Significant price variation report

19 & 21 June 2024 High Ancillary Payments Victorian Declared Wholesale Gas Market

August 2024

AUSTRALIAN ENERGY REGULATOR

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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 (Gas 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 DWGM include when the ancillary payment (AP) amount published by AEMO on a gas day exceeds $250,000. On the 19 and 21 June 2024 gas days in Victoria APs reached $354,976 and $341,944 respectively.

[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

Tight supply and high demand conditions in Victoria resulted in high prices over a stretch of days in June. From 13 to 24 June, daily prices in the Victorian gas market ranged from $17-$28 per gigajoule (GJ) in comparison to other days in the month which were $13-$14 per GJ.

Victorian Declared Wholesale Gas Market (DWGM) gas demand peaked for 2024 in this period at over 1,100 Terajoules (TJ) on 19 June. High demand was driven by colder weather increasing demand for residential gas heating, while gas usage by Victorian gas powered generation (GPG) was also elevated on some days.

Two main factors made supply tight. Production at the Longford Gas Plants (Longford), Victoria's largest supply source in the east, was below expected level as the facility was still ramping up supply following a period of planned maintenance in May. This resulted in increased reliance on supply from western Victoria. However, unplanned transmission system maintenance reduced available supply from the west.

From 18 to 21 June, Net Flow Transportation Constraints (NFTC) shown in Table 1 were applied limiting western Victorian gas supply via the South West Pipeline (SWP) significantly below its maximum capacity of 530 TJ. With the NFTCs in place, significant amounts of cheaper western Victorian gas available to flow to Melbourne was not physically able to be supplied in line with the normal market schedule. This triggered ancillary payments to occur alongside high market prices on these days. Cheaper western gas supply was replaced in the operational schedule with more expensive gas supply offers from interstate points - with some scheduled offers being paid above market price at close to $40 per GJ.[2] Market mechanisms worked as intended with additional payments being made to operationally schedule participants injecting higher priced gas. Resultant payments exceeded the AER's reporting threshold of $250,000 on 19 and 21 June, the first payments above this trigger since 2017.

Table 1: NFTC constraints and total ancillary payments

Gas day	Daily constraint limit (TJ)	Ancillary payments
18 June	480	$ 89,681
19 June	483	**$ 354,976**
20 June	483	$ 182,110
21 June	468.9	**$ 341,944**

Source: DWGM ancillary payment and NFTC data.

We have analysed market data for the 19 and 21 June gas days and surrounding days and conducted five meetings with trading participants in the DWGM. Our key findings are:

[2] Market prices across the 5 daily scheduling intervals in the DWGM are set using an unconstrained market schedule (MS), determined by inputs including participant demand forecasts, injection bids (offers) and controllable withdrawal bids (bids). Ancillary Payments (APs) can arise in an operational schedule (OS) when transmission constraints lead to out-of-merit-order gas being scheduled above the market price. These APs are funded by uplift charges paid by market participants. These are split into surprise uplift (allocated to participants that do not inject or withdraw gas in accordance with quantities scheduled by AEMO) and common uplift (for payments not fully recovered by other uplift mechanisms, allocated to market participants in proportion to their adjusted withdrawals from the declared transmission system). They can also be allocated to the Transmission System Operator if applicable.

- Ancillary payments occurred as expected on the two days in response to maintenance alerts which exacerbated already tight supply-demand conditions.

- Information was made available to the market on scheduling constraints well in advance of the gas days enabling all participants to organise their gas portfolios and gas bids to potentially receive payments and also to avoid being charged.

- Participants considered that higher ancillary payments could continue to occur through winter and future winter periods on peak demand days. This was considered likely because of limitations on transmission capacity relative to available gas supply from the west and because of the continued potential for lower gas production to be available from Longford in the east (requiring more western gas supply).

As noted, this is the first SPV report involving ancillary payments in Victoria since 2017. Since then, changes to the Gas Rules[3] have modified uplift charge arrangements (to fund ancillary payments) and created new entry/exit certificate arrangements from 1 January 2023. This report provides some additional analysis of these new entry certificates noting their significance to financial outcomes over these days when market prices have been highest to-date this year. Our analysis and industry meetings highlighted SWP entry rights are likely to continue to be sought after for gas from western Victoria given potential SWP transmission limits. The AER expects, noting its enhanced wholesale market monitoring role legislated in May 2024, to continue to monitor entry/exit certificates.[4]

[3] Australian Energy Market Commission (AEMC), DWGM improvement to AMDQ regime, final decision, 12 March 2020

[4] Australian Energy Regulator (AER), Enhanced Wholesale Market Monitoring Guidelines Draft (2024) , 2 July 2024,

3. Background

The Victorian Transmission System (VTS), referred to as the Declared Transmission Systems in the Gas Rules, begins with several injection/withdrawal facilities illustrated in Figure 1. The VTS has three main pipeline branches which support flows from these facilities to demand located around Greater Melbourne, where over 60 per cent of total demand lies[5]:

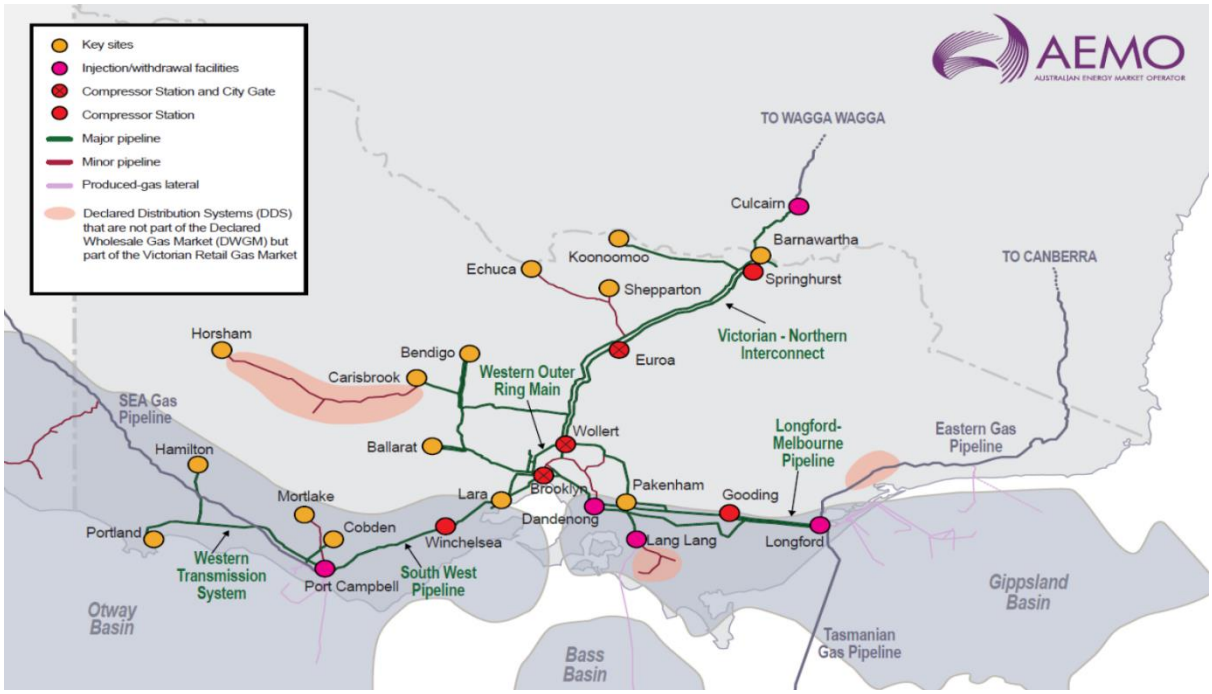
- The Longford to Melbourne Pipeline (LMP) which distributes Victoria's largest source of gas supply from the Gippsland Basin through the Longford injection point. This point also connects to smaller flows off the Eastern Gas Pipeline and Tasmanian Gas Pipeline. Further down the pipeline, The LMP connects two smaller injection points at Lang Lang and Dandenong closer to Melbourne.

- The Victorian Northern Interconnect (VNI) that transports gas from the Moomba to Sydney Pipeline in New South Wales via the Culcairn injection point.

- The South West Pipeline (SWP) that transports gas from Port Campbell adjacent to the Iona Underground Gas Storage and several Otway basin fields through the Iona injection point (Iona not displayed on map).

The LMP and VNI are linked via the high-pressure Outer Ring Main, with the recently commissioned Western Outer Ring Main (WORM) completing the link to the SWP.

Figure 1: Map of Victorian Transmission System



Source: AEMO, DWGM Technical Guide, 23 July 2024.

[5] AER analysis of the 2023 Tariff D (industrial and large commercial customers) and Tariff V (residential and small commercial customers) consumption from the Melbourne System Withdrawal Zone.

The WORM is a relatively new segment of pipeline which connects Plumpton (to the west of Melbourne) to Wollert (north of Melbourne). In addition to the pipeline infrastructure connected as part of the WORM project, additional compression and a regulating station were installed at Wollert to enable gas to be transferred bi-directionally between the east and west of Melbourne. The addition of the WORM, and a new compressor at Winchelsea commissioned in winter 2023, supported increased supply into the VTS from Iona. As a result of the WORM commissioning, the capacity to bring gas to Melbourne on a peak injection day via the South West Pipeline increased to 530 TJ per day from 447 TJ per day.[6]

The SWP capacity compares to average flows on the LMP which have been 471 TJ per day over June 2024, down from 792 in 2022 as Longford production has declined, and a Culcairn capacity to inject gas from NSW at up to 218 TJ per day.

Table 2: Average flows and nameplate ratings for the LMP and SWP (June months)

Year	LMP	LMP Capacity	SWP	SWP Capacity
2021	728.3	1030	234.8	445
2022	792.4	1169	208.2	447
2023	578.1	1169	129.0	507
2024	471.3	1160	272.7	530

Source: AER analysis of Gas Bulletin Board data

[6] Australian Energy Market Operator, Victorian Gas Planning Report Update (2024). Additional compression was installed at the Wollert Compressor Station B, allowing for compression from the existing Pakenham to Wollert pipeline connection to the WORM. A new interconnecting Pressure Reduction Station was installed connecting the Brooklyn to Lara Pipeline with the Pakenham to Wollert Pipeline.

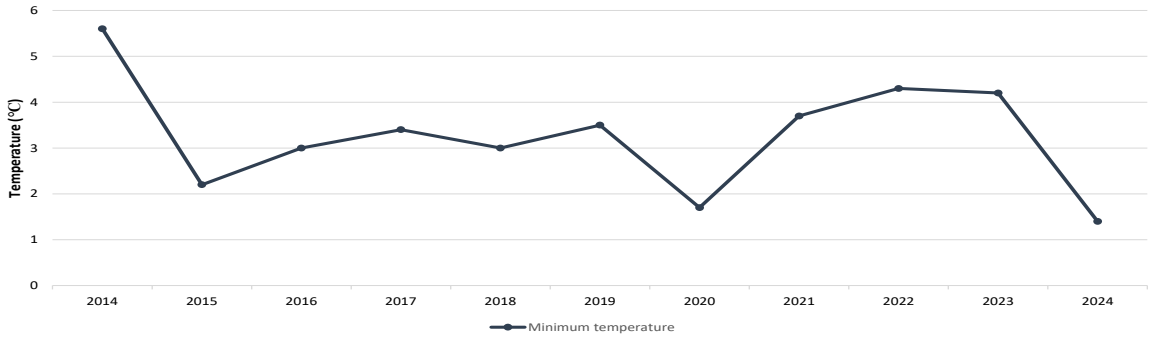
4. Supply and Demand Analysis

4.1 High payments occurred during peak Winter demand

Actual supply requirements on 19 June exceeded 1,100 TJ surpassing all other gas days this Winter[7] while the 21 June gas day demand was also high, above 1,000 TJ.

Lower than historical average June temperatures were recorded in Greater Melbourne in 2024.[8] On average, minimum temperatures were 6.85℃; the lowest monthly average since 2017 and 2018 (6.80℃ and 6.78℃ respectively). The lowest minimum temperature recorded for Melbourne in June in 2024 was 1.4℃ on 19 June, the day of the first significant price variation threshold breach (Figure 2).

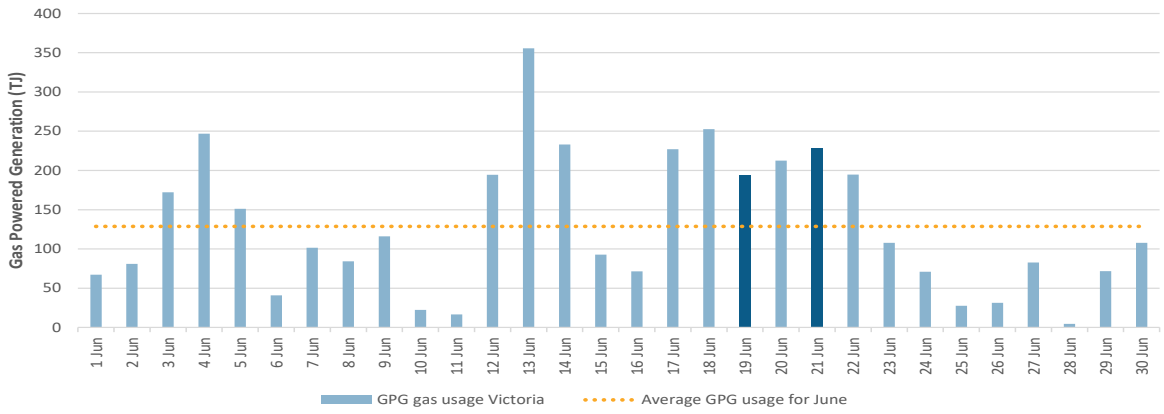
Figure 2: Olympic Park Melbourne June max minimum temperatures (℃)



Source: AER analysis using Bureau of Meteorology data, Melbourne (Olympic Park).

The contribution of gas power generation to overall demand on 19 and 21 June is shown below, with demand highest on 21 June at 228.3 TJ (Figure 3). A similar amount of GPG requirements on 19 June as occurred on 13 June would have likely led to much higher ancillary payments.

Figure 3: Gas consumption for Gas Powered Generation in Victoria in June 2024



Source: AER analysis of Gas Bulletin Board data.

7 AER analysis of AEMO Data - INT150 Public D+3 metering data.

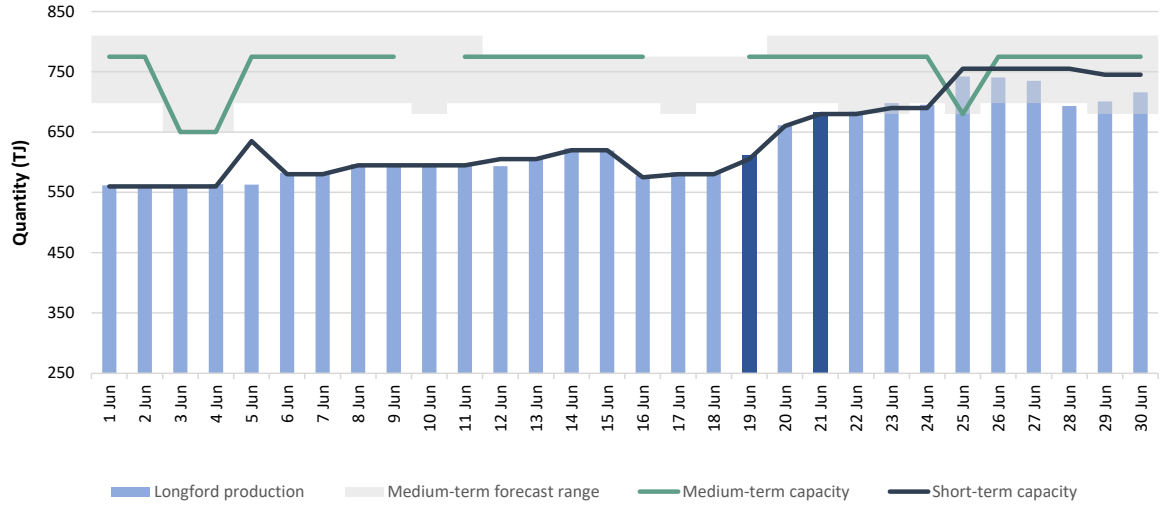
8 Bureau of Meteorology, Greater Melbourne in June 2024, accessed 18 August 2024.

4.2 Maintenance reduced available Victorian gas supply

Longford Production Facility (extended maintenance)

Longford Production facility maintenance continued into June 2024. The planned offshore maintenance was originally scheduled to be completed before June, however the full return to expected capacity levels was delayed until late June. As Longford gradually ramped up production output over the month, the reduction in expected gas supply into Victoria increased the reliance of gas supply from elsewhere. Production output at Longford on 19 and 21 June was 610 and 682.6 TJ per day, short of the 750 TJ daily maximum capability (Figure 4).

Figure 4: Longford Production Volumes June 2024



Note: Medium-term capacity is measured from 5 days to 2 weeks ahead of each gas day. Short-term capacity represent a more accurate estimate of actual production capacity ahead of the gas day. The medium-term forecast range shows the range of projected capacity levels published from July 2023.
Source: AER analysis of Gas Bulletin Board data.

South-West transmission constraint (unplanned maintenance)

APA's WORM project was commissioned in February 2024 boosting maximum capacity to 530 TJ per day. However, from late May AEMO advised participants through a fortnightly industry update of an issue with pipeline flows on the WORM.[9] AEMO noted that under low flow conditions, the pressure reduction station at the Wollert compressor at the end of the pipeline was experiencing high vibration levels, an issue that was not identified as part of the WORM pipeline commissioning. Stakeholders were informed that future testing could result in profiled injections being scheduled from the Port Campbell facilities, with AEMO to advise of further updates in market notices distributed to participants.

A subsequent industry update on 13 June indicated a 482 TJ per day constraint would impact SWP flows supplied by the Iona system injection point (reducing capacity down from the

[9] AEMO holds fortnightly meetings with industry and market participants. Operational updates for the WORM was first provided on 30 May 2024.

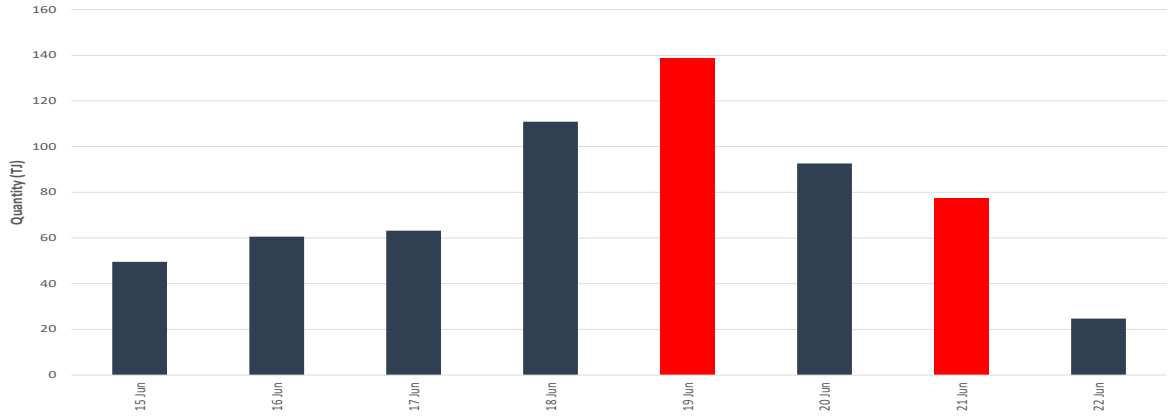
maximum capacity of 530 TJ), with a Net Flow Transportation Constraint applied from the 4th daily scheduling interval from 6 pm for the remainder of the gas day.[10]

Reductions in the availability of the SWP affecting scheduling for the 19 and 21 June gas days were advised the day before by System Wide Notices which are used to inform all market participants. As noted in Table 1 above a constraint of 483 TJ was notified to market for 19 June and 469 TJ for 21 June imposed on these days.

4.3 Gas imports to Victoria compensated

Gas made its way from production facilities in Queensland through pipelines to southern markets as Victorian gas supplies could not sufficiently meet the required demand. The extended maintenance at Longford and unplanned maintenance on the WORM resulted in greater dependence of gas injections via the Victorian Northern Interconnect (VNI) at the Culcairn injection point. Figure 5 shows strong VNI flows on 19 and 21 June in comparison to surrounding days in the month.

Figure 5: Net daily inflow of Gas into Victoria through the VNI



Note: The Victorian Northern Interconnect (VNI) is a bi-directional pipeline that delivers and receives gas through the Culcairn system point of the Declared Wholesale Gas Market (DWGM).
Source: AER analysis of Gas Bulletin Board data.

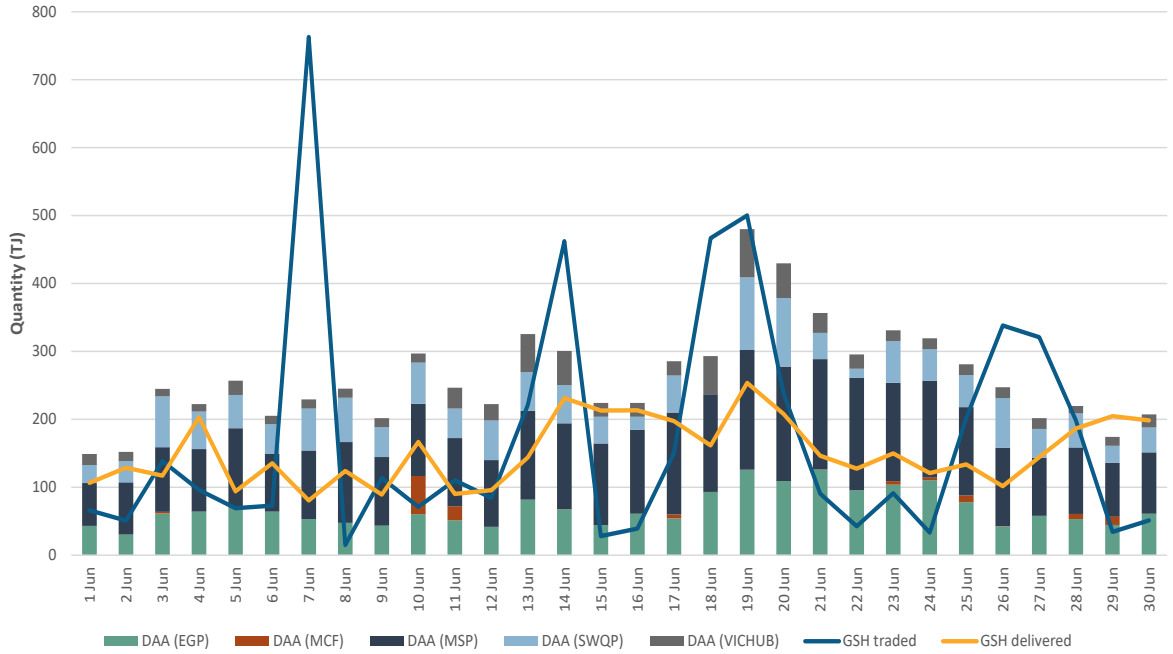
Related to the VNI injections, high trade occurred on both the Gas Supply Hub[11] exchange for gas supply at Wallumbilla and the Day Ahead Auction (DAA) for transportation capacity to facilitate increased deliveries south (Figure 6). Further analysis of the data indicates, particularly for the 19 June gas day, a strong level of combined trade with day ahead supply bought at Wallumbilla in conjunction with day ahead transportation on the DAA via the South West Queensland Pipeline (SWQP) and Moomba Sydney Pipeline System (MSP). This trade appeared to facilitate a significant amount of the extra deliveries of gas to Victoria through VNI

10 AEMO also advised that reduced SWP capacities (VTS Iona-Brooklyn) due to the WORM Pressure Reduction Station issues were reported in STCO and MTCO on the Gas Bulletin Board as well being sent out through a daily AEMO Gas Demand Forecast Report to participants subscribed to receive it.

11 The Gas Supply Hub is a voluntary wholesale market supporting short-term physical trade and gas movement at Wallumbilla (QLD) and Moomba (SA). Trade points also exist for locations at Wilton (Sydney) and Culcairn (Victoria), but quantities traded are generally much smaller, with no commodities traded at Culcairn on the SPV gas days.

via Culcairn. DAA capacity won on the Eastern Gas Pipeline was also linked to gas bid into the Victorian gas market at VicHub.

Figure 6: Gas Supply Hub trades and quantities won on the Day Ahead Auction (TJ)



Note: EGP: Eastern Gas Pipeline; MCF: Moomba Compression Facility; MSP: Moomba to Sydney Pipeline; SWQP: Southwest Queensland Pipeline; VicHub (eastern Victoria).

Source: AER analysis of Day Ahead Auction (DAA) and Gas Supply Hub (GSH) data.

5. Victorian Gas Market Analysis

5.1 Rule changes – Entry certificates and Uplift Charges

The AEMC passed a rule change in 2020, removing congestion uplift as a category of ancillary payment funding and introducing entry and exit certificates at system points:

- the entry/exit certificates provide tie-breaking rights for equally priced gas bids into the market (priority for those with certificates)
- and removed congestion hedge uplift, leaving three categories of funding (uplift) to pay for ancillary payment:
    - DTS SP (Transmission Service Provider) uplift
    - Surprise Uplift
    - Common Uplift

The operation of these new certificates and new uplift arrangements were important to financial outcomes as discussed below.

5.2 Entry rights decided participants scheduled volumes

Gas is scheduled in the market schedule in merit order as if there are no transmission constraints at system injection and withdrawal points. On 19 and 21 June prices in the market schedule were higher than average winter prices (1 May to 11 August).

Table 3: Weighted Daily Price ($ per GJ)

Period	Weighted Daily price
Winter	$13.94
19 June	$24.99
21 June	$19.00

Source: AER analysis of DWGM Market and Reference Prices data.

However, participants were only scheduled in the market schedule up to the amount which could physically be delivered at the Iona System point. Priority for scheduling through the Iona system point was awarded to trading participants with South-West entry certificates. As bid volumes at the lowest possible price ($0 per GJ) exceeded capacity, the certificates determined who was scheduled first.[12] Participants commented in meetings that South-West certificates had been the most sought after over other system entry points in the east and north. A summary of views on South-West entry certificates were:

- the value of the certificates differed across participants with some noting that to date the tie-breaking events at the South-West point had been rare and so the prices paid appeared high.

[12] Since some participants bid less than their certificates, this meant some participants were scheduled some (but not all) of their $0 per GJ bids which were not supported by certificates.

- instances of reliance on the South-West point may increase if Longford production is to reduce in coming years and noting some recent increases in production in western Victoria.

- a secondary market for these certificates had yet to emerge with some saying they may hold some more than they typically use for option value, e.g. should prices be very high in the spot gas markets or electricity markets.

The last time entry / exit certificates were auctioned on 31 May 2024, South-West entry certificates sold at clearing prices exceeding $5 per GJ over June to August for both 2025 and 2026. This compares to 2024 pricing for the same months of around $4 per GJ. The AER will continue to monitor these auctions as they occur. The pricing appears to indicate that more gas is viewed as being required from western Victoria (given Longford production decline) into 2025 and 2026 and that there is value in securing delivery to ensure gas is scheduled on high priced Victorian Gas Market or National Electricity Market days.

5.3 Participants were paid more to inject at Vic/Tas Hub and Culcairn

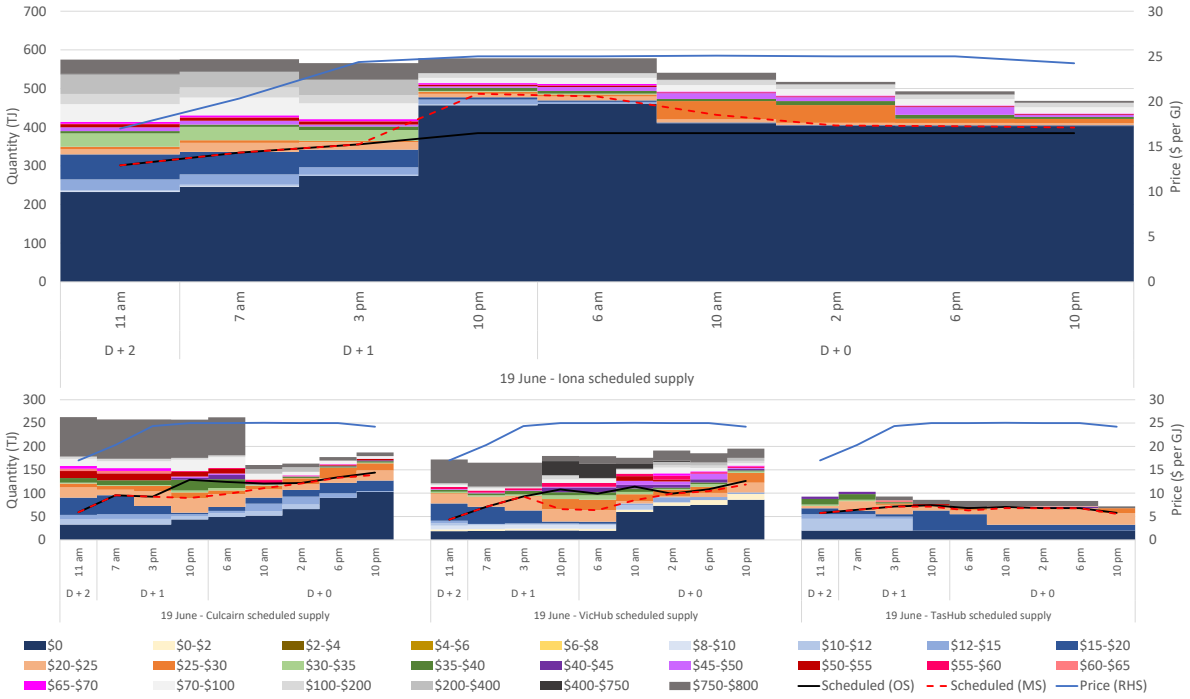
The compounded supply issues, impacting western supply due to the constraints on the WORM, and because of Longford's extended maintenance resulted in greater dependence of gas injections from Culcairn, VicHub and TasHub (other system points) to physically meet high market demand.

Trading participants noted higher costs associated with incremental gas from these other system points. One participant highlighted pipeline storage levels needing to be drawn down, others noted costs incurred in storing and keeping gas on pipelines in preparation for high priced days. Another participant noted the opportunity cost of using stored gas and not having it available to use in the National Electricity Market.

As a result, higher cost gas was injected out of merit order. Figure 7 highlights this for each set of charts:

- The top chart shows Iona System Point with not all gas priced at $0 per GJ for the beginning of day 6 am schedule being scheduled shown by the blue bar being above the black line which highlights the operational limit of gas injections on that day.
- The bottom three charts show gas at the other system points being constrained on in price bands above $25 per GJ as shown by the black line (operationally scheduled gas) intersecting through higher price bands.

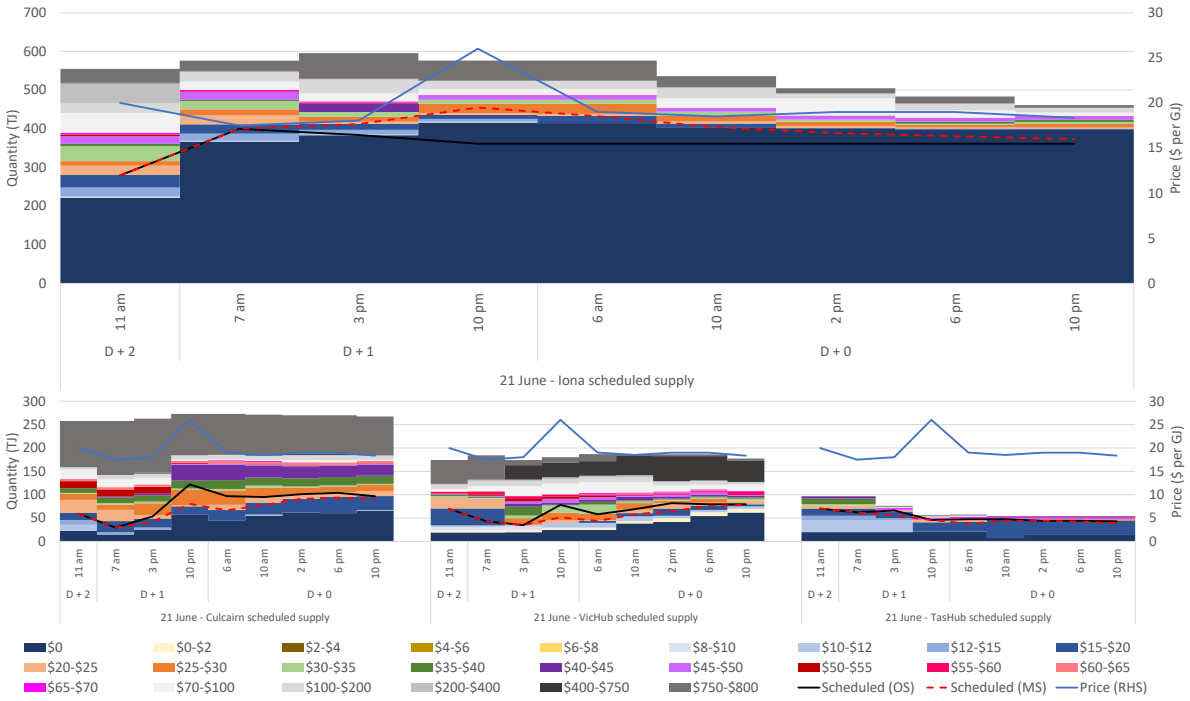
Figure 7: Scheduled injection profiles at Iona, Culcairn, VicHub and TasHub (TJ) and scheduling interval prices ($ per GJ) - 19 June 2024



Note: Small supply quantities were also scheduled at Dandenong LNG, yet only minimal physical supply allocations were reported.

Source: AER analysis using DWGM wholesale market data.

Figure 8: Scheduled injection profiles at Iona, Culcairn, VicHub and TasHub (TJ) and scheduling interval prices ($ per GJ) - 21 June 2024



Source: AER analysis using DWGM wholesale market data.

One trading participant noted there were very small injections from the Dandenong LNG injection point on these days. Our analysis found that trading participants bid very small amounts of gas from Dandenong LNG on these days in a $30-$45 per GJ range (with almost nothing below) but significantly more gas was bid in close to the market cap of $800 per GJ. This suggests that although prices were high in the market, trading participants did not consider them so high to incentivise using gas at the Dandenong LNG facility. The AER intends to monitor the pricing of gas in more detail at the Dandenong LNG facility, noting recent rule changes and plant operation may have influenced the pricing of gas there.[13]

Overall, a detailed analysis of trading participant bidding on 19 and 21 June gas hasn't identified any bidding which warrants further inquiry. We identified rebidding into lower price bands at the Vic/Tas Hub injection points through intra-day gas day schedules consistent with intra-day market price fluctuations and participants trying to stay scheduled over the whole gas day. Gas traders particularly received high ancillary payments as they were one of a few participants who offered available gas at the VicHub, TasHub and Culcairn injection points. One of the primary roles of gas traders is to arbitrage gas prices between east coast spot markets so this finding is consistent with their in-depth focus on market dynamics. Table 4 shows the high concentration of ancillary payments in three participants.

Table 4: Ancillary Payments ($, %)

Gas Day	Total Ancillary Payments	Combined % of Ancillary Payments (Top 3)
19 June	$354,976	70.27%
21 June	$341,944	81.23%

Source: AER analysis of Ancillary Payment settlement data.

5.4 Uplift charges are still being finalised

There are three categories of uplift payments to fund Ancillary Payments with the definitions taken from the relevant procedure published on AEMO's website.

- **DTS SP (Transmission Service Provider) uplift** which occurs when a transmission constraint is applied by AEMO in an operating schedule where the DTS SP has failed to fulfil its obligations under the service envelope agreement and some or all of the ancillary payments are attributable to the failure.

- **Surprise uplift** which is allocated to market participants who have not followed their effective demand forecast or scheduling instructions for the preceding scheduling interval or have changed their demand forecast and/or have changed scheduling instructions for the upcoming scheduling horizon.

[13] Australian Energy Market Commission, DWGM Interim LNG Storage Measures, final decision 15 December 2022.

- **Common uplift** which occurs where total uplift payments are payable in respect of a gas day and operating schedule and are not fully recovered by other uplift payment categories, the balance of the total uplift payments will be allocated to market participants in proportion to their adjusted withdrawals from the declared transmission system in respect of that gas day.[14]

The AER has reviewed settlement outcomes for the day based on a preliminary zero allocation of DTS SP uplift. We understand AEMO has discussed with the transmission service provider whether on 19 and 21 June the DTS SP fulfilled its obligations under the service envelope agreement. However, AEMO has not decided formally whether any allocation will be levied on the DTS SP.

Accordingly, uplift charges have been allocated to date based on Surprise and Common uplift, the remaining categories. Overall, Table 5 highlights the allocation of uplift payments was more distributed widely than ancillary payments were across market participants. We reviewed the detailed allocation across participants and did not identify any concerns with the Surprise uplift reflecting individual participant deviations on a gas day and the Common uplift reflecting apportion based on size of participant.

Table 5: Uplift payments

Gas Day	Total Surprise Uplift	Total Common Uplift*	Combined % of Surprise Uplift Payments (Top 3)
19 June	$213,133	$141,843	56.47%
21 June	$154,157	$187,787	38.99%

Note: *Common Uplift is allocated to cover ancillary payments not recovered through other uplift mechanisms, recovered from participants in proportion to their adjusted withdrawals quantities.
Source: AER Analysis of Uplift Charges data.

5.5 Other commentary on the market during the day

One participant highlighted that they had limited visibility of the gas prices being scheduled out of merit order and queried whether more information could be provided. AEMO has indicated that two reports can be referred to immediately as a pricing schedule is released, “INT037b”, which provides the market price and a 10% plus/minus sensitivity and “INT039b” which provides an Operational Schedule price, albeit in a locational format, so can only be treated as an indicator of the marginal injection bid that has been scheduled. AEMO noted, however, it is considering further adjustments to these pricing reports.

Another participant suggested further post event information would be useful even if not possible during the event. The AER considers further information may assist participants to better understand why the WORM maintenance had to be conducted over a high demand period.

[14] Australian Energy Market Operator, Uplift Payment Procedure (2023).