Market overview and issues identified

Gas transmission pipelines

Overview

Gas transmission refers to the transportation of natural gas via pipelines from gas production facilities to major users and markets. The four major interconnected natural gas transmission pipelines in Queensland are:

- Roma to Brisbane Pipeline (RBP) which runs from Wallumbilla (Roma) to Gibson Island in Brisbane and is owned and operated by the APA Group (APA)
- Carpentaria Gas Pipeline (CGP) which runs from Ballera to Mount Isa Pipeline and is owned and operated by the APA
- Queensland Gas Pipeline (QGP) which runs from Wallumbilla to Gladstone and Rockhampton and is owned and operated by Jemena Limited
- South West Queensland Pipeline (SWQP) which connects Ballera and Wallumbilla and is owned and operated by Epic Energy.

The QSN Link interconnects the SWQP with the Moomba to Sydney and Moomba to Adelaide pipelines.

Another major pipeline, the North Queensland Gas Pipeline (NQGP), runs from Moranbah to Townsville and is owned by Victorian Funds Management Corporation and operated by AGL and Arrow Energy through a jointly owned company called NQPM4.

Capacity demand

Analysis and modelling suggests that each of the four major interconnected pipelines will face nearly static load factors (ratio of average daily load to peak daily load) over the next 10 years (Figure 19). This means that pipeline expansion in proportion to annual demand, in line with current load factors, will be sufficient to meet peak domestic market requirements over the next 10 years.

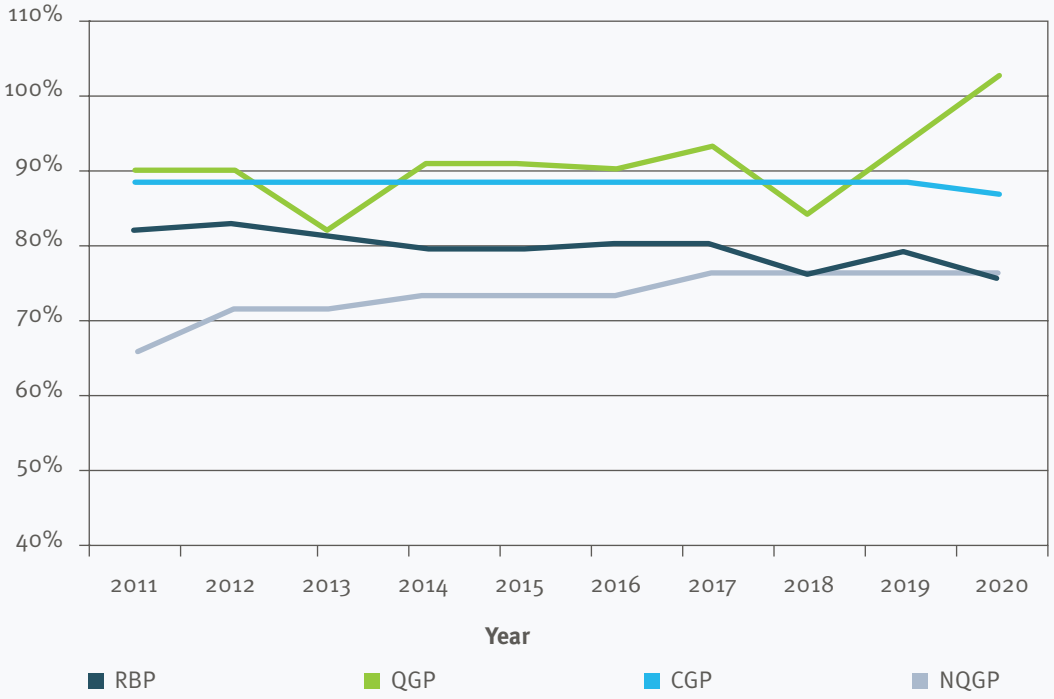

Figure 19 *Queensland gas pipeline load factors based on 1-in-2 peak demand, 2011–2030 (PJ/year)*

Source: SKM MMA (2011)

Note: RBP = Roma to Brisbane Pipeline; CGP = Carpentaria Gas Pipeline; QGP = Queensland Gas Pipeline; NQGP = North Queensland Gas Pipeline

Figure 20 compares the actual and estimated annual throughput volume of the four major interconnected pipelines and the QSN for the calendar years 2009 and 2010. Figures for actual flows were obtained from the National Gas Market Bulletin Board while estimated throughput is based on the output from the modelling using the three scenarios.

Figure 20 *Actual and estimated throughput of major Queensland pipelines, 2009 and 2010 (PJ/year)*

Source: SKM MMA (2011)

Note: RBP = Roma to Brisbane Pipeline; CGP = Carpentaria Gas Pipeline; QGP = Queensland Gas Pipeline; SWQP = South West Queensland Gas Pipeline; QSN = QSN Link Pipeline

Roma to Brisbane Pipeline

Constructed in 1969, the RBP is 438 km in length and supplies major customers including Incitec Pivot (whose Gibson Island fertiliser plant was the first and underpinning RBP customer), CS Energy's Swanbank E Power Station, BP's Bulwer Island Refinery and energy retailers AGL and Origin Energy.

Opened in 1969, the RBP is Australia's oldest natural gas pipeline. Its capacity has been expanded a number of times and capacity is now more than five times the original capacity. The original pipeline is 41 cm (16 inches) in diameter and fully looped (duplicated) with the exception of the Brisbane metro section (running from Ellengrove to Murarrie). The duplicate pipeline is 25 cm (10 inches) in diameter and runs parallel from Wallumbilla to Ellengrove. Total RBP capacity currently is 80 PJ/year.

The RBP has seen much activity in recent years with additional capacity added in 2009. The remainder of this capacity was contracted in 2011 ahead of the commencement of the Brisbane STTM. In August 2010, APA completed an extension of the RBP by constructing a 6 km lateral from Murarrie to the Caltex refinery at Lytton. In April 2011, APA announced a $50 million capacity expansion of the RBP that will increase capacity by approximately 10 per cent and allow the operating pressure to be increased. The expansion involves looping a 6 km section of the remaining unlooped section of the pipeline from Murarrie to Gibson Island and the installation of a second compressor at Dalby.

APA advises there are currently 4 terajoules per day (TJ/d) of capacity at delivery points between Ellengrove and Gibson Island available to be contracted now for a service commencing on completion of the RBP expansion. There is a queue in place for this capacity. APA would need to determine on a case-by-case basis what spare capacity would be available to be contracted now for service delivery to points upstream of Ellengrove.

The expansion is scheduled to be completed in the second half of 2012. Once this expansion is complete, the section of pipeline from Murarrie to Ellengrove will be the only section not yet looped, offering opportunities for further expansion as incremental demand grows.

The STTM will commence operation in Brisbane in December 2011. An implementation project is currently underway and future STTM participants are amending their contractual arrangements to reflect new market operational procedures. The STTM values firm transmission capacity thereby sending appropriate signals for investment in infrastructure capacity. The recent contracting of available capacity and the current expansion of the RBP are timely and demonstrate the importance of clear market signals.

Modelling outcomes

In all scenarios, Brisbane market demand for gas was low (1.2–1.6% growth). It is possible that a new pipeline such as one from the Clarence-Morton Basin could meet some Brisbane demand growth in the future, as a by-product of gas supply for GPG or LNG export. In the Medium and High scenarios SKM MMA projected that some Clarence-Morton Basin gas would be sold to LNG projects in Gladstone—this gas is assumed to be backhauled on the RBP from Brisbane to Wallumbilla without any capacity requirements. For the RBP, the three scenario outcomes (shown in Figure 21) are:

- In the High scenario, additional capacity may be required in the short term, starting now and peaking in 2017 at roughly 35 TJ/d extra. Peak demand is then projected to remain below capacity throughout the rest of the period.
- In the Medium and Low scenarios, peak demand declines from its 2011 value and remains below capacity throughout the rest of the period.

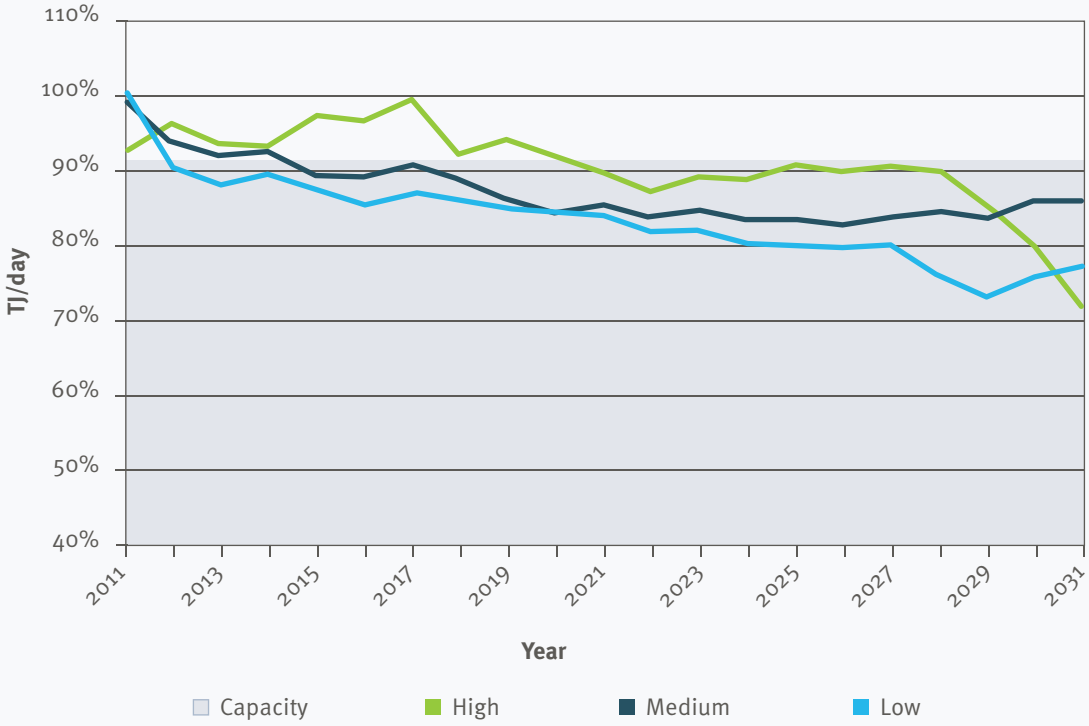

Figure 21 *Estimated peak flow and capacity for the RBP, 2011–2031 (TJ/day)*

Source: SKM MMA (2011)

Carpentaria Gas Pipeline

The CGP is an 840 km pipeline that supplies customers in Mount Isa (via the 6 km town lateral) and the surrounding Carpentaria mineral province. The CGP began operations in 1998 and customers include the fertiliser plant at Phosphate Hill, the mine at Cannington (via the 96 km Cannington lateral) and the Mica Creek Power Station in Mount Isa.

APA completed expansions of the CGP in 2001 and 2009 by constructing the Morney Tank and Davenport Downs compressor stations, increasing capacity from the original 36 PJ/year to approximately 44 PJ/year.

APA reports there are currently 3 TJ/d of capacity on the CGP available for contracting at any of the delivery points. Additional future capacity expansion can be achieved by progressively installing additional compressor stations at scraper station sites along the pipeline.

Modelling outcomes

No additional capacity is required in any of the three modelled scenarios. In the High scenario the load in Mount Isa is projected to fall owing to the connection of Mount Isa to the electricity transmission network. Figure 22 shows the projections of peak demand and capacity for the CGP.

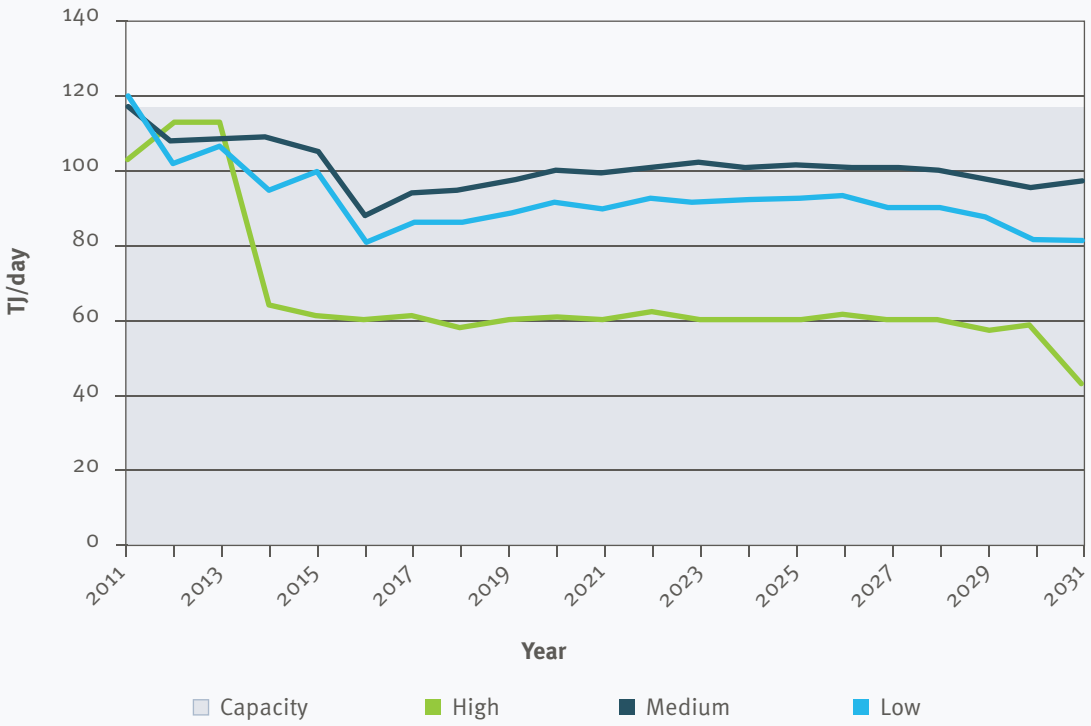

Figure 22 *Estimated peak flow and capacity for the CGP, 2011–2031 (TJ/day)*

Source: SKM MMA (2011)

Queensland Gas Pipeline

The QGP is a 627 km gas transmission pipeline that supplies major users including Queensland Alumina Limited, Rio Tinto Aluminium, Orica, Boyne Smelters and Queensland Magnesia. Gas is also transported to the retail distribution networks in Gladstone, Rockhampton and Wide Bay.

The initial capacity of the QGP was expanded in 2010 from 30 PJ/year to approximately 52 PJ/year to meet the growing industrial demand for natural gas in Gladstone. The expansion involved looping an 11 km section of the QGP and installing additional compressors. The QGP is currently operating at close to full capacity, but Jemena, the owner, believes it may be capable of expansion to transport up to 180 PJ/year of gas supply.

Modelling outcomes

The peak demands in each scenario broadly follow the trends in the demand projections. In the High scenario, some Gladstone demand is met by gas from the Moranbah production centre transported via the Moranbah–Gladstone Pipeline.

Some of the incremental capacity requirements after 2014 could be substituted by LNG project pipelines. It is noted that in March 2011, Jemena entered into an agreement with LNG Limited to undertake a feasibility study to investigate the potential of expanding the QGP to transport gas for LNG Limited's Fishermans Landing LNG project. Under the proposed expansion, gas would be transported from Wallumbilla to Callide, and then delivered to the project's site via a planned 20 km gas pipeline. Jemena expects the study to be completed in June 2011.

For the QGP, the scenario modelling outcomes are:

- In the High scenario, additional capacity would be required at an increasing rate, starting in 2012 and peaking initially in 2021 at roughly 100 TJ/day extra. Around 2026, there is a marked increase in the estimate of peak demand which reaches its highest level in 2027 with an additional 100 TJ/day. Demand then decreases towards the 2021 level by the end of the period. This is likely to be due to the assumption that the number of LNG projects stops at 17 trains, leading to a substantial amount of developing reserves becoming available to the domestic market.
- In the Medium scenario, additional capacity would be required at an increasing rate, starting in 2012 and peaking in 2022 at roughly 200 TJ/day extra. The peak demand is then estimated to be stable until around 2031 when it can be seen to increase again.
- In the Low scenario, additional capacity would be required at an increasing rate, starting in 2013 and peaking in 2016 at roughly 75 TJ/day extra. The peak demand is then estimated to be stable throughout the rest of the forecasting period (Figure 23).

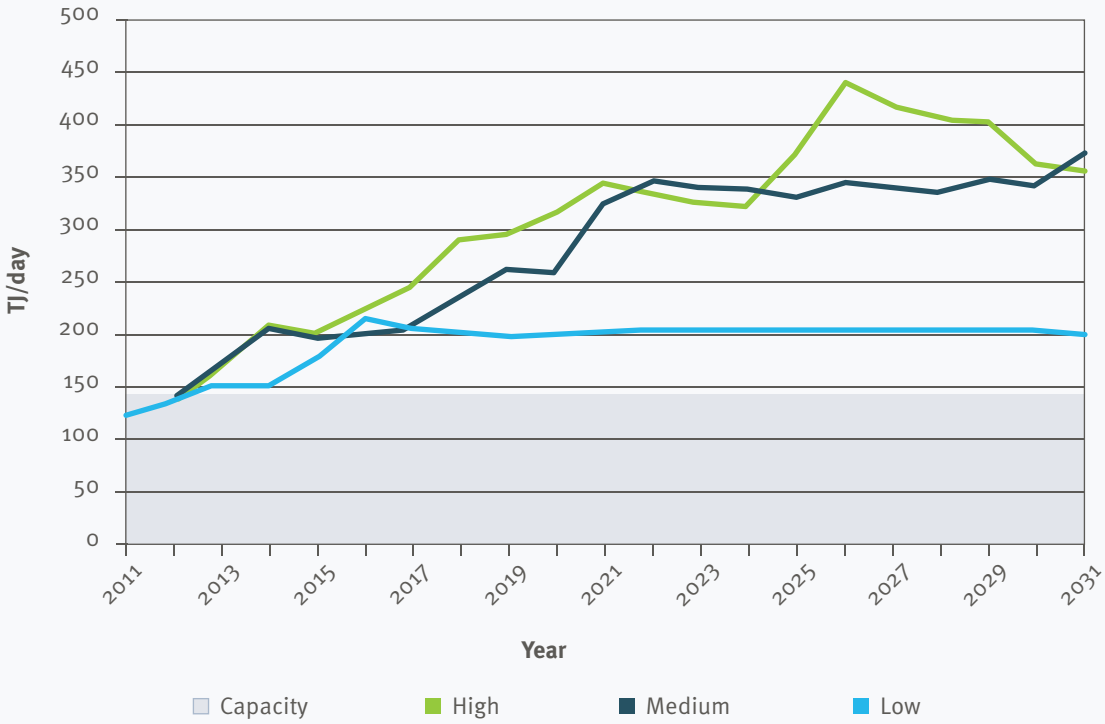

Figure 23 *Estimated peak flow and capacity for the QGP, 2011–2031 (TJ/day)*

Source: SKM MMA (2011)

South West Queensland Pipeline

The SWQP is a 935 km pipeline that currently connects near Roma (Wallumbilla) and links to Ballera in south-west Queensland and Moomba in South Australia. The SWQP has a capacity of approximately 66 PJ/year. At Wallumbilla, the SWQP connects with the QGP to Gladstone and Rockhampton and the RBP to Brisbane.

The original SWQP ran the 756 km from Ballera to Wallumbilla. In 2008, it was expanded by compression from 47 PJ/year to the current 66 PJ/year and extended by 180 km to the current 935 km by the QSN Link, which provides a connection to the Moomba to Adelaide Pipeline System and the Moomba to Sydney Pipeline and southern gas markets.

In 2009, a project started to loop the entire length of the SWQP, including the QSN Link. This expansion is currently under construction and scheduled for completion in January 2012. The looping project will increase capacity from 66 PJ/year to approximately 142 PJ/year east to west and 128 PJ/year west to east. Capacity will vary according to

where gas is injected and withdrawn along the pipeline. The new capacity has been contracted for 25 years, but existing capacity that is currently contracted will begin to become available for re-contracting from 2015.

By 2014 the SWQP will be in the unusual situation of being bi-directional, that is physically able to flow gas either east to west or west to east on an approximate 24-hour turnaround. This will support the movement large volumes of gas to either the southern markets and Mount Isa or to Gladstone and Brisbane, as required.

Epic Energy believes that opportunities to further expand capacity can be economically implemented by adding compression.

Modelling outcomes

The High scenario produces the lowest projections until around 2023 owing to the relative lack of Queensland CSG available for export to the southern states (Figure 24). After this time, the number of LNG projects is projected to stop at 17 trains, leading to a substantial amount of developing reserves becoming available to the domestic market. Much of this gas is exported to the southern states.

Under the Medium and Low scenarios, there are increased flows along the SWQP for the period 2017 to 2020. This is mainly caused by the rapid reserves development required for export from committed trains to 2016 (two per year), after which the rate of train start-up falls off causing the release of more Queensland CSG to the domestic market.

The modelling outcomes for CSG are:

- In the High scenario, additional capacity would be required at an increasing rate, starting in 2023 and peaking in 2030 at roughly 365 TJ/day extra.
- In the Medium scenario, additional capacity would be required at an increasing rate, starting in 2018 and peaking initially in 2020 at roughly 100 TJ/d extra. Another increase in flow leading to additional capacity requirement is expected from around 2024 to peak at the end of the period at roughly 326 TJ/day extra.
- In the Low scenario, except for 2019 and 2020, the SWQP is estimated to be at capacity for the period to 2030. Additional capacity of around 100 TJ/day would be required after 2030. For the years 2019 and 2020, around 50 TJ/day of extra capacity is required; however, there is a possibility that this does not lead to an expansion owing to the short-term nature of the requirement.

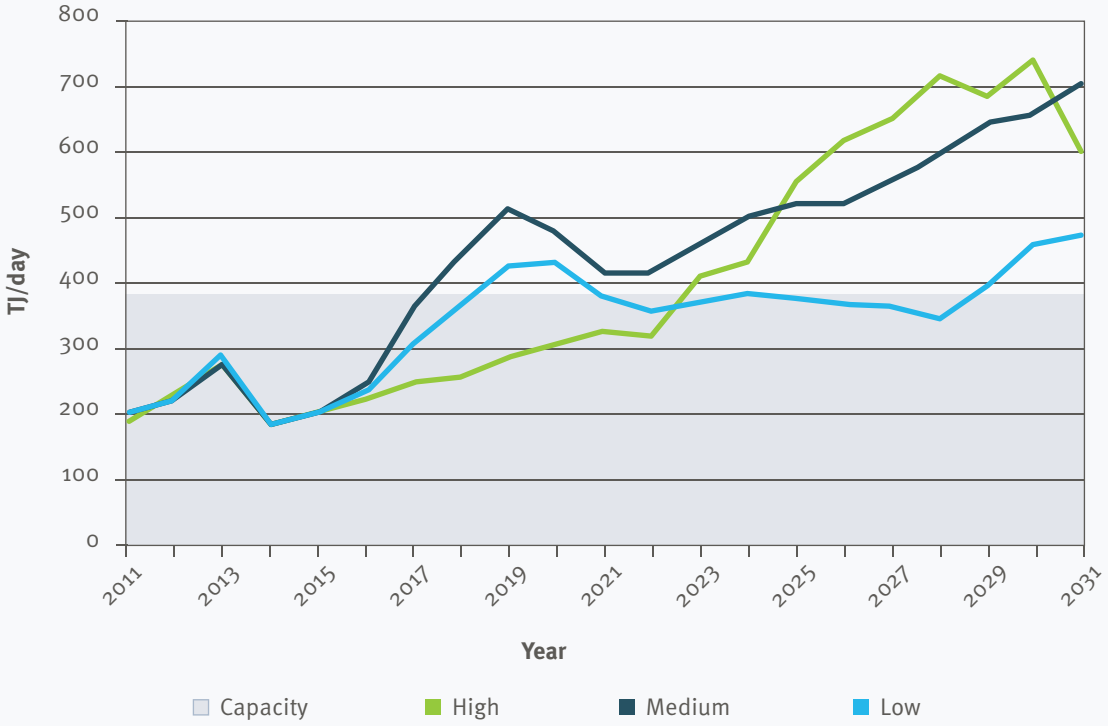

Figure 24 *Estimated peak flow and capacity for the SWQP, 2011–2031 (TJ/day)*

Source: SKM MMA (2011)

North Queensland Gas Pipeline

The NQGP is a 392 km pipeline with a capacity of approximately 22 PJ/year that runs from Moranbah to Townsville. It transports approximately 13 PJ/year to Queensland Nickel Industries, Copper Refineries and Incitec Pivot. The remaining pipeline capacity is used to meet demand from the Townsville Power Station.

The NQGP is currently unconstrained, with capacity to support market growth in Townsville. Opportunities exist for future pipeline expansion through the addition of compression.

Modelling outcomes

The modelled outcomes for the NQGP directly reflect the gas demand projections, apart from variations due to price adjustments (Figure 25). The determined capacity constraints for each of the three scenarios are:

- In the High scenario, additional capacity would be required from 2023 and increase throughout the rest of the period to around 30 TJ/day extra.
- In the Medium scenario, ignoring the one-year peak demand spike in 2020, expansion of around 10TJ/day would first be required around 2024.
- In the Low scenario, no additional capacity is required.

Figure 25 *Estimated peak flow and capacity for the NQGP, 2011–2031 (TJ/day)*

Source: SKM MMA (2011)

Proposed new transmission pipelines

Four new Queensland transmission pipelines are planned to supply gas from the Surat Basin to Gladstone for LNG processing:

- The Queensland Curtis LNG Project pipeline has started preliminary work on the laydown site and construction of camp facilities.
- The Gladstone LNG (GNLG) pipeline has begun mobilisation and preliminary survey of the 420 km pipeline route to Gladstone.
- Australia Pacific LNG has submitted an initial advice statement to the Queensland Government.
- Arrow Surat Pipeline anticipates that construction of the pipeline will start in 2015–16.

A fifth pipeline is planned by Arrow (the Arrow Bowen Pipeline) to connect gas operations in the Bowen Basin to Gladstone via a 600 km pipeline. An initial advice statement has been submitted to the Queensland Government for this pipeline project.

Issues identified

The initial capacity of the RBP, QGP, SWQP and CGP has been expanded, with more expansions either underway or planned. With five new pipelines under development to support growth of the LNG industry, investment in pipelines and major pipeline capacity expansions puts Queensland is in a very strong position.

Where major capacity expansions are required, these are being undertaken in a timely manner. However, there are issues with small volume capacity expansion, e.g. to underpin existing customer business expansion or to allow access for a new small gas user. In most cases, this is not being achieved in a timely manner. No speculative incremental capacity exists, so these customers must wait to piggyback a future large capacity expansion. This effectively denies these customers access to the pipeline in a timely manner.

Pipeline owner-operators express a desire to allow a reasonable volume for further incremental growth when undertaking a major capacity expansion. Customers also seek this outcome. Pipeline owners indicate it is difficult to invest in incremental capacity under the current provisions of the National Gas Law. To address this issue, a review of the relevant sections of the legislation would be required.

It is acknowledged that many factors play into successful investment in pipeline capacity expansions, including current global finance and investment market issues and infrastructure owners' appetite for capacity risk. Nevertheless, there appears to be the potential for a category of customer to be excluded from timely purchase of pipeline capacity due to their volume requirements. To address this issue, a review of this section of the national legislation would be required.

Pipeline owner-operators and customers have expressed concern that national legislative provisions discourage investment in uncontracted capacity when pipeline expansions are being undertaken.

Recommendation

The Queensland Gas Commissioner recommends the government act through the appropriate jurisdictional forum/s to raise the issue of incremental pipeline capacity expansion for review.

Gas distribution networks

Overview

Gas distribution refers to the delivery of natural gas via distribution pipeline networks (serviced by transmission pipelines).

Natural gas distribution networks in Queensland are operated by two major gas distribution businesses—APA Gas Networks and Origin Energy. In Brisbane, the APA network services south Brisbane, including the Gold Coast, while the Origin Energy network services north Brisbane. These companies also operate small distribution networks in the regional areas of Toowoomba, Oakey, Bundaberg, Maryborough and Hervey Bay. Roma and Dalby are serviced by networks owned and operated by their local governments.

There are approximately 165 000 customers on Queensland gas distribution networks; around 95 per cent of these are residential users. Average residential consumption in Queensland is currently about 9–10 GJ/pa. This is down from the 11–12 GJ/pa of earlier years. By comparison, in Victoria average annual residential consumption is 55 GJ/pa and in New South Wales consumption is 21 GJ/pa, with the primary difference being household winter heating.

Gas distribution networks in Queensland continue to increase overall customer connection numbers. However, overall gas use is declining, reflecting the impact of competition from other fuel sources and improved appliance and operational efficiencies.

The primary gas use underpinning residential load is gas hot-water heating. The new generation of gas hot-water services is more efficient and can reduce household use by up to 2 GJ/pa. Gas hot-water heating also faces strong competition from solar and heat pump appliances. In addition, overall household water consumption in South East Queensland dropped during the recent drought and has not returned to pre-drought levels. Lower water use equates to lower hot-water use and this is reflected in a reduction in gas consumption for water heating.

The already small residential heating requirement in Queensland continues to face competition from electricity, particularly from reverse cycle air-conditioning. This has seen a net reduction in gas use in the few areas (e.g. Ipswich and Toowoomba) that have traditionally had a gas heating load.

In the commercial and small industrial sector, volume is expected to grow slowly but steadily at 1.1 per cent per annum due to increasing business focus on efficient energy use. Customer numbers are expected to grow at less than 1 per cent per year.

Issues identified

Distribution network owners expect the downward trend in average residential consumption to continue, while connections continue to grow at around 3–4 per cent. In this environment it will be difficult to grow gas use in the residential sector.

The commercial and small industrial sector also faces fuel competition, with coal continuing to be used as a fuel by customers who have access to gas. Coal use has dropped over the years, but it is understood that continued coal use equates to several petajoules per year of gas use. Little work has been done in this area, but it offers some potential to increase gas consumption on the distribution networks and improve use of the infrastructure.

The use of coal as a fuel in areas served by gas distribution networks has dropped over the years, but coal remains a competitor to increased gas uptake in the commercial gas customer sector.

Recommendation

The Queensland Gas Commissioner recommends that the government investigate the potential to increase gas consumption on the distribution networks and improve utilisation of network infrastructure by encouraging customers using coal as a fuel to move to gas where gas is available.

Short Term Trading Market

Overview

The STTM is currently being established in Brisbane, with an AEMO project team managing implementation. A market trial is scheduled to start in September 2011, with market commencement scheduled for December 2011.

Issues identified

The gas markets of Sydney, Adelaide and Brisbane and the design of the STTM reflect the interaction of gas retailers and users operating on, or in close proximity to, the capital city gas distribution networks; this is demand based.

Currently, in New South Wales and South Australia, the bulk of gas market demand is located on the capital city gas distribution networks or in close proximity to the capital cities. The Queensland situation is quite different. Brisbane is one of four gas markets in Queensland and is separated from the other three market—Mount Isa, Gladstone and Townsville—by large distances.

Although each has different market characteristics, they have a number of things in common, including a small number of large gas customers who take gas directly from the gas transmission pipeline and the consequent lack of significant distribution networks.

In addition to the gas markets, Queensland has a significant gas production industry that is growing rapidly to support the development of LNG. The growth in gas production is centred in the Surat Basin around Wallumbilla where three major gas transmission pipelines interconnect and four new pipelines are planned.

Once the two committed LNG projects (four trains) are fully operational after 2015–16, the annual volume of gas required by the projects will equal the current eastern Australian gas market consumption. Demand in Queensland will exceed 1000 PJ/year.

Balancing a large gas market and gas supplies to large LNG plants will require trading among LNG participants and other gas producers and users. This trading should be visible to the market and supported by market structures. The period from now to 2015 offers a timely opportunity to design, develop and implement a supply-based trading market to:

- encourage gas trading
- improve market liquidity
- improve trading and price transparency
- help gas producers manage variations in production capability and market and customer demand
- help customers who can manage a level of supply variability to trade gas to reduce overall gas supply costs
- underpin investment in transmission pipeline interconnections.

During consultation for the 2011 GMR, stakeholders indicated strong support for the development and implementation of a supply-based trading market at Wallumbilla. Given that LNG production will start from 2015, it would be desirable for the supply-based trading market to be operational by 2015 at the latest.

Stakeholders have indicated strong support for the development of a supply-based trading market centred in the Surat Basin around Wallumbilla (Roma) which would support market trading of produced gas and commencement of LNG production from 2015.

Recommendation

The Queensland Gas Commissioner recommends that the government continue to work through the Standing Council for Energy and Resources (SCER), the gas market reform process and with stakeholders to settle a design for a supply-based trading market for implementation by 2015.

The market developments in Queensland and a potential supply-based trading market offer a timely opportunity to work with other jurisdictions to underpin investment in transmission pipeline interconnections and lever the benefits of a supply-based trading market.

Recommendation

The Queensland Gas Commissioner recommends that the government consider opportunities to work with the New South Wales Government and industry to facilitate the development of improved gas infrastructure interconnections and lever the market benefits of a supply-based trading market.

Gas storage

Overview

Produced and processed natural gas can be stored for an indefinite period. Storage of sales quality gas is, like trading markets, a feature of mature gas markets and is widely used in North America and Europe to better manage variations in production capability and market and customer demand.

Natural gas can be stored in three ways—in transmission pipelines as linepack, as LNG and in underground storage reservoirs. Most dedicated gas (non LNG) storage facilities are developed from depleted gas or oil fields, but natural aquifers and salt caverns are also used.

The increased sophistication and traded volume of Australian gas markets has seen the use of dedicated sales gas storage grow, although capacity remains low and use is not widespread. The demand for gas storage facilities and services is likely to increase in Australia as the state gas markets expand trading capability and become more interconnected. Gas storage at major supply intersections such as Wallumbilla can reinforce the ability to trade gas.

Gas storage currently in place

There are currently three major gas storage facilities in the east coast Australian gas market—the Iona underground gas (20 PJ) and Dandenong LNG (0.66 PJ) storage facilities in Victoria and the Moomba underground (85 PJ) gas storage in South Australia.

In Queensland, small gas storage capability exists at the Chookoo field (2 PJ) in south-west Queensland and at the Newstead gas field (2 PJ) at Kincora near Roma. AGL is currently developing an underground gas storage facility (approximately 46 PJ) at the Silver Springs gas field south of Roma.

Issues identified

Under existing Queensland petroleum legislation, underground storage of petroleum can be undertaken under a petroleum lease. The legislation does not envisage gas storage outside of a current depleted petroleum area, e.g. the use of salt caverns. To date, the size and complexity of the gas market in Queensland has not required large-scale commercial dedicated gas storage. The legislation therefore does not seek to regulate the safe operation of such facilities.

In an evolving and rapidly growing and maturing gas market such as Queensland's, the development of dedicated commercial natural gas storage facilities can provide flexibility for both producers and customers. Gas storage can also support competitive market trading and enhance security of supply for export and domestic customers, including gas-fired generation.

Future investment in gas storage projects in Queensland will require appropriate tenure and tenure management and the ability to effectively regulate the safe operation of storage facilities regardless or tenure type or location.

Recommendation

The Queensland Gas Commissioner recommends that the government consider a review of existing Queensland petroleum and minerals legislation to ensure a solid legislative foundation for future investment in and operation of dedicated gas storage facilities in Queensland.

Retail market

Overview

The retail market for gas in Queensland is based on the distribution networks. There are five holders of General Retail Authorities to retail gas in Queensland:

- AGL
- Origin Energy
- Australian Power & Gas (AP&G)
- Dodo Power & Gas
- EnergyAustralia

Maranoa Regional Council (previously Roma Regional Council) and Western Downs Regional Council (previously Dalby Regional Council) also operate small distribution and retail businesses.

The final stage of deregulation (full retail competition, or FRC) in the Queensland retail gas market was undertaken in 2007 when small customers were given the choice of retailer. AGL, Origin Energy and AP&G are active in the Queensland retail market. AP&G is a new entrant since deregulation, but services only a small number of customers. The majority of customers are serviced by AGL and Origin Energy.

While there is no impediment to customers changing retailers, the retail gas market is small and, in a market sense, in its infancy and there currently appears to be low levels of customer churn.

There is potential for additional new entrant retailers and improved competition with the commencement of the STTM in Brisbane. The STTM also offers larger retail customers the opportunity to purchase gas from the STTM as a further supply option.

The Ministerial Council on Energy (MCE) and the Queensland Government, who have implemented the national gas market reform process, have publicly stated clear objectives for the STTM that include enhanced gas market competition and improved transparency, particularly in relation to pricing—to the benefit of customers.

Issues identified

It has come to the attention of the Queensland Government during 2011 that retail activity in the Brisbane market included actions seeking to preclude customers from buying gas directly through the Brisbane STTM. A letter was sent to all holders of a General Retail Authority to retail gas in Queensland, the Energy Retailers Association of Australia and the Energy Users Association of Australia advising of concerns on the matter and requesting that any such activity cease. Customers were encouraged not to accept constraint of their gas purchasing options through the STTM and consider accessing new gas market mechanisms and improvements that could benefit their businesses.

No supply or demand issues were identified for the Queensland retail gas market during consultation for the 2011 GMR.

List of shortened forms

1C	Sub-commercial contingent resources (low estimate)
2C	Sub-commercial contingent resources (best estimate)
3C	Sub-commercial contingent resources (high estimate)
1P	Proved reserves
2P	Proved and probable reserves
3P	Proved, probable and possible reserves
AEMO	Australian Energy Market Operator
APLNG	Australia Pacific LNG
bbl	Barrel
bcf	Billion cubic feet
CGP	Carpentaria Gas Pipeline
CNG	Compressed natural gas
CNPC	China National Petroleum Corporation
CPI	Consumer Price Index
CSG	Coal seam gas
EIS	Environmental impact statement
ESOO	Electricity Statement of Opportunities (AEMO)
EUAA	Energy Users Association Australia
FEED	Front-end engineering and design
FID	Final investment decision
GJ	Gigajoule
GMR	Gas Market Review
GLNG	Gladstone LNG
GPG	Gas power generation
GSA	Gas sales agreement
GSOO	Gas Statement of Opportunities (AEMO)
HoA	Heads of agreement
HQCEC	Huanqiu Contracting and Engineering Corporation
JCC	Japan Customs-cleared Crude / Japan Crude Cocktail
LNG	Liquefied natural gas
MAOP	Maximum allowable operating pressure
MCE	Ministerial Council on Energy
mmbtu	One million BTU (British thermal units)
MoU	Memorandum of understanding
Mtpa	Million tonnes per annum
NEM	National Electricity Market
NQGP	North Queensland Gas Pipeline
PGPLR	Prospective Gas Production Land Reserve
PJ	Petajoule
QCLNG	Queensland Curtis LNG
QGP	Queensland Gas Pipeline
QSN	QSN Link Pipeline
RBP	Roma to Brisbane Pipeline
SEQ	South East Queensland
STTM	Short Term Trading Market
SWQP	South West Queensland Pipeline

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