DomGas Alliance

WA DOMESTIC GAS POLICY

Keeping onshore gas export ban is necessary for energy security in Western Australia

Supplementary submission number four

From the DomGas Alliance to the Parliamentary Inquiry of the Economics and Industry Standing Committee

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DomGas Alliance M 0423 760 664 E rharris@domgas.com.au W domgas.com.au

1 Executive Summary

The Domgas Alliance welcomes the release by the Economic and Industry Standing Committee (the Committee) of its interim report into the WA Domestic Gas Policy. In response to the report, the Alliance proposes an additional submission to address the findings, questions and concerns raised by the Committee on the Policy which currently prevents the export of gas as Liquefied Natural Gas (LNG) using the domestic gas network (later referred to as the "Export Ban").

Gas from the Perth Basin is the next source of supply into the domestic gas market in Western Australia. It has a relatively faster development pathway, low production costs, appraised resource potential and proximity to major gas consumers while existing gas production is in decline.

However, some gas producers in the Perth Basin are seeking exemptions from the policy that would allow substantial volumes of the gas from their projects to be exported. These requests are in direct contradiction to the Export Ban, which complements the 15 per cent reservation obligation against LNG exports "in order to preserve the integrity of the policy and the local gas market"[1].

The arguments for an exemption are not supported by the evidence.

- **Claim 1: Export LNG pricing will improve the economic viability of Perth Basin projects and provide access to the required finance and international capital.**
  LNG pricing is not always more attractive than domestic pricing and is highly volatile. Domestic gas sales are generally long term, with fixed prices, escalating by CPI with creditworthy counterparties who have existing gas demand. These are low risk revenue contracts that underpin financing arrangements for new gas developments. Furthermore, in the Domgas Alliance's independent assessment, gas can be profitably recovered between AU$3 and $6 per gigajoule ($/GJ). This is well within the long-term gas pricing range in Western Australia and certainly below most recent spot prices. The attractive domestic market conditions have been publicly recognised by some producers[2].

- **Claim 2: Exemptions to the Ban would incentivise further exploration for onshore gas projects, leading to new domestic supply.**
  The Perth Basin has limited resource potential to deliver domestic gas through further exploration. In fact, the Permian's complex reservoir structure has caused recent resource appraisal in the basin to disappoint. Strike Energy, Beach Energy and Mitsui have all downgraded gas reserves despite high gas prices, highlighting the incompatibility of the Perth Basin for LNG exports. Should domestic gas projects receive exemptions in the Perth Basin, known for its smaller gas reserves and intricate geological formations, gas developers would need to pool their resources similar to offshore LNG ventures to scale up for LNG exports, consequently delaying domestic gas supply.

- **Claim 3: Exporting Perth Basin gas as LNG via the Karratha Gas Plant (KGP) will prevent premature shutdown of this asset and support the future development of the Browse gas project.**
  This dependency is not evident. According to Woodside, the North West Shelf Joint Venture (NWSJV) it is yet to be determined whether to mothball or permanently close its under-utilised capacity at KGP. Perth Basin export projects, may at best resolve feedstock issues for one of the five KGP trains, which is unlikely to change the course of this asset. Instead, the DomGas Alliance would invite the State government to discuss alternative feed gas options with the title holders of Northern Carnarvon acreage and understand whether larger backfill opportunities are available across the 41 Retention Leases between the Scarborough field and the KGP[3].

The DomGas Alliance notes that the State will likely increase its reliance on natural gas as it exits coal fired generation, until new renewable energy and storage sources are built. If LNG exports are permitted, there is significant risk that discovered gas resources of the Perth Basin may be largely depleted ahead of this. In the second half of the 2030s, the DomGas Alliance believes both the Gorgon and Wheatstone projects will have delivered all of their State Agreement obligations[4] and should the highly speculative Browse gas project not proceed, the State will then have few further domestic gas supply options available.

It is important to remember that the Domestic Gas Policy is designed to provide Western Australians with affordable natural gas supply from large natural resources. At a time when natural gas is critical for Western Australia, it would be counter effective to implement a policy that enables the export of gas as LNG from the limited reserves of the Perth Basin.

1 "Closer integration between domestic and export gas markets in Western Australia and on the east coast is affecting local gas supply. The WA Government has made a number of clarifications on the application of the policy, noted below, in order to preserve the integrity of the policy and local gas market". Source: [WA Domestic Gas Policy (www.wa.gov.au)](www.wa.gov.au) – Development and Application of the Policy.

2 https://www.businessnews.com.au/article/Strike-notches-gas-sale-deals-with-South32-AGL 17th November, 2023.

3 See map in Appendix 4.

4 The Gorgon and Wheatstone projects are not subject to a 15 per cent reservation. Instead, they are subject to fixed domestic gas commitments which, based on JTSI and AEMO information, are estimated to be fulfilled in 2037 and 2039 respectively.

A secure and affordable medium term gas supply is critical to Western Australia's industrial manufacturing and downstream processing sectors, which in turn underpin more than 400,000 Western Australian jobs and $370 billion worth of infrastructure investment. Any change in policy that allows for the export of onshore gas production will threaten the viability of the State's existing industrial base, directly impacting future economic growth and its ability to diversify the Western Australian economy.

An Utting Research survey of 750 Western Australians, commissioned by the DomGas Alliance, reveals 85 per cent want the State Government to take action to ensure gas producers comply with their gas reservation obligations and more than 70 per cent of every demographic group in WA supports the policy to reserve all the state's onshore gas and 15 per cent of offshore gas for domestic use. The polling shows 66 per cent of Western Australians do not trust oil and gas producers to do the right thing by WA and only 16 per cent believe that allowing more gas to be exported (such as from the Perth Basin) would result in more domestic gas supply overall.

Eastern states have allowed LNG projects to source natural gas from the domestic market and recently reacted to the energy market chaos with reactive gas policy. Industry has experienced gas prices in excess of $45/GJ and remain stubbornly above $12/GJ[5]. In the United States, the Biden administration has recently announced a temporary pause on exports of LNG to "evaluate the impacts of LNG exports on energy costs, America's energy security, and climate change – the existential threat of our time[6]."

The Government of Western Australia should maintain the Export Ban and reject the direct lobbying of Perth Basin project proponents seeking exemptions to allow export. Gas producers sought to develop these resources in the full knowledge an Export Ban was in place and industrial users of natural gas, many of whom produce critical products for the State, have made significant investments and invested in expansion projects relying on this policy and the future stability in the State's gas market.

Instead, the Government should call for gas producers and explorers to market their gas volumes and respond competitively to market demand while supporting the LNG industry with alternative options to backfill the KGP.

2 Background

The Perth Basin is an onshore gas basin located in the south-west of Western Australia, north of the Perth metropolitan area. It has been producing gas since the 1970s, mainly from the fields around Dongara. Since 2015, several sizeable gas discoveries have been made, such as Waitsia, West Erregulla and Lockyer Deep. The basin is estimated to contain about 1,610 petajoules (PJ) of proven and probable reserves (2P) plus 1,260 PJ of estimated contingent resources (2C) (refer to Appendix 1 for further detail). This equates to just four years' supply of proven gas reserves on current domestic gas demand.

The basin is dominated by three gas producers: Strike Energy, Mineral Resources, and the Mitsui/Beach Energy joint venture, which jointly control approximately 79 per cent of the basin's acreage[7] and 100 per cent of known resources[8]. The Waitsia Project received an export exemption in 2020 to supply 250 TJ/d of gas to the North West Shelf project for LNG exports from 2024 to 2029. This represents more than one quarter of proven gas reserves, all during a time of gas shortages.

The North West Shelf (NWS) project is an offshore gas project located in the Carnarvon Basin, which owns the Karratha Gas Plant (in a Joint Venture, operated by Woodside Energy) with a processing capacity of about 2,500 TJ/d[9] across five liquefaction trains. It is recognised the project is facing a decline in its gas supply from its own fields (AEMO forecasts a 20 per cent year on year decline from 2024 onwards[10]). The NWS is seeking third-party gas resources to make use of the spare capacity and extend the life of the plant.

The Browse gas project has proposed a tie-back to the KGP of the Brecknock, Torosa and Calliance fields located in the distant Browse Basin (over 900km from the NWS), for a combined 11.4 million tonnes per annum (mtpa) production of LNG, LPG and domestic gas[11]. The project, led by Woodside, is undergoing environmental assessment. A final investment decision remains uncertain and if positive would bring approximately 240TJ/d of domestic gas supply to the state under the reservation policy from mid-2030[12].

5 https://www.accc.gov.au/system/files/Gas%20Inquiry%202017-2030%20-%20December%202023_0.pdf

6 WHAT THEY ARE SAYING: Leaders Praise Biden-Harris Administration Pause on Pending Decisions of Liquefied Natural Gas Exports | The White House, 27 January 2024.

7 Basis: number of titles held. Department of Mines, Industry Regulations and Safety.

8 See Appendix 1 for detail. Acknowledging Strike Energy's acquisition of Talon Energy in February 2024.

9 AEMO refers to 14.9 million tonnes of LNG production at the KGP in 2023 (Table 18) assuming a conversion rate of 55.43GJ/t (Table A9) and 8 per cent of additional fuel gas (Table 18), in the Gas Statement of Opportunities (December 2023).

10 Table 18 - Gas Statement of Opportunities (December 2023).

11 Browse - Woodside Energy

12 The uncertainty and timing of the Browse project is documented in the Gas Statement of Opportunities for Western Australia (December 2023). AEMO notes that in its forecast period (2023-2033) it does not expect gas supply from the Browse basin (page 44). This DMO is considered essential in a decade during which the Wheatstone and Gorgon projects, whilst likely continuing to operate, will have met their fixed domestic gas commitments and may no longer supply gas to the State.

The domestic gas market in Western Australia is approximately 1,100TJ/d, supplied partially from gas, subject to the reservation policy. As acknowledged in the Committee's interim report, the market has tightened considerably since 2020, resulting in a three-fold increase in spot natural gas prices. Furthermore, one coal mine is already in administration and there remains serious risk to the supply to the coal-fired electricity generators. As the State's coal fired generators are closed this will yet further increase the demand for gas to firm renewable energy and as electricity demand increases with electrification of vehicles, households, and industry.

3 Requests for a policy change

The Government of Western Australia has recently indicated it will review its 2023 decision to apply the Export Ban to the Perth Basin. The government has publicly shared concerns that "a scenario where we have 100 per cent of zero supply of gas" is not a favourable outcome for the State[13].

The Domgas Alliance questions why, when many buyers of gas are concerned of a shortfall[14] and 400 to 1000TJ/d of demand remains uncontracted[15], would gas producers not be incentivised to bring natural gas to this market?

Mineral Resources, the owner of the Lockyer Deep gas project, publicly sought an exemption to the Export Ban in the same form as the Waitsia State exemption: allowing the first five years of a natural gas project to exclusively export its volumes through KGP[16]. Mineral Resources has also claimed it can only build a 30TJ/d plant for its own needs or a 250TJ/d plant. Domestic gas plants come in sizes ranging anywhere from 30TJ/d and 250TJ/d and as shown in Section 3.1 provide attractive returns supplying the domestic market.

Strike Energy has also been publicly seeking a lifting of the Export Ban[17].

The main arguments for Perth Basin project developers seeking exemptions are[18]:

1. LNG pricing will improve gas projects' economic viability and access to project finance and international capital.
2. LNG pricing will in turn increase exploration effort, gas resources and gas supply into the domestic market.
3. Separately, Woodside, as the operator of the KGP raises concerns that without access to third party gas supply, it will no longer be economic to operate all trains of the Karratha Gas Plant (KGP). This puts at risk the Browse gas project and its related domestic volumes.

3.1 Gas projects are viable without LNG pricing

LNG pricing is not guaranteed to be more attractive than domestic pricing and is subject to high volatility. Domestic gas supply agreements can be negotiated with high quality, creditworthy buyers, capable of committing to long term gas supply undertake or pay conditions. Under these conditions, project financing has not been an issue. There are a number of examples of domestic gas supply arrangements which have seen gas buyers offer pre-payment, participation into the gas exploration effort[19] or underwrite financing with long term offtakes.

13 State Premier – Roger Cook, Monday 27 January 2024. Source: https://www.abc.net.au/news/2024-01-22/wa-domestic-gas-policy-waitsia-mineral-resources/103370494.

14 This includes Coogee Chemicals' recent experience of receiving only one offer in its tender for natural gas supply. Source: WA's gas policy has been the envy of the nation, but there are warnings it could become a 'disaster' - ABC News.

15 Gas Statement of Opportunities (December 2023) – difference between AEMO estimated demand (Table 15) and declared supplier contracted volumes (Table 24) over the period 2026 to 2033 which is relevant to the development and commissioning period of new gas projects across the Perth Basin.

16 Chris Ellison- Mineral Resources AGM, November 2023. Source: AGM-2023-Webcast-Written-Transcription.pdf (amazonaws.com)

17 WA gas exports: Strike Energy boss Stuart Nicholls calls for end to ban on onshore gas in Western Australia (afr.com)

18 See Appendix 2 for details of gas producer submissions into the Parliamentary Inquiry into the domestic gas market.

19 Some examples in the public domain include Alcoa prepayment of natural gas supply in 2011 (Apache) and 2015 (Quadrant), and Wesfarmers $5 million exploration payment for gas supply option with Strike Energy.

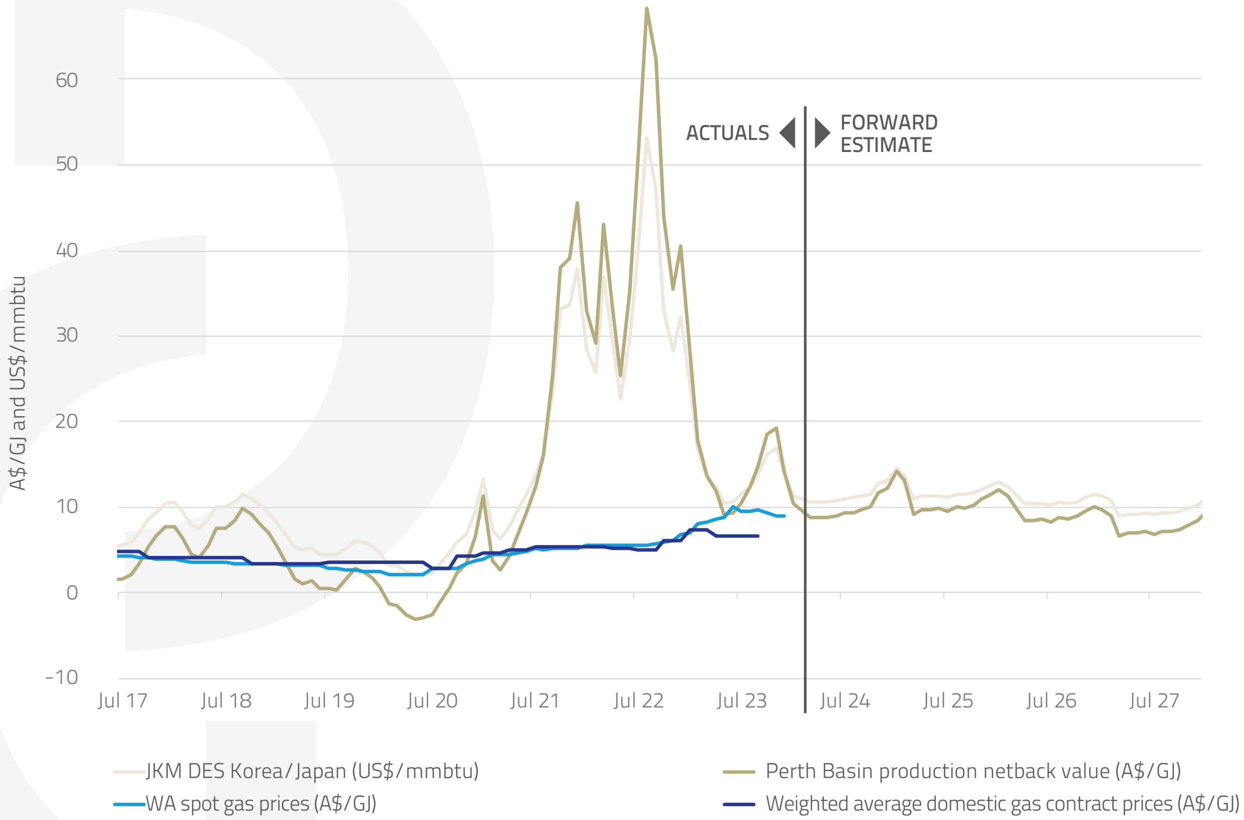


Chart 1: domestic vs LNG netback pricing[20]

The Domgas Alliance has estimated break-even prices across three gas projects: Strike Energy's Walyering and South Erregulla projects, and Mitsui/Beach Energy's Waitsia-2. Using publicly available data break-even gas prices are between $3-6/GJ (including 15 per cent return on investment)[21]. In the Domgas Alliance's view, Waitsia's break-even price sits at the top end of this range due to higher upfront capital costs. Increased capital to extract gas more quickly for LNG export has resulted in higher costs than an optimally sized domestic gas plant.

Besides the Alliance's own assessment, it is worth noting the claims made by gas producers themselves:

- **17th November 2023 Strike Energy CEO, Stuart Nicholls speaking about South Erregulla:**
  "The [domestic gas] agreements with the Worsley Alumina Joint Venture and Perth Energy provide a commercially attractive route for Strike to sell its South Erregulla gas stream in a strong pricing environment that supports the bankability of the project."

- **14th December 2022 Strike Energy CEO, Stuart Nicholls speaking about Walyering:**
  "The [domestic gas] agreement with Santos provides a commercially attractive route for the Walyering JV to sell its gas stream in a strong pricing environment."

3.2 Perth Basin reserves are limited

Future LNG production from the Perth Basin is limited by the basin's exploration maturity.

Molyneux Advisory, an independent upstream oil and gas consultancy described the North Perth Basin as one which "will mature quickly, with discoveries in the future likely to be an order of magnitude smaller than Waitsia, Beharra Springs Deep, West Erregulla and Lockyer Deep.[22]"

"The Committee has observed that if the current 15 per cent reservation was applied in an onshore context, where currently 100 per cent of production is reserved for domestic use, the intervention would need to produce an almost seven-fold increase in total volumes for the domestic market to 'break even'[23]. Instead:

20 Assumptions and sources:
- JKM historical and forward prices (as of 15/01/24) from Bloomberg, converted from US$/mmbtu to A$/GJ assumption 1GJ = 1.055mmbtu and spot exchange rates.
- 1 USD/mmbtu and 2.5 USD/mmbtu for transportation and liquefaction, respectively, per APPEA submission to the Inquiry into the WA Domestic Gas Policy (21 August 2023).
- A$1.06/GJ backhaul along DBNGP, as per 2024 Tariff variation for backhaul from Mondarra to KGP.
- 8% fuel gas (valued at netback gas price), as per Beach Energy statement in regard to Waitsia fuel gas in Annual Report 2023.
- WA gas prices sourced from AEMO's WA GSOO 2023 (Figure 28).

21 Further information is available in Appendix 3.

22 Inquiry into the WA Domestic Gas Policy, submission from Molyneux Advisors (5th Sep-23).

23 Domestic Gas Security in a Changing World - Inquiry into the WA Domestic Gas Policy: Interim Report, Finding 4.18.

- Based on company reporting, undiscovered resources estimates are currently less than (1 times) the Perth Basin's contingent resources proposed for LNG export[24].
- If Mineral Resources is permitted to export 250TJ/d from Lockyer Deep for five years from 2028, it will only have 94PJ left or little over a year's supply left in 2033 to supply domestically.

Further recent evidence includes:

- Beach Energy downgraded its reserves of Waitsia by 11 per cent in January 2023 after appraisal drilling of the field. Appraisal demonstrated the geological challenges across the Perth Basin. Beach and Mitsui jointly control 24 per cent of the acreage, or close to 40 per cent of known resources. Importantly, Beach and Mitsui have the longest history (and expertise) of the Perth Basin gas targets (indeed Waitsia is the most appraised field of all in the basin).
- Waitsia's alarmingly limited backfill potential is evidenced by Beach Energy owner Ryan Stokes' call for tolling of third-party gas through the Waitsia plant by other producers in the basin[25]. Confidence in the company's own future gas reserves would not cause such calls, as the project has not yet even been commissioned.
- In February 2024, Strike Energy's South Erregulla 3 well failed to flow upon perforation[26]. Prior to drilling, Strike Energy booked 128 PJ of proven gas reserves (2P) in South Erregulla, and 271 PJ of contingent gas resources (2C) which the company was hopeful of converting to proven reserves upon success at two appraisal wells (South Erregulla 2 and 3)[27].

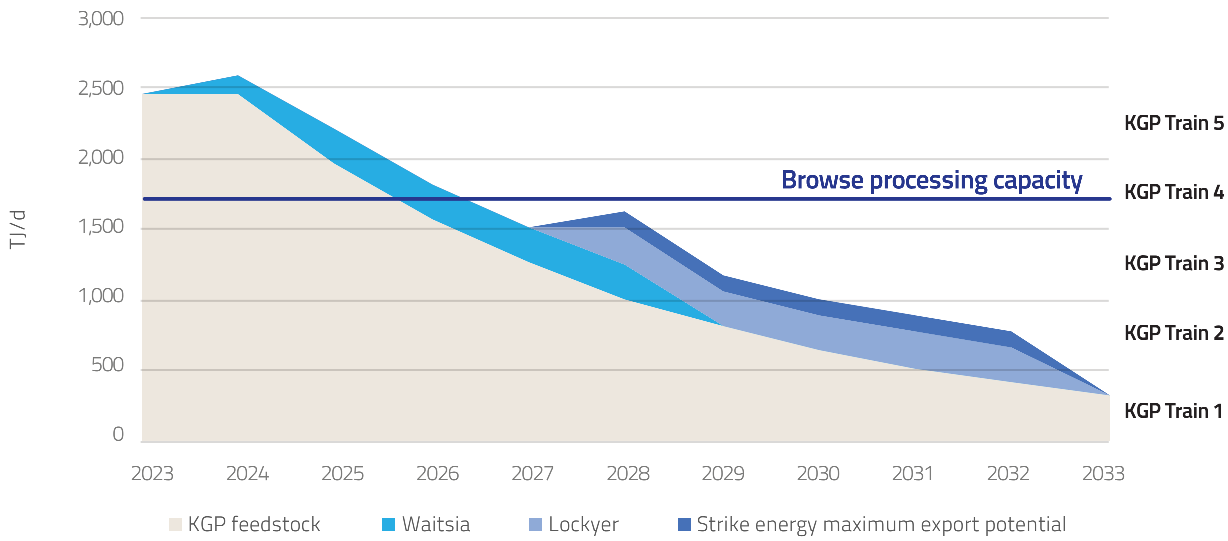
This recent evidence, along with independent expert opinion, demonstrates the need to verify resource claims made by gas producers. State agreements structured in the form of the Waitsia agreement, with front-ended rights to LNG export, expose the State to significant gas reserve risk. Such agreements should not be repeated.

3.3 The North West Shelf project does not need Perth Basin gas

Woodside Energy's submission to the Parliamentary Inquiry into the domestic gas policy threatened in August 2023 that "the NWS JV will need to assess taking an LNG train offline in 2024. In the absence of new third party gas, staged infrastructure retirements would follow, with only 2 of 5 LNG trains at KGP to remain operational by 2030. Without the ability to utilise existing infrastructure at KGP, Browse becomes commercially challenged and no longer presents as a long-term potential domestic supply opportunity for WA."

In November 2023, Woodside CEO Meg O'Neil's response to a question on this matter stated: "the cost difference between shutting down and mothballing isn't tremendous, so we'll leave it to the North West Shelf Joint Venture to sort that out.[28]" This comment would appear to be at odds with the claim that retirement is a natural consequence, versus a scenario of care and maintenance until Browse.

The Domgas Alliance maintains there is limited potential



24 See Appendix 1 for the breakdown.

25 AFR – 14 February 2024 – Ryan Stokes warms to gas pact with WA billionaires.

26 ec17ecc9691a6abcb0c737ca66dcb419 (sharelinktechnologies.com)

27 73a70bb91d0c83d2517d69b4ce0e221f (sharelinktechnologies.com), and 1c777774fea8675aa46cc766a6b14a01 (sharelinktechnologies.com)

28 Woodside Investor Briefing day 2023 transcript (8 November 2023).

for the Perth Basin to resolve the lack of gas faced by the KGP. As a reminder:

- The KGP consumes approximately 2,500 TJ/d of natural gas (2.5 times the State's total onshore gas demand) across 5 liquefaction trains. Woodside anticipates the joint venture will shut one liquefaction train in 2024, and AEMO forecasts the asset's natural gas production to decline 20 per cent per annum from 2025.
- The Browse project, if approved, is expected to produce 11.9 mtpa across LNG, LPG and domestic gas which suggests it will require more than 3 liquefaction trains for processing[29].

In comparison, Perth Basin supply to this plant is an order of magnitude lower (Chart 2):

- The Waitsia-2 gas plant will provide 250 TJ/d to the KGP from 2024 to 2028.
- Mineral Resources is understood to be seeking a right to supply another 250 TJ/d. Should this exemption be authorised, it may be expected that the volume be delivered between 2028 and 2032, considering project development timelines.
- Strike Energy's current uncommitted 2P reserves equate to 212 PJ, or 116 TJ/d of production capacity over a five year period[30].

The Browse project is not dependent on the Perth Basin gas supply:

- Woodside had the opportunity to negotiate a lower capital route to market with Scarborough gas supplying North West Shelf and is instead constructing a second train at Pluto.
- Further Carnarvon Basin opportunities exist for the Karratha Gas Plant, such as the Clio-Acme gas field, lying under Retention Lease WA-42-R[31]. Clio-Acme remains undeveloped and Chevron, in 2018, put this asset forward as backfill for KGP[32]. Chevron identified cost synergies on offshore gathering systems (Trans Carnarvon Trunkline Concept) and domestic gas obligation of 70TJ/d for the benefit of the state[33]. Domgas Alliance supports such project initiatives, which, instead of drawing gas away from the State, contribute to additional DMO, while providing longer term options for KGP.

29 Browse - Woodside Energy. Assuming marginal LPG production from the project, 1.6 mtpa (or 240 TJ/d at a conversion factor of 55.43GJ/t) of domestic gas sales equates 15 per cent of 10.3 mtpa of LNG, which requires approx. 1,700TJ/d of natural gas feedstock (including 8 per cent fuel gas). At 500TJ/d, this requires 3.4 liquefaction trains for processing.

30 55b44610cf0ca7df57599de77a694a92 (sharelinktechnologies.com), slide 13, Strike Energy's 2P reserves equate to 38 per cent of 981 PJ of 2P+2C resources and Strike Energy's existing commitments total 161 PJ.

31 See map in Appendix 4 for more detail.

32 Collaboration at centre of North West Shelf preliminary tolling agreements — Australia.chevron.com. Chevron states Clio-Acme capable of delivering 50 LNG cargoes per annum through KGP. Assuming standard vessel size of 155,000m3, this represents 3.7 PJ of LNG. Corresponding feedstock gas (incl. 8 per cent fuel gas) equates to 550TJ/d, equivalent to a full liquefaction train at KGP.

33 Collaboration at centre of North West Shelf preliminary tolling agreements — Australia.chevron.com and 20180427TCT-Map-V8.pdf (chevron.com).

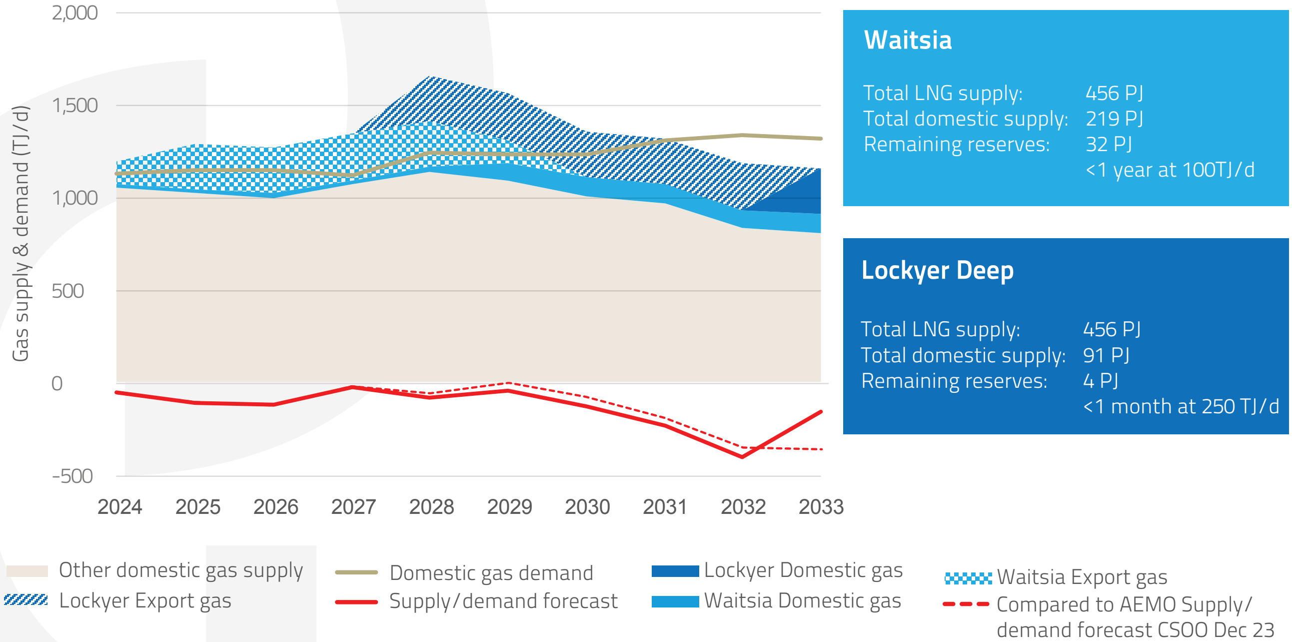


Chart 3: Waitsia and Lockyer Deep export exemption and reserve depletion.

4 Consequences of a policy change

4.1 LNG exports will worsen short term gas deficit.

The West Australian Gas Statement of Opportunities (Dec-23) assumed:

- Strike Energy's South Erregulla, at 40TJ/d from 2026.
- A 50TJ/d gas plant commissioning in 2028 to produce the Lockyer Deep field.
- And potential further supply upside with Strike Energy's West Erregulla project with an 87TJ/d plant capacity[34].

While their proponents may state otherwise, it is likely these projects will be delayed in the situation where an Export Ban exemption is granted due to a need for additional appraisal drilling to support high upfront production rates [35]. Additionally, a re-design of the gas plant in the case of Strike Energy, causing a restart and delay in engineering, environmental approvals and ultimately production.

The size of the Waitsia-2 project has evidently caused additional complexity and time in project execution. If the project commissions in July 2024 as planned, project delivery will have totalled 58 months (close to five years), from environmental application. In comparison, the smaller (33TJ/d) Walyering gas project was delivered by Strike Energy in six months from environmental application to first gas.

Any claim made by proponents that LNG scale projects can be online within two years are not backed by previous experience anywhere in Australia.

4.2 The State will have no options in case the Browse project fails to proceed

The Perth Basin offers the State an opportunity to increase gas supply security into the 2030s. If instead, this basin is allowed to export most of its volumes as LNG in the coming years, then the State becomes more reliant on the Browse project to deliver the domestic market obligation (DMO) gas, bearing in mind this field is high CO_2.

34 Office of the Appeals Convenor - Appeal

35 Waitsia proponents have drilled 10 wells since first discovery and have applied for a further 9 wells in 2023 PGR - L 1 (dmp.wa.gov.au).

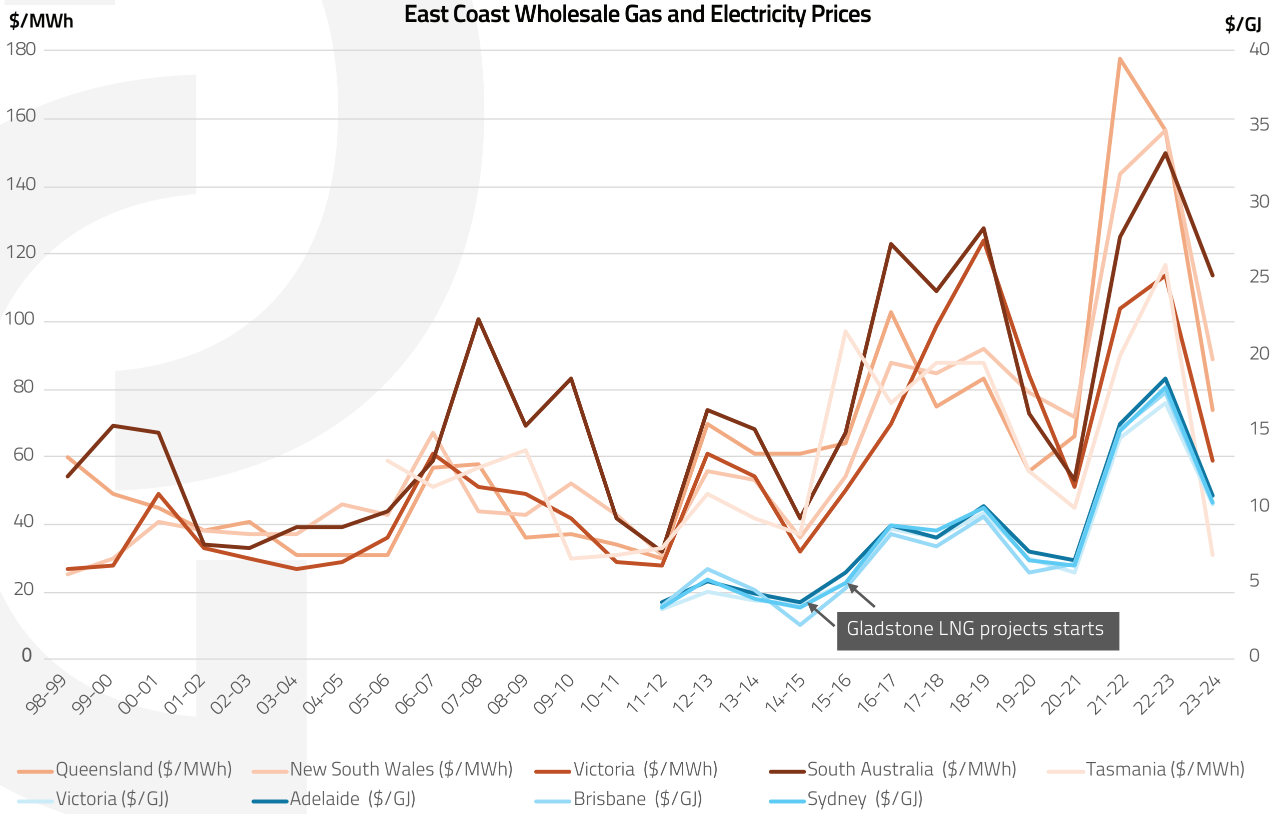


Chart 4: East Coast Wholesale Gas and electricity Prices.

4.3 Reactive gas policies on the east coast do not prevent high energy pricing

The Queensland Government had the opportunity to implement a similar gas reservation policy to that adopted in WA in 2008 when it approved the three export LNG projects in Gladstone. It ignored recommendations provided in a consultation process[36] Instead, it opted for a reactive policy whereby prospective land would be released for domestic gas production after it was determined the market was short or forecast to be short. In a review in 2020, there had been seven land releases and only one was supplying gas.

The chart below shows the relationship between gas (blue lines) and electricity prices (brown lines) and the failure of the land reserve mechanism to address the gas shortage and prevent extremely high and volatile internationally linked gas prices on the East Coast to this day. As noted by the Committee [37], the cost of gas drives the intermediate and peak cost of power generation. The notable example is the increased cost of gas coinciding with the invasion of Ukraine in 2022 dramatically flowing through to electricity costs right across the Eastern Seaboard of Australia.

In response, the Commonwealth Government enforced the Australian Domestic Gas Security Mechanism (ADGSM), which enables it to limit LNG exports to avoid a shortfall, which has merely served to lock in the link to the international LNG netback price. Further, it has implemented a gas supplier code of conduct with a temporary limit of $12/GJ for wholesale gas, which has also only served to limit the price but not stimulate more gas production.

This is a stark example of a policy failure in the first instance which is then extremely difficult to correct or control after the event. The impact on small businesses and households is substantial with the Commonwealth Government having to provide $3 billion in relief in the 2023/24 budget[38].

5 DomGas Alliance recommendations

In addition to the recommendations the Domgas Alliance has put forward to the Committee in its previous submissions, the Alliance makes the following in respect of the Export Ban:

36 https://cabinet.qld.gov.au/documents/2009/Nov/Qld%20Gas%20Security/Attachments/Domestic%20Gas%20Consultation%20Paper.pdf

37 Domestic Gas Security in a Changing World - Inquiry into the WA Domestic Gas Policy: Interim Report, Findings 2.40 and 2.41.

38 https://budget.gov.au/content/01-col-relief.htm

Recommendation 1: The Western Australian Government should maintain its existing policy position that prevents the export of gas produced onshore and reserve it exclusively for supply and use within the State. DomGas Alliance members request the Government of Western Australia stands firm on its existing position and rejects any applications for export exemptions for the Perth Basin gas projects. Any alternative would undermine the domestic gas market efficiency, competitiveness and security, and the public interest of Western Australia.

Recommendation 2: The Government should enforce the title administration and permit obligations for the gas producers in the Perth Basin, and ensure that they explore, develop and produce gas resources in a timely and efficient manner, and supply gas to the domestic market at competitive prices. A healthy natural gas market starts with a competitive management of petroleum titles[39].

Recommendation 3: The Government should support the development of the offshore gas projects in the Carnarvon Basin and the Bedout sub-basin, and facilitate their connection to the Karratha Gas Plant. This would extend the life of the LNG facility and the domestic gas processing infrastructure, and increase the natural gas supply to the domestic market through the continued application of the 15 per cent domestic gas reserve policy that currently applies to offshore producers.

Recommendation 4: The Government should encourage and promote the use of long-term supply agreements between Perth Basin gas producers and the large industrial consumers. This would provide financial security to producers to accelerate their projects and support long- term investment in downstream industry in Western Australia. The Domgas Alliance members would support this and would be happy to provide transparency to the Government of these agreements.

39 See Appendix 5 for further details.

Appendix 1: Reserves and resource potential of the Perth Basin[40]

Asset/Owner	Unit	1P	2P	2P+2C	2U	2U / (2P+2C)	Share	Source, comments
Total	PJ	852	1,612	2,868	1,785	0.6		
Strike Energy (Nov-23)	PJ	239	371	982	662	0.7		
West Erregulla	PJ	162	211	226	275	1.2	50%	73a70bb91d0c83d2517d69b4ce0e221f (sharelink-technologies.com)
Walyering	PJ	19	32	51	-	-	55%	73a70bb91d0c83d2517d69b4ce0e221f (sharelink-technologies.com)
South Erregulla	PJ	58	128	399	-	-	100%	73a70bb91d0c83d2517d69b4ce0e221f (sharelink-technologies.com)
Ocean Hill	PJ	-	-	306	387	1.3	100%	73a70bb91d0c83d2517d69b4ce0e221f (sharelink-technologies.com)
Mineral Resources	-	-	-	551	-	-	-	Does not report oil and gas reserves.
Lockyer Deep & North Erregulla	PJ	-	-	551	-	-	-	20230818 - DomGas - Submission 35 - APPEA_Redacted.pdf (parliament.wa.gov.au)
Beach Energy (Aug-23)		218	503	535	-	-	-	
Perth Basin	PJ	218	503	535	-	-	50%	BPT_2023_Beach_Energy_Ltd_Annual_Report.pdf (beachenergy.com.au)
Mitsui (Inferred from Beach Energy)	-	218	503	535	-	-	-	Does not report oil and gas reserves.
Perth Basin	PJ	218	503	535	-	-	50%	
Hancock (Inferred from Strike Energy)	-	162	211	226	275	1.2	-	
West Erregulla	PJ	162	211	226	275	1.2	50%	Does not report oil and gas reserves.
Talon Energy (Jun-23)	-	15	24	39	549	14.1	-	
Walyering	PJ	15	24	39	7	0.2	45%	3d538ff2-536.pdf (investi.com.au)
L7	PJ	-	-	-	103	-	25%	3d538ff2-536.pdf (investi.com.au)
Condor	PJ	-	-	-	439	-	100%	3d538ff2-536.pdf (investi.com.au)
Triangle Energy (Inferred from Talon Energy)	-	-	-	-	299	-	-	
L7	Bcf	-	-	-	196		50%	Annual-Report-to-Shareholders.pdf
New Zealand Oil&Gas (Inferred from Talon Energy)	-	-	-	-	103	-	-	
L7	PJ	-	-	-	103		25%	Does not report oil and gas reserves.

40 Informed from respective company reporting and APPEA submission to the Inquiry into the WA Domestic Gas Policy in the case of Mineral Resources resource as the company does not declare its reserves and resources.

Appendix 2: Gas producer submissions to the Parliamentary Inquiry into the domestic gas market

Parliamentary Inquiry submission	Public quotes
On future security of supply benefits	
"Allowing Perth Basin gas to be exported through North West Shelf will improve the economic viability of marginal onshore projects creating greater prospects of those projects proceeding and delivering more gas to the domestic market. Access to domestic and international gas markets also creates the opportunity for larger gas processing plants, providing more gas to the WA domestic market" - Mineral Resources	"When we do get a shortage, they're predicting around 2030, '31, we can turn the exports off, we would've earned enough to pay for the capital on the plant and we can turn our gas back into the domestic market, and about then we'll be ready to go and do some downstream of our own. So my expectation is that we'd look at building our own urea plant" – Mineral Resource, AGM, November 2023.
On the need for LNG revenues to underpin project financing	
"Increasing the market size, through providing a clear and level playing field for all producers (onshore and offshore) will dramatically reduce investment hurdles for new onshore domestic gas development projects and increase domestic gas supply, thereby decreasing price" – Strike Energy.	17th November 2023: Strike Energy / South 32 gas sales agreement. "The agreements with the Worsley Alumina Joint Venture and Perth Energy provide a commercially attractive route for Strike to sell its South Erregulla gas stream in a strong pricing environment that supports the bankability of the project." – Stuart Nicholls. "14th December 2022: Strike Energy / Santos gas sales agreement. "The agreement with Santos provides a commercially attractive route for the Walyering JV to sell its gas stream in a strong pricing environment." – Stuart Nicholls.
On the need for Perth Basin to supply feed gas to KGP ahead of the Browse project	
"with NWS reserves in decline, and without additional third party gas supply, it will no longer be economic to continue operating all domestic gas and LNG processing infrastructure at KGP. The NWS JV continues to evaluate opportunities to optimise its domestic gas infrastructure so it remains available for the requirements of the JV participants, and can be operated in an efficient, cost-effective and lower-carbon manner. As ullage increases, the NWS JV will need to assess taking an LNG train offline in 2024. In the absence of new third party gas, staged infrastructure retirements would follow, with only 2 of 5 LNG trains at KGP to remain operational by 2030. [...] Without the ability to utilise existing infrastructure at KGP, Browse becomes commercially challenged and no longer presents as a long-term potential domestic supply opportunity for WA." – Woodside.	"In the context of addressing a question on declining gas feed ahead of the Browse project: "the cost difference between shutting down and mothballing isn't tremendous, so we'll leave it to the North West Shelf Joint Venture to sort that out." – Meg O'Neill Investor Briefing day 2023 transcript (8 November 2023).

Appendix 3: Estimated Perth Basin break-even project prices

From publicly available information, Domgas Alliance has calculated that domestic scale gas projects can be delivered at breakeven prices of $2.85-4.85/GJ (nominal), including 15 per cent project returns. The large-scale development of Waitsia comes with an increase in production costs and risks which require high LNG netback revenues to reward the project.

Domgas Alliance has only used publicly available information for its assessment, ranging across company announcements, news articles and work plans and estimated costings submitted by proponents to the Department of Mines Industry Regulation and Safety (DEMIRS) under their Exploration Permits. Where information was unavailable, Domgas Alliance has made its own assumptions. This includes:

- Rehabilitation costs of 20 per cent of aggregate capital spend on projects at the project's end of life.
- Rate of return on investment of 15 per cent to account for the risky nature of gas exploration activities.
- Forecast inflation rate of 2.5 per cent per annum.
- Royalty rate of 1.7 per cent of natural gas revenues based on historical onshore (non-North West Shelf) Royalty payments against gas production reported by AEMO and natural gas revenues reported by DMIRS.
- A further contingency of 20 per cent on all operational and capital costs.

In the Alliance's understanding, the following are key production costs:

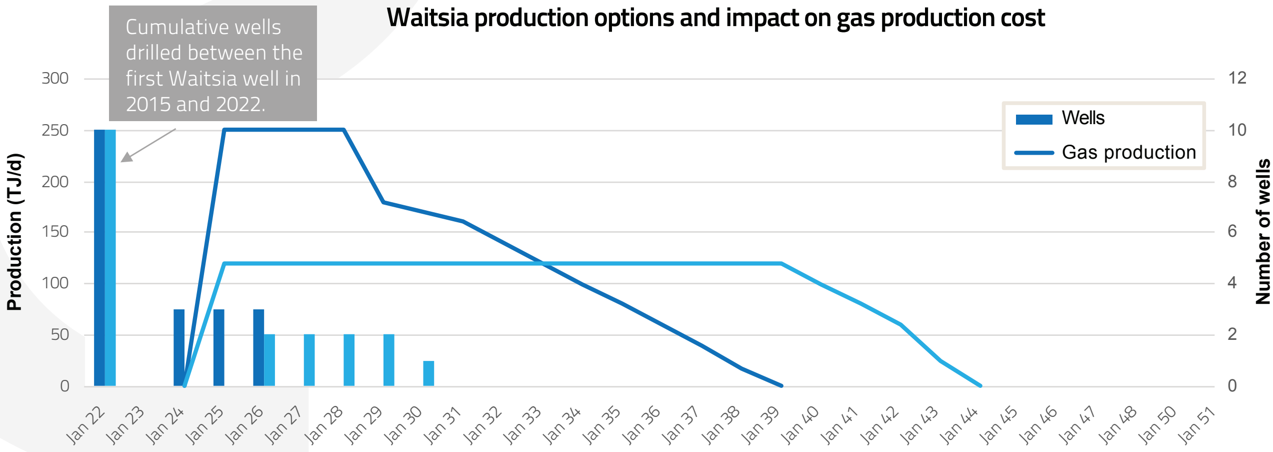
- Well costs: most of the Perth Basin operators are currently targeting production from Permian age deposits at depths of circa 4000-4800 meters. In Jurassic targets (such as Walyering), gas is found at shallower depths of approx. 2500 meters. Well costs are directly related to depth of drilling. Domgas Alliance has found that well costs range: around $10 million for Jurassic target drilling and between $11.5 million and $18.2 million for Permian target drilling.
- Well productivity: the number of wells required to recover the resource (in this case, 2P reserves). The number of wells is also a function of the daily production which the project aims to achieve and the daily deliverability of wells. Productivity currently ranges between 30 and 40 petajoule ("PJ") per well across South Erregulla and Waitsia, reflective of the Permian reservoir qualities (gross column of gas, net pay and reservoir permeability). Walyering, reflecting the Jurassic targets produces at an average of 20-30PJ per well.
- Gas plant costs: This includes all midstream gas production facilities, CO_2 removal, condensate separation, export pipeline and metering station. Waitsia is expected to have the highest plant construction cost of $3.6 million per installed terajoule ("TJ") as a result of strong recent inflationary trends in steel and labour. Walyering, with very limited pipeline distances and a gas quality which requires no CO_2 removal is on the lower end of costs at $0.9 million per TJ.

As a result, the following break-even gas costs were estimated for the Walyering, South Erregulla and Waitsia projects:

	Low case	High case
Walyering	A$2.85/GJ Assuming an additional well to produce 2C reserves.	A$3.05/GJ To deliver 2P reserves under the current project.
South Erregulla	A$4.07/GJ To deliver 2P reserves.	A$4.84/GJ Assuming high well cost of $18.2 million.
Waitsia	A$5.99/GJ	

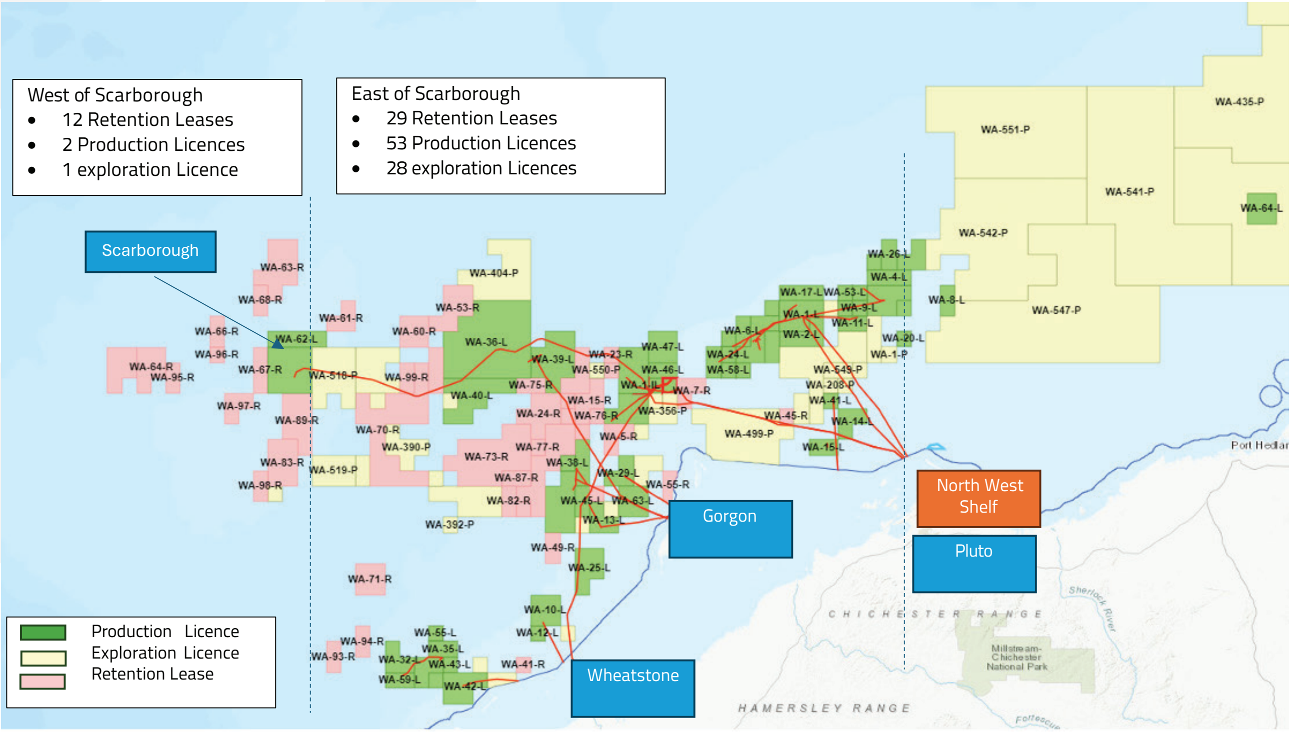
Right sizing production is critical to project economics.

- Oversizing natural gas production projects (against estimated reserves) negatively affects upfront capital allocation, timing and complexity of project execution, field appraisal (number of appraisal wells required ahead of production).
- These all increase production costs and therefore require high LNG netback pricing to be justified.
- However, attractive and de-risked project returns can be achieved through longer life projects.



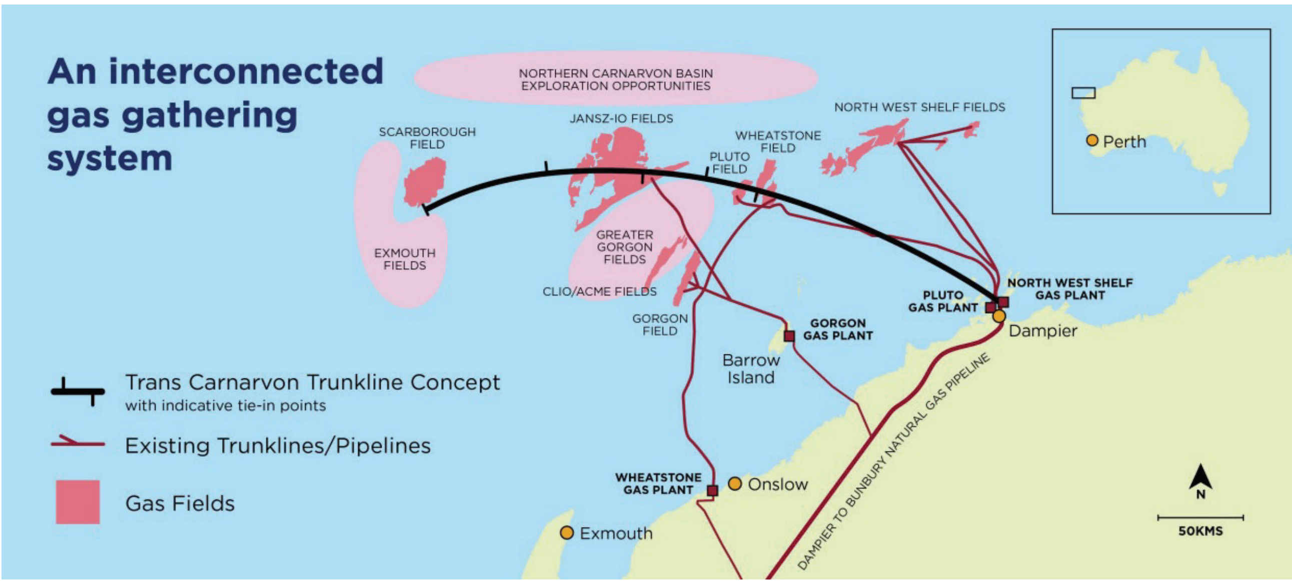
Current Waitsia project design and AEMO production profile.	**Project optimally designed for a 15 year plateau production.**
Break-even cost (nominal): **A$5.99/GJ**	Break-even cost (nominal): **A$5.15/GJ**

Appendix 4 Map of Carnarvon Basin petroleum acreage



Source: Interactive Map | NEATS (nopta.gov.au)

The basin remains largely dominated by acreage under retention lease. As a reminder, a retention lease encourages the timely development of petroleum resources and provides security of title for those resources that are not currently commercially viable but are likely to become so within 15 years. Consideration should be given to the impact of emerging availability of LNG processing capacity at NWS on the commercial viability of these fields.



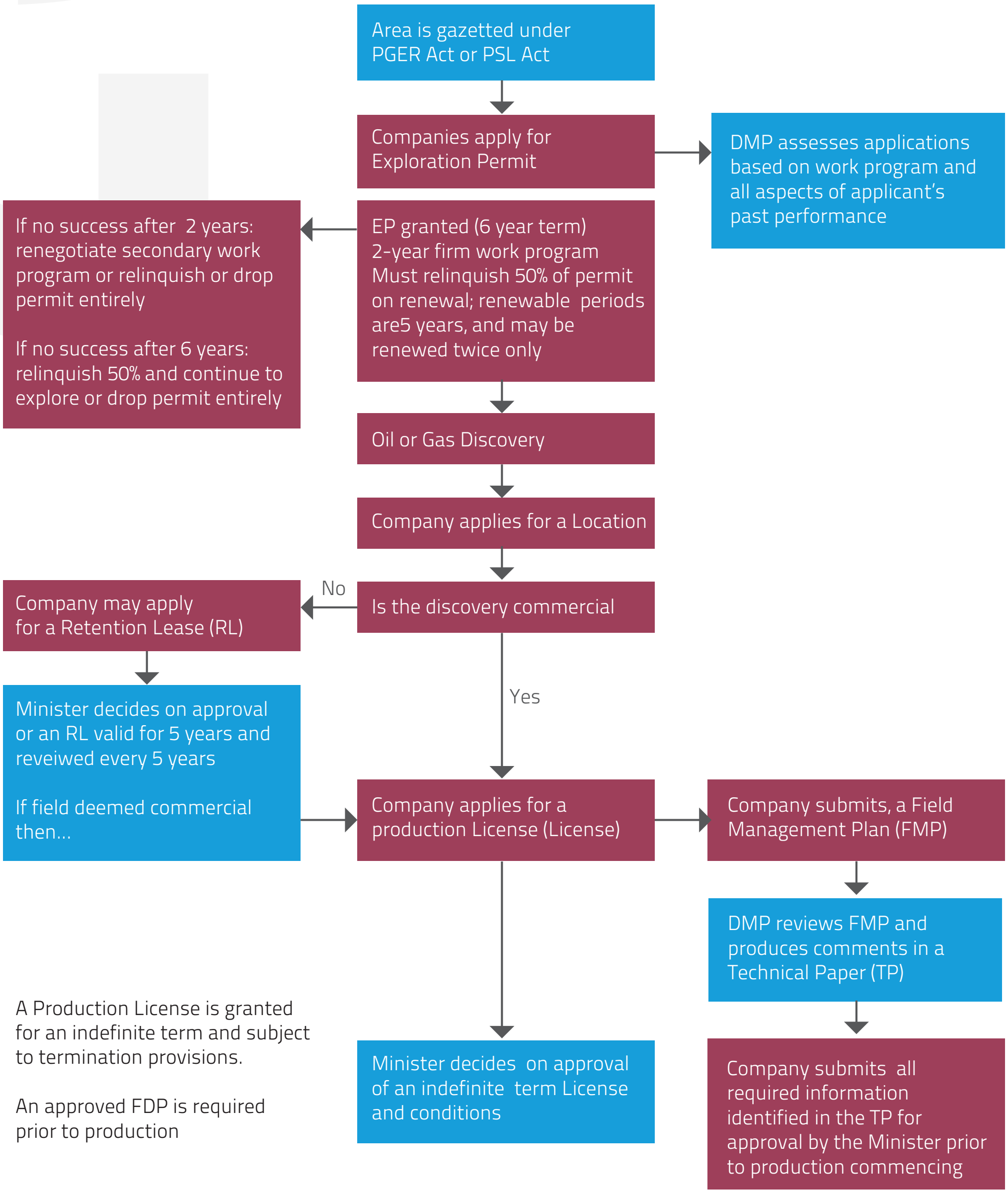
Source: 20180427TCT-Map-V8.pdf (chevron.com)

Chevron has publicly communicated on the opportunity for greater collaboration to drive economic efficiency in the development of Northern Carnarvon offshore resources. "As we develop more fields and bring gas to shore to fill available LNG processing capacity, we will get more LNG to market and with it greater volumes of domestic gas for Western Australia. Collaboration will drive efficiencies, minimise duplication of infrastructure and boost Australian government revenue." (Creating an interconnected gas gathering system — Australia.chevron.com)

Appendix 5 - Petroleum title management – enforcement or sovereign risk?

In Domgas Alliance's view, strict application of the Petroleum and Geothermal Energy Resources Act 1967 (PGERA) does not introduce sovereign risk in the WA petroleum industry. This act (among other) regulates access to petroleum exploration titles and management of these titles by successful proponents to resource delivery and project decommissioning[41]. Improper enforcement of the framework can lead to acreage warehousing and downstream underperformance of the wholesale market for natural gas.

This was somehow recognised in 2010, as amendments to the PGERA were introduced to "enable the ranking of competitive bids received for the grant of an exploration permit; and revise provisions dealing with the renewal of exploration permits, as, presently, permits can be renewed indefinitely, and these amendments restrict the number of renewal terms to two"[42].



Scheme: Petroleum title award process for Western Australian legislation – DEMIRS.

41 The framework for management of petroleum titles is explained in Western Australia's Petroleum and Geothermal Explorer's guide 2014 Edition – Department of Mines and Petroleum. Petroleum Division Publication - Western Australia's Petroleum and Geothermal Explorer's Guide - 2014 Edition (dmp.wa.gov.au)

42 Second speech presented in the Legislative Assembly (p 5059e) in regards to the Petroleum and Energy Legislation Amendment Bill 2009. Microsoft Word - A38 S1 20100810 p5059e-5060a (parliament.wa.gov.au)

Domgas Alliance still notes room for improvement in the enforcement of the petroleum title framework which would result in more timely supply of gas into the market.

Exploration licences are granted for an initial 6 year term on the basis of a guarantee to complete the first two years of work without variation and may be renewed twice for a period of 5 years each, however…	Suspensions and extensions[43], even for varied work programs allow proponents to maintain ownership of the permit and avoid relinquishment of permit area upon renewal
Work programs are firm on the first 2 years, yet…	There are too many instances of suspensions and extensions within the first two years of the permit, which result in delays in exploration, development and ultimately production of a petroleum resource.
Exploration Permits may only be renewed twice. This reduces the risk of warehousing of gas resources, however…	Permits released after Oct-2010 (the release date of the Petroleum and Energy Legislation Amendment Act 2010) may only be renewed twice. Others are not subject to this rule, and only 44 per cent of acreage in the Perth Basin was released after Oct-2010.
Upon renewal of exploration permits, 50 per cent of acreage (graticular blocks) must be surrendered. However…	Not all permits follow this principle. Example: EP 426 which has maintained its original size across 4 renewals since 2004.
All gas discoveries should be declared and this declaration provides the permit holder a period of 2 years (which may be renewed for a further 2 years at the discretion of the minister) to appraise the discovery and assess its commerciality and development. However…	Not all gas discoveries are followed by a Declaration of Location. Recent examples include Lockyer Deep-1 well, approved in May-21 and successfully drilled in September 2021.
The Perth Basin also has a number of Production Licences. These were granted across 1970-2010 for the production of Jurassic gas targets. They have been retained by their holders for the exploration of Permian targets.	Under production licences, proponents have no obligation to comply with work -programs and the licences are granted for an indefinite term. This provides more flexibility and discretion for the conversion of any discoveries into production.

Table of issues: Petroleum Title framework

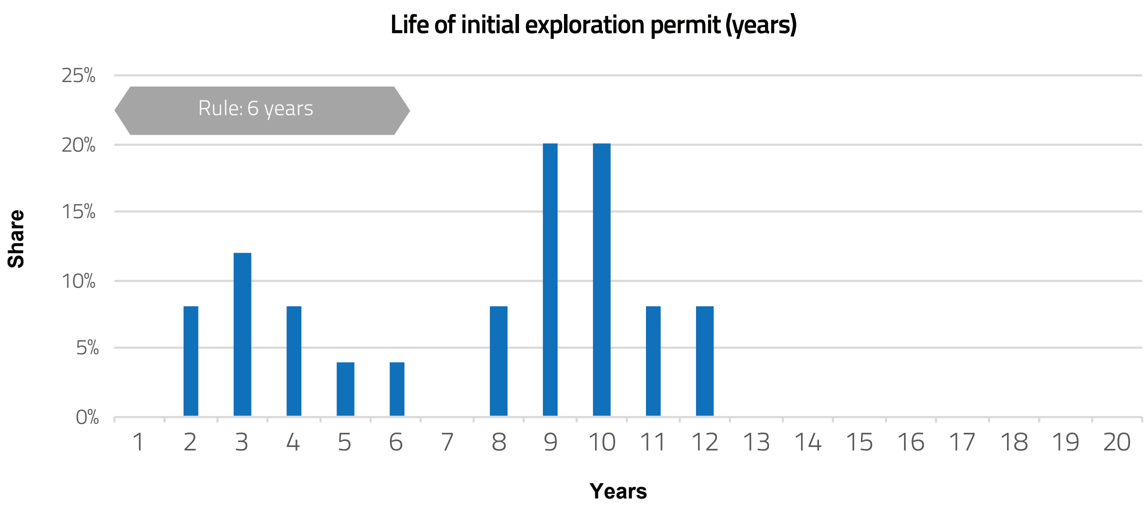


Chart: Statistical distribution of initial exploration permits in the Perth Basin (sample: all acreage from 1989 to 2024).

43 Suspensions and extensions are governed by Part III, Div. 5 s. 97 of PGER Act 1967.

EP 469 was originally granted in April-2010 with a 1st term expiry in April-2016. The permit was suspended with extensions multiple times during this period and its actual 1st term expiry was only in April-2020.

In 2019, Strike Energy made a gas discovery upon successful drilling of the West Erregulla 2 well. Subsequent appraisal of the West Erregulla field allowed the operator to book 226 PJ (net and 452 PJ gross) of 2C gas resource against this title, making it a significant resource in the basin.

Year of Term	Start date	End date	Minimum Work Commitments	Actual Operator activity or planning
1	23/06/2020	22/06/2021	Geophysical studies	▪ 3D seismic shooting was planned by the operator in 2022 and subject to environmental approvals. It is unclear from publicly available information whether this exploration has been undertaken.
2	23/06/2021	22/06/2024	100km^2 3D seismic survey	▪ However, Strike Energy announced in its FY23 annual report "The EP469 joint venture has approved the drilling of two near field exploration wells within EP469. These include a well into the Southwest Erregulla prospect (SWE-1) and the Erregulla Deep prospect (ERD-1)."
3	23/06/2024	22/06/2025	Geophysical studies	▪ In Strike Energy's communication dated 20th December 2022, EP 469 JV commits to nearfield exploration drilling including 2D seismic reprocessing over the Erregulla Deep structure, drilling and testing of Erregulla Deep-1 and South West Erregulla-1 in late 2023 and early 2024.
4	23/06/2025	22/06/2026	Well planning	
5	23/06/2026	23/06/2027	1 Exploration well	

While the operator to date has failed to take the field into production, the permit was renewed for a second term of 5 years from June-2020 to June-2025. It was subsequently varied, suspended and extended in April-22 and again in Jun-23 as per below:

It is understandable that the operator seeks an extension to undertake seismic in April-22 if this planned work remains subject to environmental approvals, though this constitutes a change to the proponent's first two years of firm workplan.

Importantly:

- Why was the operator's plan to drill 2 exploration wells in 2024 not captured in the variation of the title's work program when renewed in Jun-23? and
- How is an extension to the work program of an additional year justified at the time when the operator's plans instead are to accelerate exploration?

Note box: Anecdotal evidence of workplan inconsistencies.

DomGas Alliance

DomGas Alliance

A Level 1, Brookfield Tower 2, 123 St Georges Terrace, Perth WA 6000

T 6314 6375

M 0423 760 664

E rharris@domgas.com.au

W domgas.com.au