

FUTURE GAS STRATEGY

Understanding the importance of gas to Western Australia and Australia

Submission by DomGas Alliance to the Department of Industry,
Science and Resources



DomGas Alliance's role

The DomGas Alliance (DGA or the Alliance) is a member-driven industry body representing large gas users in Western Australia, with members including Adbri, Alcoa of Australia, Coogee, Wesfarmers Chemicals, Energy and Fertilisers, and Yara Pilbara.

Formed in 2006 in response to a serious shortage of gas supply for new developments in WA, DGA seeks to ensure a reliable, affordable, and diverse supply of natural gas for industry in Western Australia.

DGA works closely with State and Federal Governments and other industry stakeholders to promote initiatives and debate to ensure sustainable domestic gas supplies.

The DomGas Alliance welcomes the Commonwealth Government's Future Gas Strategy initiative and is very happy to contribute to its development.

Background

The gas industry is a significant driver of the growth and development of the WA economy. ACIL Allen estimates that in 2021-22, gas exports alone contributed \$48.2 billion to WA's export income and the industries it fuels were responsible for 54.4% of total economic activity in Western Australia in 2021-22, supporting 403,359 full-time equivalent jobs.

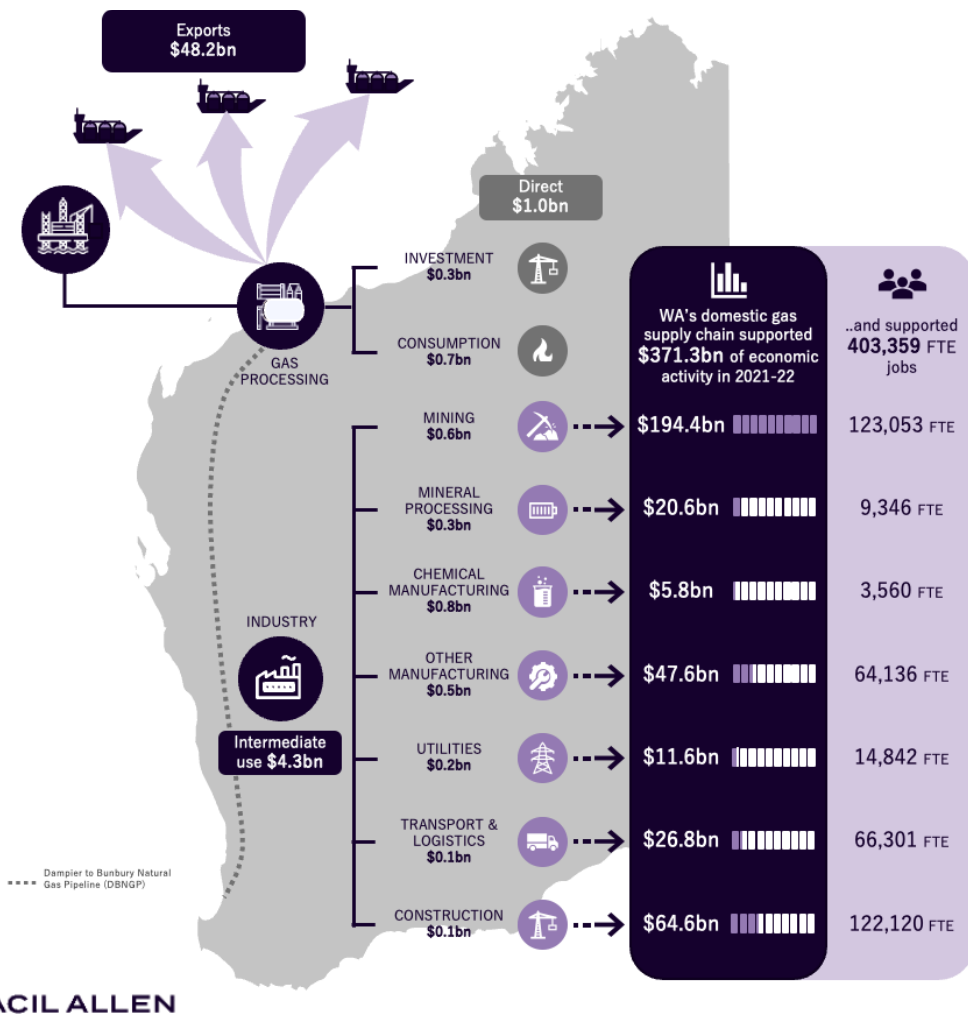
While these direct impacts are significant and visible, the gas industry plays an equally important role in facilitating the growth and development of other industries and the domestic economy more broadly.

The gas industry supplies gas to a number of important industries across the State, which together purchased some \$4.3 billion in gas as a critical input into their operations.

The largest consumer of domestic gas in 2021-22 was the manufacturing and material processing sector (\$1.7 billion in purchases), of which the largest sub-sectors were chemical manufacturing (\$0.8 billion), other manufacturing (\$0.5 billion) and mineral processing (\$0.3 billion). The other largest consumers of domestic gas were from the mining (\$0.6 billion), utilities (\$0.2 billion), transport and logistics (\$0.1 billion) and construction (\$0.1 billion) sectors. There are other sectors that consume gas but have been excluded from this analysis on account that gas is only a minor input into its activities.

Together, these industries generated \$371.3 billion of economic activity, accounting for more than half of the State's total economic activity in Western Australia in 2021-22, and supported 403,359 full-time equivalent jobs.

Figure 1: Economic Importance of Gas to Western Australia, 2021-22



Source: ACIL Allen Report "Domgas in WA," 2018, updated 2023

Future gas demand and supply

Forecasting

Australian Energy Market Operator (AEMO) (WA) manages the Gas Bulletin Board, which provides up-to-date information on gas being delivered to the Dampier to Bunbury Pipeline (DBP). AEMO's annual Gas Statement of Opportunities (GSOO) provides a picture of historic and forecast supply and demand for gas in WA, but has suffered to some extent from the provision of unreliable information on supply of Domestic Market Obligation (DMO) gas being delivered into the market place, and planned future delivery of gas. The lack of clear understanding, even within the Government, of DMO policy obligations, and how they translate into deliverable gas, makes it difficult for AEMO to keep the market informed of prospective supplies.

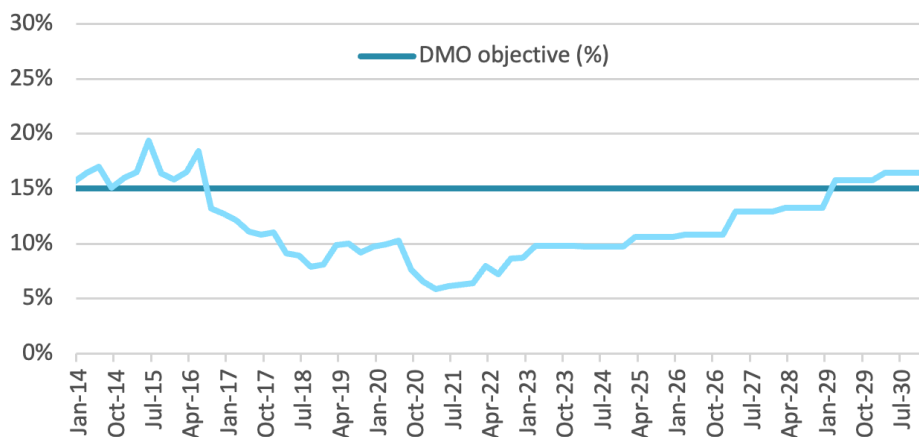
A balance needs to be applied here to ensure that the delivery of this information does not impede investment decisions which could impact the long-term availability of gas to the market. Nevertheless, it is important that

accurate information on DMO gas deliveries is provided to the responsible authority and then made publicly available by AEMO.

The Alliance has recommended to the Western Australian Legislative Assembly Inquiry into the WA Domestic Gas Policy, that WA's Economic Regulation Authority (ERA) take over the role of monitoring compliance with the WA Domestic Gas Policy, which will also entail getting more accurate and up to date data from DMO suppliers. This in turn will assist AEMO, Government and market participants in understanding gas availability, as well as reserves.

Most members of the Alliance also have their own sources for forecasting. DGA commissioned Wood Mckenzie to provide a long term outlook for domestic gas supply and demand, taking into account the changing use of gas over the next two decades.

Figure 2: WA DMO gas versus actual supply



- This graph shows actual delivery of Domestic Market Obligation (DMO) gas versus the target 15%.
- Sources: Department of Mines, Industry Regulation and Safety (DMIRS), the WA Gas Bulletin Board and AEMO's 2022 GSOO.
- LNG export data excludes Ichthys and Prelude as they are excluded from the WA Domestic Gas Reservation policy.

Source: DomGas Alliance, compiled from public data above.

The above graph has been compiled by the Alliance from publicly available data, primarily using information from AEMO's GSOO, the Department of Mines Industry Regulation and Safety (DMIRS) and the Gas Bulletin Board. The graph shows that delivery of DMO gas began to drop below 15% from about 2016-17 reflecting declining supply from the North West Shelf (NWS) project and only small deliveries of domestic gas from Pluto despite liquified natural gas (LNG) production beginning in 2012.

In this period, at least up until recent years, the overall domestic supply was kept largely in balance, however, mainly as a result of gas being traded by companies like Synergy and CITIC which had excess contracted supply. With those excess contracted supplies depleting more recently, the overall domestic balance is now in deficit and will remain so until Scarborough is commissioned and Waitsia is scheduled to deliver domestic gas at the end of the decade.

The paucity of information on the delivery of DMO gas in WA is a concern. Markets cannot operate efficiently when there is an asymmetry of information, and it is extremely difficult for large buyers of gas to plan ahead for their purchases when they have no information on when certain volumes of DMO gas will become available.

This has translated into inaccurate forecasts from the main independent market operator AEMO over several years, in regards to:

- Pluto DMO;
- Gorgon Tranche 2 start date; and
- North West Shelf 2015 agreement application.

This is an unacceptable outcome against the Gas Services Information (GSI) rules, administered by AEMO.

Having this information available to the market in real-time would enhance market efficiency, and would benefit all parties, including those gas producers that are domestic-only suppliers and consumers, so they can manage their supplies and purchases effectively.

Gas transmission and distribution capability

The WA gas transmission and distribution network is well established and provides a good means of transporting gas from its main sources to the major industrial and mining sectors that use it for feedstock and power generation.

The Dampier to Bunbury Pipeline (DBP) is the main transmission pipeline running from the Pilbara to the Southwest of the State with capacity of over 800TJ/d. It has been expanded in recent years through looping and can be further expanded by looping and added compression.

The Goldfields Gas Pipeline (GGP) is another major transmission pipeline running from the Pilbara through the Goldfields to Esperance on the south coast of WA. The pipeline services mining loads in the Pilbara, Goldfields and Great Southern.

The Parmelia Pipeline is the oldest of the major transmission pipelines, running from the northern Perth Basin to Pinjarra, south of Perth.

There are a number of west-east pipelines connected to the DBP and the other major pipelines taking gas to major loads or communities.

The importance of the gas pipeline network is reflected in the WA Government's Domestic Gas Policy, which prohibits the export of onshore gas from those fields and projects that have ready access to the gas distribution network. The policy states:

"Gas in the WA pipeline network is readily accessible to local consumers and needs to support the State's economic and industrial development."

The Western Australian Government recently clarified that it will not agree to the export of gas via the WA pipeline network under any circumstances. The policy states:

"The WA Government will not agree to the export of gas via the existing WA pipeline network."

Gas that doesn't have ready access to the WA distribution network, such as in the Canning Basin (Kimberley region) will be treated the same as LNG exports and will be required to reserve and supply 15% of gas produced.

LNG used in international shipping is also an export. Marine fuel is a substantial market opportunity for the LNG industry and the WA Government is supporting the development of ship fuelling infrastructure in the Pilbara.

Optimising the gas network for future use

What may be required for the WA domestic market in future is additional storage along the route of the DBP to cater for the changing demand profile, especially for gas powered generators that will need large amounts of gas for a short period to enable them to back up renewable energy on the grid. This is an area where governments could assist to ensure this doesn't become cost prohibitive.

There are two main gas storage facilities in WA – Tubridgi, in the Pilbara, and Mondarra in the Mid-West. Both are well utilised but have limited capacity and ability to draw down quickly and in sufficient volume to service the needs of the future.

There may be opportunities for smaller storage facilities dedicated to particular power stations or industrial areas. Indeed, the Neerabup Power Station has its own storage through an oversized pipeline connection to the DBP which can provide additional gas at call when required.

Gas as a Transition Pathway

Role of gas in Australia's net-zero transformation

In 2018, the Alliance commissioned Wood Mackenzie to do a study on the future supply and demand for gas as the State transitions to net zero carbon emissions. The study was undertaken to understand the role gas would play going forward as more renewable energy came into the grids and what would be the impact on demand.

The study showed that gas demand would actually increase in the short to medium term in WA because the first steps in decarbonisation would include the closing down of the State's coal-fired power stations and the transition away from diesel in regional areas – both fuels producing much more carbon dioxide than gas.

The Wood Mackenzie WA Gas Market Strategic Development Report states: *"All things considered, the immediate outlook for domestic gas demand in WA is likely to still see growth, particularly over the period 2025 to 2030, before entering into a demand decline thereafter."*

Since the report was written, most forecasts have shown the increase in demand will go well into the 2030s before plateauing and gradually declining.

"This is driven by gas' role in supporting the faster incorporation of renewable energy into the WA economy, but which will eventually push it towards longer-term gas demand destruction. Near-term domestic gas demand growth (between 2021 and 2030) therefore remains compatible with the WA Government's net zero emissions aspirations by 2050"

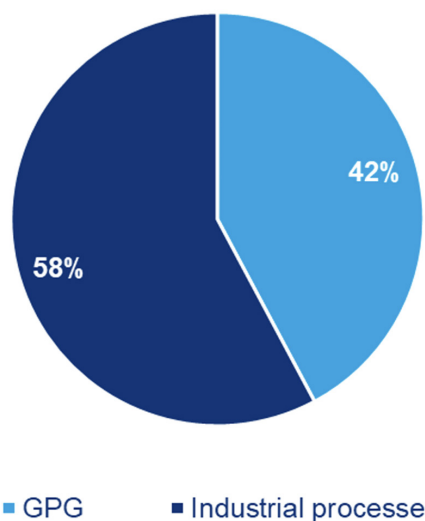
The study also showed that the State used more gas as industrial feedstock (60%) than for power generation (40%) – Figure 3 below. Bearing in mind that it is going to be a lot harder to transition to cleaner substitutes for gas as (heat)/feedstock, gas will continue to be used in these industrial sectors for some time to come. Also, as mentioned above, this sector is growing with the addition of new critical minerals, such as lithium being processed in WA, which require additional supplies of gas for their development.

"Gas can provide security and reliability to power supply (grid and distributed power), supporting the uptake of renewable energy and displacing higher carbon emissions coal in generation. Over the medium to longer term, this can continue to contribute to emission intensity reduction, as gas is displaced in power generation by renewable energy." – Wood Mackenzie, WA Gas Market Strategic Development Report.

"Gas will continue to play an important role in supplying WA mining and grid-power operations, although demand is expected to decline over time. Gas-fired power generation (GPG) has the flexibility to operate at variable utilisation levels and can therefore respond to fluctuations in demand (and variable renewable generation supply) across an hourly, daily, or seasonal basis. Through this grid-firming role, GPG can support the changing energy mix as renewable energy grows and displaces coal generation in the South West Interconnect System (SWIS)." – Wood Mackenzie, WA Gas Market Strategic Development Report.

AEMO's 2022 G500 confirmed the analysis of Wood Mackenzie and forecast an increasing demand for gas well into the next decade before it begins to plateau and then decline, as more renewable energy is introduced, and alternative clean fuels become more economic.

Figure 3: Use of gas in WA: industrial processes vs gas powered generation (GPG)



Source: Wood Mackenzie: WA Gas Market Strategic Development, Dec 2021

What is evident is that WA's Domestic Gas Policy has helped underpin the State's mining and minerals processing sector as well as enabling the State to develop an advanced industrial base using gas as feedstock for chemical, fertiliser and other uses.

Industry initiatives in decarbonisation

All members of the Alliance, and other major gas users, are committed to achieving net zero emissions by 2050. Each company has its own strategy, depending on how gas is used in industrial and power processes. It is harder to substitute gas for industrial processes compared to gas for power generation. In the first instance, most large gas users are looking to add more renewable energy into their power mix requirements as a means of bringing down their emissions profile, but even for industrial feedstock uses, companies are looking at alternatives, including hydrogen.

While gas-using industries are taking positive steps to decarbonise, gas will continue to play a vital role in their operations for the foreseeable future, and having the security of a long-term supply will give confidence to the major gas users that they can transition without dislocation to their operations and continue to employ large numbers of workers.

Role of Australian LNG in global decarbonisation while maintaining energy security

The WA Domestic Gas Policy is a good model which achieves both export of LNG to global markets together with a commitment to providing domestic gas for WA consumers. There is a degree of tension between the two aims, but for the most part LNG exporters adhere to the policy and supply both markets seamlessly.

Those that don't are coming under increasing scrutiny by the Government which recognises that additional gas will be required for the WA market in order to play a key role in the transition to net zero, especially in replacing coal powered generation which is due for closure by the end of this decade.

The Alliance has always supported the development of the LNG industry because the policy ties exports to a commitment to deliver 15% of those export volumes to the domestic market. Without the economies of scale afforded by LNG export opportunities, much of the offshore gas in the Carnarvon Basin would not have been developed.

The east coast policy settings don't support this alignment. The only mechanism in place to ensure domestic supply is the Australian Domestic Gas Security Mechanism (ADGSM) which is a heavy-handed policy tool that diverts gas from LNG exports to domestic supply by order of Government (or threat of being used).

The WA policy, on the other hand, at its best, provides energy security because gas-consuming industries can plan ahead knowing there is a guaranteed supply of gas over an extended period.

The policy is not without its flaws, and work is being done by the Parliamentary Inquiry, and within Government, to look at measures to enhance compliance with the policy's 15% target.

Gas Powered Generation and Renewables

Role of gas-fired generators in supporting Australia's renewable energy targets

Gas-powered generation will play a major role in supporting renewable energy in WA's main grids – South West Interconnected System (SWIS) and North West Interconnected System (NWIS).

In the SWIS, as coal powered plant is retired in Collie, additional gas-powered generation will be needed to compensate for the loss of base load coal plant and to provide a firming role in support of intermittent wind and solar generation.

Although large scale batteries will play a role, they are expensive and best used in niche areas to support the grid in specific locations. Gas powered generation is flexible, providing quick start capability to back up the grid when renewable generators have low or zero output.

Of course, the increasing requirement for gas powered generation in the short to medium term means that WA (and the east coast) will need additional supplies of gas to provide fuel for that plant. As mentioned previously, the profile of the generation will change, which also means additional gas storage will be required closer to the loads, and in close proximity to the generators.

AEMO and other forecasters indicate extra gas-powered generation will be needed before the end of this decade, especially to play the critical role in supporting the grid as coal plant is retired.

Gas powered generation is much better suited to supporting renewables than coal, given its flexibility, and that it produces about 50% of the emissions of coal plant.

Energy Security

Impacts of demand from gas-fired generators impact on other gas users

It is clear that gas will continue to play a vital role in WA's economy into the next decade and beyond. Demand will increase for the rest of this decade as coal generation is shut down and new gas-consuming projects are developed, many of which are focused on providing the world with materials for the clean energy sector.

This is an important point. WA has some of the world's best deposits of critical minerals which are essential for use in manufacturing batteries, solar PV panels, wind turbines and in high technology applications. Extracting and processing these minerals requires large amounts of energy and heat which, in the short to medium term, can only be provided economically and reliably by gas.

The recent Critical Minerals Strategy 2023–2030 released by the Federal Government highlights that States like WA, with rich geological reserves, extraction expertise and a known reliable exporter of energy and resources, could share in a potential \$71.2 billion increase in GDP and in excess of 100,000 new jobs, if we grow our critical minerals industry to align with growing global demand driven by the energy transition. Further investment in Australia's downstream processing capability to refine these critical minerals will add further value and potential for increased export earnings – however, affordable energy will be required to fuel this.

Natural gas provides not only energy but a source of heat which is essential to a number of mineral processing functions, such as for production of alumina. As well, it is used as a feedstock for chemical and fertiliser production, and again, there are no economic substitutes available to replace gas. WA is a significant global manufacturer of ammonia applied in fertiliser and civil explosives' production, using gas as feedstock. Ammonia has great potential as shipping fuel and in power generation.

The civil explosives are critical to the WA mining industry. Fertilisers are necessary to sustain food production for a growing world population.

WA has been fortunate to have good gas resources, as well as valuable minerals, and our economic growth over the last few decades has been built on a sustainable supply of gas, underpinned by the domestic gas policy.

There is no tension between gas used for power generation and gas used for industrial purposes, at least in WA. The issue is simply to ensure that there is sufficient supply for both.

The 15% DMO gas, together with gas allocated for domestic consumption in the Perth Basin, together with dedicated domestic supply from some offshore fields, should be sufficient for the additional demand, provided those projects come to market in a reasonable timeframe, and enhanced compliance is put in place for the gas reservation policy.

As mentioned elsewhere in this submission, there is a role for the Commonwealth in ensuring gas under Retention Leases is brought to market as soon as possible, and not used by LNG producers for their own strategic purposes to provide long term reserves for their projects.

The timeframe for development of gas in those fields is shrinking, from both domestic and global pressures to move away from fossil fuels to reduce emissions. Gas that sits under Retention Leases will be in danger of being stranded. Also, DMO gas that hasn't been delivered under the policy, but banked by LNG producers, could be stranded at end of field life. Critical gas-using projects as well as gas powered generation need that gas to be brought to market sooner rather than later.

The Alliance has already recommended to the Parliamentary Inquiry that LNG producers not meeting their DMO requirements should forfeit their right to Retention Leases, and other developers be invited to submit proposals for their early development.

LNG supply chains, transparency and import terminals

DGA has long advocated for greater transparency in the WA domestic gas market. Much of the information needed for an efficient market is not made public by LNG producers, including up to date data on reserves, processing capacity and availability of gas for the domestic market.

Markets work best by having good information, and symmetry of that information, so neither buyer nor seller can have undue market power. There has been a lessening of competition in the upstream industry with the merger of BHP and Woodside which is a concern, and this means regulators should insist on more openness and better provision of information to the market.

DGA is not in a position to comment on transparency in the LNG supply chain, but the same principles should apply.

In regard to the potential for LNG terminals in Australia, that is a commercial issue which depends on ensuring there is sufficient demand (and supply) to warrant the large investments needed.

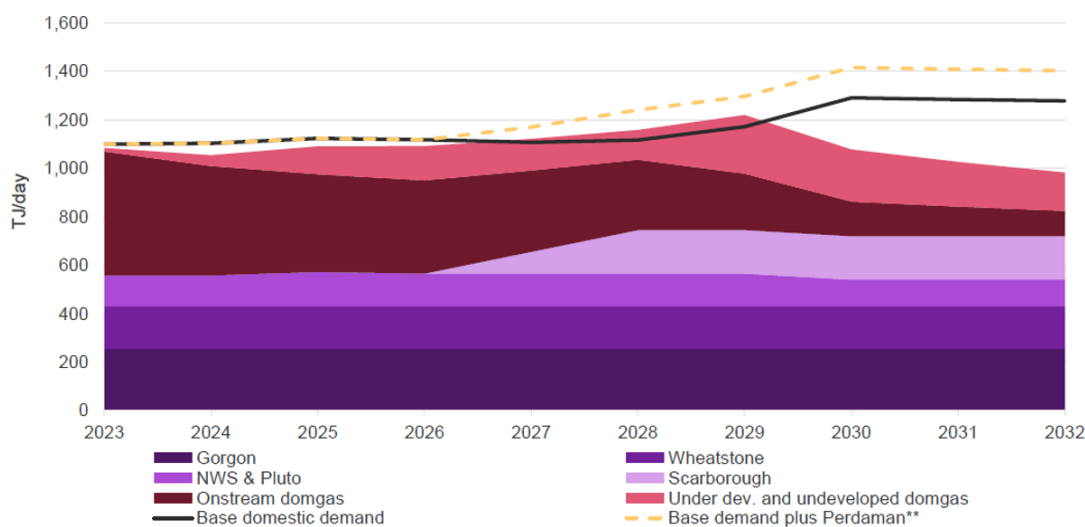
From the point of view of WA gas consumers, if an LNG import terminal was built on the east coast to take gas from Western Australian producers, then under the WA Domestic Gas Policy, it would (and should) be treated as an export and so 15% of that volume would be reserved for WA consumers.

Risks to Australia's domestic gas security and solutions

We are now facing new challenges in the energy landscape, simultaneously: declining reserves in traditional domestic gas supplying fields, a fast transition to renewable energy, coal supply constraints, and an increased linkage between the WA gas and electricity systems. The linkage will increase further over time, the need for an overarching long-term vision of energy supplies for WA and the role of natural gas is obvious.

AEMO's 2022 GSOO reflects these challenges, forecasting a gas shortfall in this State from this year to 2026, peaking at about 50TJ/d in 2024, and a large deficit from 2030 onwards with shortfalls of 300TJ/d, representing over 16% of demand each year.

Figure 4: Current and prospective online gas versus domestic demand



*Includes prospective gas supply projects: no FID but expected to be developed during the outlook period given forecast LNG/domestic gas prices
 ** For this illustration, we have assumed Perdaman comes online in mid-2027 at 125 TJ/day

Source: Department of Jobs, Tourism, Science and Innovation (JTSI)

The 2022 G500 notes that the WA domestic gas reservation policy is the cornerstone to ensuring that supply can meet demand in the next decade and states that it assumes the 15% of gas committed to reservation by suppliers for domestic use is actually being delivered to the market – which it is not. It goes on to say while there is a “large volume of undeveloped gas that could supply the WA domestic market during the outlook period, many of these resources are currently too speculative to be included in the potential supply forecasts.” Some LNG producers that are not currently meeting the clear intent of the policy to deliver 15% of their gas reserves to the market, need to be required to meet the policy, including making up for historical shortfalls.

In January 2023, as a result of disruptions to domestic supplying facilities, domestic users of gas, including DGA members, incurred significant commercial losses due to some LNG suppliers not making gas available to the market. While some LNG producers did the right thing by increasing domestic supplies in the emergency, one major LNG producer continued to load and ship spot LNG taking advantage of high prices globally while domestic industry had to curtail production due to a lack of gas. This again shows how fragile the social licence is for gas producers.

Gas affordability and competitive markets

The biggest risk to affordability is simply a supply issue. There is no shortage of gas in reserves, in offshore and onshore gas fields with access to processing facilities, and to the WA gas distribution network.

The issue, and challenge, is to have the best policy settings in place to ensure the fields are developed and the gas is brought to market in a timely manner, and not held in reserve for prolonged periods to provide resource banking for the producers.

As WA, Australia, and the world transitions to net zero emissions, the timeframe for bringing new gas to market will shrink, and there is an ever increasing danger that gas in ground will be stranded. Government policy, and the oversight of regulators, should be focused on the timely development of those reserves.

The other major aspect of affordability is to ensure that there is a competitive domestic gas market, where neither sellers nor buyers have undue market power.

Unfortunately, the experience of gas buyers is that with limited sellers offering gas, the terms offered are onerous and sometimes anti-competitive, with little or no opportunity for negotiation.

These onerous terms add to the cost of gas.

Gas producers on both the east and west coasts commonly pass through any contractual risks to the buyers, despite the risks being predominantly under the control of the gas producers, not buyers.

As an example, carbon costs are usually passed through to the buyer, which reduces the incentive for gas producers to minimise their carbon emissions. Even then, there is no information on the volume of carbon emissions relevant to domestic gas production, nor what the costs are.

Contracts offered by gas producers also include onerous terms as follows:

- Secondary markets:
 - Limiting the ability of gas buyers to enter into gas swaps or sales with other gas consumers, thus restricting the opportunities for secondary gas markets to drive efficiencies;
- Credit support:
 - Requiring credit support substantially above what is reasonable, often up to one year's support, despite payment terms of 30 days or less;
- Gas quality:
 - Taking little or no liability for the quality of the gas produced that is outside of the specification;
 - Gas quality issues are not only linked to natural gas suppliers, but also to the pipeline;
 - The pipeline has taken no responsibility for acceptance of off specification flows;
- Liability caps:
 - Requiring liability caps that are heavily in favour of the seller, and uncapped liabilities from the buyers;
- Shortfall and liquidated damages clauses:
 - Shortfall/ liquidated damages are often capped by the actual costs incurred, the cost of alternative energies, subject to an obligation to limit the costs to be transferred to the natural gas suppliers, which cause buyers to share confidential information or to be limited in the freedom of a buyer to run their assets (production processes, gas storage position;
 - In some cases, a natural gas producer can willingly default to sell their gas with a higher margin to someone else;
- Force Majeure (FM) clauses:
 - A lot of standard FM clauses are unreasonable and are too wide in favour of the natural gas producer;
 - Many don't extend FM rights to buyers' facilities beyond the gas consumption facility (i.e., downstream equipment failure);

- Flexibility:
 - When it comes to volume flexibility, monthly/daily take or pay (ToP) quantities are preferred by natural gas producers, concepts like recovery periods are no longer 'company policy';
 - ToP flexibility is charged at an increasing premium; and
 - Maintenance is often one way or increased for the producer only. Buyers have seen gas producer maintenance days double with the tightening of the market.

As the domestic gas market continues its transition to a short market, buyers witness gas producers pushing more unreasonable conditions on the elements listed above. The contracts are usually offered on a "take it or leave it" basis.

All these conditions add to the cost of gas in the marketplace, which flows through to the cost of production for manufacturing, mining, minerals processing, chemical and fertilisers, cement, as well as gas for power generation.

At the very least, ACCC should review the competitiveness of the domestic gas market, and more urgently consider onerous contract terms which add to the cost of gas and impacts cost of living pressures and Australia's competitiveness.

Ensuring competition in upstream gas

Competition in upstream access to gas can be improved to assist in making more gas available for both export and domestic use. This can be achieved by:

- Providing transparency of geological data at a faster rate;
- Ensuring acreage holders abide by work plans;
- Government challenges delays by gas producers in bringing gas production online; and
- Returning acreage to market in instances of portfolio optimisation/lack of response to market signals by acreage holders (i.e. "use it or lose it").

Collaboration with the Commonwealth will be important to work to an aligned regulatory position that ensures that new gas (whether onshore or offshore in Commonwealth waters) is brought to market in a way that supports domestic demand and is not banked.

It is understood that the Commonwealth is supportive of these principles and has cooperated with the State in trying to ensure Retention Lease holders have to demonstrate their intent to commercialise the reserves rather than "banking" them.

Lowering gas costs

As mentioned previously, the key to lowering costs of gas in the domestic market, is to ensure long term supplies, and a competitive market.

There is evidence that the cost of extracting gas, particularly in onshore fields, has come down. This is largely because of improved technology to get the gas out, especially in tight deposits. Gas fields that were known of in the Perth Basin for decades are now deemed commercial, based mainly on the lower cost of extraction.

In WA, there are no shortage of large gas customers that are willing to underwrite the development of these onshore gas projects – such as Wesfarmers and Alcoa supporting the development of the West Erregulla project. Understandably, new developers look to long term contracts so they can get investment for the development of their projects.

The WA domestic market has been developed along these lines since the beginning – starting with Alcoa and the State underpinning the development of the North West Shelf Project in the 1970/80s.

It is also important, in order to lower costs, that existing infrastructure is maximised and that there is shared use of that infrastructure. In the Perth Basin, there are a number of gas fields in reasonably close proximity, and it would make sense for the developers to share production facilities – potentially run by a third party infrastructure business.

Similarly for Carnarvon Basin offshore fields, some of the older onshore production facilities, such as Karratha Gas Plant, are underutilised, as their traditional source fields are depleted, so it would make sense to bring in third party gas to run the plant more efficiently at full capacity, rather have smaller developers have to build their own, expensive facilities.

Gas substitution for large industrial users is some way off, given that hydrogen production is not yet commercial at scale, but there are opportunities for industry to use more renewables in their energy mix, reducing the volume of gas needed for their operations. All major gas users in WA are well advanced in bringing in more renewables into their energy mix, but some also require additional gas in the first instance to displace their use of coal.

Meeting the Australian Government's decarbonisation goals

The WA Domestic Gas Policy has provided significant economic benefits to the State, and has meant that the State's mining and industrial base can be powered by relatively low cost and low emission fuel and have security of supply.

It is important to realise that WA's power generation emission profile has for decades been lower than that of the east coast because it is mainly fuelled by gas rather than coal. Even until recently, about 50% of all electricity was produced by gas powered generators.

All the major mining companies in the Pilbara and Goldfields, and associated mineral processing operations – such as magnetite and lithium – use gas for power generation.

In the Southwest, gas is still the predominant fuel for power generation, and those mining and industrial businesses that currently use coal are phasing it out, to be replaced by gas and renewables.

In more remote areas, gas has also displaced higher emission diesel, and the Goldfields Gas Pipeline was a good initiative that brought gas to those inland mines and communities that previously had depended on high cost, high emission diesel.

The gas fields in the Kimberley (Canning Basin) offer the same opportunity for local mining projects, such as rare earths, and indigenous communities, to substitute gas for diesel.

Phasing out coal for power generation and steam production is the first, but big step in reducing the emissions profile of WA and an important pathway to achieving net zero. Also, as much as possible, gas should replace diesel, where transmission infrastructure is in place, or in close proximity to the load.

However, to do this, future gas supply must be secured, and it is important that State and Commonwealth Governments work together to ensure the policy settings are conducive to gas exploration and development, and to supply to the domestic market.

As mentioned previously, gas will continue to be used for industrial purposes until a commercially viable substitute is available. That will not happen soon, so it is important that gas supply is secured for the foreseeable future.

In the meantime, large gas users are taking steps to reduce their emissions profile by increasing renewables in their energy mix and trialling substitutes such as green hydrogen.

Opportunities and future demand

It is clear that gas will continue to play a vital role in WA's economy into the next decade and beyond. Demand will increase for the rest of this decade as coal generation is shut down and new gas-consuming projects are developed, many of which are focused on providing the world with materials for the clean energy sector.

This is an important point. WA has some of the world's best deposits of critical minerals which are essential for use in manufacturing batteries, solar PV panels, wind turbines and in high technology applications. Extracting and processing these minerals requires large amounts of energy and heat which, in the short to medium term, can only be provided economically and reliably by gas.

The recent Critical Minerals Strategy 2023–2030 released by the Federal Government highlights that States like WA, with rich geological reserves, extraction expertise and a known reliable exporter of energy and resources, could share in a potential \$71.2 billion increase in GDP and in excess of 100,000 new jobs, if we grow our critical minerals industry to align with growing global demand driven by the energy transition. Further investment in Australia's downstream processing capability to refine these critical minerals will add further value and potential for increased export earnings – however, affordable energy will be required to fuel this.

Natural gas provides not only energy but a source of heat which is essential to a number of mineral processing functions, such as for production of alumina. As well, it is used as a feedstock for chemical and fertiliser production, and again, there are no economic substitutes available to replace gas. WA is a significant global manufacturer of ammonia applied in fertiliser and civil explosives' production, using gas as feedstock. Ammonia has great potential as shipping fuel and in power generation. The civil explosives are critical to the WA mining industry. Fertilisers are necessary to sustain food production for a growing world population.

WA has been fortunate to have good gas resources, as well as valuable minerals, and our economic growth over the last few decades has been built on a sustainable supply of gas, underpinned by the policy. Our economic growth over the next few decades will be hampered if the policy is not implemented in line with its original intent.

Opportunities to decarbonise supply chains

The LNG industry, under the safeguard mechanism, will need to abate carbon emissions to 2050. This industry consumes significant volumes of natural gas for power generation today: 1,019TJ/d, a volume which approximately equates the domestic gas market.

Plant	Emissions 2021-22 (mtpa)	Implied gas consumption (TJ/d)**	Implied power generation (MW base)***
Wheatstone	3.907	181	733
NWS	6.418	318	1,286
Gorgon*	8.319	412	1,667
Pluto	1.943	96	389

* Assuming net after sequestration.

** Assuming 52kg CO₂eq/GJ gas and subtracting 0.2% of methane emissions (by energy quantity) at a greenhouse impact of 28 x CO₂ equivalent, and 0.5% for flaring, and ~6% CO₂ content in the natural gas.

*** Assuming 35% HHV efficiency.

Decarbonisation of this electricity generation may include:

- Carbon capture and sequestration of high purity stream CO₂; and
- Renewable generation of power requirements. As an example, Woodside is currently proposing a 50 to 500MW solar farm in Karratha to decarbonize Pluto. It has also pushed for the network integration of the NWIS which will facilitate its purchase of back-up power supply in the future.

The Alliance, while supporting decarbonisation measures, believes that the gas saved by LNG producers in using alternate energy sources for their production facilities, should be shared between the producers and consumers – for export and domestic use – and a priority should be to use some of that gas to balance the domestic market when there is a shortfall.

Offshore gas production

Offshore acreage releases

Key principles in releasing offshore acreage include:

- Having upstream competition; and
- Ensuring that the developers awarded the acreage have the capability, but also the commitment, to deliver gas into the domestic market as a priority.

The WA model of tying 15% of offshore reserves to domestic supply – providing the gas is processed onshore – is one that can be followed for all future acreage releases and made a condition of the lease holding.

Up till now, the domestic supply obligation has been put in place by the WA Government through State Agreement Acts, which were designed primarily to give support to the large capital investments needed to underpin the development of the gas fields and associated infrastructure for LNG production, shipments, and domestic supply. The domestic gas reservation obligation was the quid pro quo for the State supporting the LNG project.

Once the gas comes onshore for processing, then the State has the ability to put conditions on the use of the gas, including a domestic supply commitment. For onshore gas fields, the State can make it a condition of the exploration lease or production licence that the gas is for domestic consumption only, in the interests of state development.

However, it may be of benefit for a lease condition on domestic supply to be a key term of any future offshore acreage release, given that there is no overarching legislation for the WA Domestic Gas Policy, and the likelihood that future gas projects will not have State Agreements attached to them.

So, a clear condition of reserving 15% for domestic supply, with accompanying measures to ensure that amount is delivered from the beginning of each project and continued each year of operation, would give certainty to both developers and to the market. This can be applied wherever the Commonwealth has jurisdiction, using the WA model as the basis for domestic reservations for all States and Territories.

As well, there needs to be a much tighter oversight over the development process when awarding acreage. Currently, a number of the LNG producers are sitting on large reserves held under Retention Leases. There was always a view within Government that those fields under Retention Leases would be brought to market as soon as possible, but there was a commerciality test included, which left it up to the proponent to obtain advice on the commerciality of their development.

Not surprisingly, the advice from a consultant engaged by the proponent typically said that the development of the reserves was not commercial under current circumstances – usually triggered when the Leases were up for renewal – even when there were record LNG prices globally.

It shouldn't be up to the proponent to determine commercial viability, that should be in the hands of Government, as the resource belongs to the Commonwealth (or State/Territory for onshore gas).

Put simply, the policy should be "use it, or lose it".

There is an ever-increasing danger that reserves held under Retention Leases will be stranded assets as the world moves away from fossil fuels in the not too distant future.

Supporting Other Sectors

Gas alternatives for the power sector

The majority of gas used in WA is for industrial feedstock, and alternatives are not yet commercially viable. That is not likely to change for at least a decade. Most of the Alliance's members use gas as feedstock for producing fertilisers, civil explosives, chemicals, for processing minerals, or as a heat source.

In those industrial processes, gas is also used as a fuel for power generation, and in that area, firms are already working to include renewable energy in their supply mix.

In WA, renewable energy – wind and solar – is a more viable alternative to gas powered generation than alternatives such as pumped hydro, bio methane, or renewable gas. Already, large scale wind and solar farms are connected to the SWIS, and similar projects are planned for the Pilbara/NWIS.

In the transition to cleaner energy, the first step is closure of ageing coal powered plant. Synergy's coal plant is due for closure by the end of the decade, but in the meantime, the grid will need more storage to soak up excess solar from rooftops and deliver power in shoulder periods when the sun goes down or the wind doesn't blow. However, as indicated above, storage is mainly as a niche tool to support the grid in specific locations, and gas-powered generation will be the main means of providing firming for renewables.

Given that gas has been reasonably priced in WA for nearly two decades under the policy, it is hard to see how substitutes could be cost competitive. Recently the WA Government ruled out pumped hydro as an alternative to coal (and gas) powered generation based on environmental and cost issues.

Gas still seems to be the best option environmentally, commercially, and technically to provide the pathway to net zero emissions in WA. This is well accepted by industry, Government, regulators, and the market operator.

Carbon capture

The upstream and downstream gas industry in WA is well placed to take up opportunities for carbon capture and storage (CCS).

The upstream industry has done a lot of research into suitable storage areas for sequestering carbon emissions and has begun storing CO₂ for one of the largest projects – Gorgon.

Onshore, depleted gas fields offer suitable storage facilities for CO₂. Some depleted fields are already used commercially for temporary gas storage, so the technology and geology for storing CO₂ is well known.

Upstream developers are well aware that future environmental approvals will almost certainly require CCS to capture and store emissions generated in the production of LNG and have committed to that technology.

Also, major gas users in WA are in the forefront of investigating CCS for their own emissions, often partnering with other emitters and technical specialists. Infrastructure companies such as AGIG and APA are also investing capital to investigate suitable areas and geological formations for CCS.

Government's Role

Government has played an important role in the development of the gas industry since its inception.

In WA, the State Government was instrumental in getting the North West Shelf Project developed by entering into a take or pay contract, assisted by Alcoa, to give certainty to investors financing the large capital expenditure required not only for the extraction of gas, but for the infrastructure involved in bringing the gas onshore, processing it for domestic use, and later processing for export as LNG.

In addition, the State developed, built and paid for the construction of the DBP, again a massive undertaking. The DBP was essential infrastructure needed to bring the gas to the main industrial markets (at the time) in the Southwest of the State.

This huge undertaking was the beginning of Australia's LNG industry, but also set the framework for the Domestic Gas Policy.

The LNG industry has been a significant beneficiary of the policy which has been supported by successive State and Commonwealth Governments. WA's domestic industry – mining, mineral processing, fertiliser and ammonia production, cement, chemicals and civil explosives production – has also benefitted by having security of energy supply under the policy. Without the policy, WA's rapid economic development would not have occurred because the State's coal reserves are relatively small and low quality.

The WA Government has now made it clear that in order to transition to net zero carbon emissions, gas will play a critical role, and the Government also realises that additional gas supplies will be required not just for this transition, but to keep our value-adding industries operating which use gas as feedstock or for heat production in minerals processing.

DomGas Alliance has made a number of recommendations to the current inquiry by the Legislative Assembly's Economics and Industry Standing Committee into WA's Domestic Gas Policy, essentially to improve the policy by addressing the absence of compliance mechanisms.

These recommendations also address some of those policy areas under Commonwealth jurisdiction, such as Retention Leases. As well, they represent the insight and experience of large gas users in grappling with gas supplies in a tightening market, and under policy settings which lack enforceability. While they are primarily aimed at the WA Government, there are lessons to be learnt for all jurisdictions going forward.

Recommendations

DomGas Alliance's recommendations to the Committee are reprinted in full below.

Recommendation 1

A WA Domestic Gas policy principle should be that delivery of domgas is no lower on a yearly basis than 15% of LNG production to avoid the risk of domgas prices pairing to LNG netback and the risk of reserves downgrade. Producers which haven't met their obligations according to those schedules should be required to make up for the historical shortfall.

Recommendation 2

Any gas saved as a result of LNG producers using alternate clean energy sources to provide power to their LNG processing facilities should be shared between export opportunities and domestic gas commitment and a priority should be to restore a healthy supply/demand balance in the WA gas market.

Recommendation 3

The Minister (at State level) should have the ability to order DMO suppliers to adjust their delivery of DMO gas into the domestic market if he/she is advised by the body responsible for compliance of the policy that any DMO supplier is underdelivering against their commitment.

Recommendation 4

The WA Domestic Gas policy obligation to "market gas in good faith" should be changed to a new policy principle of "making gas available to the market in accordance with delivery obligations as agreed with Government and published publicly". This will ensure that consumers have confidence that the DMO suppliers will make available 15% of their reserves to the market in accordance with schedules agreed with Government and that this information will be public.

Recommendation 5

A compliance mechanism should be developed by Government to ensure the commitments are adhered to, and that the information on performance is publicly available. The responsibility for monitoring compliance should be a body, such as the ERA, given that it would be better for accountability and good governance that the responsible body has independence from the administration of State Agreement Acts.

Consideration should be given to putting in place a more formal regulatory framework to ensure accountability and compliance. This may require new legislation or may be possible under existing legislation, such as the Coordination of Energy Act, and by having the ERA, for example, formally advise the responsible Minister of actions that need to be taken.

Recommendation 6

Each LNG producer covered by the policy – those with onshore processing facilities – should be required to inform the relevant authority (e.g the ERA) and AEMO of its delivery of DMO gas to the market on a quarterly basis and if they have not met their domgas obligation, to explain why not. AEMO should then publish that information so that the whole market can understand which LNG producers are fully meeting their obligations on an ongoing basis and which have reserves that need to be made available.

Recommendation 7

There should be no further exemptions for gas that has access to the WA gas pipeline network under any circumstances, and this should be publicly stated by the Government to ensure domestic-only gas developers and producers clearly understand the policy position. There should also be no exemptions to the policy principles for LNG exporting projects.

Recommendation 8

All new LNG export projects should have gas reservation obligations which are clearly disclosed publicly and have firm commitments on targeting 15% of export volume, timing of delivery, provision of information, and are subject to oversight and compliance monitoring in accordance with the revised policy principles.

Recommendation 9

The State Government, in collaboration with the Commonwealth, reviews current management of Retention Leases with a view to ensuring they are more effectively regulated to enable earlier commercialisation of the gas field developments.

Recommendation 10

Existing and future gas projects, both onshore and offshore, should be assisted by Government in securing environmental and other approvals to ensure they can be developed as soon as possible in order to begin delivering gas to the domestic market.

Recommendation 11

The WA Government, in consultation with the Commonwealth Government, should consider withdrawing rights to Retention Leases for those LNG producers governed by the policy which are non-compliant, based on advice from the Economic Regulation Authority, as monitor of DMO performance. This could be a staged process, such as issuing a written warning, in the first instance, in regard to non-compliance.

Recommendation 12

Reports from all LNG project Joint Venture parties on compliance with their domestic market obligations should be collected by the Economic Regulation Authority and made public on the Gas Bulletin Board.



Richard Harris
SPOKESPERSON
DomGas Alliance



Without the domestic gas reservation policy WA's rapid economic development would not have occurred.



The State Government, in collaboration with the Commonwealth, should review the current management of Retention Leases with a view to ensuring they are more effectively regulated to enable earlier commercialisation of the field developments.



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