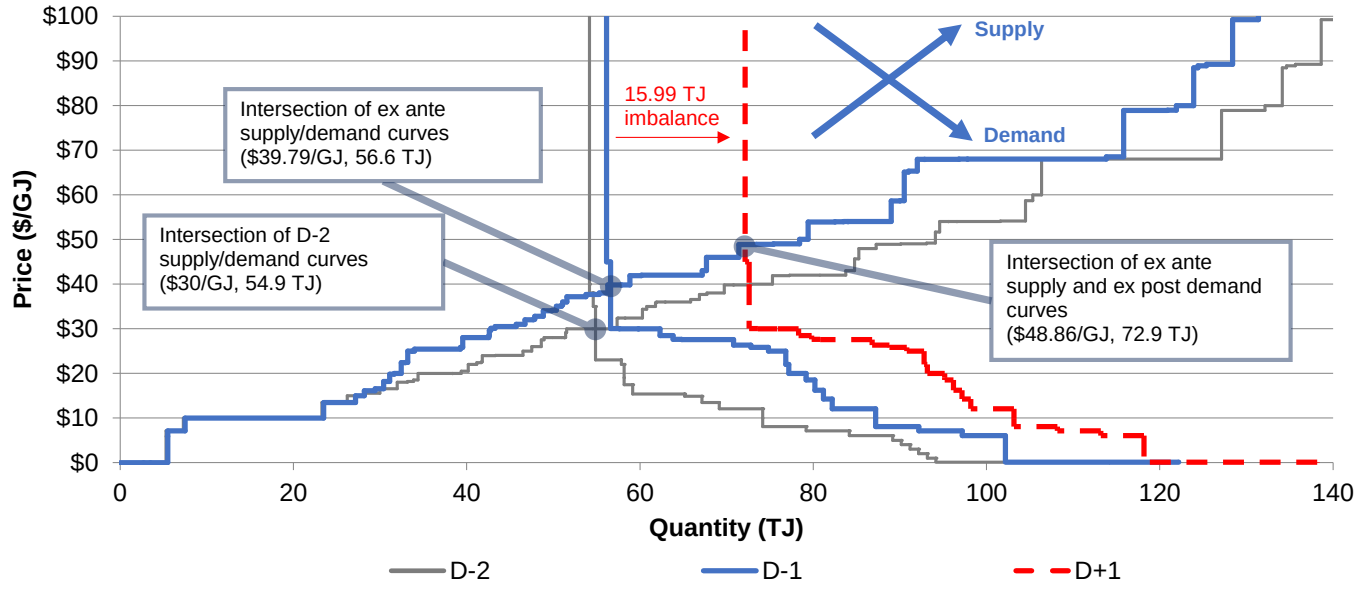
The ex-post price in the Adelaide STTM deviated from the ex-ante price by more than $7/GJ on 9 and 12 May. These two deviations were driven by an increase in demand on the gas day, pushing up prices in the ex-post schedule.

Figure 13 Adelaide ex-ante and ex-post bid and offer curves (9 May)



On 9 May, ex-post demand in Adelaide was 15 TJ higher than forecast. More than half (9.8 TJ) of this increase was due to under forecast price taker demand forecasts mostly by an industrial participant and two retailers. This drove the ex-ante price of $28/GJ up by $8/GJ in the ex-post schedule to $36/GJ given an inelastic supply curve.

Figure 14 Adelaide D-2, D-1 and D+1 bid and offer curves (12 May)



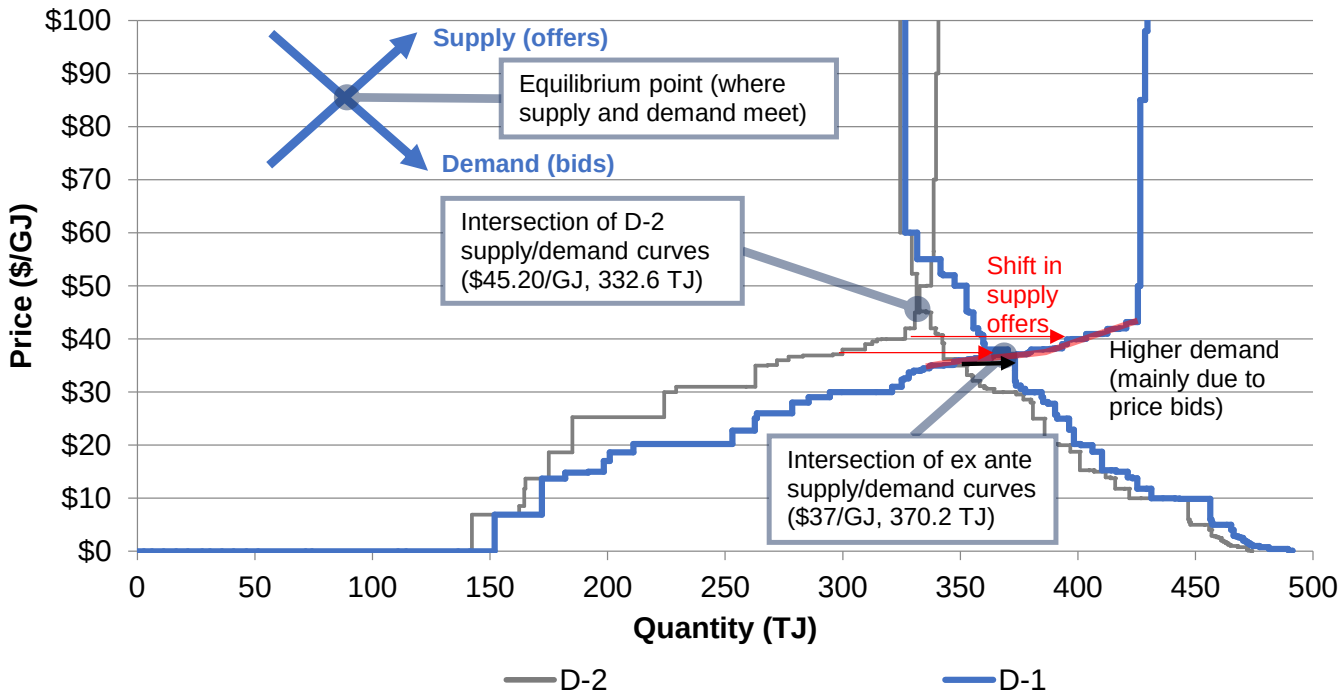
On 12 May, the ex-post price increase resulted from demand almost 16 TJ higher on the gas day. This was driven by 13 TJ of additional supply providing extra gas for a 13 TJ backhaul renomination on the Moomba to Adelaide Pipeline. This drove the ex-ante price of $39.79/GJ up another $9.07/GJ in the ex-post schedule to $48.86/GJ.

5.2 Late May to early August price variations down

From 24 May, large price variations began to occur between provisional (uncapped priced schedules) and ex-ante schedules where the price was capped i.e., at $40/GJ. In this period large price variations began to occur in Sydney between D-2 and D-1 ex-ante schedule prices in Sydney with $400/GJ provisional prices in Sydney from 2 June to 13 June compared to capped prices of $40/GJ (and uncapped prices slightly higher). Increases of about 10-20 per cent in supply (40-60 TJ) at key price bands under $100/GJ for the D-1 schedule were enough to cause large price variances with around 40-60 TJ highlighting the sensitivity of prices to changes in supply and demand.[11]

Figure 15 highlights an example of where the price decreased from D-2 to D-1 which happened on 40 occasions between June 1 and August 3 in the Sydney and Brisbane markets.

Figure 15 Significant decrease price variation Sydney 15 June



It shows the decrease in price from $45.20/GJ to $37/GJ between the D-2 and D-1 schedules in the Sydney STTM on 15 June 2022. The quantity of demand scheduled and the amount buyers were willing to pay for that gas increased at the D-1 schedule. However, unlike the previous example supply offers also increased at the D-1 schedule leading to a lower price than at D-2.

[11] A similar level of volatility was evident in the Victorian gas market across price schedules with relatively small changes in demand across the day causing prices which would have been if uncapped $800/GJ sitting behind the market price cap of $40/GJ.

6 Detailed Listing of Price Triggers

This section lists with a brief description, significant price variations over May 2022, with more detailed analysis contained in previous sections of the report.

6.1 Significant price variations – May 2022

Although the reporting trigger was predominantly D-2 to D-1 price variations over May some other price reporting triggers occurred. In May, most price variations were increases in prices unlike June to August which were all downward price movements.

Table 2 below list the significant price variations occurring over May due to D-1 to D+1 schedule variation breaches in Adelaide.

Table 2 Ex-ante and ex-post schedule variations in May 2022

STTM hub	Date	Price ($/GJ) Ex-ante (D-1)	Ex-post (D+1) higher	Threshold breach description
Adelaide	9 May	28	36	The ex-post price increased by $8/GJ following a 15 TJ increase in uncontrollable demand, compared to the scheduled forecast level of 50.8 TJ (D-1)
Adelaide	12 May	39.79	48.86	The ex-post price increased by $9.79/GJ following a 15.99 TJ increase in uncontrollable demand, compared to the scheduled forecast level of 50.8 TJ (D-1)

Table 3 below highlights the significant price variation occurring on May 12 in Victoria due to an exceptionally high daily price in Victoria.

Table 3 Victorian declared wholesale gas market (DWGM) high price in May 2022

Market	Date	Daily imbalance price ($/GJ)	Threshold breach description/ Previous 30 day price ($17.40)
Victoria	12 May	53.57	Price exceeded 3 times previous average, with the trade weighted imbalance price for the gas day reaching its highest level for 2022 • Increase in demand forecasts in final day-ahead schedules • Reduction in $15-30/GJ offers • 211 TJ of withdrawal bids from Victoria adding to rising demand forecasts

Table 4 highlights significant price variations between schedules. The ex-ante prices are coloured to indicate whether the variation was higher or lower than the D-2 provisional forecast price. Gas

days impacted by administered pricing states are also indicated using (further information on the administered states is captured in the timeline at the back of this report)*. Row shading indicates the different STTM hubs impacted by significant price changes, with breaches occurring simultaneously across markets on numerous occasions (listed in chronological order).

Table 4 Provisional and ex-ante schedule variations in May 2022

STTM hub	Date	Price ($/GJ)		Threshold breach description
		Provisional (D-2)	Ex-ante (D-1) higher/lower	
Brisbane	**7 May**	19.71	28.00	Supply rebid to higher prices, supply under $25/GJ reduced by 31.8 TJ
Brisbane	9 May	20.49	28.01	Supply rebid and controllable demand increase (particularly above $20/GJ). Supply under $25/GJ reduced by 15.3 TJ
Adelaide	**10 May**	27.54	36.00	Supply rebid to higher prices, supply under $40/GJ reduced by 20.1 TJ
Brisbane	**10 May**	21.91	33.00	Supply rebid, some controllable demand price increase. Supply under $40/GJ reduced by 45.1 TJ
Sydney	**10 May**	24.79	35.83	Large increase in controllable demand above $30/GJ.
Adelaide	11 May	28.00	36.54	Supply rebid to higher prices, supply under $25/GJ reduced by 13.3 TJ
Brisbane	11 May	23.61	35.00	Supply rebid to higher prices, minimal impact of controllable demand rebidding. Supply under $25/GJ reduced by 26.6 TJ
Adelaide	**12 May**	30.00	39.79	Supply rebid to higher prices, supply under $30/GJ reduced by 14.6 TJ • this preceded a further SPV breach due to a significant increase in uncontrollable demand (D+1)
Adelaide	13 May	29.99	40.01	Increase in forecast uncontrollable (price taker) demand of 7.2 TJ, minimal impact from gas offers shifted to higher prices
Brisbane	13 May	23.61	38.35	Supply rebid to higher prices, minimal impact of controllable demand rebidding despite significantly elevated bid prices (contributing $3.35/GJ). Supply under $35/GJ reduced by 32 TJ
Adelaide	**14 May**	27.56	38.01	Supply rebid to higher prices, supply under $40/GJ reduced by 23.2 TJ
Brisbane	**14 May**	25.00	38.88	Supply rebid to higher prices, minimal impact of controllable demand rebidding. Supply under $40/GJ reduced by 16 TJ
Sydney	15 May	26.51	37.88	Large increase in controllable demand above $30/GJ

STTM hub	Date	Price ($/GJ) Provisional (D-2)	Ex-ante (D-1) higher/lower	Threshold breach description
Brisbane	**16 May**	24.99	35.00	Supply rebid to higher prices, minimal impact of controllable demand rebidding. Supply under $35/GJ reduced by 19.1 TJ
Sydney	**16 May**	28.51	37.22	Large increase in controllable demand above $30/GJ
Adelaide	17 May	30.00	37.44	Supply rebid to higher prices, supply under $35/GJ reduced by 16.2 TJ
Brisbane	17 May	25.00	41.97	Supply rebid to higher prices, minimal impact of controllable demand rebidding. Supply under $35/GJ reduced by 32.3 TJ
Sydney	17 May	30.00	42.00	Large increase in controllable demand above $30/GJ
Brisbane	**18 May**	25.00	37.34	Supply rebid to higher prices, supply under $35/GJ reduced by 32.2 TJ
Brisbane	19 May	25	35.34	Supply rebid to higher prices, minimal impact of controllable demand rebidding. Supply under $35/GJ reduced by 20.1 TJ
Adelaide	**20 May**	29.2	37.96	Supply rebid to higher prices, supply under $35/GJ reduced by 11.9 TJ
Brisbane	21 May	21.91	29.50	Supply rebid to higher prices, supply under $25/GJ reduced by 16.7 TJ
Brisbane	**22 May**	21.91	34.50	Supply rebid, minimal impact of controllable demand rebidding. Supply under $30/GJ reduced by 13.8 TJ
Brisbane	23 May	24.99	38.34	Supply rebid to higher prices and controllable demand price increase. Supply under $35/GJ reduced by 13.1 TJ
Brisbane*	**24 May**	25	38.34	Supply rebid to higher prices (start of APC*). Supply under $35/GJ reduced by 21.8 TJ
Adelaide	25 May	30	37.91	Supply rebid to higher prices
Brisbane*	25 May	25	34.12	Reduced supply offers, supply under $30/GJ reduced by 19.3 TJ
Brisbane*	**26 May**	23.5	36.00	Supply and controllable demand rebid to higher prices. Supply below $35/GJ reduced by 17.8 TJ, while controllable demand priced above $25/GJ increased by 24.5 TJ
Sydney*	**26 May**	40	27.73	Ex-ante prices set using rolling average**
Brisbane*	27 May	24.99	35.10	Supply and controllable demand rebid to higher prices. Supply below $35/GJ reduced by 22.4 TJ, while controllable demand priced at $30-40/GJ increased by 24 TJ (9.5 TJ priced at $35-40/GJ)

STTM hub	Date	Price ($/GJ)		Threshold breach description
		Provisional (D-2)	Ex-ante (D-1) higher/lower	
Sydney*	27 May	50	28.09	Ex-ante prices set using rolling average**
Adelaide	**28 May**	30.94	44.96	Supply rebid to higher prices, supply under $40/GJ reduced by 22 TJ
Brisbane*	**28 May**	26.12	39.50	Reduced supply offers below $35/GJ, minimal impact of controllable demand rebidding. Supply under $35/GJ reduced by 23.2 TJ
Sydney*	**28 May**	58	28.48	Ex-ante prices set using rolling average**
Adelaide	29 May	36.9	46.40	Supply rebid to higher prices, supply under $45/GJ reduced by 19.7 TJ
Brisbane*	29 May	29	40.00	Reduced supply offers below $60/GJ and controllable demand rebidding, $50/GJ scheduling outcome capped at $40/GJ
Sydney*	29 May	40	28.88	Ex-ante prices set using rolling average**
Brisbane*	**30 May**	30.01	40.00	Significant reduction in supply offers and controllable demand price increase, $100/GJ scheduling outcome capped at $40/GJ
Sydney*	**30 May**	40.01	29.30	Ex-ante prices set using rolling average**
Brisbane*	31 May	32.26	40.00	Reduced supply offers below $35/GJ (25.4 TJ)
Sydney*	31 May	43.01	29.71	Ex-ante prices set using rolling average**

* From 24 May, the Brisbane and Sydney markets are in administered pricing states (capped at $40/GJ). The minor Retailer of Last Resort (RoLR) declaration for Brisbane was scheduled to cease after 7 June, while the major RoLR declaration for Sydney was scheduled to cease after 21 June.

** Administered prices in Sydney were being set using a 30-day rolling average, reducing ex-ante prices below $40-58/GJ D-2 provisional price levels. Ex-ante schedules were not run before each gas day, with participants nominating directly to facility operators without quantities being provided from AEMO's conventional scheduling process.

6.2 Significant price variations – June to August 2022

Over June to August all price reporting triggers were associated with reductions in prices from the D-2 to the D-1 schedule mostly in Sydney but with some in Brisbane at the beginning of August. This was the period where the AER decided to change the $7/GJ threshold to $14/GJ.

Table 5 highlights significant price variations in Sydney over June were influenced firstly by administered price caps meaning provisional prices were calculated differently (uncapped) to ex-ante prices (capped). However, the variance between higher provisional prices and lower ex-ante prices continued after the price cap was removed on 14 June highlighting an underlying pattern of less volumes of cheap gas being offered in provisional schedules.

Table 5 Provisional and ex-ante schedule variations in June 2022

STTM hub	Date	Price ($/GJ) Provisional (D-2)	Ex-ante (D-1) lower	Threshold breach description
Sydney*	1 June	150	40	Significant reductions to capacity available below the price cap across all schedules, setting uncapped ex-ante prices at $400/GJ, with capped prices triggering large deviations
Sydney*	2 June	400	40	
Sydney*	3 June	400	40	
Sydney*	5 June	400	40	Minimal capacity available at $45-70/GJ with remaining provisional offers at the cap, setting high D-2 prices in administered price state. Rebidding of amounts of about 5-25 per cent of underlying demand provides additional supply at lower prices, setting ex-ante uncapped (shadow) prices at $36.62-56.56/GJ (trending downward over the administered price period). Provisional offers settled at $120/GJ on the final day of administered prices.
Sydney*	6 June	400	40	
Sydney*	7 June	400	40	
Sydney*	8 June	400	40	
Sydney*	9 June	400	40	
Sydney*	10 June	400	40	
Sydney*	11 June	400	40	
Sydney*	12 June	400	39.89	
Sydney*	13 June	400	39	
Sydney*	14 June	120	36.62	
Sydney	15 June	45.2	37	Following the end of administered pricing, provisional prices settled towards $62.86/GJ or less.[12] Provisional offers above $70/GJ start increasing, however D-2 supply-demand remains tight.** Ex-ante prices remain elevated compared to other markets, despite reductions from provisional schedules. **Higher supply offer quantities leading up to 14 June declined when administered prices ceased, before gradually increasing from 18 June and consistently exceeding 100 TJ above scheduled demand levels from 23 June (as SPV events for June concluded).
Sydney	16 June	66	38.51	
Sydney	17 June	60	40	
Sydney	18 June	60	44.66	
Sydney	19 June	60	45	
Sydney	20 June	60	43.67	
Sydney	21 June	60	42.9	
Sydney	22 June	60	42.99	
Sydney	24 June	55.22	39.99	

* From 1 June Sydney markets administered pricing state was altered following a ministerial intervention on 31 May. The major RoLR was downgraded to a minor RoLR event, changing the scheduled conclusion of Sydney's administered price state (capped at $40/GJ) in line with Brisbane, ceasing after 7 June. However, due to continued high shadow (uncapped) market prices in Sydney, the cumulative price calculation (measured over the previous 7 days) exceeded the cumulative price threshold (CPT) from 8 June, resulting in administered prices being retained in the Sydney hub.

[12] The average daily level required to prevent exceedance of the cumulative price threshold and reintroduction of administered prices.

Table 6 shows price variation trigger of $14/GJ over July. Following the revision to the price trigger on 22 June only 2 price variations greater than $14/GJ occurred (22 June, 24 June), had the trigger continued at $7/GJ there would have been 20 occasions.[13] Price variations increased above $14/GJ in Sydney from 19 July and continued to breach the threshold over consecutive days into the following month.

Table 6 Provisional and ex-ante schedule variations in July 2022

STTM hub	Date	Price ($/GJ)		Threshold breach description
		Provisional (D-2)	Ex-ante (D-1) lower	
Sydney	19 July	70	55	Increased supply offers (88 TJ) under $60/GJ
Sydney	20 July	70.1	50	Increased supply offers (65 TJ) under $50/GJ
Sydney	21 July	65.22	44.8	Increased supply offers (76 TJ) under $45/GJ
Sydney	22 July	65.22	43.61	Increased supply offers (107 TJ) under $45/GJ
Sydney	23 July	65.19	37.99	Increased supply offers (64.4 TJ) under $40/GJ
Sydney	24 July	65	36.98	Increased supply offers (76.9 TJ) under $40/GJ
Sydney	25 July	65	39.98	Increased supply offers (82.6 TJ) under $40/GJ
Sydney	26 July	65.22	39.98	Increased supply offers (59.6 TJ) under $40/GJ
Sydney	27 July	60	37.68	Increased supply offers (95.3 TJ) under $40/GJ
Sydney	28 July	65.22	35.01	Increased supply offers (93.8 TJ) under $40/GJ
Sydney	29 July	65.22	33.01	Increased supply offers (95.7 TJ) under $35/GJ
Sydney	30 July	55	29	Increased supply offers (79.2 TJ) under $30/GJ
Sydney	31 July	55	22.82	Increased supply offers (64.5 TJ) at $10-30/GJ and a reduction in controllable withdrawals (43 TJ) at $65-70/GJ

[13] This compares to 6 instances of variations above $14/GJ over the seven days prior (after administered prices ceased from 15 June).

Table 7 highlights price variations in Brisbane and Sydney from 1 August. Lower prices in August resulted from increased availability of cheaper supply, with the largest falls in Sydney and Brisbane accompanied by reduced controllable (priced) demand, before significant price variations subsided 3 days into the month.

Table 7 Provisional and ex-ante schedule variations in August 2022

STTM hub	Date	Price ($/GJ) Provisional (D-2)	Ex-ante (D-1) lower	Threshold breach description
Brisbane	**1 August**	38.95	23.58	Increased supply offers (40 TJ) under $25/GJ
Sydney	**1 August**	36.36	21.57	Increased supply offers (48.9 TJ) at $10-25/GJ and a reduction in controllable withdrawals (43 TJ) at $36.36/GJ
Brisbane	2 August	41.96	17.31	Increased supply offers (33 TJ) under $20/GJ
Sydney	2 August	31.09	16.5	Increased supply offers (67.6 TJ) under $30/GJ, with 48.2 TJ of this under $20/GJ
Brisbane	**3 August**	43.71	12	Increased supply offers (39 TJ) under $15/GJ with a small influence from a reduction in controllable demand priced at $15-50/GJ

In preparing this report the AER held meetings with AEMO and gas retailers and producers active across the east coast gas market. These meetings assisted with considering compliance of trading activities with the national gas rules and the market.

7 Appendices

7.1 Appendix A – Gas participant list

PARTICIPANT LIST IN EASTERN GAS MARKET							
	Market participant	Victoria	Sydney	Adelaide	Brisbane	GSHs	DAA
GPG Gentailer	AGL	●	●	●	●	●	●
	Alinta Energy	●	●	●	●	●	●
	CleanCo				●	●	●
	EnergyAustralia	●	●	●		●	●
	Engie	●					●
	HydroTasmania	●	●				
	Origin	●	●	●	●	●	●
	Shell Retail	●	●	●	●	●	●
	Snowy Hydro	●	●	●	●		
Exporter/Producer	Arrow		●		●	●	●
	APLNG					●	●
	BHP Billiton	●	●				
	Cooper Energy	●					
	Esso	●	●				●
	GLNG					●	
	Lochard Energy	●					
	Santos	●	●	●	●	●	●
	Senex	●	●		●	●	●
	Shell	●	●	●	●	●	●
	Walloons Coal Seam Gas (QGC)					●	●
	Westside Corporation					●	●
Retailer	1st Energy	●					
	Agora	●					
	Covau	●	●	●	●		
	CPE Mascot		●				
	Delta Electricity		●				
	Discover Energy	●	●	●	●		
	Dodo	●	●				
	GloBird Energy	●	●	●	●		
	OVO Energy	●					
	ReAmped		●				
	Powershop	● ●	● ●				
	Simply Energy		●	●			
	Sumo Gas	●	●				
	TasGas	●					
	Tango	●					
	Weston Energy	●	●	●	●		●

	Market participant	Victoria	Sydney	Adelaide	Brisbane	GSHs	DAA
Industrial	Adelaide Brighton Cement			●			
	Ampol				●		●
	BlueScope	●	●		●		
	Boortmalt	●	●	●			
	Brickworks	●	●	●	●		●
	Commonwealth Steel		●				
	Coopers			●			
	CSR Building Products	●	●	●	●		
	Group Energy		●				
	Incitec Pivot				●	●	●
	Infrabuild	●	●	●		●	●
	Master Butchers			●			
	Michell Wool			●			
	Mobil Oil	●					
	Oceania Glass	●					
	Orica		●				
	Paper Australia	●	●				
	Qenos	●	●			● ●	●
	SA water			●			
	Tarac Technologies		●	●			●
	Visy*	●	●	●	●		●
	Viva Energy	●					
	Weston Aluminium						
Trader	Eastern Energy Supply	●	●	●	●	●	●
	Macquarie Bank	●	●			●	●
	Petro China	●	●		●	●	●
	Strategic Gas Market Trading	●	●	●	●	●	●
	63	41	39	26	23	20	27

● Entered before 2017
● Entered in 2017
● Entered in 2018
● Entered in 2019
● Entered in 2020
● Entered in 2021
● Entered in 2022
● Exit or inactive

Note: For Victoria, Adelaide, Sydney, Brisbane and the GSH the year represents when participants commenced trading. For the DAA the year represents when participants registered.

* Click Energy was acquired by AGL, ERM and Powershop were acquired by Shell (Shell Retail), O-I International was acquired by Visy

* Arrow also operates the Braemar 2 power station

* Simply Energy is the retail arm of Engie, who own and operate gas generation assets in South Australia

* ICAP Brokers is also active in the GSH, but does not trade gas commodities (trade facilitator)

7.2 Appendix B – Gas event timeline

Date	Event	Market Affected	Description
24 May	Weston Energy suspension from STTMs and DWGM	East Coast wide	Weston Energy unable to meet AEMO margin calls.[14]
24 May	Market administered settlement state	Sydney	Major RoLR event threshold met.
24 May – 21 Jun	Major RoLR event.	Sydney	Major RoLR event threshold met.
24 May	Minor RoLR event. Administered price cap (APC) of $40/GJ	Brisbane	Minor RoLR event threshold met.
24, 26, 27 May	High MOS payments	Sydney	MOS service payments exceeded $50,000 – high increase MOS on MSP.
25 May – 21 Jun	Market administered scheduling state	Sydney	Market administered scheduling state replaces administered settlement state. Ex-ante prices set at ~$30/GJ using a rolling average price calculation
25 May	Contingency Gas (CG) event	Sydney	Insufficient gas from participant nominations. Nominations amended and contingency gas (CG) requirement avoided.
27 May	National Gas Emergency Response Advisory Committee (NGERAC) meeting	Sydney	Commonwealth convened meeting to consider legislation to change Sydney to less administered state (minor RoLR).
30 May – 1 Aug	Cumulative Price Threshold (CPT) exceeded. Administered price cap of $40/GJ.	Victoria	Administered price period commenced at 10 am on 30 May.
31 May – 23 Jul	High shadow prices[15]	Victoria	Multiple schedules on multiple days.
1 – 7 Jun	Change from administered scheduling state to administered settlements (with prices capped at $40/GJ)	Sydney	In accordance with a Ministerial direction under NSW Essential Services Regulations on 30 May.
1 - 3 Jun	High shadow prices	Sydney	1, 2, 3 June: Ex-ante $400/GJ.
1 Jun	Threat to System Security (TTSS)	Victoria	AEMO notice critical at 11.13 am - ended on 1 June 9.50 pm.
1 Jun	Gas Supply Guarantee (GSG)	East Coast wide	Projected NEM gas supply shortfall for 2 June.
4 Jun	Administered price	Adelaide	Administered ex-post price state.
5 - 11 Jun	High provisional D-2 Price	Sydney	All D-2 prices at price cap - $400/GJ.
6 Jun	High shadow Price	Sydney	Ex-post price $400/GJ.
7 Jun	APC removed	Brisbane	Minor RoLR event ends.
7 Jun	APC removed	Sydney	Minor RoLR event ends.
8 Jun	APC applied (cumulative price threshold exceeded)	Sydney	Category for which APC applied in Sydney switched over 7 - 8 June from RoLR reason to CPT exceeded reason.
7 - 8 Jun	Counteracting MOS	Sydney	High MOS payments in Sydney.
12,13,15,18 Jun	High MOS payments	Sydney	MOS service payments exceeding $50,000 – high decrease MOS on MSP.

[14] AEMO issued a market suspension notice from 24 May as required under the Gas Rules when a participant fails to satisfy a margin call. This triggered the Retailer of Last Resort (RoLR) process to facilitate the transfer of Weston's customers over to other default retailers. As a result the Brisbane and Sydney markets were placed in administered states with prices capped at $40/GJ.

[15] Prices that would have been set using the market clearing engine if $40/GJ administered price caps were not applied to scheduling outcomes.

Date	Event	Market Affected	Description
14 Jun	APC removed, high D-2 prices finish	Sydney	APC ended at the conclusion of gas day 14 June as do the D-2 prices above $100/GJ.
16 Jun	Threat to System Security	Victoria	4.51 pm {Critical}; ended at 5.27 am on 17 June.
16 Jun – 18 Jul	QCLNG ½ - 1 LNG train outage	East Coast (Supply)	Creates greater available domestic supply if production maintained.
16 Jun – 1 Jul	QCLNG Woleebee Creek production outage	East Coast (Supply)	Decreased production.
19 - 25 Jun	High D-2 prices	Sydney	Prices around $60/GJ D-2, falling to around $40/GJ in ex-ante schedules.
11 Jul – 30 Sep	Threat to System Security	Victoria	Reduction in Iona supply capacity and the risk of supply shortfalls due to Iona inventory depletion this winter.
14 Jul	Threat to System Security	Victoria	AEMO notice critical at 3.43 pm – ended on 15 July at 5.26 am. Insufficient supply to meet demand across the gas day and achieve the end-of-day linepack target.
15 Jul	Record high price	Brisbane	Record high price in the Brisbane market of $50.11/GJ.
18 Jul	Update to TTSS issued 11 July	Victoria	AEMO requested market information and data from market participants.
18 Jul	Threat to System Security (TTSS)	Victoria	AEMO notice critical at 7.42 pm – ended on 19 July at 6.53 am. Reduction in Longford production.
18 Jul	Record high prices	Sydney and Adelaide	Record high price in the Sydney market of $59.49/GJ and in the Adelaide market of $59.23/GJ.
18, 20 Jul	High MOS payments	Sydney	MOS service payments exceeded $50,000 – counteracting MOS drove large MSP decrease allocations.
19 Jul	Threat to System Security (TTSS)	Victoria	AEMO notice critical at 10.33 pm on 18 July for gas day 19 July. 133 TJ shortfall at 12 am D+1 schedule - TTSS started at 6 am 19 July and ended 5 am on 20 July.
19 Jul – 30 Sep	Gas Supply Guarantee (GSG)	NSW, VIC, SA & TAS	Projected NEM gas supply shortfall event in NSW, VIC, SA & TAS.
21 Jul	Record high price	Wallumbilla Gas Supply Hub	Record high volume weighted average price at the Wallumbilla Gas Supply Hub of $50/GJ.
23 Jul	High shadow prices finish	Victoria	Last day of shadow price hitting maximum of $800/GJ.
28 Jul – 24 Aug	APLNG 1 LNG train outage	East Coast (Supply)	Creates greater available domestic supply if production maintained.
28 – 30 Jul	High MOS payments	Sydney	MOS service payments exceeded $50,000 – counteracting MOS and over forecasting demand drove large MSP decrease allocations.
1 Aug	APC removed	Victoria	APC ended on the morning of 1 August at the 6 am schedule.
2 Aug	Update to TTSS issued 11 and 18 July	Victoria	Market participants no longer requested to support controllable withdrawals to Iona Underground Storage with corresponding supply.
9 Aug	Administered (not capped) pricing at $15.25/GJ	Victoria	Market price for 10 pm schedule for gas day 9 August has been administered due to late pricing schedule.
10 Aug	Update to TTSS issued on 11, 18 July and 2 August	Victoria	AEMO is undertaking a gradual easing of the request to cease purchasing gas from the DWGM.