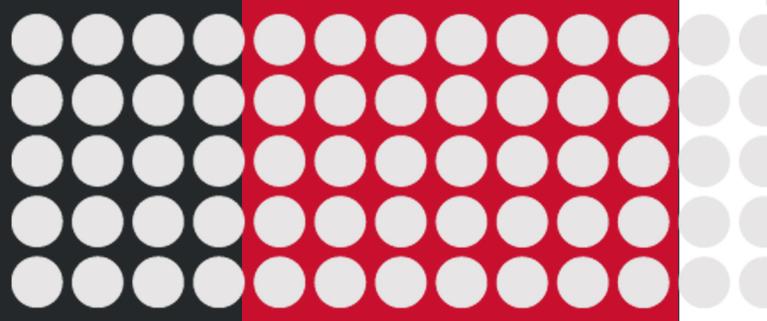




Gas Fired Recovery Plan submission



26 February 2021





**Attachment 1: National Gas Infrastructure Plan
Gas Fired Recovery Plan Consultation**

National Gas Infrastructure Plan

1 Key Points

This response focuses on the following points:

- There is sufficient gas available for the East Coast southern market from existing fields in the Queensland and Northern Territory to prevent any shortfall in 2024.
- The best infrastructure solution for the market is achieved through the timely expansion of capacity by incremental additional compression of existing infrastructure.
- APA has a plan for the expansion of the East Coast grid. The plan is staged and flexible to ensure that the expected variability in where gas is sourced, in the near term, can be readily accommodated.
- APA is already expanding compression capacity at Wallumbilla and Young. By winter 2021 a further 130 TJ/d of Wallumbilla compression capacity will be available for the market as well as a further 25TJ/d capacity from Young NSW into Victoria on the Victorian NSW Interconnect.
- APA is also undertaking front end engineering design (FEED) on additional compression of its 3 stage development program for the East Coast Grid – down the path to add a further 210 TJ/d of capacity from Wallumbilla into southern markets (as the market requires it).
- Incremental expansion is capital efficient and has a significantly lower social and environmental compared to greenfield pipelines.
- In the longer term, gas from the development of the Bowen and Galilee gas basins in Queensland, the Beetaloo basin in Northern Territory and gas from Western Australia will be delivered to markets by greenfield pipelines connecting into the capacity enhanced East Coast Grid.
- Consistent energy policy at the Federal and State level is required for additional timely development of gas fields to provide additional gas to customers on a timely basis. In particular, long, expensive and overlapping development processes increase the risk of new developments falling behind market needs.

1.1 APA's rationale for making a submission

APA is focused on delivering value for customers of its services and protecting the environment and communities in which we operate. In the context of the National Gas Infrastructure Plan (NGIP), we consider that the investment decisions made by infrastructure providers to meet the needs of gas shippers result in efficient investment where the risk and returns of investment lies with the parties that make the investment decision.

1.2 Gas infrastructure development is commercially led

When preparing a NGIP, it is important that the Department of Industry, Science, Energy and Resources is cognisant of the differences between the gas market and the electricity market in Australia. These differences mean a NGIP has a different role to an Integrated System Plan (ISP). A "Gas Integrated System Plan" has the risk of producing inferior outcomes if it overrides those natural commercial aspects of the market that deliver efficient outcomes for customers.

The nature of common use transmission networks in electricity mean that the users of the transmission network do not have a direct interest in the outcomes of decisions to extend or augment the transmission network. Investment in electricity transmission is not driven by contracts with generators or retailers. This leads to potential problems with over or under investment in electricity transmission that results in higher cost (or the risk of a shortage of capacity) being borne by all electricity customers. These problems do not exist in the gas market. In electricity this is attempted to be addressed through extensive interactions of regulatory approvals, RIT-Ts and ISPs.

In gas, shippers need to source sufficient gas to meet the needs of their customers. This leads them to co-ordinate with producers and pipelines via contract to ensure they secure gas supplies and the ability to transport it from their preferred gas fields to their end customers. There are no jurisdictional boundaries as exist in electricity because producers, shippers and pipelines operate in multiple states. Gas is a functioning market that co-ordinates inputs through longer term and shorter term commercial interactions, and to date it has not needed a central planning function. Furthermore, there is a risk that central planning may distort the market signals that have been successful in attracting investment in gas infrastructure to date.

2 APA's submission

Below, APA sets out views in relation to considerations of the NGIP.

2.1 Background to the NGIP

APA understands concerns that surround a potential shortage of gas in southern markets. Greater than 50% of annual southern states domestic demand is in Victoria and concentrated over the winter months and hence is the period that is most likely to be subject to capacity constraints in the future, rather than annual baseload demand. Solutions that specifically support system security and capacity over the winter period will generally be the most cost efficient for the market.

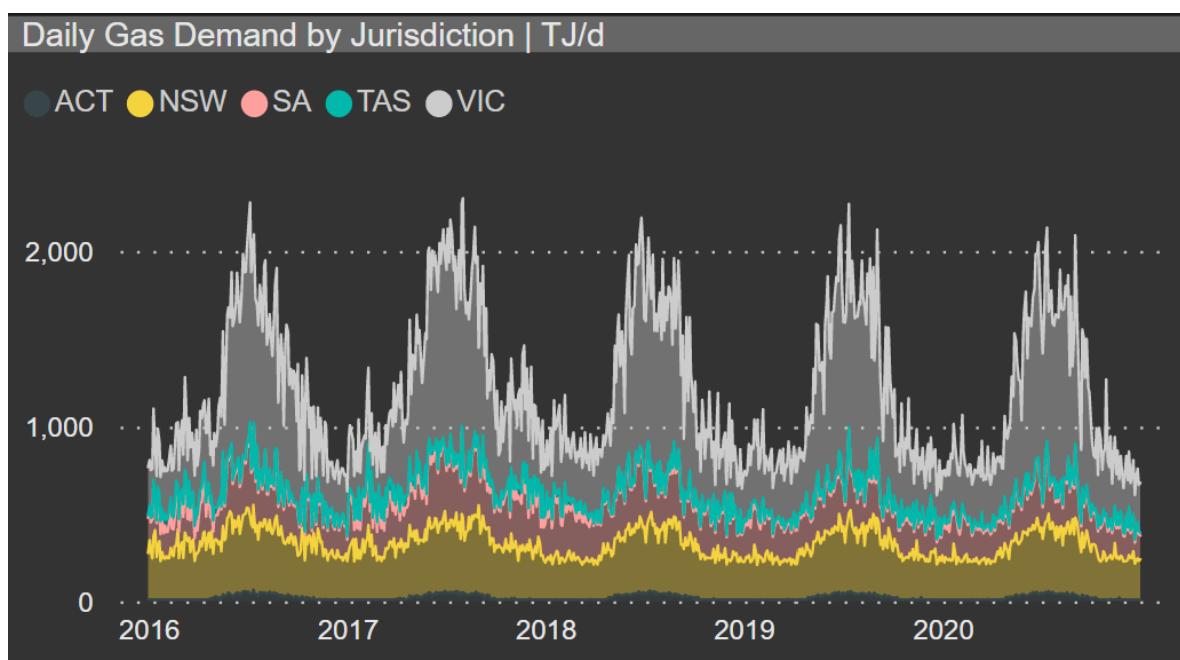


Figure 1: Southern States Daily Gas Demand History (Source: Core Energy EnergyView)

The timing of the inevitable reduction in production from existing southern gas reserves is a key variable in determining the “near term” need for additional capacity from north to south. The 2020 AEMO Gas Statement of Opportunities (GSOO) forecasts a gas shortfall in southern states from 2024.

This outlook was updated in the recent January 2021 ACCC Gas Inquiry Interim Report, which concluded that the southern states will require either increased north-south pipeline capacity, the development of additional

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onshore and offshore gas fields, or the construction of one or more LNG import terminals to ensure supply is sufficient to meet demand.

As discussed below, APA believes that the market will respond to this potential supply gap in the market; the potential gap is an opportunity that sellers and service providers will eagerly seek to fill. Below we detail the active steps APA is taking to efficiently expand north-south pipeline capacity in response to the expected increasing market demand for north-south services.

2.2 The market is responding

Infrastructure in the natural gas market is provided on commercial terms which distinguishes it from the provision of electricity infrastructure. The nature of the gas market means that there should not be a need for government intervention in investment decisions in relation to the construction or augmentation of gas pipelines or other gas infrastructure.

The multiple transmission pipeline companies in Australia have a strong record of delivering the requisite infrastructure to ensure there is sufficient gas to meet the needs of customers in the locations they need it. Gas producers, APA and our competitors have collectively delivered, on a timely basis, the infrastructure necessary to transport gas to where it is demanded. This is reflected in the fact that there has been a three-fold increase in gas demand since the first of the LNG export facilities commenced operations in Gladstone. Infrastructure was developed by the gas producers to ensure that the demand for gas was met over this period and APA has played its role in facilitating that market.

APA is not aware of any major pipeline constraint that has stopped gas reaching markets or infrastructure that could have been delivered but has not, that would have resulted in a lower cost to customers if the Government had only intervened. Constraints on gas supply have usually been as a result of government actions (e.g. drilling moratoriums) or protracted approval process for new developments.

The market is already responding to enable it to meet customer needs going forward and addressing concerns raised by AEMO. There is confidence that the Queensland CSG fields have sufficient reserves in the short term to fill any shortfall that could arise due to reduced production from southern fields.

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APA continues to discuss East Coast Grid gas haulage opportunities with a range of potential shippers.

There are several new gas supplies close to the existing gas grid that can be easily connected into the East Coast Grid where it is economic to develop those new supplies.

2.3

Infrastructure expansion for "near term" gas supplies (2024)

Incremental compression augmentation of APA's East Coast Grid is the most efficient and timely solution to meeting a need for additional north-south pipeline capacity to transport larger quantities of Queensland, Northern Territory and Cooper basin sourced gas to the southern markets.

The ability to add compression to an existing lightly compressed pipeline will always be more cost effective than a new build pipeline and has less delivery and investment risk for the market, particularly where the demand for additional capacity is highly seasonal. It is also important to note that compression of existing infrastructure has lower social and environmental impacts than new build pipelines.

Also, new major greenfield pipelines from distant sources cannot meet the required timeframe due to project development delays and costs especially with landowner consultation, Government approvals and litigation by environmental groups which are increasingly difficult, expensive and time consuming.

3

APA key initiatives

APA has fully developed plans for the development of the East Coast Grid in an efficient and flexible manner. Incremental expansion can be staged to optimise cost, timing and risk outcomes for the market. APA's fully developed plans have formed as the result of comprehensive discussions with major gas suppliers and shippers over the last two years.

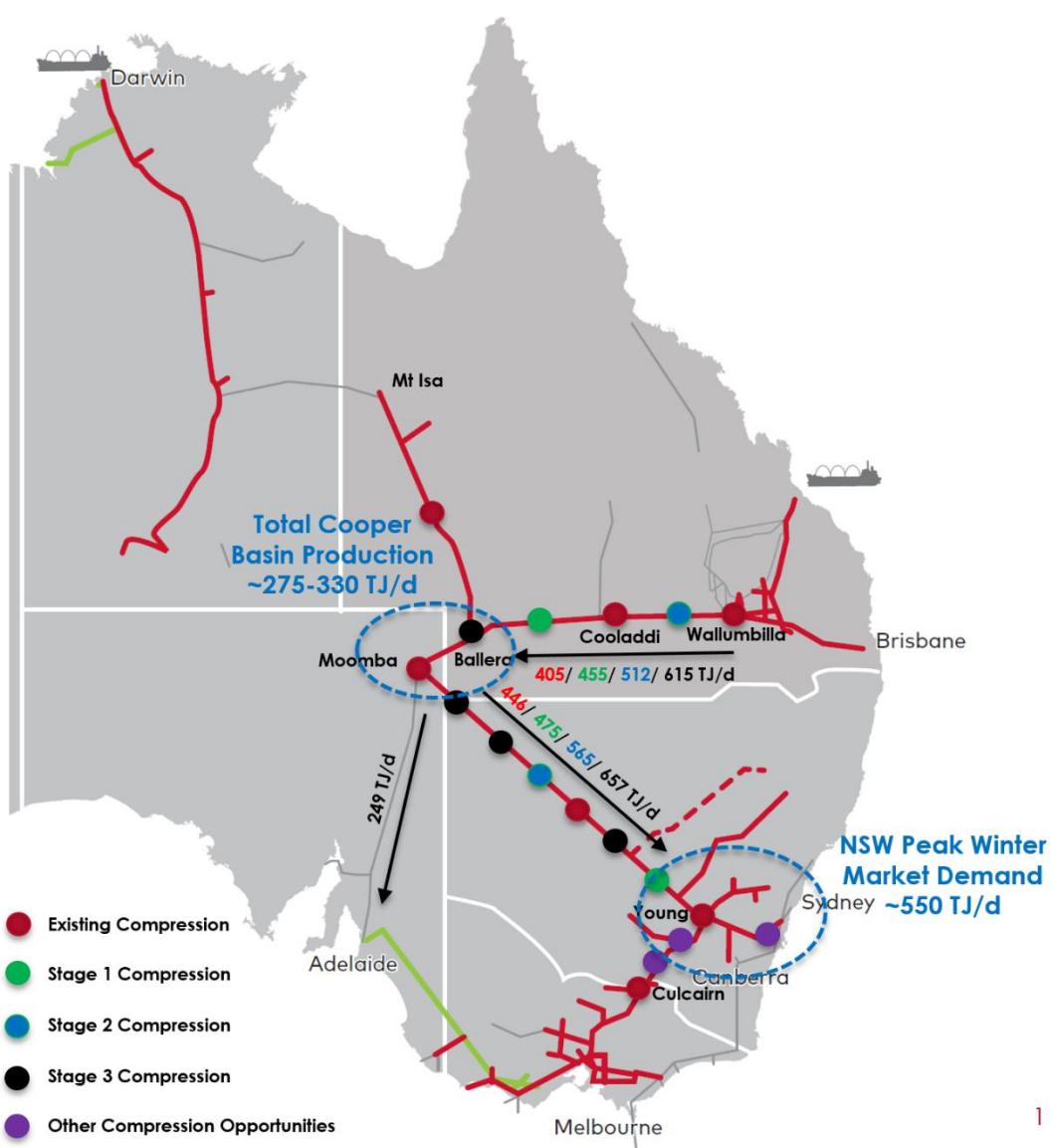


Figure 2 – Staged Compression Expansion of APA's East Coast Grid

3.1

Staged compression expansion of APA's east coast grid

APA is undertaking expansion of Wallumbilla and Young compressor stations. This work commenced in 2020 and will be completed by winter 2021. This project will add 130TJ/d of Wallumbilla compression capacity to support further expansion of the South West Queensland Pipeline (SWQP) western haul capacity and increase the capacity of the Moomba Sydney Pipeline (MSP) system to deliver gas to Culcairn by 25 TJ/d.

APA has committed significant funds to undertake FEED for stages 1 and 2 of the planned 3 stage, 210TJ/d expansion of the East Coast Grid between Wallumbilla and Wilton (an approximate 50% increase in capacity from Wallumbilla to southern markets). This design work is expected to be completed in Quarter 1 2021. APA expects its Board to make a final investment decision on stage 1 by the end of June 2021. If Stage 1 proceeds, it is currently anticipated that it will add around 50 TJ/day of western haul capacity on the SWQP and corresponding southern haul capacity on the MSP. This will further add to the ability to transport Queensland and Northern Territory sourced gas to southern markets.

Stages 2 and 3 can be developed sequentially and synchronized to the release of additional gas supplies by northern producers and increased southern states demand for northern gas supplies.

At the completion of Stage 1, the north-south capacity from Wallumbilla will increase by 50 TJ/d, providing sufficient capacity for the MSP to supply the peak winter demand for the whole of the Sydney and NSW country markets and reducing NSWs' reliance on Victorian gas supplies during winter (this should not be surprising, as the MSP supplied this market prior to the development of the Eastern Gas Pipeline). Stage 2 will provide a further 57 TJ/d of north-south capacity into NSW, allowing the MSP to supply the whole of the NSW peak winter demand (including all of the NSW market currently supplied from Longford), plus export approximately 15 TJ/d net into Victoria. Stage 3 will add a further 103 TJ/d of north-south capacity to supply the whole of NSW winter demand, plus export approximately 107 TJ/d net into Victoria.

As peak market demand is effectively a winter peaking need in Victoria, it seems to APA that the most efficient solution is likely to be:

- APA's East Coast Grid compression expansion to move additional gas north to south in winter.
- Redirection of peak winter season gas production by upstream producers to southern markets (counter cyclical to northern hemisphere LNG demand); and
- Additional support from gas storage at Iona, Golden Beach (if constructed), Dandenong LNG and AGL's Newcastle gas storage facility in NSW during peak winter periods.

3.2

Benefits of APA's solution

The APA East Coast Grid expansion proposal does not require taxpayer subsidies. It will operate through normal commercial arrangements that exist in the gas market and can be delivered in time to meet 2024 winter needs in Victoria and will utilise existing gas storage infrastructure operated by multiple market participants.

This plan represents a much lower cost approach to augmenting gas transportation capacity to southern markets than looping or the construction of greenfield pipelines. It also has a lower social and environmental impact than the construction of new pipelines would have.

This plan is also consistent with the potential future expansion options to move more northern gas into Victoria by increasing compression on the Young to Culcairn lateral and/or via compression between the MSP and EGP at Wilton and reversal of the EGP by Jemena.

In the longer term, gas from the development of gas basins in Queensland, Northern Territory and Western Australia can be efficiently delivered to markets by connecting into the enhanced East Coast Grid, without the need for unnecessary duplication of pipelines.

3.3

Infrastructure expansion for longer term supplies

The key benefit of the East Coast Grid is that all major demand centres are connected to gas transmission infrastructure that is connected to each other.

In the future, the Bowen and Galilee basins can join the existing East Coast Grid via new pipeline connections and thereby access the entire east coast market via that already-installed infrastructure at least cost.

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Gas Fired Recovery Plan Consultation**

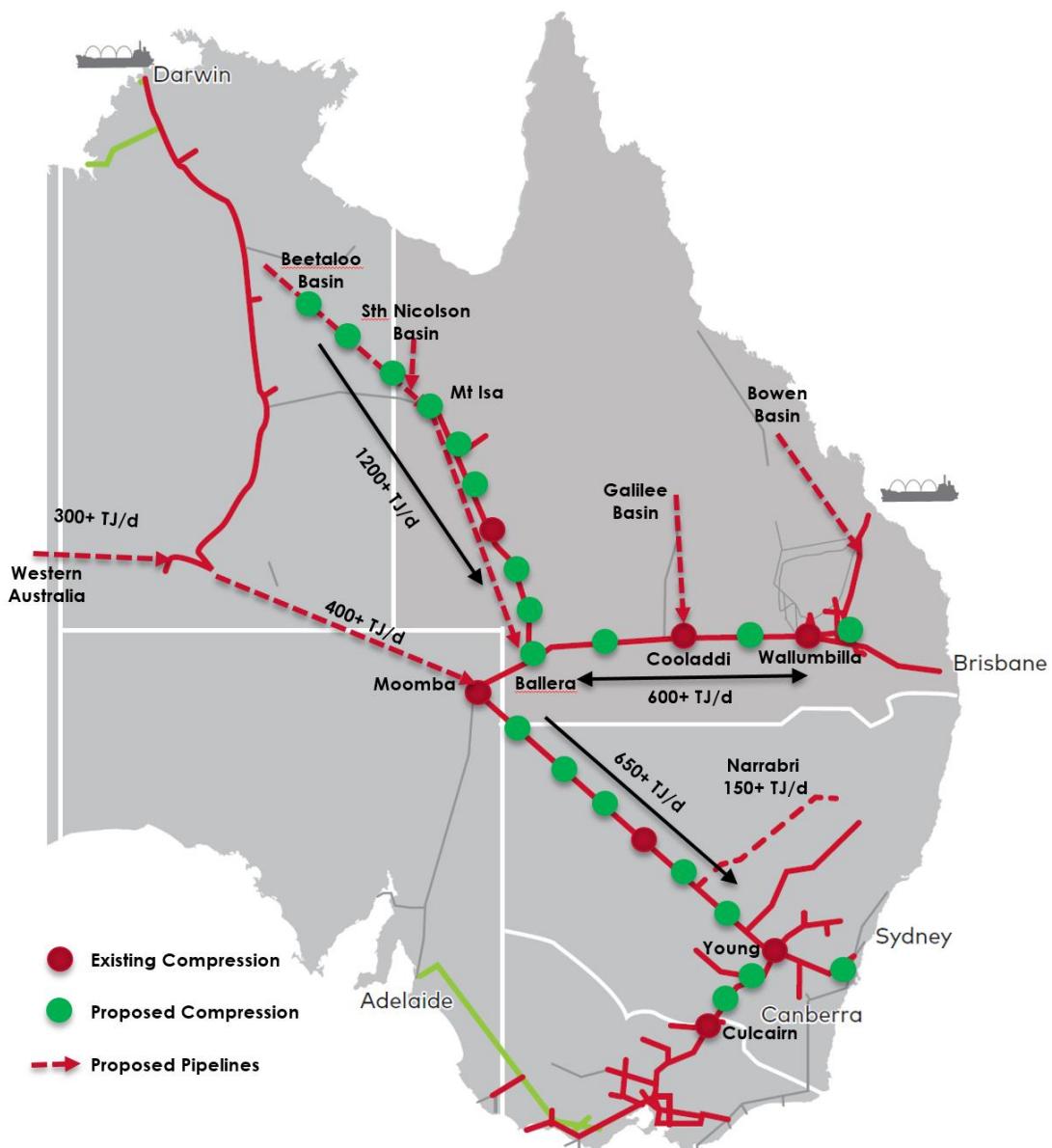


Figure 3. Potential Future Expansion and Extension of East Coast Grid

In the future the Beetaloo, McArthur and South Nicholson gas field developments can also access the east coast market most efficiently via a connection to existing infrastructure at Ballera.

Of all the pipelines on the drawing board, the potential West East pipeline project would be a larger, longer term solution. The project would connect known reserves in the North West Shelf to the east coast market. APA



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believes the size of the project would be able to be funded by the private sector and APA is currently studying different route options.



Attachment 2: Wallumbilla Hub
Gas Fired Recovery Plan Consultation

Wallumbilla Hub

1. Key Points

APA welcomes initiatives to further promote gas market liquidity across the East Coast Grid. We propose that market-led evolution of the Wallumbilla Hub is an effective and efficient way to achieve this. Key principals that APA considers are vital to successfully evolving the Wallumbilla Hub include:

- Gas trading capability at Wallumbilla is enhanced on a voluntary and market led basis in a way that efficiently creates increased liquidity and price discovery.
- Efficient investment in expansion of existing pipelines and compression facilities is promoted.
- Existing commercial agreements with gas market participants that have laid the foundation for development of physical infrastructure are honoured.
- Acknowledgement that existing initiatives and reform measures will require time to be fully embedded and have outcomes measured and realised.
- Acknowledgement that market structures and incentives in the Australian energy market differ to those in the US market.
- De-bottlenecking and promoting an efficient path to market for new and existing gas supply to create greater depth in the wholesale gas market.

Hubs located on APA's East Coast Grid have the advantage of being linked right across the East Coast gas market, enabling efficient and timely supply and delivery to all points in the market.

The rationale supporting these key principles is outlined in the remainder of this attachment.

2. Wallumbilla Hub Evolution – Market Led

2.1 Physical Infrastructure

Wallumbilla Hub infrastructure has evolved over time through customer led demand for the transport, compression and storage of gas to be the conduit between key production in the north and demand centres across the East Coast. Presently, the Wallumbilla Hub comprises the intersection of 9 interconnecting pipelines with ~2,500 TJ/d of gas transport capacity and ~1,000 TJ/d of compression capacity, collectively owned and operated by 5 independent entities.

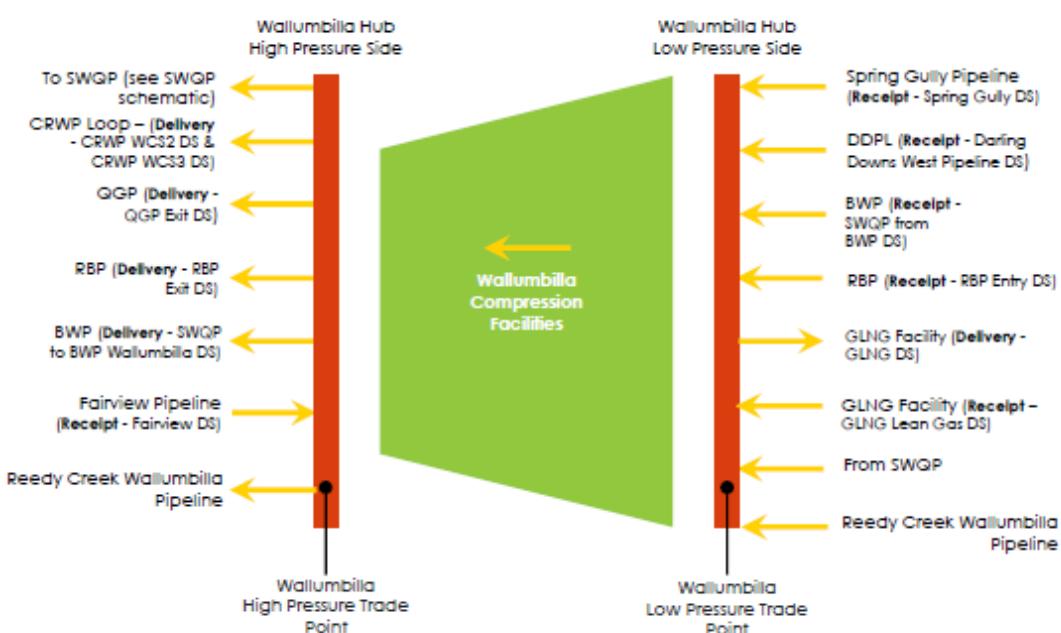


Figure 1 – Simplified Wallumbilla Hub Diagram

Wallumbilla Hub is an example of market-led investment in infrastructure and trading capability. The Hub has been progressively debottlenecked and modified to enhance utilisation of compression and allow entry of new sources of gas via for example, Roma Brisbane Pipeline (RBP) flow reversal and connection of the Reedy Creek to Wallumbilla Pipeline (RCWP).

**Attachment 2: Wallumbilla Hub
Gas Fired Recovery Plan Consultation**

APA has recently invested in an additional 132 TJ/d of compression capacity at Wallumbilla, which will expand total capacity to 870 TJ/d by March 2021. This commitment will support further liquidity at Wallumbilla and is currently uncontracted.

In 2020, compression throughput ranged from 300 to ~700 TJ/d, representing approximately 11% of total Queensland production¹.

The evolution of Wallumbilla through incremental investments by APA and other facility operators demonstrates that capital is being deployed and critical infrastructure is being built as and when required to meet demand.

Wallumbilla Assets & Facility Operators

Operator	Assets
APA	870 TJ/d compression, South West Queensland Pipeline (SWQP) 404 TJ/d (340 TJ/d east), RBP 211TJ/d (125 TJ/d west), Berwyndale Wallumbilla Pipeline (BWP) 164 TJ/d (276 TJ/d west) , Reedy Creek Wallumbilla Pipeline (RCWP) 300 TJ/d (bi-directional)
Jemena	Queensland Gas Pipeline (QGP) 145 TJ/d, Darling Downs Pipeline (DDP) 365 TJ/d
GLNG	150 TJ/d compression, Comet Ridge Wallumbilla Pipeline & Loop (CRWP) 950TJ/d
AGL	Silver Springs storage 30 TJ/d
Armour	Kincora 20 TJ/d

2.2 Capacity Availability and Access

2.2.1 Capacity Availability

As of March 2021, APA's Wallumbilla Hub compression will have uncontracted capacity of 159 TJ/d.

¹ Calculated as average of 460 TJ/d of total Queensland production in 2020 of 4,200TJ/d

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The South West Queensland Pipeline (SWQP) between Wallumbilla and Moomba, and the Moomba Sydney Pipeline (MSP) with an interconnect to the Victorian Declared Wholesale Gas Market (DWGM), are two of the major pipelines connecting the Wallumbilla Hub to southern gas markets. These pipelines currently have uncontracted primary capacity of 102 TJ/d and 153 TJ/d respectively (noting this fluctuates seasonally), which APA markets on an open access basis. All APA owned pipelines connecting to the Wallumbilla Hub are bi-directional and firm capacity is available to be contracted in either direction. The SWQP and MSP primary capacity competes with unutilised SWQP and MSP secondary capacity in the capacity auction and with gas supplied from other southern basins either physically or via gas swaps.

APA's East Coast Grid is not currently constrained by physical capacity as highlighted by the ACCC in their latest interim report (refer to Figure 2 below). This chart shows the maximum daily utilisation in each month, which typically only occurs on a few days of each month.

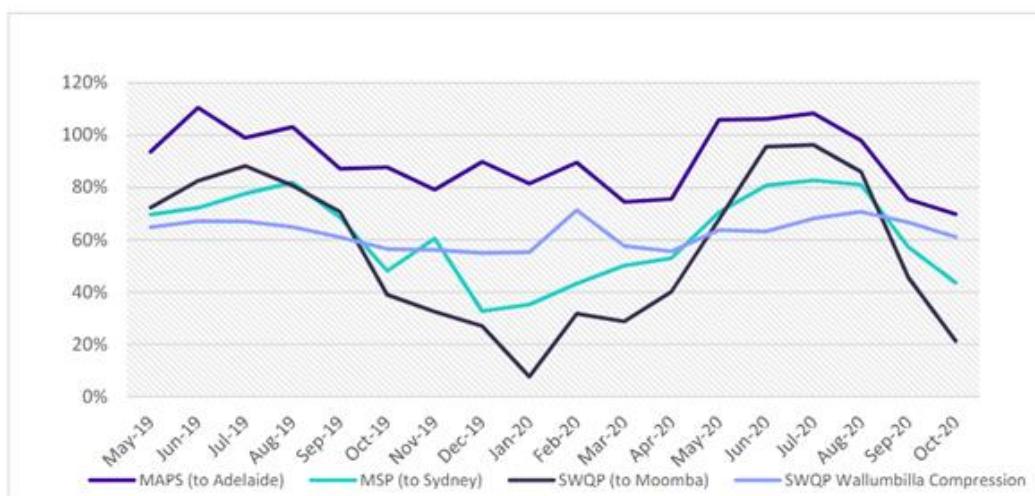


Figure 2 – Source ACCC Interim Report January 2021

In addition to transportation capacity, APA has substantial gas storage capacity on the East Coast Grid that allows deliveries to exceed nameplate capacity for short periods. Recent debottlenecking work carried out by APA at Moomba will allow APA to make better use of this short term overrun capacity. The chart in Figure 2 demonstrates that over the last winter period, APA was able to transport quantities in the SWQP in excess of firm contracted quantities on a reliable basis. Importantly, APA customers with

firm rights to transport gas on the East Coast Grid were able to do so in accordance with the terms of their gas transportation agreements.

Despite the lack of current physical constraints at Wallumbilla Hub and interconnected pipelines to date, APA is actively engaging in the market and is able to efficiently and effectively respond to increases in market demand for primary capacity (such as to meet projected future shortfalls of gas supply to southern markets) in a staged manner where there is an investment case to do so, as reflected in APA's National Gas Infrastructure Plan (NGIP) submission. Pipeline capacity from time to time, should not be considered to be a constraint on the operation of trading hubs.

2.2.2 Capacity Access

Since 2018, APA customers contracted on Standard Gas Transportation Agreements have been able to access firm pipeline and compression capacity on a short term, day ahead or within day firm basis via a streamlined transaction notice mechanism that has seen transaction turn-around times of as low as 2 hours. This significantly reduces barriers to entry for smaller gas market participants as a function of access to firm capacity no longer requiring significant administration burden nor upfront contracting of capacity for an extended period of time.

These short-term firm products demonstrate a market driven response to supporting a more liquid gas market. Information in respect of APA's short-term products is available for public consumption at

<https://www.apa.com.au/globalassets/documents/info/general/apa-services-guide.pdf>

In addition to contracting primary firm capacity, market participants can access unused contracted secondary capacity through the Capacity Trading and Auction markets introduced in 2019.

2.3 Gas Supply Hub and In-Pipe Trading

The Wallumbilla Gas Supply Hub (GSH) platform was initially introduced in 2014 to 'enable improved wholesale trading for an east coast gas market affected by significant liquefied natural gas (LNG) exports in Queensland. Through an electronic platform, GSH participants can trade standardised,

Attachment 2: Wallumbilla Hub
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short-term physical gas products at each of the three foundation pipelines connecting at Wallumbilla. AEMO centrally settles transactions, manages prudential requirements and provides reports to assist participants in managing their portfolio and gas delivery obligations.

In June 2016 a trading location at Moomba was established, enabling participants in southern markets to trade under the same market framework and rules as at Wallumbilla. In March 2017 the three trading locations at Wallumbilla were replaced with a single Wallumbilla location, through what is known as the Optional Hub Services (OHS) model. A single trading location at Wallumbilla improves market liquidity allowing trading participants across different pipelines to more easily trade with each other'.²

At around the same time the GSH commenced, APA introduced in-pipe trading (IPT) on major east coast pipelines and hubs, including Wallumbilla and Moomba. IPT has provided a significant increase in market liquidity, as market participants no longer need to align supply and demand to a physical receipt or delivery point, rather they can transact on a near-uninterruptible basis at the IPT points without delivery variances. This mechanism creates confidence in market participant's ability to trade through keeping trades whole despite physical point-level interruptions. It also promotes liquidity through improved diversity of the party in a transaction that is responsible for the physical receipt of gas on to the pipeline or hub versus the physical delivery of gas off the pipeline or hub.

IPT consistently sees substantial and growing volume (514 PJ in 2020 on APA assets), as depicted below in Figure 3.

² <https://aemo.com.au/en/energy-systems/gas/gas-supply-hub-gsh/about-the-gas-supply-hubs-gsh>

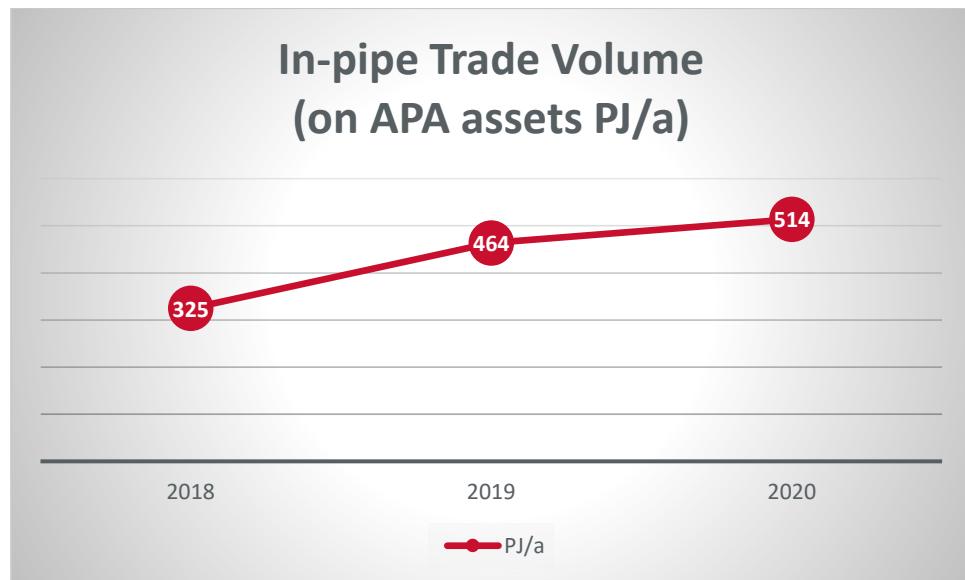


Figure 3 APA's In-Pipe Trade Services

3. **Wallumbilla & Henry Hub – Similarities & Differences**

Wallumbilla and Henry Hub share some similarities, notably:

- High physical connectivity being the intersection of intrastate and interstate pipelines and storage facilities owned by multiple parties connecting significant gas producing basins and demand centres.
- Geographically separated from retail or end point demand centres meaning pricing is not excessively affected by local market dynamics at the physical delivery point. That said, Wallumbilla is distinguished from Henry Hub in that over 50% of gas flows through Wallumbilla Hub are typically destined for LNG export markets. Wallumbilla Hub is significantly more influenced by international LNG pricing than Henry Hub is currently.
- Unregulated and contract based third party access for the majority of the capacity.
- Large physical throughput of gas – between 400TJ/d for Henry Hub and up to 700 TJ/d for Wallumbilla Hub with near absence of constraints. Reliability of physical supply is required for a functioning futures market. In 2020, limited interruptions of three instances were experienced at APA's Wallumbilla facilities by customers. Nationally, APA's service reliability was 99.97% of which APA's Wallumbilla Hub facilities are a key component of this asset portfolio. It is APA's understanding that similarly high levels of reliability are experienced at Henry Hub.
- Bilateral wholesale trades and custody transfer facilitated via physical receipt and delivery points or In-pipe trade points.
- Storage capability of +12.7 bcf storage (~13 PJ) at Henry Hub enabling flexibility during high demand periods. Wallumbilla has natural reservoir storage that is supplemented with significant pipeline storage and connectivity to LNG pipeline. APA's park and loan services on the East Coast Grid provide access to this pipeline storage with flexible injection and withdrawal capability.

Wallumbilla and Henry Hub differ in a number of respects, most related to the nature of the gas markets in the US and Australia:

- References to “Henry Hub pricing” generally reference the NYMEX exchange price for the natural gas futures contract. The volumes of gas at Henry Hub implied by exchange trading are typically 10,000 times greater than the physical volumes. In addition, there are a number of other gas hubs in the US market, many of which see large physical trading volumes based on local supply and demand dynamics. Physical gas trades in these other hubs in the US are priced as a differential to Henry Hub. Outside of the NYMEX market, a large component of physical trades are undertaken bilaterally with pricing voluntarily disclosed often to a private market information source (e.g. S&P), aggregated and published. Such private information sources protect anonymity but are also made feasible by the large number of participants in the US energy market as discussed below.
- Wallumbilla is yet to develop a comparable gas futures product, though plans are underway for a futures market with physical settlement of trades potentially leading to greater liquidity. It should be noted that whilst the NYMEX market trades futures contracts 10 years out, liquidity is concentrated in the 1-2 year timeframe. Prices in the years beyond tend to be more directional in nature than specific pricing points.
- Fundamental differences exist in the structure of gas markets between the US and Australia.
 - US energy markets have naturally greater diversity and number of market participants with >700 transacting entities³ for physical natural gas trades versus ~20 entities trading at Wallumbilla, Culcairn and Wilton.
 - The composition of participants is different with gas marketing firms and traders accounting for almost 42% of physical market transactions at Henry Hub. These participants play a key role in liquidity, aggregating gas, promoting anonymity and connecting buyers and sellers across locations and time and taking on risk.

³ Cornerstone Research as of July 3, 2020. Based on FERC Form 552 filings

- Based on publicly available data, end user commercial and industrial buyers of gas are not significant standalone users of physical gas trading via Henry Hub. APA understands that one of the objectives of Australian Government reform may be to allow these gas consumers more options by which they can hedge and trade their gas consumption. However, it should be noted that the US experience of the Henry Hub model is not indicative of this occurring in scale in the physical market.
- The volume and value of gas underpinning Henry Hub futures trading on the exchanges is orders of magnitude larger than the physical flow as noted above. Traders on the exchange are much more numerous and diverse than physical traders given the standardisation and liquidity of the futures product. These traders act for their own account or on behalf of clients all along the natural gas value chain.

It should also be noted that there are a wide range of fundamental differences between market and regulatory designs in the US and Australian energy markets. A detailed description of these differences is beyond the scope of this submission. The propensity of market participants to use exchange traded gas futures to hedge their pricing risks will be fundamentally driven by market factors and the availability and attractiveness of alternative contractual and hedging solutions.

APA's view is that the Wallumbilla Hub already has many of the foundational physical characteristics of a well-functioning, reliable and competitive wholesale gas hub providing the foundation for a functioning futures market to develop over time, however:

- We see an opportunity to incrementally enhance the Wallumbilla Hub through provision for end-to-end anonymity in the trading process and
- The characteristics of the Australian market differ to those of the US gas market, and it is very doubtful that the Australian market would ever reach comparable liquidity levels to those experienced in the US market.

4. Trade Anonymity

The ability to conduct end-to-end anonymous trades facilitated by APA via the GSH being proposed by APA is an enhancement to the current market. The GSH and trading platform would operate as normal and an interface between AEMO and APA could be created to pool the gas trades and execute title transfers via APA's IPT points, maintaining anonymity throughout the entire transaction chain. Refer to Figure 4 below.

This would facilitate trading by market participants who wish to remain anonymous, and over time help increase liquidity and improve price discovery. Currently, GSH participants discover their trading counterparty throughout the GSH trade process. This gives the ability for participants to enter bilateral arrangements and ultimately transact off market for subsequent trades. While this has benefits of its own, it may be an inhibitor of gas being made more readily available to other participants in the market.

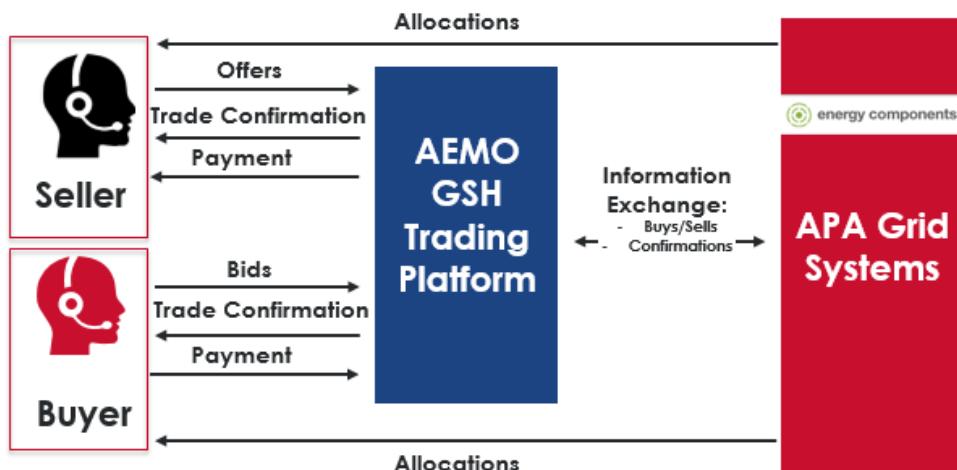


Figure 4 Enhanced Anonymous Trading on the GSH

Consistent with APA's key principles outlined for the evolution of the Wallumbilla Hub and trading capability, we have begun initial investigation of market demand (including engagement with market participants of all sizes and industries, and AEMO) for end-to-end anonymous trading.