Pipeline Capacity Trading

Two Year Review

April 2021

AUSTRALIAN ENERGY REGULATOR

Contents

Glossary

Shortened form	Extended form
ACCC	Australian Competition and Consumer Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AQL	Auction Quantity Limit
BWP	Berwyndale to Wallumbilla Pipeline
CTP	Capacity Trading Platform
CGP	Carpentaria Gas Pipeline
DAA	Day Ahead Auction
DWGM	Declared Wholesale Gas Market
EGP	Eastern Gas Pipeline
GJ	Gigajoules
GSH	Gas Supply Hub
ICF	Iona Compression Facility
the Law	National Gas Law
MAPS	Moomba to Adelaide Pipeline System
MCF	Moomba Compression Facility
MSP	Moomba to Sydney Pipeline
NEM	National Electricity Market
OTC	Over-the-counter
PCA	Port Campbell to Adelaide pipeline
PCI	Port Campbell to Iona pipeline
PJ	Petajoules
QGP	Queensland Gas Pipeline
RBP	Roma to Brisbane Pipeline
STTM	Short Term Trading Market
SWQP	South West Queensland Pipeline
TGP	Tasmanian Gas Pipeline
TJ	Terajoules
the Rules	National Gas Rules
WCF A/B	Wallumbilla Compression Facilities A & B

Key messages

In March 2019, reforms introduced new markets and rules to facilitate pipeline capacity trading. These reforms have improved access to pipeline capacity for wholesale gas customers.

One of these markets, the Day Ahead Auction, has been a particular success, providing participants cheap access to more than 73 petajoules (PJ) of pipeline capacity over the past 2 years. The majority of this has been won at the auction's reserve price of $0 per gigajoule ($0/GJ). While registration and usage fees mean that the real price paid by participants is higher, we estimated that participants saved between $30 million and $60 million in avoided contract transportation charges in the first year of the auction's operation. The most capacity has been won on routes south on the Moomba to Sydney Pipeline into Victoria and Sydney where about 21 PJ of capacity has been accessed.

This cheap capacity has allowed participants to respond flexibly to changing conditions and arbitrage between markets, typically between cheaper northern markets and more expensive southern markets. For example, monthly average prices for December 2020 in the Sydney Short Term Trading Market may have reduced by as much as $0.63/GJ as a result of gas delivered with capacity won through the auction. More broadly, the Day Ahead Auction has supported increased trade in the east coast spot markets.

However, the benefits of the Day Ahead Auction have not been realised to the same degree across all auction facilities. In particular, participants have won relatively low amounts of auction capacity on the pipelines connecting to the Adelaide Short Term Trading Market, or none at all. At times, there can be little auction capacity available but when there is, higher usage fees may be discouraging smaller participants.

The other market, the Capacity Trading Platform, has not been active, with only one trade to date. In part, this reflects the Day Ahead Auction's success as an alternative for participants. Rather than seeking capacity on the platform, they are winning it through the Day Ahead Auction at low cost.

Separately, the AER has been actively refining surveillance tools and monitoring participant compliance with the new obligations. In addition to our monitoring, participants have raised a number of queries relating to the interaction of the Day Ahead Auction and the east coast spot markets. When raised, we have communicated our best practice expectations to ensure improved market outcomes.

1 Pipeline capacity trading reforms improved access for gas shippers

Reforms introduced on 1 March 2019 made it easier for wholesale gas customers (shippers) to access pipeline capacity.[1] In some cases shippers that have contracted for pipeline capacity do not fully use it, leaving some capacity underutilised. These reforms give other shippers the ability to access this capacity through trading platforms.

The reforms introduced 2 new markets, operated by AEMO:

1. The Day Ahead Auction (DAA) is a mandatory auction of any contracted, but unnominated capacity. Any shipper may bid at the auction, which is finalised a day in advance of the relevant gas day. The auctions have a minimum price of $0 per gigajoule ($0/GJ) and any revenues go to the pipeline operator.
2. The Capacity Trading Platform (CTP) is a voluntary market where shippers can sell any capacity they do not expect to use. It includes both an anonymous exchange mechanism to trade common transportation products, and a listing service that shippers can use to buy and sell more bespoke products. Sales revenues on the CTP go to the selling shipper.

The introduction of these markets was intended to open up access to key pipelines on the north-south transport route, such as the South West Queensland Pipeline (SWQP), where contracted capacity is held by only a few shippers (Figure 1).

In addition to the new markets, the reforms also introduced:

- standards for key contract terms and prices to facilitate secondary capacity trading[2]
- a reporting framework to improve market transparency, including the reporting of secondary capacity trades, which are negotiated bilaterally between participants
- a record keeping framework to underpin the integrity of participant trading.

Shippers buy capacity on transmission pipelines to transport their gas purchases from gas production basins. Gas production companies and gas pipelines are separately owned, so a gas shipper must negotiate with multiple parties to buy its gas and then have that gas delivered. To reach its destination, gas may even need to flow across multiple pipelines with different owners.

1.1 Purpose of this report

Covering the period March 2019 until December 2020, this report reviews the first 2 years of these reforms. In this report:

- Chapter 2 analyses the performance of the DAA over the past 2 years
- Chapter 3 examines participant use of the CTP and the reporting of secondary capacity trades
- Chapter 4 details our surveillance activities to ensure compliance with the market participation requirements of the reforms

1 http://gmrg.coagenergycouncil.gov.au/work-streams/capacity-trading-reform

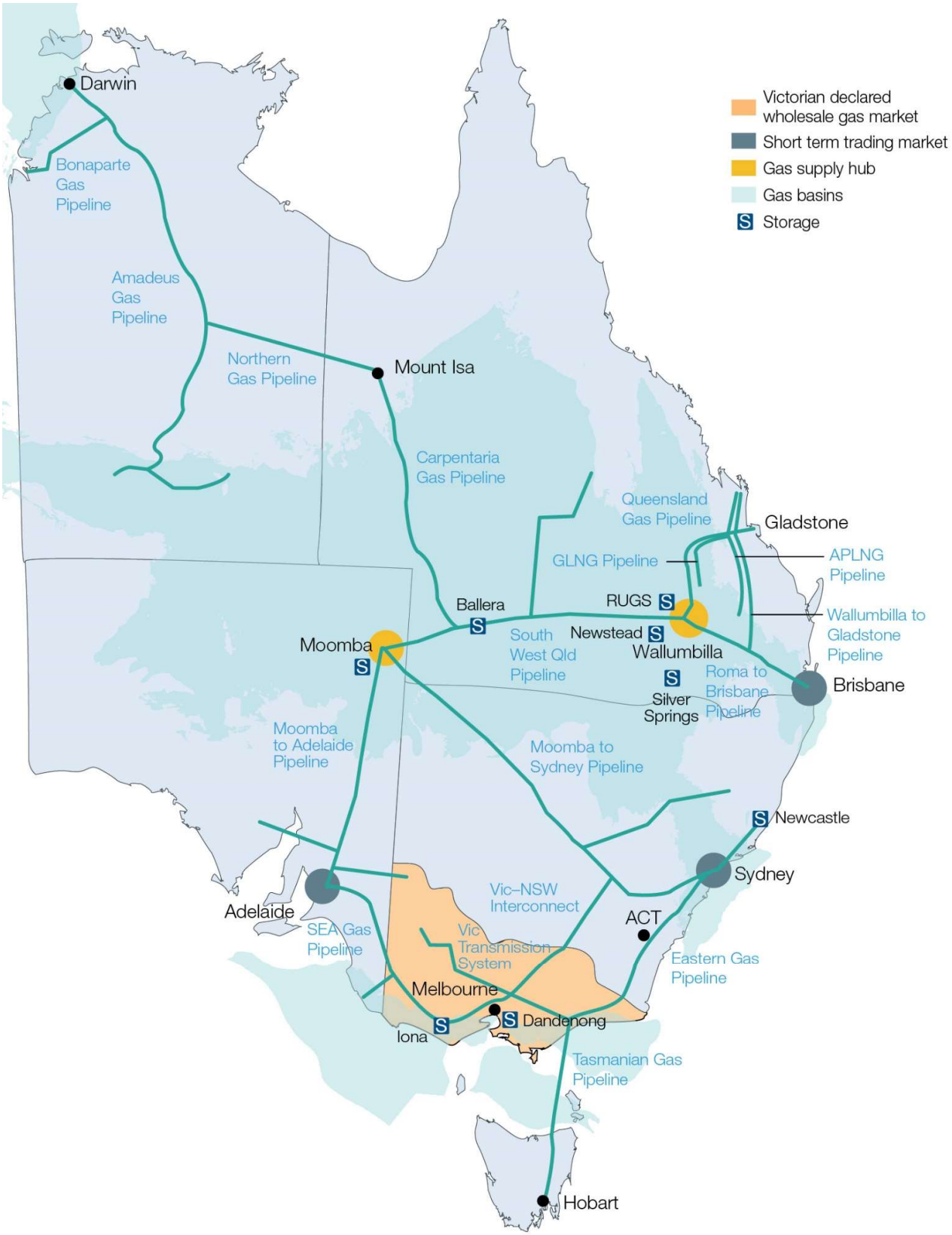
2 In February 2020, the AER published a review of participants' standard terms and conditions and their compliance with the new obligations. This report can be found on our website.

- Chapter 5 outlines our next steps following this review

Following the implementation of the pipeline capacity trading reforms, the former Council of Australian Governments' Energy Council (COAG EC) stated its intention the reforms be reviewed in 2 years' time. This report is intended to inform that review, which is due after March 2021.

Separately, the AER has an ongoing role to assess applications for facility exemptions from the capacity trading requirements and review standard conditions and fees. Over the first 2 years ending 1 March 2021, the AER also had a role to assess any applications for transitional firm service rights on pipelines. These roles are not the focus of this report, but are discussed where relevant.

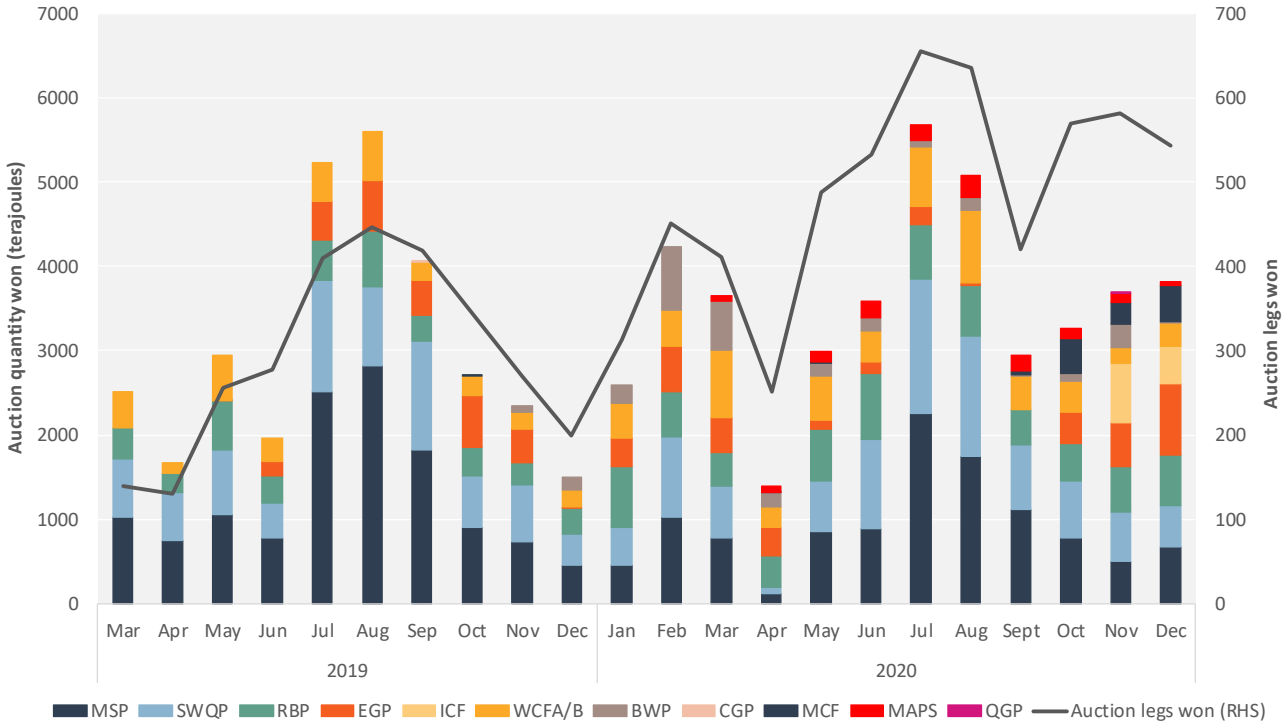
Figure 1 East coast gas markets and pipelines



2 The Day Ahead Auction has improved access to pipeline capacity

Since its introduction, the DAA has provided access to nearly 73.5 PJ of contracted, but unnominated pipeline capacity, representing 8750 individual auction legs won (Figure 2). Participants won this capacity over 12 different auction facilities and to date, 79% was won at the reserve price of $0/GJ (Box 1).[3] The majority of this was on the key routes connecting the northern and southern markets on the Moomba to Sydney Pipeline (MSP) and the SWQP (section 2.2).

Figure 2 Capacity won on the Day Ahead Auction, by facility



Source: AER analysis using DAA auction results data.

Note: Quantities shown are the monthly sum of auction products allocated on each pipeline and do not necessarily represent the physical volumes of gas that actually flowed for each gas day

Shippers have favoured the DAA as the preferred method of acquiring capacity instead of the CTP, which has only seen one small trade to date (section 3). As reported in our *Wholesale markets quarterly – Q2 2020*, participants have commented that the auction has increased market efficiency and optimisation. In particular, the DAA is a cheaper alternative than other contract-based short term transportation services, which are often priced at a premium. In the first year of operation, we estimate that users saved between $30 million to $60 million in avoided contract transportation charges by using capacity won at auction instead.[4]

[3] The auction facilities on which capacity has been won to date include: Berwyndale to Wallumbilla Pipeline (BWP), Carpentaria Gas Pipeline (CGP), Eastern Gas Pipeline (EGP), Iona Compression Facility (ICF), Moomba to Adelaide Pipeline System (MAPS), Moomba Compression Facility (MCF), Moomba to Sydney Pipeline (MSP), Queensland Gas Pipeline (QGP), Roma to Brisbane Pipeline (RBP), South West Queensland Pipeline (SWQP), Wallumbilla Compression Facility A (WCFA) and Wallumbilla Compression Facility B (WCFB).

[4] AER, *Wholesale markets quarterly – Q2 2020*, p62.

In 2021, the ACCC reported that, for the most part, contract prices for transportation had not changed significantly in recent years.[5] This further demonstrates the value of the DAA as a cheaper, alternative way to secure transportation capacity. With access to cheap capacity, participants have seized arbitrage opportunities, which has contributed to increased trade in the east coast spot markets.[6]

Box 1 How the Day Ahead Auction works

The Day Ahead Auction is a mandatory auction on non-exempt pipelines of any contracted, but unnominated pipeline capacity determined the day prior to the gas day.

The auction provides access to individual service points (receipt and delivery points), zones (groupings of service points) and pipeline segments (transportation paths between zones). Participants can submit individual bids for capacity, or paired bids across multiple facilities. Used for coordinating gas delivery further afield, paired bids will not clear unless capacity is available to service each of the bids contained within.

The lowest accepted bid price in the auction determines the clearing price on days when demand exceeds available capacity. When there is more capacity available than participant demand, the auction is cleared at the reserve price of $0/GJ. All proceeds go to the facility operator.

While participants can win auction capacity for $0/GJ, additional charges and fees make the real cost slightly higher (section 2.6).

To date, the value of the DAA is greatest in winter when southern demand is highest. Reflecting this, the most activity on the DAA was during the winter months of July and August in both 2019 and 2020 on routes to deliver gas south from Queensland. But during these cooler months, available auction quantities can be lower and capacity is more likely to be won at prices above the reserve of $0/GJ. In July and August 2020, 39% of capacity was won at prices greater than $0/GJ for all auction facilities combined. However, results varied by facility, where 81% of the capacity won on the MSP and 39% of capacity won on the Roma to Brisbane Pipeline (RBP) was at prices greater than $0/GJ. It was also in August 2020 that participants paid the record price on the DAA of $1.49/GJ on the MSP (section 2.1).

More generally, activity has increased as the market has started to mature. In December 2020, participants won 3825 TJ of capacity across 10 facilities, compared to just 1500 TJ across 6 facilities in December 2019. And, the number of concurrent participants has also doubled over the same period (section 2.3).

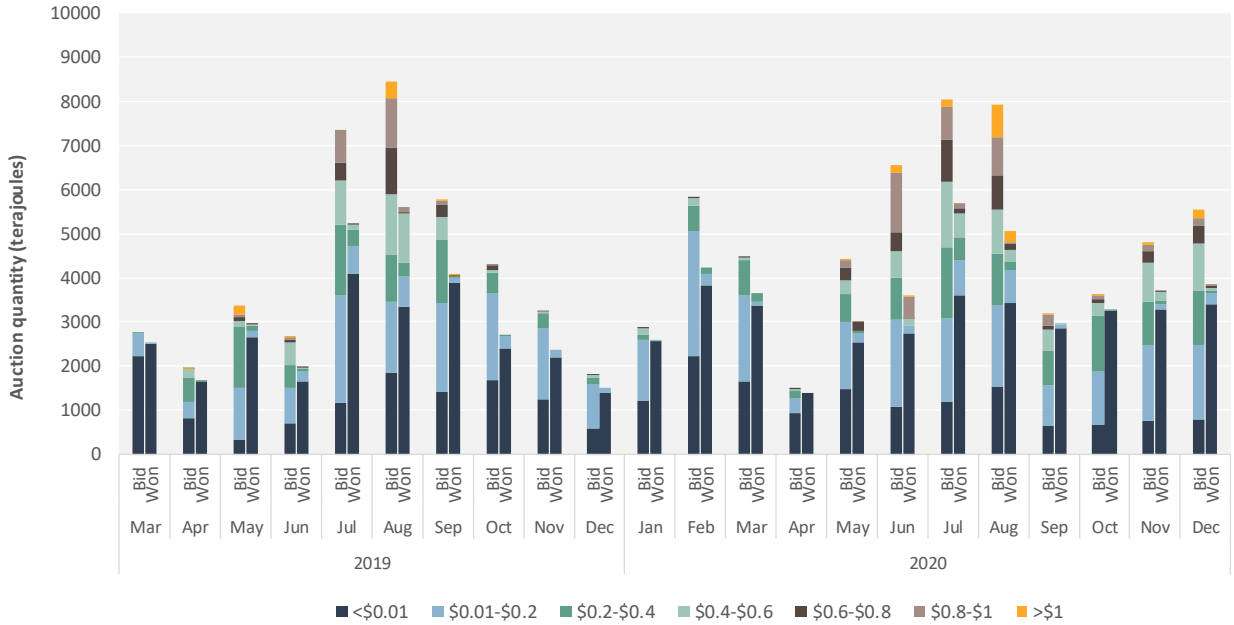
5 ACCC, *Gas Inquiry – 20 January 2021 interim report*, p76.

6 AER, *Wholesale markets quarterly – Q3 2020*, p55.

2.1 The majority of capacity has been won at the reserve price, but participants are willing to pay more

While the majority of capacity won has been at the reserve price of $0/GJ, there is evidence participants are willing to pay a higher price. To date, 74% of participant bids for auction capacity are greater than $0.01/GJ (Figure 3).

Figure 3 Comparing participant bid prices against auction clearing prices, all facilities



Source: AER analysis using DAA auction results data.

Note: The auction bid stack volumes are calculated across all facilities and includes paired bids that could include multiple auction facilities.

Prices tend to rise in winter months, as participants bid for more capacity, and at higher prices. For example, in both years around 25% of all auction bids were at prices greater than $0.60/GJ in July and August, while in other months, bids at these prices account for only 8%. To date, participant bids are most likely to exceed $1/GJ in July and August, with 62% of all bids greater than $1/GJ occurring in these months.

This shows that so far, participants place a greater value on auction capacity at times of higher seasonal gas demand, as the winter months are typically when demand is highest in the southern spot markets (section 2.2). This is also when participants win the greatest auction capacity.

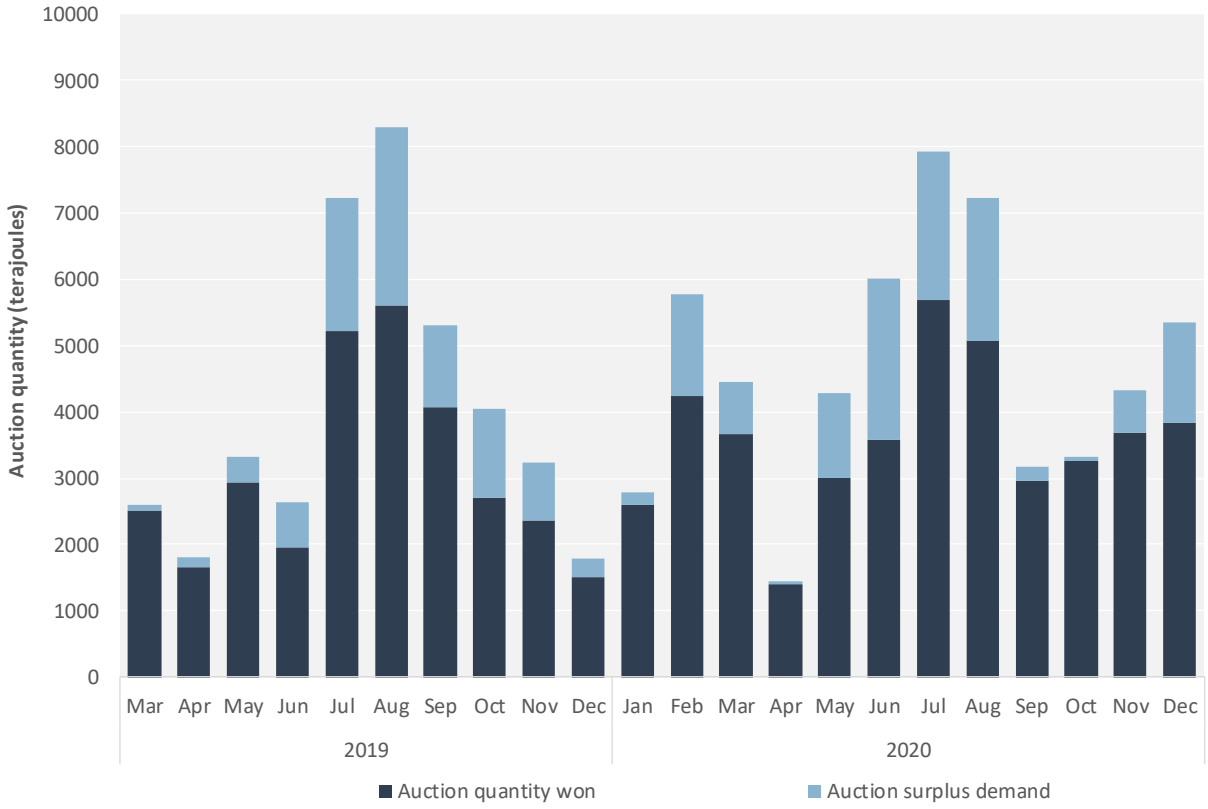
But participants' willingness to pay more for auction capacity in non-winter months has grown across 2020. For example, in Q4 2019 38% of all bids were priced at less than $0.01/GJ, compared to 16% in Q4 2020. Interestingly, capacity won at auction has also increased over this time.

Other factors may be contributing to this growth. For example, participants winning increased volumes of auction capacity in February 2020 partly reflected increased requirements for gas powered generation in South Australia as the region was electrically separated for 18 days in the first half of the month (section 2.2).

Of the different types of participants, exporter and producer participants are the least likely to bid for capacity at higher prices. To date, 59% of bids by these participants were at prices lower than $0.01/GJ. This contrasts with only 18% of bids by gas powered generator and gentailer participants (GPG gentailers) at prices lower than $0.01/GJ. On the auction, GPG gentailer participants are the most prolific (section 2.3).

Since the beginning of the auction, participants' demand for auction capacity has always been greater than the actual auction capacity that was available with a total demand for auction capacity of 96.3 PJ versus only 73.5 PJ won through the auction (Figure 4).[7] Around 72% of this surplus demand is on the MSP, SWQP and the RBP.

Figure 4 Auction surplus demand



Source: AER analysis using DAA auction results data.

Note: Surplus demand is only calculated on routes where auction capacity was won.

The Auction Quantity Limit (AQL) determines the available auction capacity that participants can win. The AQL is the lower limit of either the contracted, but unnominated capacity available, or any physical restrictions on a pipeline. These constraints can occur at receipt or delivery zones, pipeline segments, and individual service points, or a combination thereof. When participant demand exceeds the AQL, we consider the auction to be constrained.

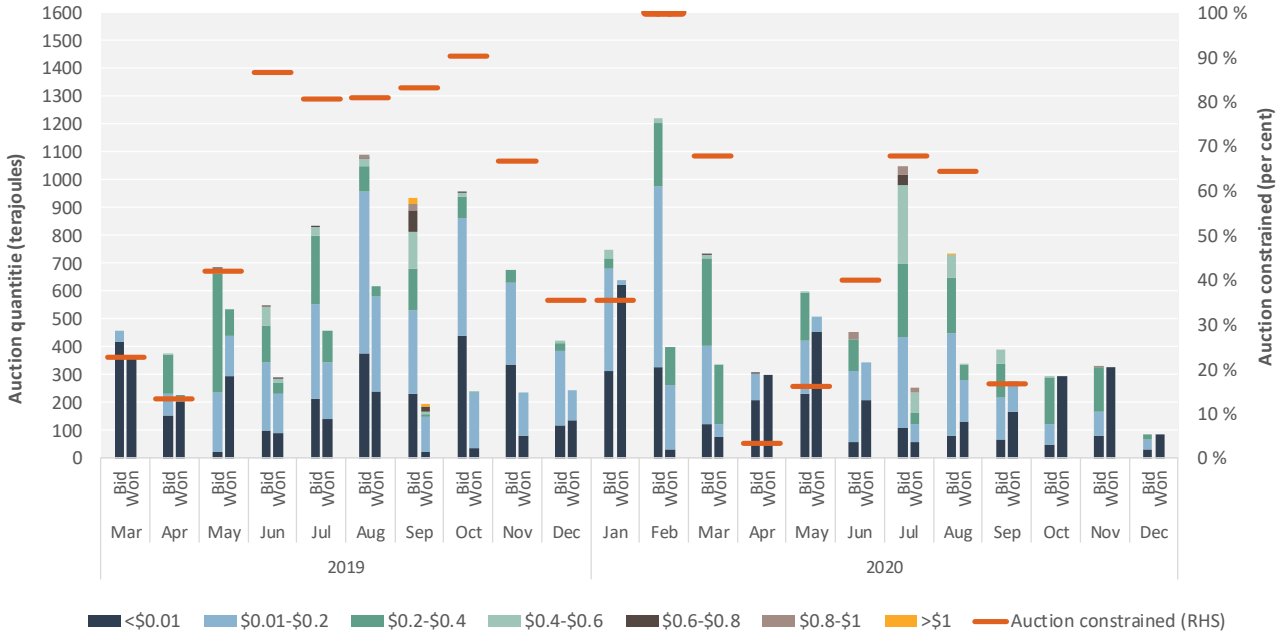
[7] Surplus demand is defined as the amount of auction capacity participants bid for above the actual auction quantities won on days where the auction was constrained. This surplus demand is only calculated on auction routes where auction capacity was actually won and does not reflect auction routes where no capacity was won.

Constraints on the DAA determine price outcomes as when the auction is unconstrained, participants win capacity for the reserve price of $0/GJ. When the auction is constrained, higher prices can result. At these times, the auction clearing price is set by the lowest accepted bid.

Of the 12 different facilities used in the DAA to date, only the BWP, EGP, MAPS, MSP, RBP and SWQP have had days where the AQL has been reached. But these 6 facilities account for 85% of total auction capacity won. This has resulted in prices greater than the reserve price of $0/GJ as participants compete for limited capacity, and demand in excess of what is available for auction.

In our *Wholesale markets quarterly – Q3 2020* we reported that the major constraints appear to be at the main delivery zones at Wallumbilla (on the RBP), Moomba (on the SWQP), Sydney (on the EGP), and on the first pipeline segments south of Moomba on the MSP and the Moomba to Adelaide Pipeline System (MAPS).[8] Of these, the RBP is the facility that most often reaches the AQL. This reflects how heavily participants use the RBP, constraining the auction on a majority of days in some months and all of the days in February 2020 (Figure 5).

Figure 5 Comparing participant bid prices against auction clearing prices and how often the auction was constrained, RBP westerly routes



Source: AER analysis using DAA auction results data.

Note: We consider the auction constrained when the demand for auction capacity exceeds the available auction capacity. For a detailed discussion of the auction constraints on the RBP see Appendix B.

The frequency with which the auction is constrained on RBP routes has had significant bearing on the clearing prices. Proportionally, less capacity is won at $0/GJ in months when the auction is more constrained. For example, in October 2019 when the auction was constrained about 90% of the time, only 30% of capacity was won at the reserve price, despite around half of participant bids being at $0/GJ. This contrasts with May 2020 when the auction was constrained less than 20% of the time, about half of participant bids were at $0/GJ, but 81% of all capacity was won at that

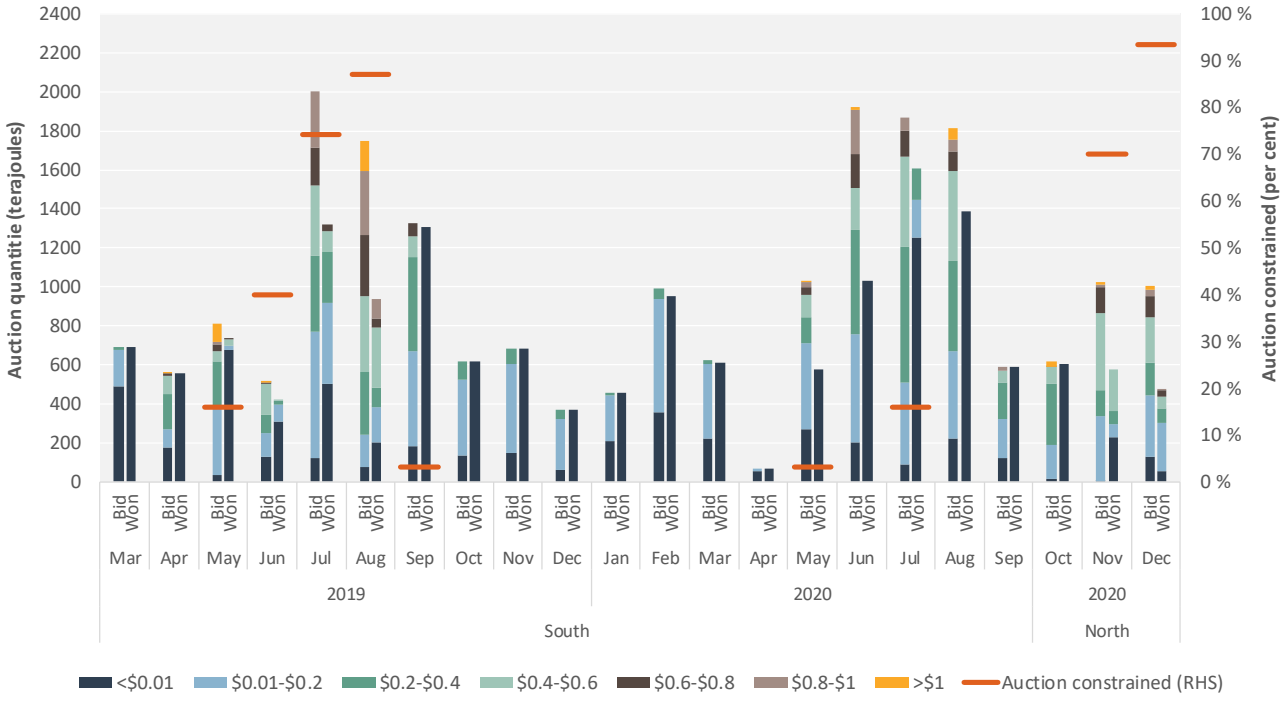
[8] See Appendix A for more information on how we grouped and classified different auction routes and directions.

price. In total, when the auction was constrained, the volume weighted average price participants paid for capacity was $0.12/GJ, but prices have reached as high as $1.05/GJ.

To date on the RBP, the majority of constrained auctions have been against routes to flow gas west towards Wallumbilla. While there have been some constrained days on routes flowing east to Brisbane, these are currently not significant. Interestingly in Q4 2020, as participants won significant capacity on routes flowing east, the auction was not constrained for westerly routes. This was the first time these routes were unconstrained since the introduction of the DAA.

The SWQP has also been highly constrained in some months. In winter 2019, auction capacity for transportation south was limited 75% to 85% of the time by one constraint and in these months, auction clearing prices rose (Figure 6). For example in August 2019, 86% of participant bids were at prices greater than $0.2/GJ and the auction cleared at these prices about 59% of the time. This contrasts with August 2020, where more than half of participant bids were for prices greater than $0.2/GJ, but all auction capacity was won for $0/GJ because the pipeline was unconstrained that month. When the auction was constrained, the volume weighted average price participants paid for capacity was $0.28/GJ, but prices have reached as high as $1/GJ.

Figure 6 Comparing participant bid prices against auction clearing prices and how often the auction was constrained, SWQP



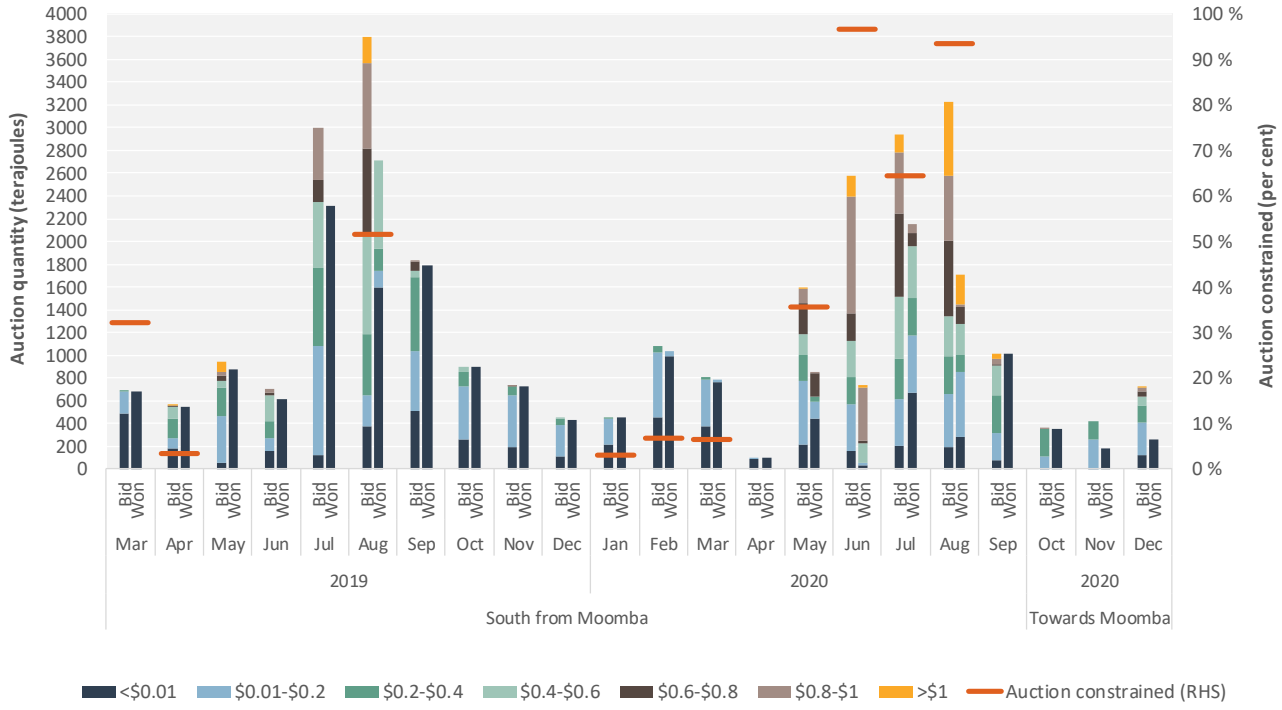
Source: AER analysis using DAA auction results data.

Note: We consider the auction constrained when the demand for auction capacity exceeds the available auction capacity. For a detailed discussion of the auction constraints on the SWQP see Appendix B.

Similarly, in late 2020 as participants started winning significant capacity to send gas north, constraints on routes flowing north from Moomba to Wallumbilla came into effect 70% of the time in November 2020 and more than 90% of the time in December 2020. As a result, less capacity was won at $0/GJ.

The MSP most commonly sees constraints on the Moomba to the Central West Pipeline (CWP) route, the first segment of the pipeline flowing south from Moomba. A key segment of the MSP, it has been most constrained at times of higher auction activity. June 2020 was particularly so, constrained nearly 100% of the time (Figure 7). In this month, more than half of participant bids for auction capacity were at prices greater than $0.6/GJ. But as a result of constraints, 66% of auction capacity won flowing south from Moomba on the MSP in June 2020 cleared at prices greater than $0.8/GJ. With the pipeline so constrained, less capacity was won at prices less than $0.01/GJ than the amount of bids in this price range. This is the only month with this outcome on the MSP. When the auction was constrained, the volume weighted average price participants paid was $0.39/GJ.

Figure 7 Comparing participant bid prices against auction clearing prices and how often the auction was constrained, MSP



Source: AER analysis using DAA auction results data.

Note: We consider the auction constrained when the demand for auction capacity exceeds the available auction capacity. For a detailed discussion of the auction constraints on the MSP see Appendix B.

The Moomba to CWP route south was similarly constrained in August 2020, nearly 95% of the time. In this month, again the majority of participant bids were at prices greater than $0.6/GJ, including the greatest volume of bids over $1/GJ in the auction's operation. As a result, participants won significant capacity at prices above $1/GJ and recorded the highest DAA price to date, $1.49/GJ.

In Appendix B we highlight in more detail the auction constraints on the MSP, SWQP and RBP and their frequency.

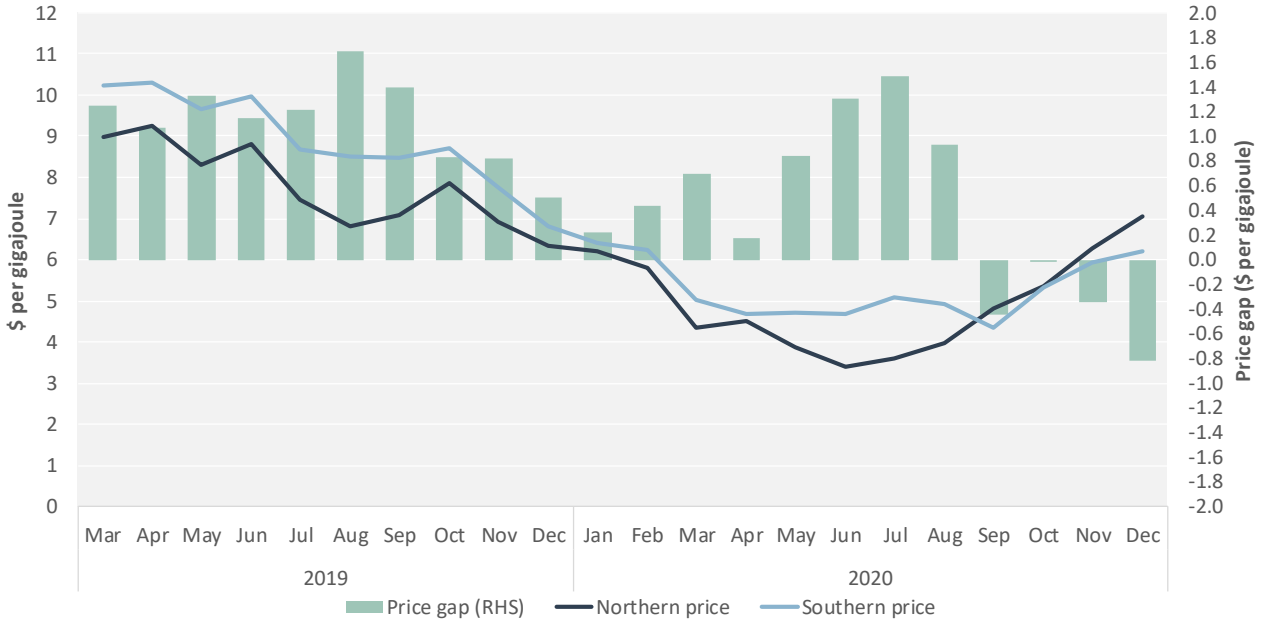
2.2 The Day Ahead Auction enhances flexibility between northern and southern markets

Participants have taken advantage of the flexibility provided by the DAA to deliver gas in response to fluctuating demand and prices across the different markets, typically from north to south. These

markets are connected by some key bi-directional pipelines: the RBP, the SWQP, and the MSP.[9] Together, these pipelines can deliver gas from the Brisbane STTM to the Sydney or Victorian markets and are where participants have won the greatest amount of auction capacity.

Being bi-directional, participants can win capacity on these pipelines to send gas in any available direction. Generally, since the introduction of the DAA participants have been winning capacity on routes from north to south, reflecting the prevailing price difference between northern and southern markets (Figure 8). However, towards the end of 2020 most gas was won on routes from south to north as participants responded flexibly to seize new arbitrage opportunities.

Figure 8 North-south commodity price gap



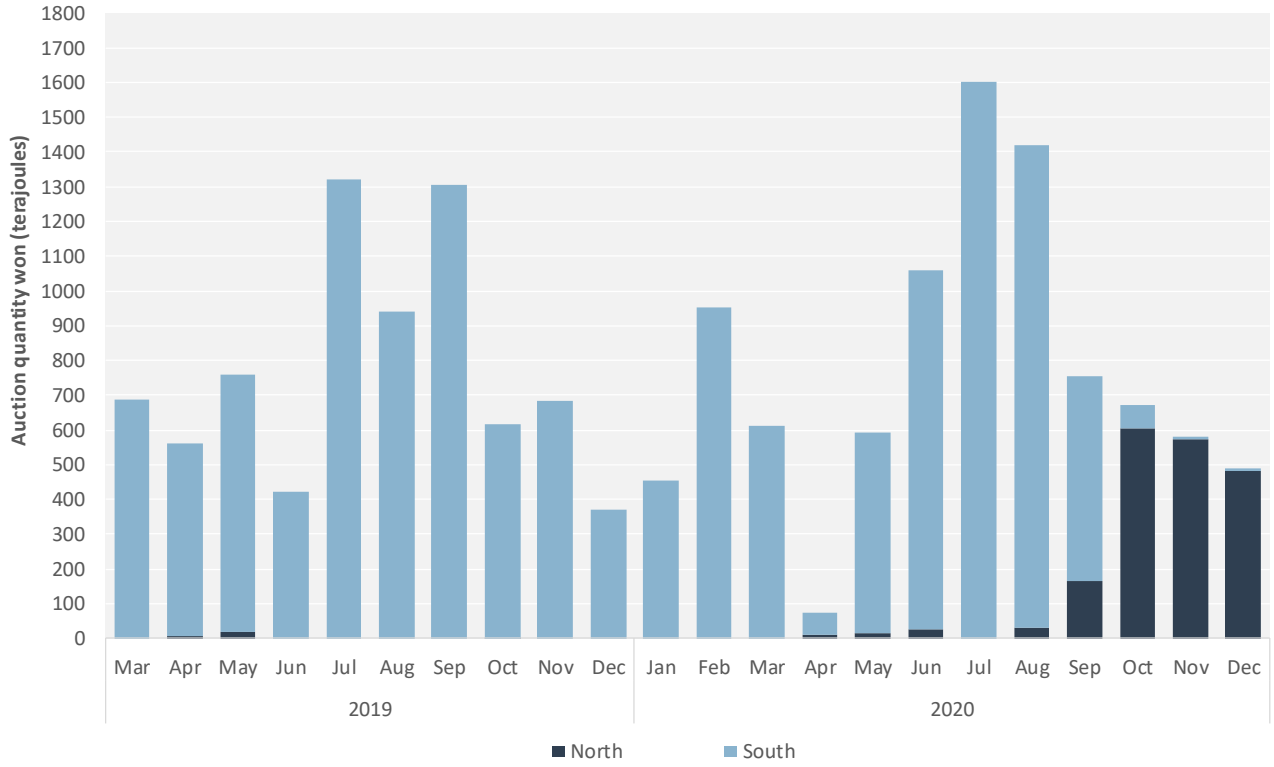
Source: AER analysis using DWGM, STTM and Gas Supply Hub price data.

Note: If the price gap is positive the southern price is higher than the northern price. If the price gap is the negative the southern price is lower than the northern price.

On the SWQP, 89% of auction capacity won since the start of the DAA was on routes to send gas south. But in Q4 2020, northern gas market prices became more expensive than southern market prices and participants used the DAA to take advantage of this (Figure 9). Over the quarter, around 95% of all auction capacity won on the SWQP was instead on routes taking the gas north from Moomba into Queensland.

[9] Some pipelines only allow flows of gas in one direction. These pipelines on the other hand, can change direction based on prevailing flows. Other bi-directional pipelines include the MAPS and the CGP.

Figure 9 Auction quantities won on the South West Queensland Pipeline by route



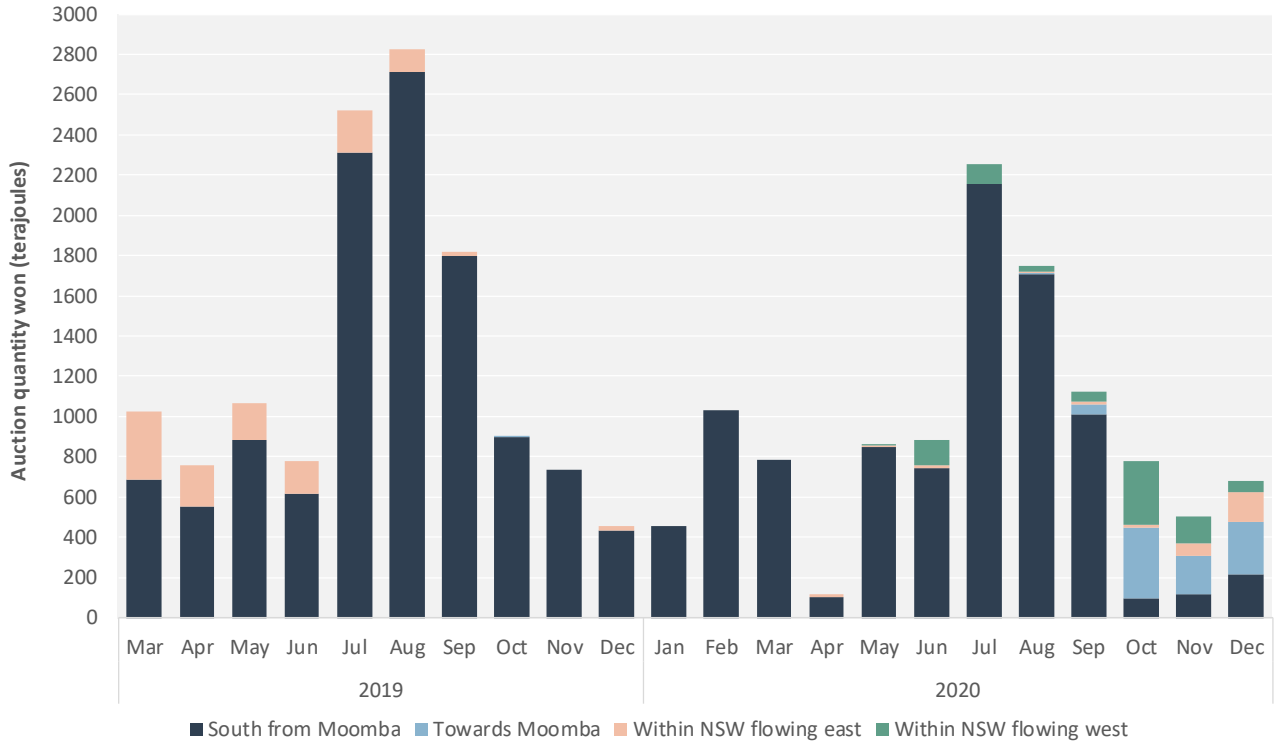
Source: AER analysis using DAA auction results data.

Note: Quantities shown are the monthly sum of auction products, allocated and grouped for different auction routes based on the direction of those auction routes. Values do not necessarily represent the physical volumes of gas that actually flowed for each gas day.

Similarly on the MSP, until Q4 2020 the predominant direction of auction flow was south from Moomba towards delivery points in Sydney or Victoria with 87% of all auction quantities won on the MSP in this direction (Figure 10). The MSP is a more complex pipeline system however, as it allows movements of gas to and from various locations across NSW. So, some capacity won was also won for internal flows east or west, for example from Culcairn to Sydney.[10] In Q4 2020 as more gas flowed from the south to the north, 66% of auction capacity won by participants was on routes flowing north and west within NSW to send gas towards Moomba, and on to Queensland.

[10] Culcairn, in southern NSW, is where the MSP connects to the Victorian market.

Figure 10 Auction quantities won on the Moomba to Sydney Pipeline by route

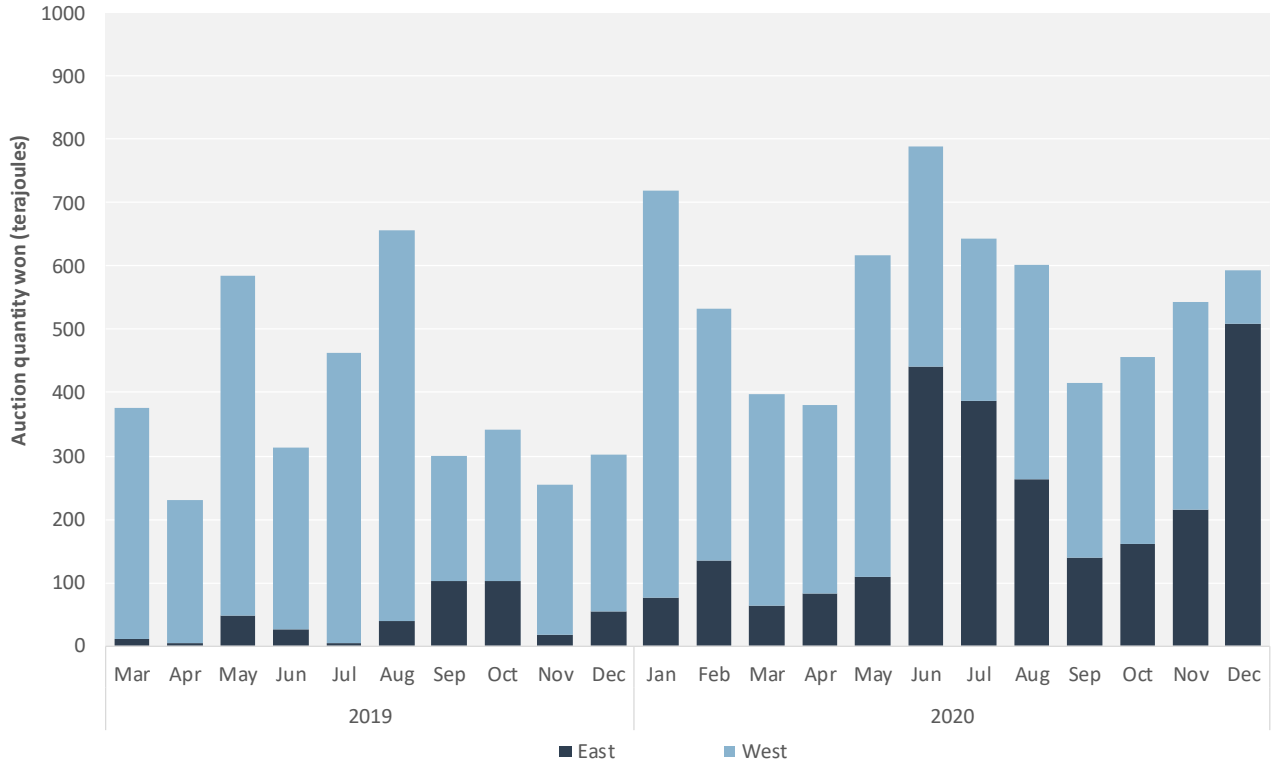


Source: AER analysis using DAA auction results data.

Note: Quantities shown are the monthly sum of auction products, allocated and grouped for different auction routes based on the direction of those auction routes. Values do not necessarily represent the physical volumes of gas that actually flowed for each gas day.

Participants have also been able to use the DAA flexibly to support their fluctuating needs. This was evident on the RBP in 2020. The RBP connects the Brisbane STTM in the east to the Wallumbilla Gas Supply Hub (GSH) in the west. For the most part, participants won capacity on routes to send gas west, often flowing further south. However, in June, July, August and December 2020, significant capacity was won on routes flowing east towards Brisbane (Figure 11).

Figure 11 Auction quantities won on the Roma to Brisbane Pipeline by route



Source: AER analysis using DAA auction results data.

Note: Quantities shown are the monthly sum of auction products, allocated and grouped for different auction routes based on the direction of those auction routes. Values do not necessarily represent the physical volumes of gas that actually flowed for each gas day.

This was won by GPG gentailer participants who had not previously won significant capacity (section 2.3). These participants were able to use auction capacity to support additional deliveries as needed, where otherwise they may have needed to arrange longer term and more costly transportation agreements.

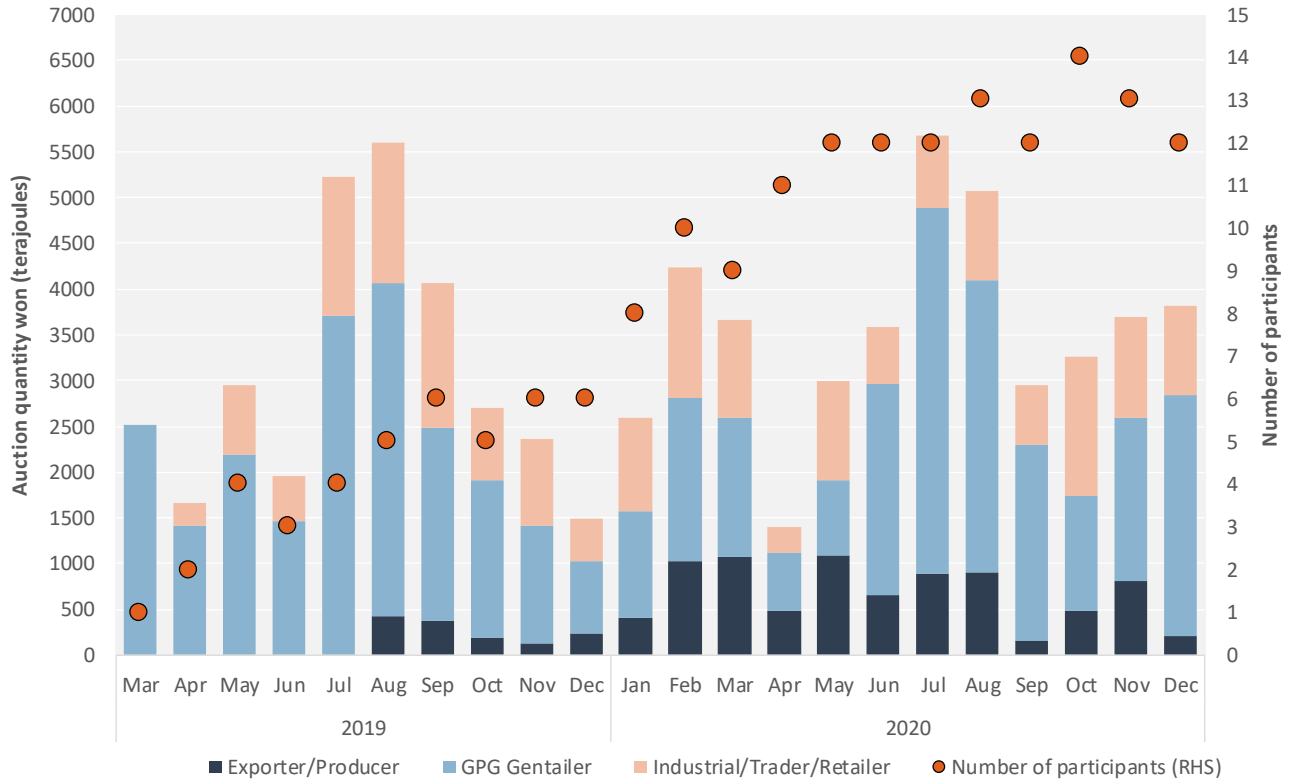
Further demonstrating participants' flexible use of the DAA, demand for auction capacity has also increased at times of high prices in the National Electricity Market (NEM). For example, on 31 January 2020 wholesale electricity prices were high when South Australia electrically separated from the rest of the NEM. In response, participants won a record amount of capacity (317 TJ), of which almost a third was on routes delivering gas on the SWQP from Wallumbilla to Moomba. This auction capacity helped facilitate the "peaking" gas powered generation required in South Australia at the time.[11]

2.3 Participation was slow at first, but competition has increased

Despite the quantities won, participants were initially slow to engage with the auction during its first months of operation. Just one participant won capacity on the DAA in March 2019, and this only expanded to 2 in April 2019 (Figure 12). But as participants improved their understanding of the auction's mechanisms and benefits, participation has continued to increase.

[11] AER, *Wholesale markets quarterly – Q3 2020*, p 30.

Figure 12 Auction quantities won by participant groups, all facilities



Source: AER analysis using DAA auction results data.

Note: Participant groups determined by core business operations. GPG gentailers include vertically integrated National Electricity Market participants. These participants are distinct from Retailer participants, who primarily retail gas.

By September 2019, 7 of the 14 participants registered to use the DAA had won capacity. This growth continued over the next year and by September 2020, 17 participants had won auction capacity out of the 19 registered (see Appendix C for a list of registered participants). But not all participants are active at the same time, and the highest number of active participants in a single month was 14 in October 2020.

Participants winning auction capacity have generally used it to transport gas on the day. On the main auction facilities: the MSP, RBP, SWQP and the Wallumbilla Compression Facilities (WCF A/B), more than 98% of auction capacity won resulted in corresponding gas scheduled on the day.

Of the participants actively using the auction, gas powered generators and gentailers (GPG gentailers) are consistently winning the most capacity. This reflects the interrelationship between the NEM and the DAA, as they can use low cost auction capacity to ship additional gas to fuel generation and manage fluctuations in prevailing conditions. These participants also include some of the larger, vertically-integrated gas retailers who can similarly take advantage of cheap auction capacity to help balance their positions on a daily basis. Industrial, trader and retailer participants were also quick to realise the benefits of the DAA. These participants can often be smaller, or have lower levels of demand. In addition to using the DAA to manage fluctuations in daily usage, it can also support arbitrage when price opportunities emerge.

Exporters and producers, while taking the longest to participate in the auction, have also used it to their benefit. The capacity won by these participants has improved access to the southern

markets, where they can capitalise on the price difference with the northern markets. As a result, these participants have been increasing their activity in southern markets over the last year.[12]

By facility, exporters and producers have proportionally been most active on WCF A/B in mid-2020 (Figure 13).[13] From April to August 2020, these participants won more than half the auction quantities. Interestingly, as exporter and producer activity increased, so too did the number of participants using WCF A/B, more than doubling from 3 participants in March 2020 to 7 in April 2020. While exporter and producer participants increased their activity, other participants also sought to secure capacity on WCF A/B to send gas south during winter. However since September 2020, exporter and producer activity has drastically decreased, and participant numbers have gradually declined.

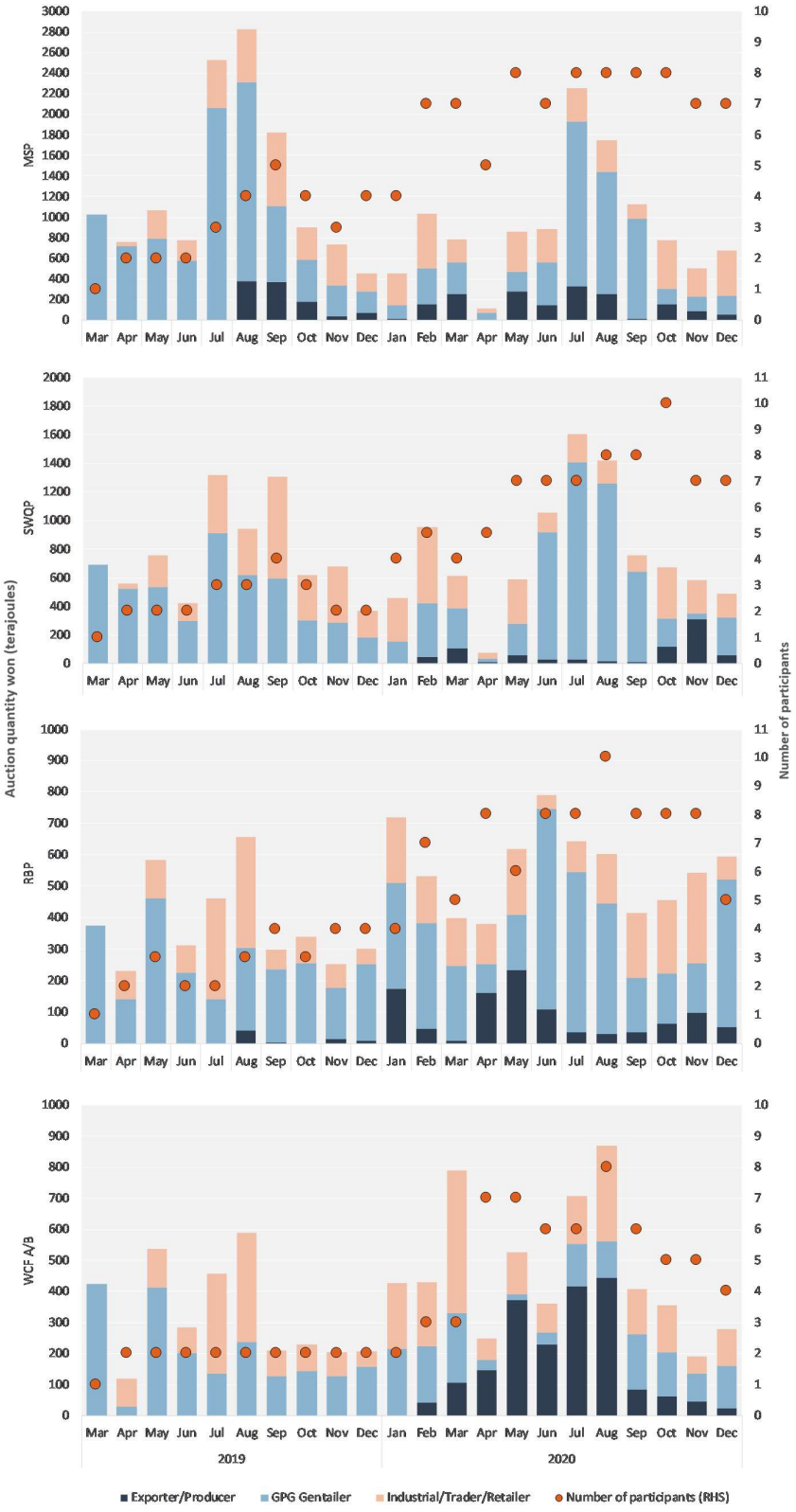
The other main auction facilities did not have a similar experience to WCF A/B. Instead participant growth was more gradual, trending upwards over the period to typically include between 7 and 10 participants each month.

GPG gentailer participation has the greatest variation on the MSP. In the winter months, the amount of capacity won by these participants can more than triple, reaching over 2000 TJ of capacity won in some months. Similar outcomes can be seen on the SWQP and RBP, although to a lesser extent. Conversely, other participants can win less capacity in these months. As these are the months where the auction typically is constrained and clears at higher prices, GPG gentailers who place a higher value on securing auction capacity are outbidding other participants for this limited capacity. For example, around 50% of all bids for capacity priced greater than $1/GJ are by GPG gentailer participants.

[12] AER, *Wholesale markets quarterly – Q4 2020*.

[13] The Wallumbilla Compression Facilities are located in the Wallumbilla Gas Supply Hub and are used to compress the gas for transportation on the higher pressure SWQP, or to decompress it as it is delivered into lower pressure pipelines around Wallumbilla.

Figure 13 Auction quantities won by participant groups on the MSP, SWQP, RBP and WCF A/B



Source: AER analysis using DAA auction results data.

2.4 The Day Ahead Auction has enhanced competition in the east coast gas spot markets

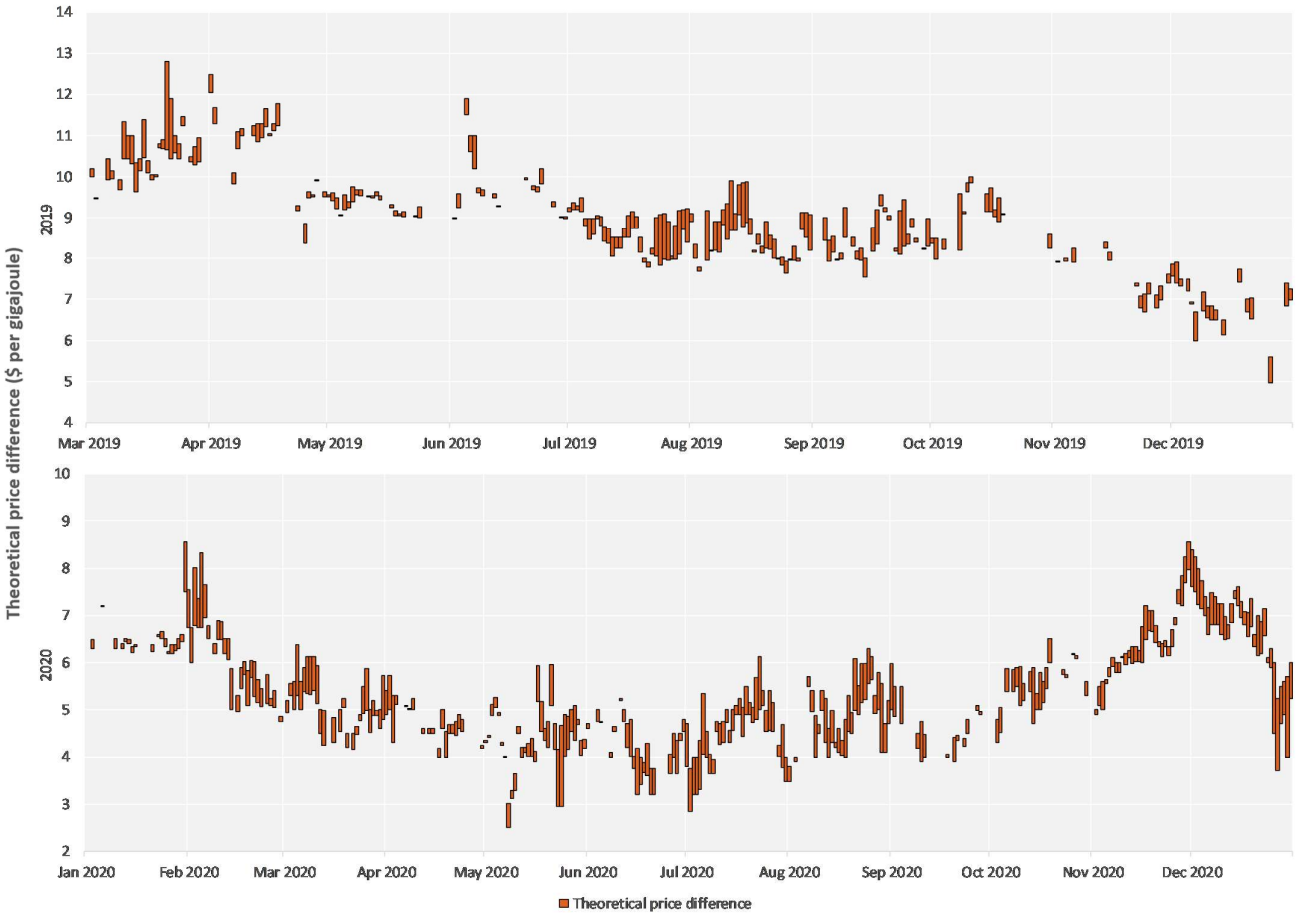
The additional capacity provided by the DAA has improved dynamics by enhancing competition in the east coast spot markets. Specifically, more expensive markets have benefitted, as participants have been able to purchase cheaper gas from other locations and arbitrage for low cost. To date, this has typically involved shipping cheaper northern gas to more expensive southern markets. However, towards the end of 2020 participants used the DAA to ship cheaper southern gas to more expensive northern markets. This dynamic is easing price pressures in the east coast spot markets.

In our *Wholesale markets quarterly – Q3 2019* we estimated the potential impact of auction capacity on the Sydney STTM in the first 7 months of operation was a reduction in the market price by as much as $0.49/GJ on average.[14] Similarly, we estimated as much as an average $0.17/GJ reduction in the Victorian DWGM price by matching capacity won at auction to gas offers.

For this report, we have continued this analysis for the Sydney STTM up to the end of 2020. After the potential price impact grew in winter 2019, it reduced again over the end of the year, only reducing Sydney prices by as much as $0.17/GJ on average for the days where auction capacity was procured in January 2020 (Figure 14). These reductions coincided with lower levels of capacity won on the DAA.

[14] These are updated values from publication, as we have refined our approach for estimation. This analysis estimates the maximum potential price impact of gas transported using auction capacity on the Sydney STTM. The actual impact on prices may be lower. Monthly averages exclude days where there was no price impact.

Figure 14 Sydney STTM potential market price impact due to auction capacity



Source: AER analysis using Sydney STTM and DAA auction results data.

Note: The theoretical price difference in the figure represents the maximum price impact on the Sydney STTM spot price. It assumes all offers placed for specific participants are reliant on capacity won through the DAA. In practice, some offers may not be reliant on auction quantities clearing. This may be the case where shippers could use annual volumes under firm contract if they are unsuccessful in the auction and so the actual market price impact could be lower than the range shown. On the other hand, if a downstream bid is submitted on the basis of an arbitrage opportunity between markets (e.g. Wallumbilla to Sydney) it may be completely reliant on the auction outcomes.

In February 2020, the potential price impact on the Sydney STTM increased again to as much as $0.54/GJ on average. This coincided with growth in auction activity. This level of impact sustained across the year, fluctuating with the levels of auction capacity won on the MSP. For example in April 2020, when capacity won on the MSP was low, the potential price impact was only as much as $0.17/GJ on average. However in August 2020 when participants won more auction capacity, the average price impact was as much as $0.59/GJ.

The greatest potential monthly average price impact in the Sydney STTM was $0.63/GJ in December 2020. Interestingly, this occurred as participants were winning capacity on routes to send gas west across NSW and north into Queensland.

On individual days, the impact could be more significant. Our analysis estimates the largest potential price impact of auction capacity on a daily Sydney STTM price could have been as much as $2.15/GJ in March 2019 when the Sydney STTM prices were as high as almost $11/GJ. When prices are high on a given day the potential for auction capacity to have a significant price impact will increase, particularly if there are large differences between available offers to supply at the level of demand required. Over 2019, price differences between the North and the South were higher than in 2020 providing opportunity to secure large price arbitrages (Figure 8). For example,

in March 2019, the average price difference between the Sydney STTM and Wallumbilla GSH was around $1.60/GJ.[15]

2.5 Auction activity on some pipelines remains low

To date, the DAA has most benefitted participants moving gas around the main trading locations of the Sydney and Brisbane STTMs, the Victorian DWGM and the Wallumbilla and Moomba GSHs. However, there are other pipelines and facilities where auction quantities won remain low, despite growing activity over the last 2 years.

One key pipeline where auction activity has remained relatively low is the Moomba to Adelaide Pipeline System (MAPS). This pipeline directly connects the Adelaide STTM to the Moomba hub. The first capacity won on the MAPS was in March 2020, one year after the DAA's implementation. Compared to the other key pipelines connecting from Moomba, the MSP and SWQP, the MAPS has only seen limited trade. And more recently, some smaller participants have started winning auction capacity. The greatest amount of capacity won on the MAPS was around 256 TJ, in August 2020. By contrast, the amount of capacity won on the MSP that same month was about 1778 TJ, nearly 7 times as much.

Auction volumes on the MAPS remains relatively lower for a number of reasons, including:

- The fees are higher than on the other key pipelines, which may be discouraging some smaller participants (section 2.6)
- The Adelaide STTM is a smaller market compared to the Sydney STTM, which limits the benefit of auction capacity and the opportunities to arbitrage
- The MAPS is a highly contracted and used pipeline, and this may be limiting the potential capacity that can be made available for auction.

Participants have also noted that auction capacity on routes north to Moomba is not available. However, no participants have contracts for delivery at the Moomba delivery point on the MAPS, so there is no contracted, but unnominated capacity available.[16] This means that participants cannot use the Day Ahead Auction to seize arbitrage opportunities when the Adelaide STTM is priced lower than northern markets, as occurred over Q4 2020.[17]

Participation on the MAPS has grown slightly over 2020, with 4 participants now having won auction capacity. However, the majority of this was won by only 2 participants. Given auction activity on the MAPS is mostly unconstrained, clearing for $0/GJ nearly 100% of the time, this suggests that there exists room for more participants to compete for auction capacity. And participants who are currently using the MAPS value the capacity highly, paying as much as $0.90/GJ, when the auction is constrained.

The SEA Gas pipeline system is the other pipeline that connects South Australia to other regions.[18] To date, no auction capacity has been won on the SEA Gas pipeline system, but unlike

[15] Wallumbilla price is the on screen, day ahead product price.

[16] AER market intelligence.

[17] AER, *Wholesale markets quarterly – Q4 2020*.

[18] SEA Gas operates the Port Campbell to Iona (PCI) and Port Campbell to Adelaide (PCA) pipelines.

the MAPS, there is spare, uncontracted capacity available.[19] Given this, participants may prefer to secure firm arrangements to ship gas, instead of procuring capacity via the Day Ahead Auction, particularly as South Australia relies on gas powered generation to balance fluctuations from intermittent generation sources. On days where prevailing conditions may require these generators to renominate at short notice, shippers risk having their auction capacity curtailed unexpectedly. More broadly, other issues may also discourage participation, including high and variable fees, and less price separation between Adelaide and Victoria as compared to between Adelaide and the northern markets.

The Adelaide STTM is typically the most expensive of the east coast spot markets. Given the impact the DAA has had on prices in other markets, such as the Sydney STTM, we would expect to see similar effects in Adelaide (section 2.4). However, to date this has not been the case, reflecting the low auction activity.

Separately, there are other underutilised pipelines, where auction activity remains low, such as the Carpentaria Gas Pipeline (CGP) and the Tasmanian Gas Pipeline (TGP). In September 2019, 13 TJ of capacity was won on the CGP. However there has been no activity since, despite available capacity. Similar to MAPS, the TGP is highly contracted and used, particularly on certain pipeline segments, and as a result no auction capacity has been won. While both CGP and TGP are on the fringe of the east coast gas markets, the potential for participants to save on transportation costs exists, should auction activity increase.

2.6 Auction fees may be discouraging smaller players

Many participants see the DAA as a substitute for short term transportation services, such as 'as-available' services.[20] This reflects how it is often a cheaper transportation alternative. However, participants face more costs than just the auction clearing price. These costs may be discouraging smaller participants from benefitting from cheap auction capacity.

AEMO charges a fixed registration charge of $15,450 to each participant, and an additional variable charge of $0.035/GJ of capacity won.[21] Participants must also pay pipeline and storage operators for facility use, which can include fixed fees and additional variable charges. So, while participants may win capacity at $0/GJ, the total cost is higher. For example, the ACCC estimated a shipper seeking to use auction capacity to move gas from Darling Downs to Sydney (through 4 facilities: the RBP, WCF, SWQP and MSP) would face a fixed monthly charge of $3225 and a variable fee of $0.19/GJ. This would be charged in addition to AEMO's registration fees and the price paid (if any) for auction capacity.[22]

Fixed fees in particular can impact smaller players more significantly. As they win less capacity, the ultimate cost per GJ of capacity won at auction is higher. Since the auction's commencement, the average auction quantity won across the RBP, WCF, SWQP and MSP for GPG gentailers was 13 TJ/day, compared to only 8.5 TJ/day for industrial, trader and retailer participants. Using the ACCC's estimates, the largest regular GPG gentailer would have paid $0.005/GJ across the 4 facilities in fixed fees alone for the month, compared to the smallest regular industrial, trader and retailer participant, who would have paid $0.05/GJ.

[19] ACCC, *Gas Inquiry – January 2021 interim report*, p94.

[20] As-available services are lower priority services, which may be curtailed in favour of higher priority, firm services.

[21] https://aemo.com.au/en/about/corporate-governance/energy-market-fees-and-charges

[22] ACCC, *Gas Inquiry – January 2020 interim report*, p109.

Individually, on some pipelines where auction activity has been low, these costs can be significant. Epic Energy's MAPS has seen limited auction activity since March 2020. As a result, its fixed fees remain higher than other, more used facilities at around $3000 per month. This may be one contributing factor to the relatively lower levels of auction activity on the MAPS, when compared to other pipelines such as the MSP or SWQP. No auction capacity has been won on the SEA Gas pipelines, and the associated fixed fees are higher still, at around $5000 per month.

However, as DAA activity has improved on certain pipelines, the relevant fees have decreased. The cost recovery framework encourages facility operators to reduce auction fees proportional to the costs recovered from auction proceeds. Over the 2019/20 financial year, Jemena, which operates the EGP decreased its fixed monthly fees from $1000 to $500. Over the same period APA, which operates major pipelines such as the MSP, SWQP and the RBP, reduced its variable fees from $0.048/GJ to $0.013/GJ. Importantly, over this time more participants began using the DAA, with the number of monthly participants on the MSP growing from 2 in June 2019 to 8 in July 2020.

More generally, the financial impact and risk associated with using some facilities may be further deterring smaller participants, beyond the base auction fees. In using auction services, participants may need to provide credit support, or collateral in order to bid for capacity at auction. While this additional fee can be absorbed by larger participants, it may have a larger impact on smaller or regional participants. Another example of additional charges that are not directly related to the auction are access fees for individual delivery or receipt points. For example: to access the Adelaide STTM at the Cavan delivery point off the SEA Gas pipeline system, participants are charged a monthly fee. In this case, participants face a $65,000 to $90,000 monthly fee that is charged in proportion to total flows through that delivery point.[23] If other participants unexpectedly ship less gas in a month, the fee may be significantly higher than expected, which presents a financial risk for small participants.

[23] https://seagas.com.au/app/uploads/2019/10/PCA-OTSA-Facility-Specific-Terms-v3-20191016.pdf

3 Participants are not using the Capacity Trading Platform

To date, participants have only conducted one trade on the CTP (Box 2). In February 2020, 1000 GJ of capacity on the RBP was traded for $0.02/GJ.

Box 2 How the Capacity Trading Platform works

The Capacity Trading Platform is a voluntary market where participants can on-sell any contracted capacity they do not intend to use.

Participants submit offers to sell and bids to buy anonymously on the platform up to the day before the capacity is due for use. If a bid and offer match, a trade is struck and proceeds go to the selling participant. For ease of trade, platform products are standardised, and trades can be entered into for days, weeks or months of capacity unlike the Day Ahead Auction. There is also a listing service for shippers to buy or sell more tailored products.

Similar to the Day Ahead Auction, AEMO charges participants to cover the cost of operating the platform. Participants pay a fixed annual fee of at least $7,000, and a variable fee of between $0.025/GJ and $0.045/GJ.[24] The fees for the Day Ahead Auction and Capacity Trading Platform are charged separately.

Any contracted, but unnominated capacity must be sold in the Day Ahead Auction.

While this is the only trade on the CTP, the ACCC has reported shippers expect activity to increase over time.[25] In 2020, it reported participants' reluctance to trade on the CTP as relating to a number of reasons, including:

- the level and structure of some facility operators' charges
- the time taken to negotiate contractual arrangements
- Participants are unwilling to sell capacity for prices less than the cost of the transaction. And as shippers are typically able to win significant auction capacity on the DAA, and mostly at low prices, there may not be enough incentive for them to seek capacity on the CTP at all, let alone for high enough prices to strike a trade.

While there may be room for improvement, the low activity is more of a reflection of buyer satisfaction with the DAA to date, rather than any particular failure in the CTP. We will continue to report on any CTP activity through our range of reports.

In addition to the CTP, participants are also required to report bilateral trades of capacity that occur over-the-counter (OTC). By the end of 2020, participants had reported 11 trades for over 35 PJ of capacity in total. Individually these trades varied significantly in size, ranging from as low as 30 GJ to over 18 PJ of capacity (Table 1). Around half of the trades were for periods of around one to 2 months. But again, the individual variance is significant, with the longest trade covering a 2 year period. This contrasts with ACCC analysis in 2016, which examined OTC secondary capacity

[24] https://aemo.com.au/en/about/corporate-governance/energy-market-fees-and-charges

[25] https://www.accc.gov.au/system/files/Gas%20inquiry%20-%20January%202020%20interim%20report%20-%20revised.pdf

trades covering periods ranging from 3 months to 20 years, where it identified the typical duration as 2 to 5 years.[26]

Table 1 Over-the-counter secondary capacity trades

Month	Facility	Trade period length (days)	Capacity per day (GJ)
April 2019	MAPS	256	3500
June 2019	SESA	177	575
September 2019	EGP	455	25000
December 2019	SESA	59	575
December 2019	SESA	30	490
December 2019	SESA	214	1
March 2020	SESA	31	1
March 2020	SESA	30	75
August 2020	RBP	61	1300
November 2020	EGP	730	25000
December 2020	PCA	365	10000
December 2020	EGP	365	1600

Source: Natural Gas Bulletin Board

Of the OTC secondary capacity trades reported, the majority were for pipelines in South Australia. This is interesting as South Australian pipelines have not seen the same level of auction activity as those in other locations. With increased auction activity on these pipelines, we may see changes in participants' OTC capacity trading behaviour. However, we remain concerned this may not be fully representative of the trades that are actually taking place (section 4.3).

Importantly, there are alternative arrangements that participants can use to trade gas without needing to procure transportation capacity which are currently unreported. For example:

- Locational swaps trade gas virtually between different points, without the gas physically moving from one point to another. As this doesn't require a participant to acquire transportation capacity between the 2 locations, it can be a lower cost option, particularly if the distance between locations is large, such as between Brisbane and Victoria. Participants will be required to report these OTC swaps to the National Gas Bulletin Board as part of information transparency reforms anticipated to be enacted over 2021.
- Delivered gas trades, where commodity plus transportation are bundled and the buyer pays for the bundled product at a market entry point, are also not required to be reported. Delivered gas contracts were found to be relatively prevalent by the ACCC in 2015.[27] A change to the capture of the Gas Supply Hub exchange framework means more delivered trades may be reported, with some of the trades and pricing at the Culcairn (gate point to the Victorian market) and Wilton (gate point to the Sydney STTM) likely to involve gas that originated in Queensland.

[26] https://www.accc.gov.au/system/files/1074_Gas%20enquiry%20report_FA_21April.pdf

[27] In its report the ACCC noted there were 5 examples of trades that provide for the supply of gas to entry points of trading markets. Notably, 2 industrial customers participating in the STTMs have reported cost reductions from accessing gas markets using these contracts.

4 We have been actively monitoring compliance with the new rules

The AER's general functions and powers, in respect of monitoring and enforcement of compliance with the National Gas Rules (the Rules) and the National Gas Law (the Law) are outlined in section 27 of the Law. Our market monitoring functions for the pipeline capacity trading reforms include:[28]

- Monitoring day ahead nominations, renominations and activity in the DAA (Part 25) to ensure that transportation facility operators, auction participants and shippers comply with the market conduct and nomination rules
- Monitoring compliance with other parts of Part 25 of the Rules including submission of data and information in accordance with the Part 24 information standard, and adherence to the auction service priority principles.
- Monitoring compliance with offers and bids to trade on the CTP subject to the framework of Part 22 (although noting very limited activity on this platform this has not been a focus of AER work over the first 2 years)

In addition, simultaneous reforms sought information on any secondary trades outside the CTP and DAA to be reported under the Part 18 Gas Bulletin Board framework. This additional information will assist us to better understand where and how trade is occurring. As such, we have focussed on Part 18 reporting requirements.

Since the implementation of the pipelines capacity trading reforms, we have monitored participants' compliance with the rule and conducted targeted assessments. Amongst other activities, we have requested contemporaneous records for material renominations from shippers, assessed instances of late, or incorrect AQL submissions, and monitored reporting of OTC capacity trades. In addition, as part of our monitoring we have identified some broader issues that are impacting the market.

4.1 Shippers have kept contemporaneous records for material renominations in most cases

Part 25 of the Rules requires shippers to keep contemporaneous records of the reasons for material renominations submitted to facility operators. Shippers must provide these records to the AER upon request. Since the commencement of the pipeline capacity trading reforms, we have made 2 bulk rounds of requests for contemporaneous records from shippers.

Renominations are considered material if the renomination (either alone, or taken together with other renominations) – whether before or after renomination – results in a variation of 10% or more to:

- The last day ahead nomination received prior to nomination cut-off, for services other than the auction service; or
- The initial nomination for use of the auction service.

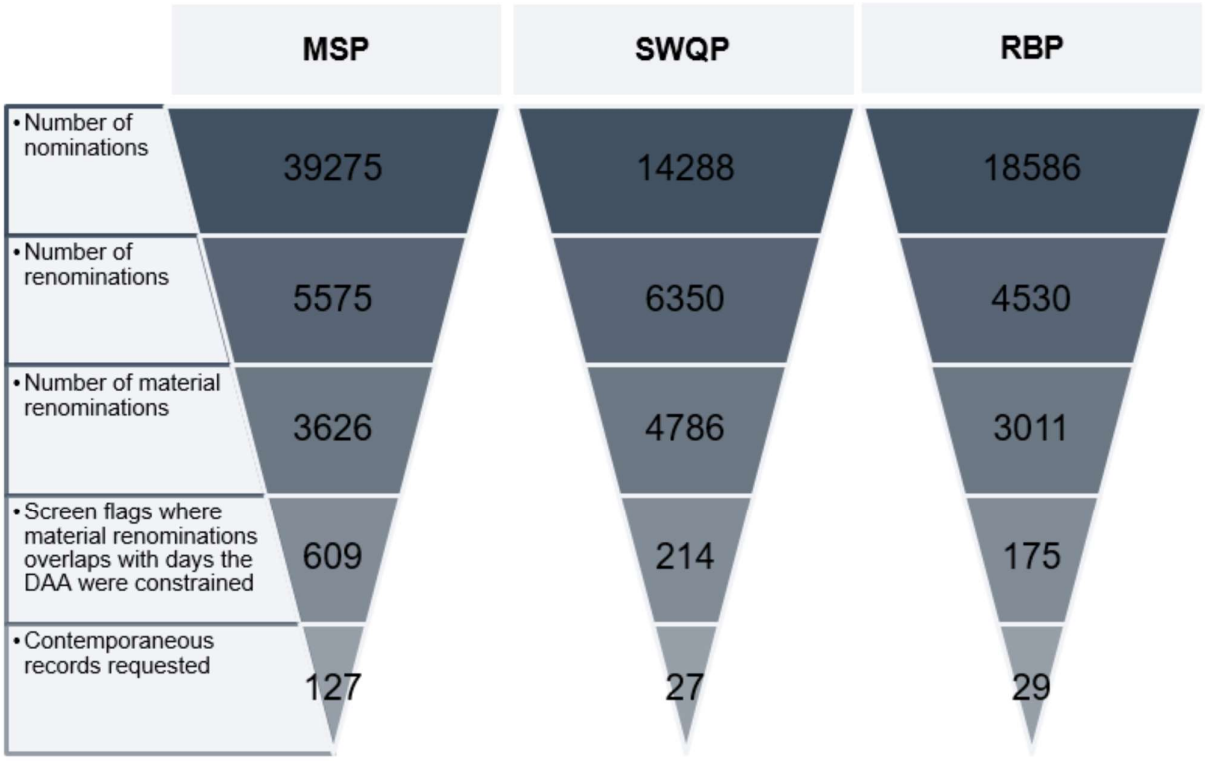
[28] The AER has an ongoing role to assess facility exemptions from the capacity trading requirements, to review standard fees and conditions, and to assess applications for transitional firm service rights on pipelines. These roles are not the focus of this report and not discussed here.

In accordance with our *Day Ahead Auction record keeping guideline*, facility operators provide us a list of all renominations made on a monthly basis. Using this information we calculate whether or not a renomination is material.

In our first round of requests, we sought to test record keeping practices. From March to August 2019, we reviewed renominations provided to us by facility operators to identify material renominations. We then wrote to a cross section of participants requesting records. In asking for records, we were mindful to capture renominations down, which could cause potential auction bids to be unfulfilled, or renominations up, which could cause auction quantities to be won but later de-scheduled.[29]

In our second round of requests we targeted renominations on days where the auction was constrained, as these are days where failure to comply with the obligations, or to have good practices could have a heightened impact on market outcomes. We also evaluated how participant nominations interacted with spot markets, reviewed material renominations on facilities where auction capacity was won for the first time, and also considered how participants renominate on the gas day against auction quantities won. In total we requested records from 21 participants across 10 auction facilities.[30] As with the first round, we reviewed renominations from January to August 2020 to identify material renominations that fit one of our criteria. We then contacted participants requesting records for a portion of the material renomination identified (Figure 15).

Figure 15 Representation of assessment of material renominations, January to August 2020



[29] The AER also monitors for trend behaviour of consistent renominations in one direction on an auction facility regardless of whether a 10% change has occurred.

[30] The following facilities were included in our second round of requests: MSP, SWQP, RBP, MAPS, TGP, EGP, BWP, MCF, WCF A/B and VicHub

Note: Figure only shows data for the MSP, SWQP and RBP auction facilities. We also assessed material renominations on other auction facilities not shown.

Through both this and the previous rounds of requests we have identified some trends in participant record keeping practices. To address some of these trends, we intend to review our record keeping guideline in Q2 2021 (chapter 5).

Separately, we are continuing to refine our automated systems to aid us in identifying potentially concerning renominations to better target our requests for contemporaneous records. We anticipate conducting our third round of requests in April 2021 (chapter 5).

4.2 Facility operators have submitted late or incorrect Auction Quantity Limits

We have observed ongoing, intermittent occurrences of late AQL submissions to AEMO for the DAA. Rule 653(1) of the Rules requires facility operators of auction facilities to determine and update AQLs in accordance with AEMO's procedures. The AQLs determine the capacity that will be made available in the DAA. Late submissions can result in delays in the auction, and errors could potentially cause curtailment of services won at auction.

Since the auction commenced we have reported on the instance of delays or suspensions with the aim of reporting industry performance over time. After the first 5 months, performance improved industry-wide, however issues re-emerged in mid-2020.[31]

We have presented our concerns regarding missing and late AQL information to AEMO's Gas Wholesale Consultative Forum. At the forum on 10 December 2020, we flagged our intention to report late AQL submissions by participant name. We intend to publish this information as part of our wholesale gas statistics in the future.

There have been no delays or suspensions since October 13 2020 which is the longest continuous period without a late submission since July 2020.

In addition, we also have a role in assessing service curtailment in the DAA. On the gas day, supply and demand imbalances may require the prioritisation of some gas deliveries over others. In these cases, the capacity won by participants at auction can be curtailed.

4.3 Participants were late in reporting over-the-counter capacity trades

As discussed in Section 3, gas market participants are required to report certain OTC sales of pipeline transportation capacity.[32] Such trades must be reported to AEMO by either one business day after the trade, or by the day prior to the date of commencement, whichever is earlier. AEMO then publishes the details of the trade through the Gas Supply Hub to allow transparency.

To date there have been limited trades reported. To support implementation of the reporting obligations, we contacted participants to ensure awareness of their obligations in late 2019 and

[31] https://www.aer.gov.au/wholesale-markets/wholesale-statistics/day-ahead-auction-auction-delays

[32] See Rule 190C

again in early 2020. Following this, we identified 3 instances of late reporting of OTC capacity trades.

Since then, few trades have been reported and in early 2021 we intend to contact participants once again. This time we will be surveying participants to test the level of OTC capacity trades and associated reporting to AEMO, and reminding them of their reporting obligations.

4.4 Market participant queries on interaction between the Day Ahead Auction and the spot markets

Market participants have raised a number of queries with AER staff relating to the interaction of the DAA and the east coast gas markets, around best practice expectations to ensure optimal market outcomes. Queries from market participants included the following kinds of scenarios:

- A shipper winning capacity at auction, but not using it
- A shipper failing to submit a bid to AEMO on the provisional schedules of a spot market
- A shipper submitting nominations that do not align with their market bidding behaviour.

We have developed surveillance tools to assist in identifying these, and other, types of behaviour.

When conducting market surveillance, we assess identified behaviour against Rules requirements, which may involve obtaining further information from participants. When examining interactions between new and existing markets, we seek to assist participants in understanding their obligations and our expectations. More detail on the AER's approach to assessing conduct is set out in the *AER compliance and enforcement policy*.[33]

These types of matters require a careful analysis of surrounding circumstances. Instances where we would undertake a more detailed assessment would be, for example, where information suggests:

- A participant purchased auction capacity on routes out of a Gas Supply Hub, but made no attempt to secure the gas to use that capacity. This may indicate conduct that does not comply with rule 661.
- In a period where auction capacity is undersubscribed, a participant intends to submit offers into a STTM based on an expectation of winning auction capacity but does not submit offers into the STTM provisional schedule. This may indicate conduct that does not comply with rule 410.
- A shipper makes firm or auction nominations at an injection point into the Victorian transmission system, but does not submit corresponding bids into the Victorian market. This may indicate conduct that does not comply with rule 663.

Further to the last example, as part of our surveillance activities to date we have focussed on nominations and bidding behaviours around the Culcairn injection point, given its strategic importance. We monitor where individual shippers' firm or auction service nominations are in excess of injection bid volumes, or where they do not appear to be matched by realistic bids.

[33] https://www.aer.gov.au/publications/corporate-documents/aer-compliance-enforcement-policy

During late 2019, APA initiated a participant forum to discuss scheduling and allocations at Culcairn on days of constraint. At this forum, participants expressed different views on the operation of the Rules. At a high level, participants discussed which of the following should prevail:

- Service provider requirements that lower ranked priority shippers should not be scheduled (regardless of whether AEMO schedules their bids) in the circumstances where firm shippers nominate all capacity, or
- AEMO's pricing and scheduling principle in the Victorian market, regardless of contractual priorities on the adjoining pipeline.

By including a focus on activity at Culcairn as part of our surveillance, we have sought to reduce the instance of constrained scheduling as a result of sub-optimal nominations before the day. Since then, the issues discussed in 2019 have not been further raised with the AER. We consider this is in part because Culcairn has been relatively unconstrained, but also consider industry's awareness of our focus has been important.

Nevertheless, the issues raised in late 2019 highlight a 'seams' issue between the 2 markets, which we consider should form part of the upcoming biennial review of the pipeline capacity trading reforms, as directed by COAG EC. Particularly as this interaction may not have been considered by the Gas Market Reform Group in developing the relevant rules. The AER would welcome contributing to this review and commenting on potential changes to refine requirements in the Rules.

5 There is more work on the horizon

The capacity trading reforms have been received well by participants and they have seized the opportunities to secure cheap capacity presented by the DAA. However, the CTP has not been similarly used by participants. This suggests a potential for improvement.

The AER will continue to monitor both the performance outcomes in the new markets and participants' compliance with obligations.

We will monitor performance outcomes through our range of reports. As new measures are implemented across 2021, our analysis of how participants use the east coast gas markets will be enhanced.

Our analysis has highlighted areas where we intend to undertake further work in this space. To this end:

- We intend to review our record keeping guideline in Q2 2021, to ensure that it is up to date and addresses some trends in participant record keeping practices that we have identified. This includes:
    - Our surveillance work highlighted the prevalence of user errors in submitting renominations. In an effort to lower these errors, we are considering potential changes to reporting requirements. For example, our *Rebidding and technical parameter guideline 2019* requires electricity market participants to self-report uncorrected errors within 2 business days.
    - We are considering further guidance on expectations around renomination reasons, and what is required for a record to be considered contemporaneous.
    - Our surveillance work also revealed discrepancies in how a service is classified by a facility operator and how it is considered by a shipper. We will consider what steps we can take to address this.
- We aim to commence a third round of requests for contemporaneous records in April 2021. In this round we will examine whether participants have responded positively to past enquiries and enforcement actions.
- As we review the record keeping guideline and assess participant responses to record requests, we will also consider the need for further AER guidance regarding the obligations introduced as part of the pipeline capacity trading reforms.

Separately, in announcing its approval of the pipeline capacity trading framework, the former COAG EC stated its intention that the reforms be reviewed 2 years after implementation, due after March 2021. Where possible, we will provide input into this process, including consideration of whether the Rules could be amended to meet the design intent.

Appendix A—Day Ahead Auction routes grouped by direction

Facility	Direction	DAA Route Receipt Point Name to Delivery Point Name	Receipt Point ID to Delivery Point ID
MSP	South from Moomba	MSP Inlet >>> Culcairn South	1502045-1202026
		MSP Inlet >>> Culcairn Trade Point	1502045-1290016
		MSP Inlet >>> Wilton	1502045-1202052
		MSP Inlet >>> Wilton Trade Point	1502045-1290019
	Towards Moomba	Culcairn North >>> MAPS Exit	1202025-1502039
		Culcairn North >>> SWQP Exit	1202025-1502057
		Culcairn Trade Point >>> SWQP Exit	1290015-1502057
		EGP Entry >>> MAPS Exit	1202038-1502039
		EGP Entry >>> SWQP Exit	1202038-1502057
		Wilton Trade Point >>> MAPS Exit	1290018-1502039
		Wilton Trade Point >>> SWQP Exit	1290018-1502057
	Within NSW East	Culcairn North >>> Wilton	1202025-1202052
		Culcairn North >>> Wilton Trade Point	1202025-1290019
		Culcairn Trade Point >>> Culcairn South	1290015-1202026
		Culcairn Trade Point >>> Wilton	1290015-1202052
		Culcairn Trade Point >>> Wilton Trade Point	1290015-1290019
		Wilton Trade Point >>> Wilton	1290018-1202052
	Within NSW West	Culcairn North >>> Culcairn Trade Point	1202025-1290016
		EGP Entry >>> Culcairn Trade Point	1202038-1290016
		Wilton Trade Point >>> Culcairn South	1290018-1202026
		Wilton Trade Point >>> Culcairn Trade Point	1290018-1290016
RBP	East	RBP Trade Point (IPT) >>> Condamine	1490022-1404085
		RBP Trade Point (IPT) >>> Ellen Grove	1490022-1404089
		RBP Trade Point (IPT) >>> Murarrie	1490022-1404093
		RBP Trade Point (IPT) >>> Oakey PS	1490022-1404095
		RBP Trade Point (IPT) >>> RBP Trade Point (IPT)	1490022-1490021
		RBP Trade Point (IPT) >>> Swanbank PS	1490022-1404104
		RBP Trade Point (IPT) >>> Tingalpa	1490022-1404105
		RBP Trade Point (IPT) >>> Wambo	1490022-1404261
		Scotia >>> RBP Trade Point (IPT)	1404102-1490021
		Wallumbilla Run 3 >>> Condamine	1404109-1404085
		Wallumbilla Run 3 >>> Ellen Grove	1404109-1404089
		Wallumbilla Run 3 >>> Murarrie	1404109-1404093
		Wallumbilla Run 3 >>> RBP Trade Point (IPT)	1404109-1490021
	West	RBP Trade Point (IPT) >>> Wallumbilla delivery	1490022-1404097
		Scotia >>> Wallumbilla delivery	1404102-1404097

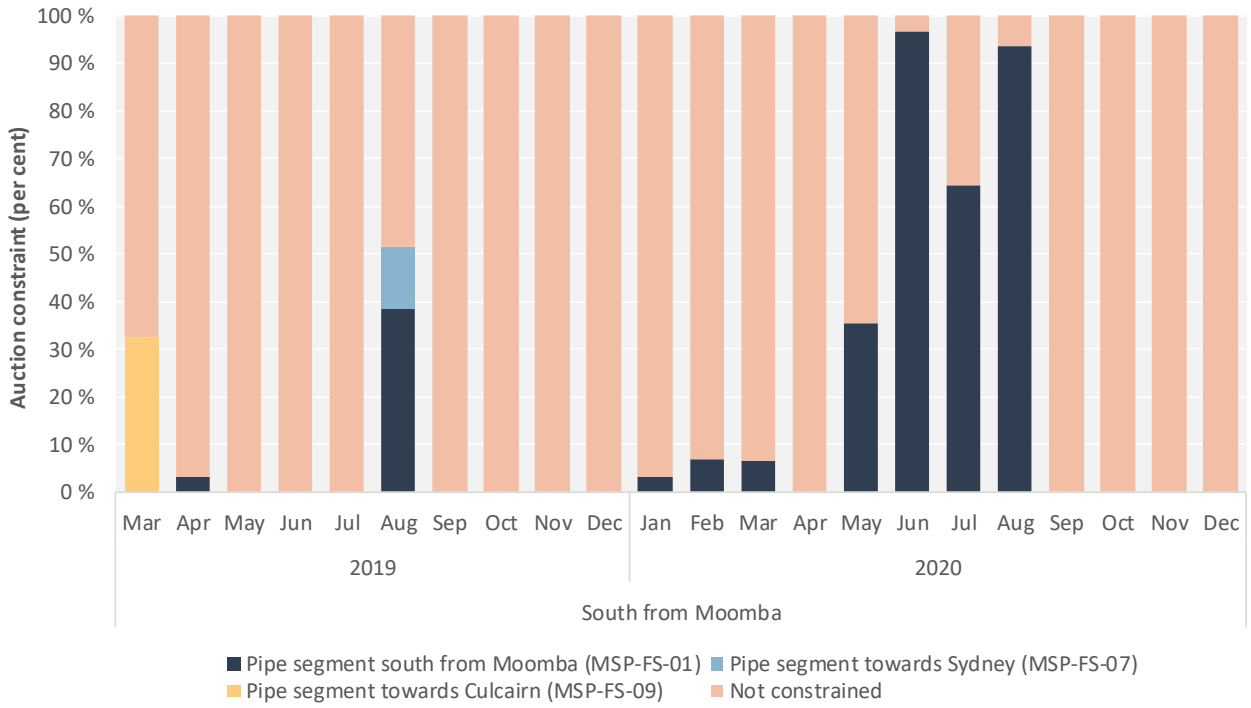
Facility	Direction	DAA Route Receipt Point Name to Delivery Point Name	Receipt Point ID to Delivery Point ID
SWQP	North	SWQP Entry from MCF >>> GLNG Delivery Stream	1590026-1404129
		SWQP Entry from MCF >>> Wallumbilla LP Trade Point	1590026-1490026
		SWQP MSP Entry >>> Ballera Exit	1590027-1404115
		SWQP MSP Entry >>> SWQP to MCF Exit	1590027-1590025
		SWQP MSP Entry >>> Wallumbilla LP Trade Point	1590027-1490026
		Wallumbilla HP Trade Point >>> GLNG Delivery Stream	1490025-1404129
		Wallumbilla HP Trade Point >>> Wallumbilla LP Trade Point	1490025-1490026
	South	Ballera Entry >>> SWQP to MCF Exit	1404114-1590025
		Wallumbilla HP Trade Point >>> SWQP to MCF Exit	1490025-1590025

Appendix B—Day Ahead Auction route constraints

This appendix expands on the broad discussion of constraints included in section 2. While our discussion talked about constraints on a pipeline as whole, in practice constraints can be caused by individual pipeline segments, delivery or receipt zones, physical receipt or delivery points, or a combination thereof.

The following figures provide a detailed breakdown of the main auction constraints on the MSP, SWQP and RBP. AEMO's *Transportation service point register* provides a detailed description of the routes and zones applicable to each auction facility.[34]

Figure 16 Frequency of auction constraints on routes flowing south from Moomba, MSP

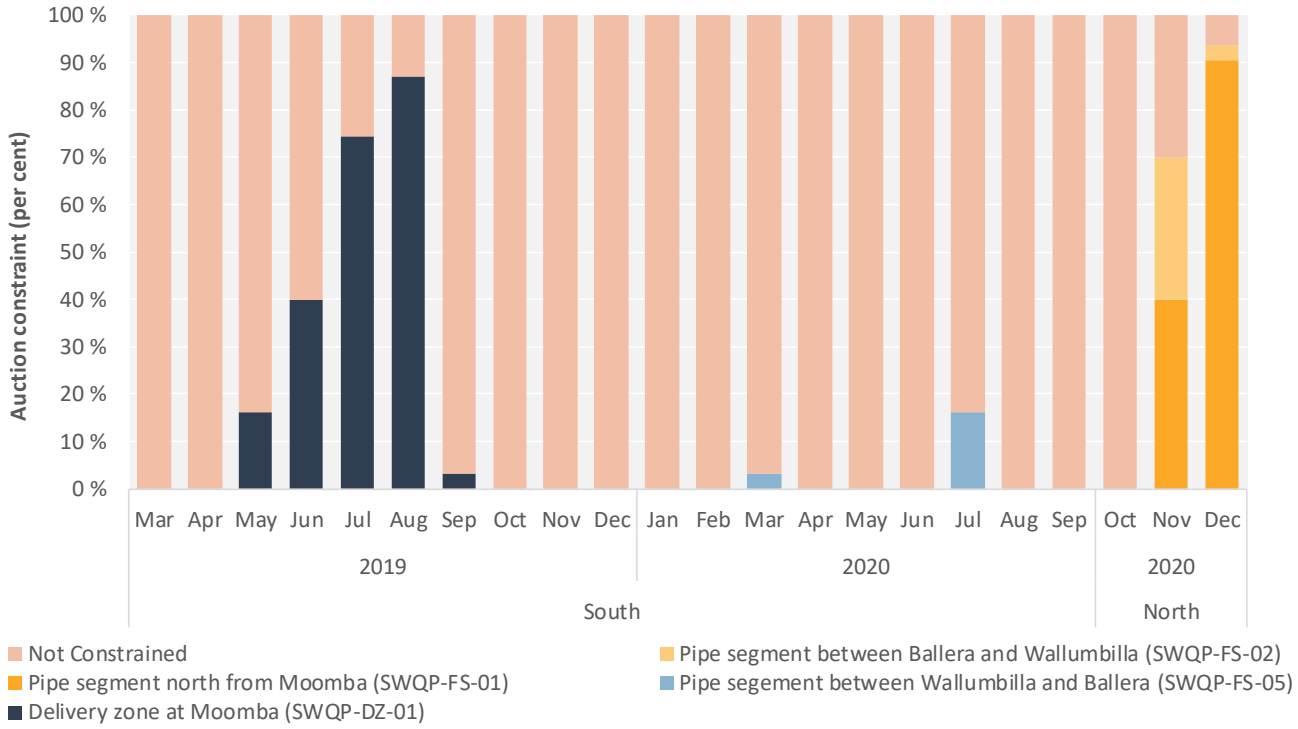


Source: AER analysis using DAA auction results data.

Note: Where multiple constraints were present on the same gas day the most frequent constraint was used in the analysis. On the MSP for auction routes south from Moomba the most frequent auction constraint was the pipe segment MSP-FS-01. On some days in May, June and July 2020 pipe segment MSP-FS-07 was also constraining alongside MSP-FS-01.

[34] https://aemo.com.au/-/media/files/gas/pipeline-capacity/2019/transportation-service-point-register.pdf?la=en

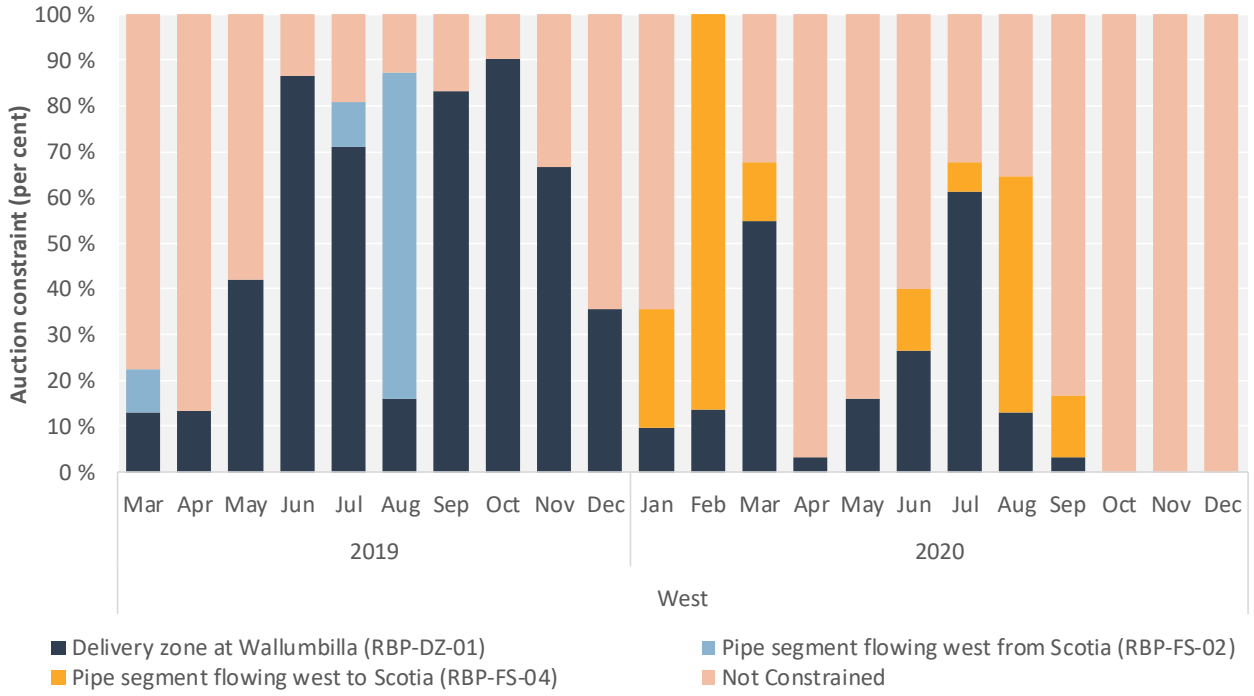
Figure 17 Frequency of auction constraints on routes flowing north and south, SWQP



Source: AER analysis using DAA auction results data.

Note: Where multiple constraints were present on the same gas day the most frequent constraint was used in the analysis. On the SWQP for auction routes flowing south, pipe segment SWQP-FS-04 was also constraining on some of the days pipe segment SWQP-FS-05 was constrained in July 2020.

Figure 18 Frequency of auction constraints on routes flowing west, RBP



Source: AER analysis using DAA auction results data.

Note: Where multiple constraints were present on the same gas day the most frequent constraint was used in the analysis. On the RBP for auction routes flowing west, the delivery zone RBP-DZ-01 was most frequently constrained. On some days pipe segment RBP-FS-02 and RBP-FS-04 were also constraining alongside RBP-DZ-01. This happened 41 times across the 220 days the auction was constrained on the RBP.

Appendix C—Participant list

Participant Group	Participant	Month registered
GPG Gentailer	AGL Energy	October 2019
	Alinta Energy	December 2019
	CleanCo	October 2019
	EnergyAustralia	February 2019
	ERM Power	February 2019
	Origin Energy	February 2019
Exporter/Producer	Arrow Energy	April 2020
	Esso	July 2019
	Santos	August 2019
	Shell	September 2019
	Walloons Coal Seam Gas (QGC)	September 2019
	Westside Corporation	October 2020
Industrial/Trader/Retailer	Eastern Energy Supply	August 2020
	Incitec Pivot	July 2019
	Macquarie Bank	September 2019
	PetroChina	April 2020
	Qenos	August 2019
	Strategic Gas Market Trading	March 2019
	Tarac Technologies	July 2019

Source: AEMO.

Note: Month shown is effective date of registration with AEMO. Two inactive participants have been excluded from this table: Stanwell Corporation and Visy.