Competitiveness of LNG Imports

Final Report (Short Version)

Rystad Energy Advisory

March 2025

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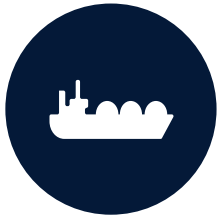
Executive Summary

LNG terminals can meet Australia's East Coast Gas Market (ECGM) needs with competitively priced gas – from international and domestic sources – before shortfalls occur

New Northern Supply

New northern basins can unlock substantial supply but:

- cannot fully support Southern annual or peak requirements with the current and proposed[1] pipeline capacity
- **are unlikely to be sufficiently developed before shortfalls emerge**
- will likely require ~A$10 billion of new pipeline expansion requiring significant, multi-decade tariffs to transport gas from Northern to Southern Australia
- face upstream development uncertainty and commercialisation risks driven by high capital requirements and operational, regulatory, and market challenges



LNG Regas Terminal

New LNG Supply can take advantage of the global market and:

- can deliver new gas before shortfalls emerge[2]
- can complement other sources to ensure market demand is fully satisfied on an annual, seasonal and peak day basis[2]
- can provide flexible supply and added system reliance
- **can be competitive with the delivered price of new northern supply (both range A$14-19/GJ)[3] from both international and domestic sources**
- will restrain prices – and reduce risk of price spikes - by increasing overall supply

Note: (1) Based on publicly available information as of March 2025; (2) Subject to the Port Kembla Energy Terminal commencing operations as per the communicated timeline of mid-2026; (3) Range includes price outlook for all assessed arrangements for Option 1: New Northern Supply (A$14-18/GJ) delivered to Sydney via new or expanded pipelines, and Option 2: LNG Regas Terminal (A$ 14-19/GJ) for imported spot LNG delivered to Sydney
Source: Rystad Energy research and analysis

The ECGM is expected to require new gas supply pathways, with Southern States facing peak-day supply inadequacy as early as this year, escalating into more severe seasonal shortfalls by 2028[1]

Key Considerations for Evaluation of Supply Options

We assess two options to close the supply gaps, with consideration to price, volume, and timing adequacy:

Option 1: New Northern Supply

Development of 2C resources in Northern Territory's Beetaloo basin and Queensland's Bowen/Surat basin

Option 2: LNG Regas Terminal

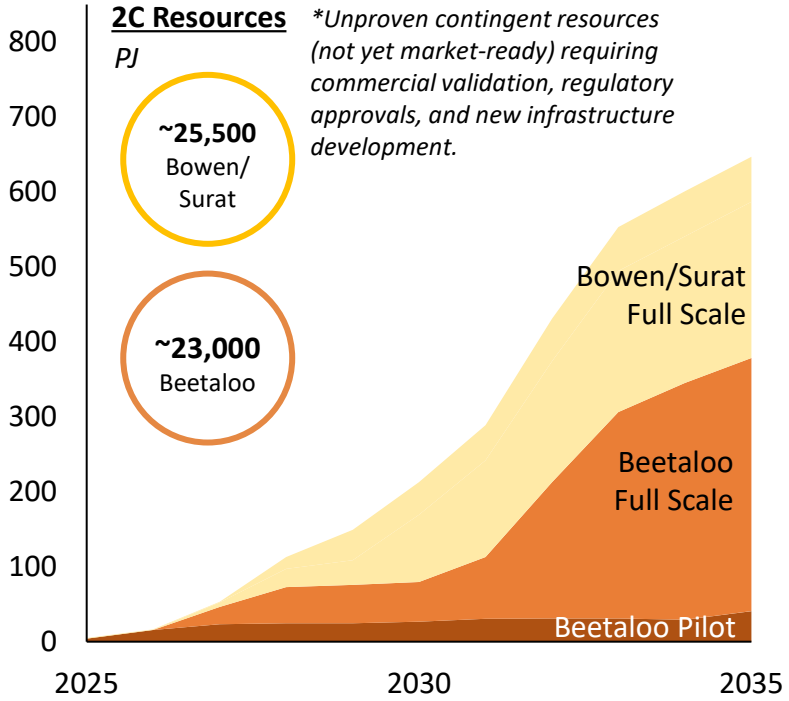
Development of Port Kembla Energy Terminal (PKET) for regasification of LNG imports/domestic LNG

Supply Volume	*Is the option able to meet the capacity requirement to adequately address shortfall?*
Supply Timing	*Is the option able to meet the timing requirement of the anticipated shortfall?*
Delivered Gas Prices	*Is the option price competitive in context of Australia's ECGM?*

Note: (1) Supply beyond current and anticipated volumes
Source: Rystad Energy research and analysis

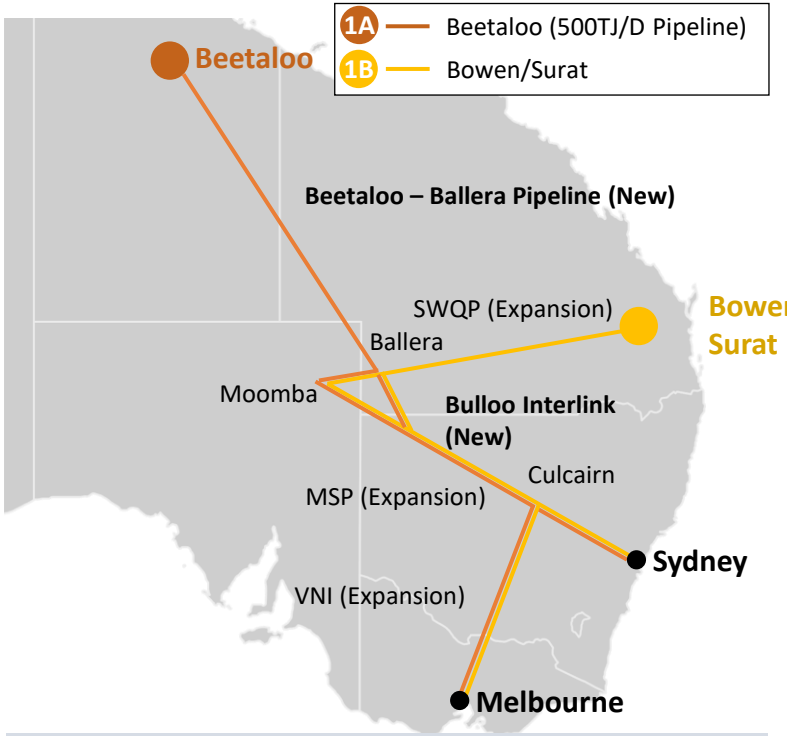
The Beetaloo and Bowen/Surat basins are emerging as Northern supply options to address Southern shortfall, with development requiring scale, new pipelines, and pipeline expansions

Key Northern Basin Production & Resources
PJ



Northern basins **offer substantial resource potential, subject to approvals, commercialisation, and infrastructure build-out**

Beetaloo & Bowen/Surat Pipeline Routes[1]
Pipeline Routes



New pipelines e.g., Beetaloo – Ballera pipeline required to supply from Beetaloo given capacity constraints e.g. CGP[2]

1A

Northern Supply Option 1A:
Beetaloo – Sydney / Melbourne via new 500 TJ/D Beetaloo-Ballera Pipeline

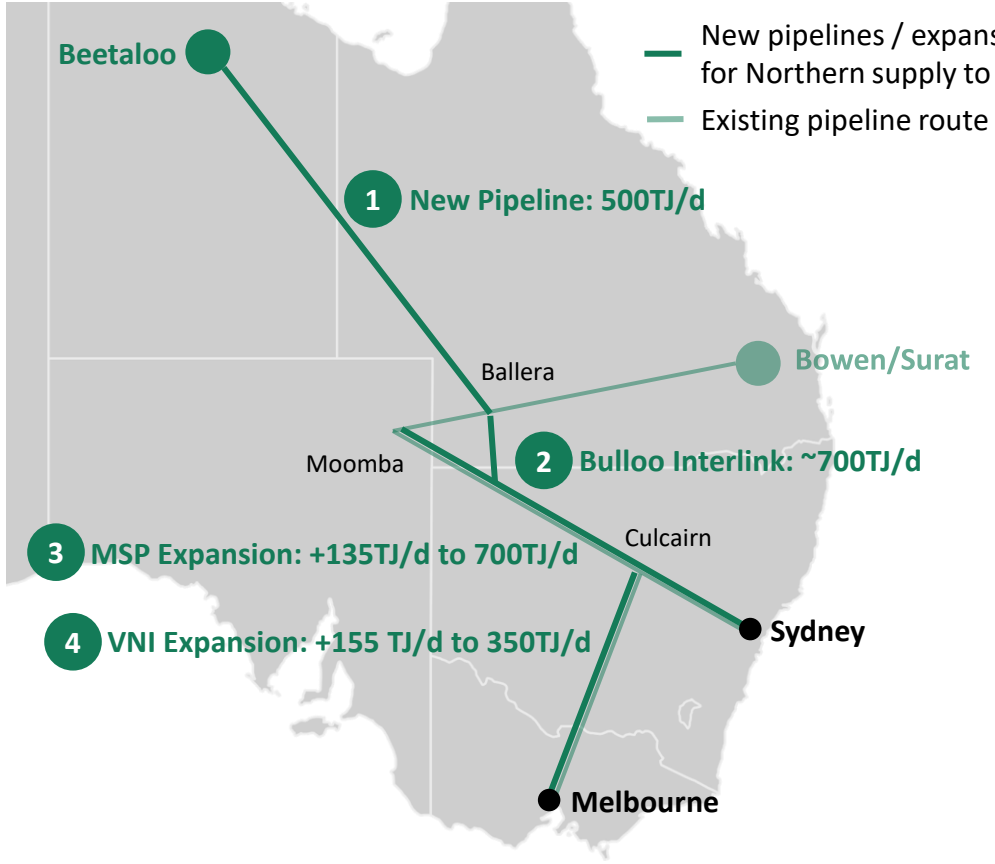
1B

Northern Supply Option 1B:
Bowen/Surat – Sydney / Melbourne via new and expanded pipelines

Note: (1) Includes proposed and existing pipelines. Existing pipelines were considered, with results of expanded pipeline routes shown in rest of presentation.; (2) Carpentaria Gas Pipeline (CGP) connects the NGP to Ballera and has a southwards capacity of 65 TJ/day; Source: Rystad Energy research and analysis; AEMO

Substantial ~A$8-10 billion capex needed for new pipeline infrastructure; New pipelines unlikely to be available in time to address peak day ECGM supply shortage given 3-5 years lead time

Pipeline Infrastructure Expansions Required for Beetaloo and Bowen/Surat



No.	Pipeline	Capex[1] (Billion AUD)	Build Time[2] (Years)	Est. Start Up Year
1	Beetaloo-Ballera 500 TJ/d[3]	3.7-4.9	5	2031
2	Bulloo Interlink ~700 TJ/d	1.0-1.4	3	2029
3	MSP Expansion +135 TJ/d	2.2-2.8	3	2029
4	VNI Expansion +155 TJ/d	0.6-0.8	3	2029

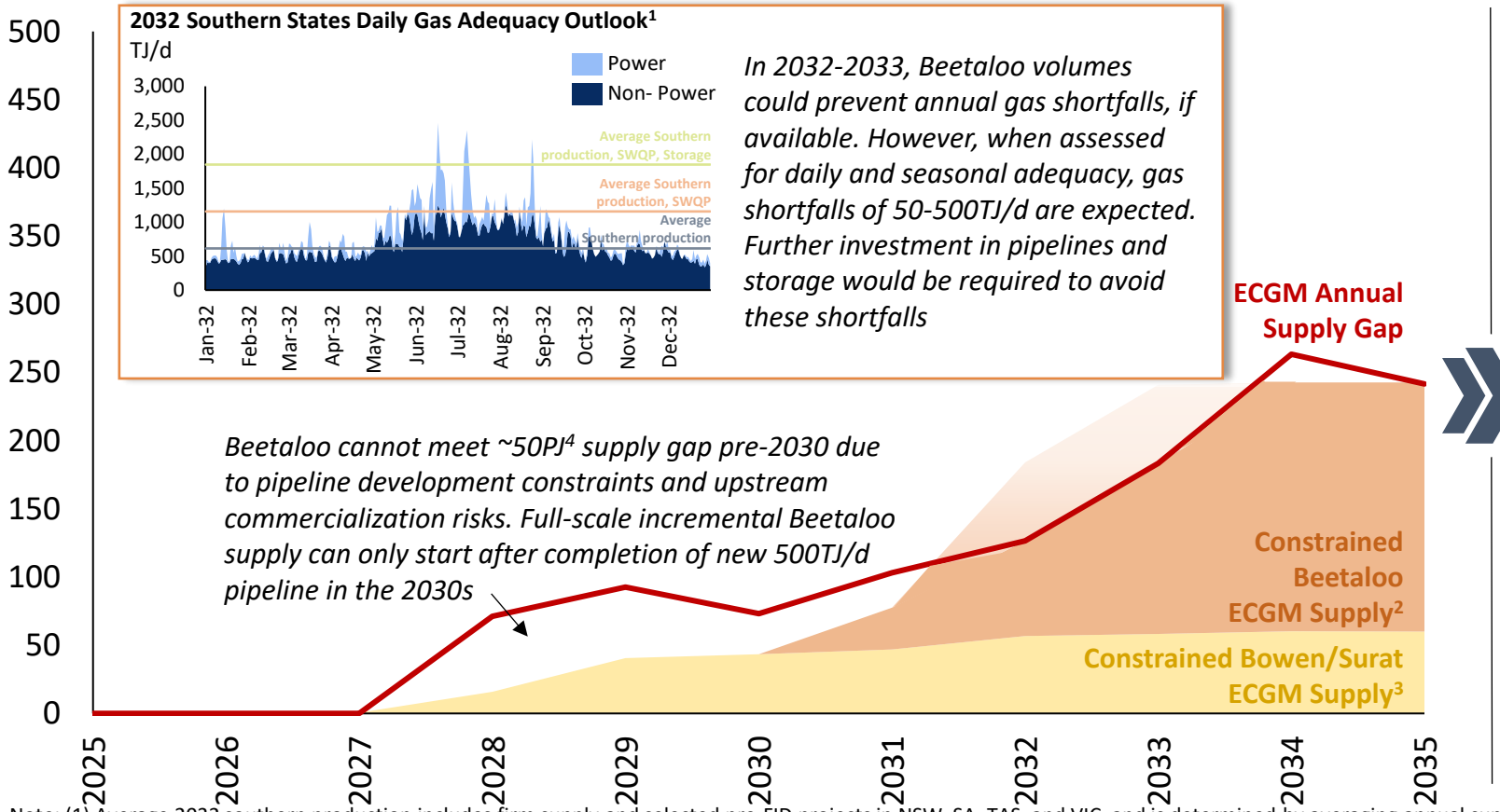
New pipelines and expansions likely **too late to meet peak day shortage from 2025 and seasonal shortfall from 2028**

Note: (1) Range reflects variability in unit capex assumptions across 100-130k AUD per inch diameters. Pipeline tariff is calculated using the base case input of 130k AUD per inch diameter (2) 3 to 5 years of build time from FID for new or augmented pipeline solutions, assuming timely regulatory and environmental approvals; (3) Beetaloo-Ballera pipeline assumed to be ~500 TJ/d based on announced plans between Beetaloo producers and pipeline owners, subject to further definitive agreements. Source: Rystad Energy research and analysis; APA; Department of Industry, Science, Energy and Resources; Jemena

New northern supply could grow incrementally with the ramp-up of Beetaloo in the 2030s, but startup timing and pipeline capacity constraints limit its ability to fully resolve the shortfall

Constrained Northern Supply to ECGM with Pipeline Constraints

PJ



- **New northern supply alone cannot resolve the ECGM supply shortfall** due to pipeline constraints and upstream commercialisation risks, even with proposed pipeline expansions
- **Timing and scale of new northern supply remains uncertain**, contingent on reserves validation, significant drilling, regulatory approvals and new infrastructure. **Risk to supply availability could be further exacerbated by** market and commercialisation challenges

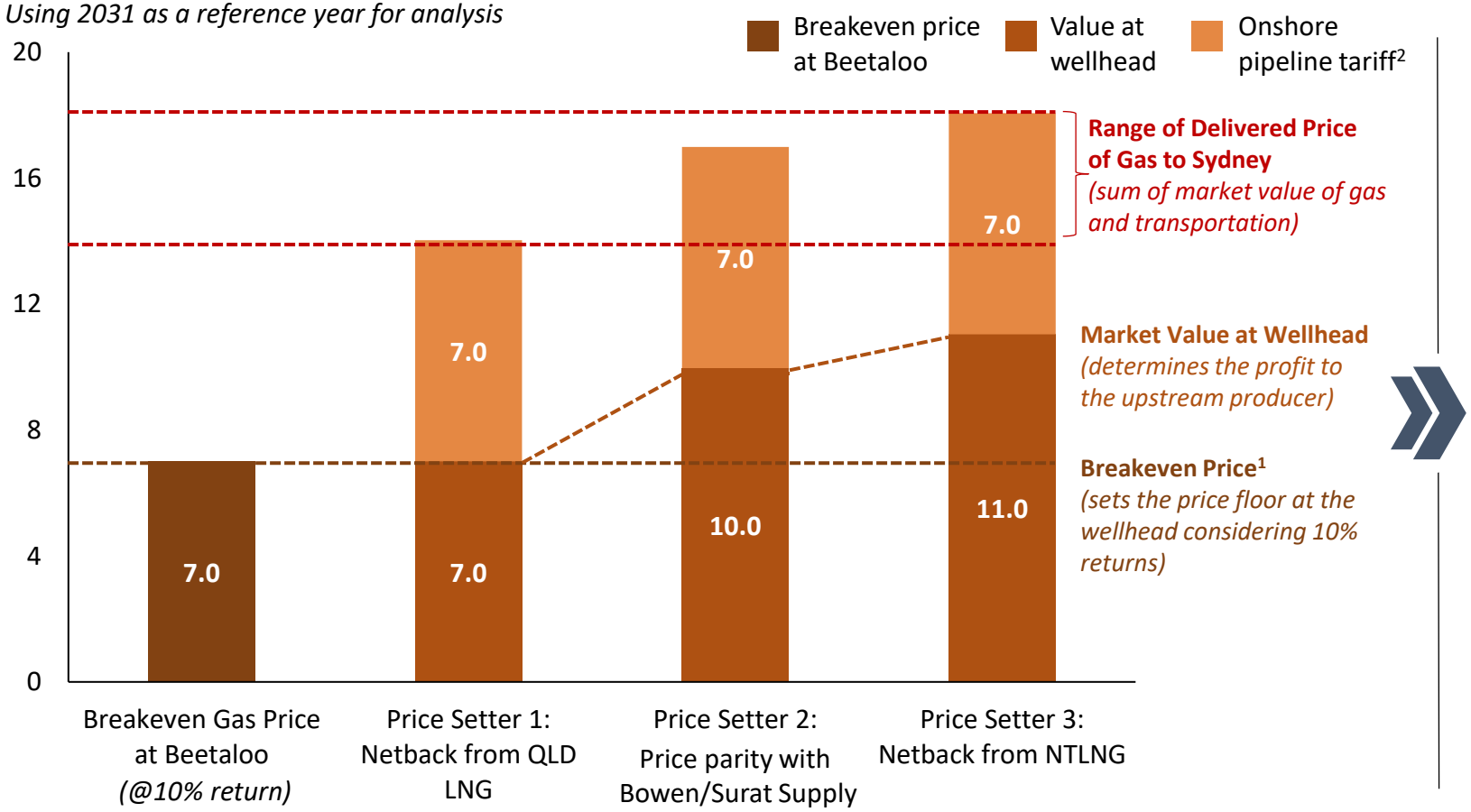
Note: (1) Average 2032 southern production includes firm supply and selected pre-FID projects in NSW, SA, TAS, and VIC, and is determined by averaging annual supply across 365 days. SWQP capacity assumed at 90% utilisation. Storage capacity includes maximum withdrawal capacity from Iona and the average withdrawal capacity for storage facilities in Dandenong and Newcastle; (2) Accounts for remaining pipeline capacity in the 50TJ/d Sturt Plateau Pipeline (2025-2030) and the 500TJ/d new Beetaloo-Ballera pipeline (2031-2035) that is available after subtracting capacity taken up by base case Beetaloo volumes; (3) Bowen/Surat base case supply assumed to be absorbed by demand from LNG plants in Queensland, enabling full availability of SWQP capacity from Wallumbilla to Ballera/Moomba; (4) Average of 2028-2030 supply gaps

Source: Rystad Energy research and analysis; Rystad Energy UCube; AEMO

Beetaloo supplies are likely to be priced within a specific range, with market dynamics determining the price rather than the cost of supply

Breakdown of Delivered Price of Gas to Sydney
AUD/GJ (Real 2025)

Using 2031 as a reference year for analysis

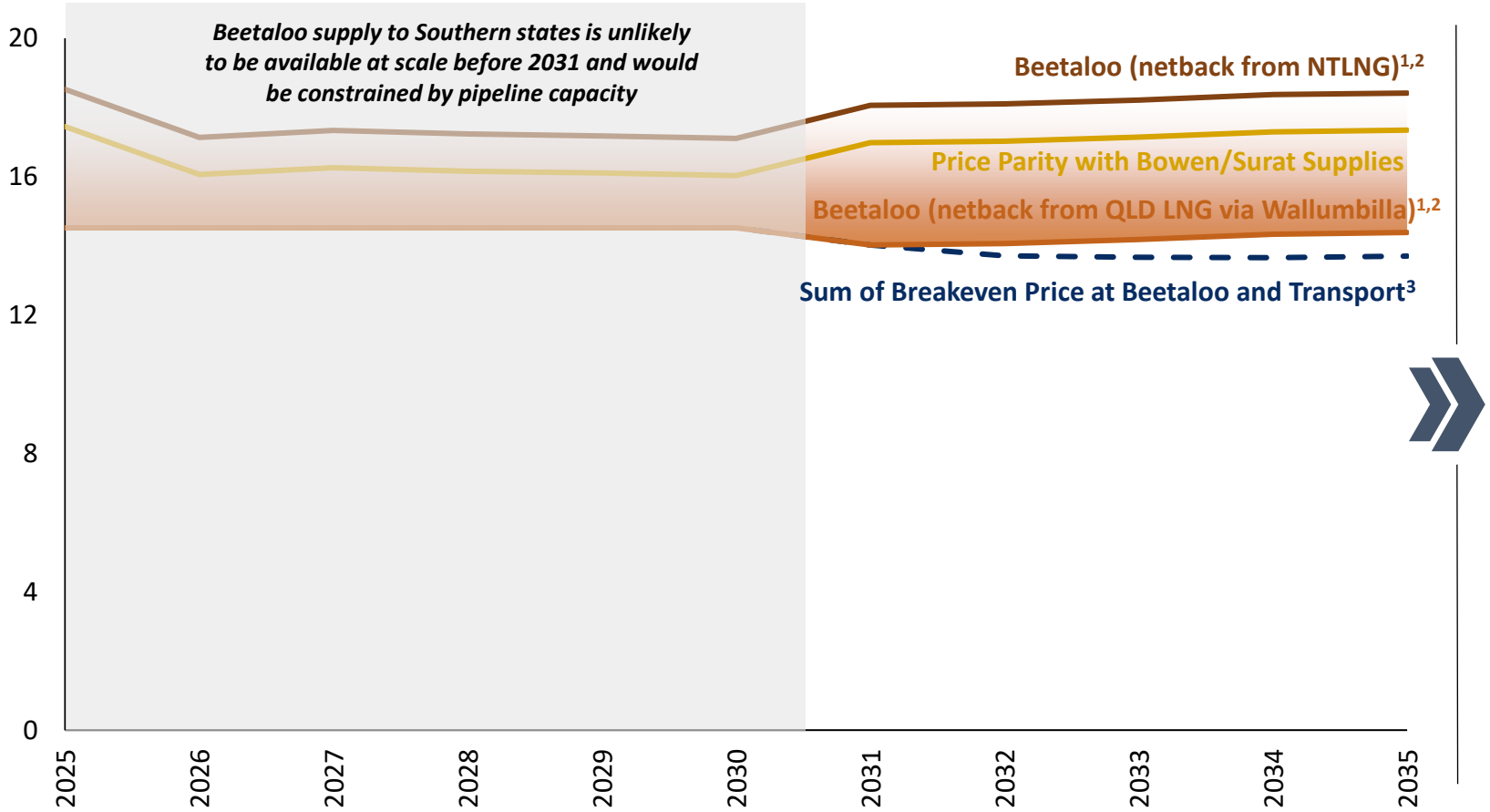


- **Beetaloo gas producers could target three different markets:** export gas via QLD LNG projects, supply gas to domestic market via pipelines or export gas via the proposed NTLNG
- **Beetaloo supplies are likely to be priced within a range** based on the market value of the gas and transportation costs, with supply-demand dynamics determining the final delivered price
- **Producers in Beetaloo will likely direct supplies towards the premium market** subject to transportation costs, pipeline availability, and capacity

Note: (1) Breakeven gas price represents the price at which gas production is commercial, calculated with a yearly discount rate of 10%; (2) Onshore pipeline tariff based on 8% return on capital, 130k AUD per inch diameter per km, 15-year term, 100% pipeline utilisation, 2.5% YoY inflation, and 3-5-year build time depending on pipeline capacity and distance; Source: Rystad Energy research and analysis

Beetaloo supplies are unlikely to reach the Sydney market at scale until 2030s, with delivered price projected to vary between A$14–18/GJ towards 2035

Delivered Price of Northern Supply from Beetaloo Basin to Sydney[1,2]
AUD/GJ (Real 2025)

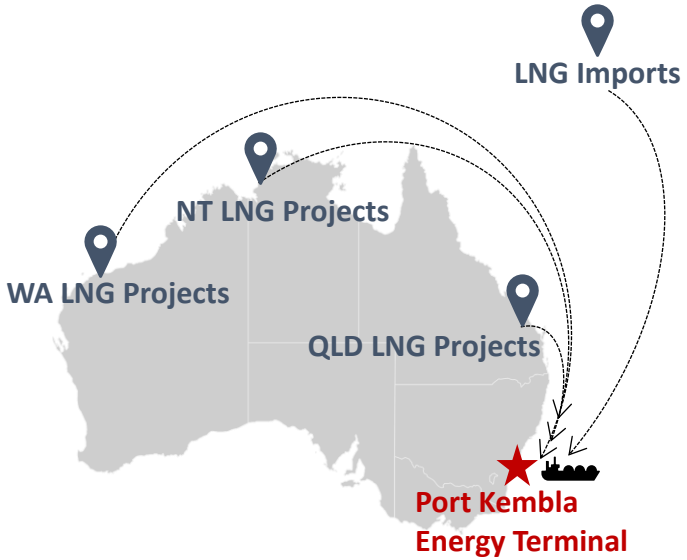


- **Full-scale Beetaloo volumes are not anticipated until 2030s due to upstream development uncertainties and pipeline constraints,** beyond which the delivered prices to Sydney are expected to range between **A$14-18/GJ (priced near LNG netback plus transportation)**
- In a supply-constrained market, **Bowen/Surat or NTLNG (if developed) will likely determine the market price**
- Only an oversupplied market would **drive the price of Beetaloo supply down to its breakeven pricing**

Note: (1) Includes tariffs for new/expanded pipelines to transport gas from the basin to demand centres; Beetaloo via Beetaloo-Ballera new pipeline, Bulloo Interlink, MSP (expansion), Bowen/Surat via SWQP, Bulloo Interlink, MSP (expansion); (2) Price differences between the delivered prices of Beetaloo and Bowen/Surat supply represent the price differences between consumers' next best alternative of buying gas from Queensland LNG exporters in a supply shortage and producers' next best alternative of selling gas to LNG exporters in Queensland; (3) Breakeven gas price represents the price at which gas production is commercial, calculated with a yearly discount rate of 10%
Source: Rystad Energy research and analysis

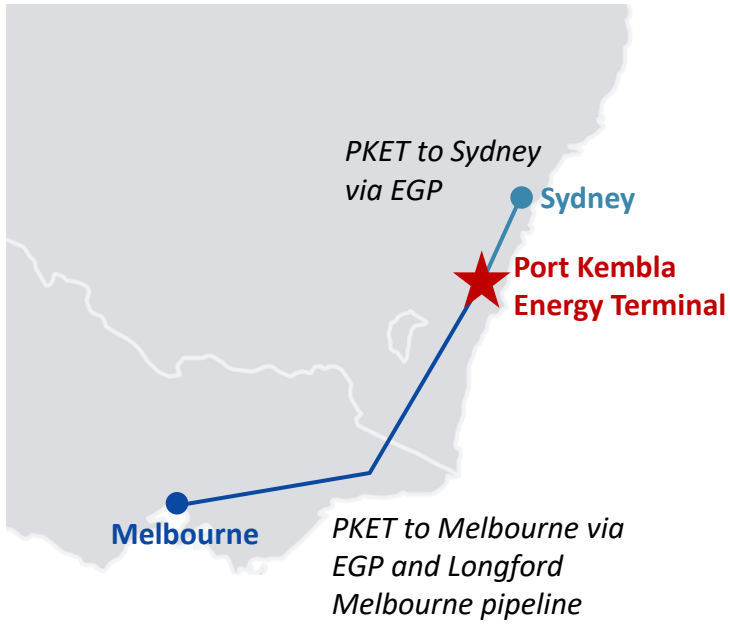
Two pathways emerge for bringing LNG to Port Kembla Energy Terminal (PKET) – importing LNG from international markets or transporting domestically produced LNG

LNG Procurement Considerations[1]



LNG can be sourced from Australian liquefaction terminals or global markets through spot or long-term contracts. Procurement cost could benefit from Australia's inverse seasonality

Regasified LNG Delivery Pipeline Routes



Regasification to take place at PKET, which is connected to existing pipelines for transporting gas to Melbourne and Sydney

2A **LNG Regas Option 2A:**
Spot LNG from International Market

2B **LNG Regas Option 2B:**
Spot LNG from Domestic Market

2C **LNG Regas Option 2C:**
Oil-linked LNG from International Market

2D **LNG Regas Option 2D:**
Oil-linked LNG from Domestic Market

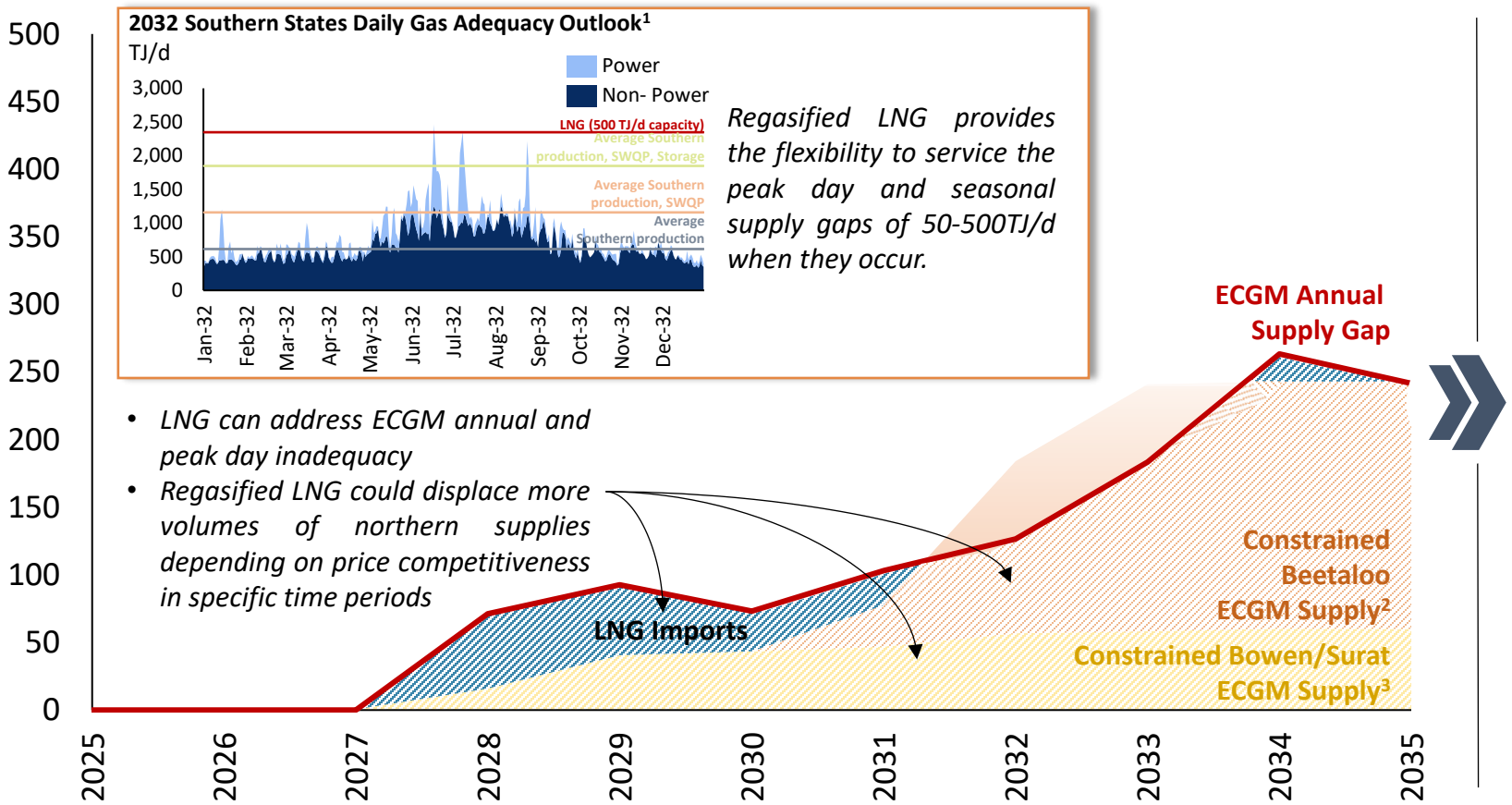
Pricing assessment for gas delivery from Port Kembla Energy Terminal to Melbourne and Sydney

Note: (1) The route shown is indicative only and does not represent the exact path that may be taken
Source: Rystad Energy research and analysis

Regasified LNG can meet ECGM's annual and peak day shortfall timing & capacity requirement, complementing northern supply to add supply as and when needed

Constrained Northern Supply to ECGM with Pipeline Constraints

PJ

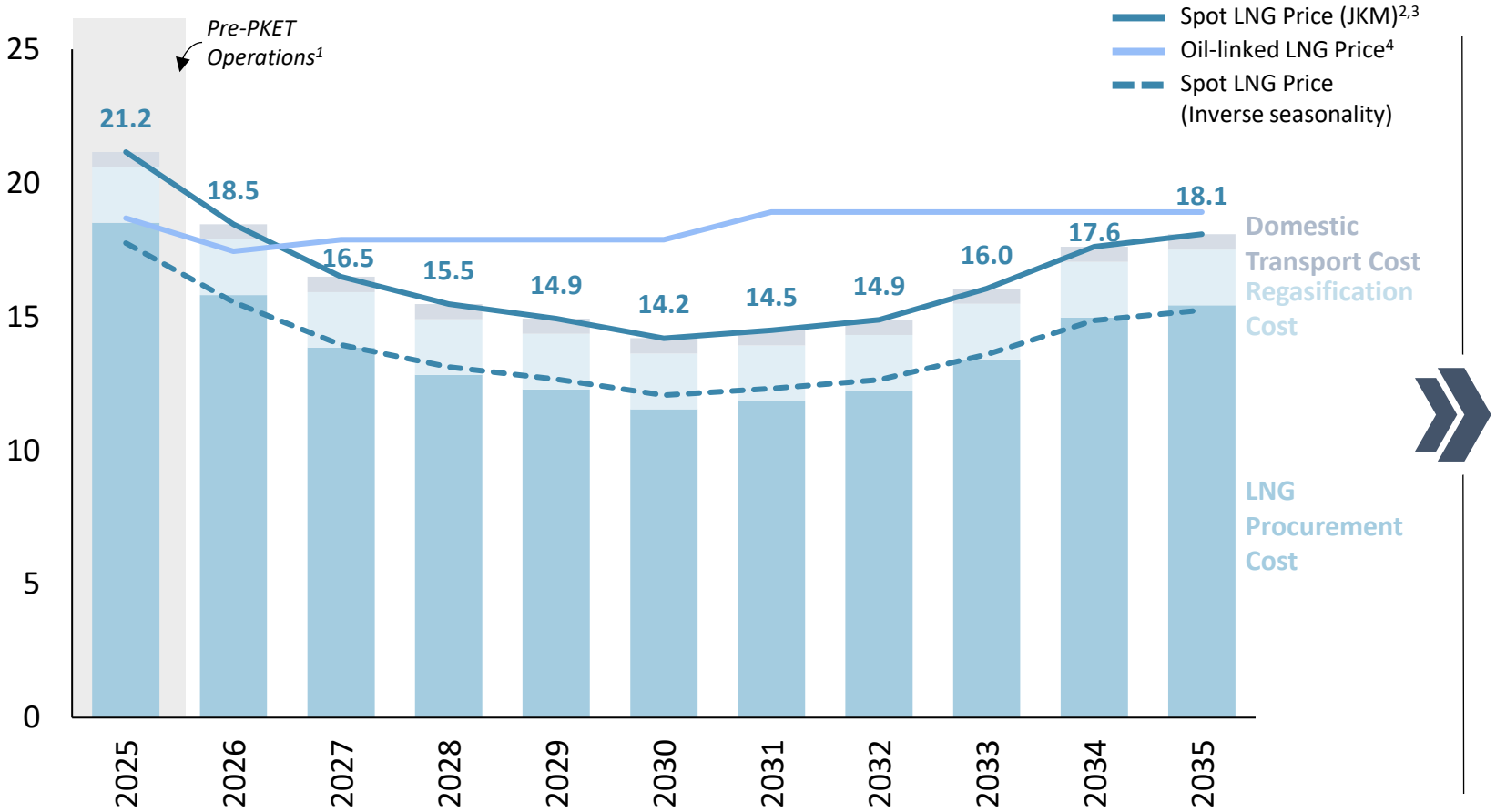


- Regasified LNG can be **available by winter 2026**
- The **international and Australian markets are expected to have surplus uncontracted LNG available for supply to Australia,** aligning with anticipated ECGM shortfall timing
- **LNG regasification at PKET will add >500TJ/d capacity on top of other new or existing gas supply,** supporting both annual and peak day supply requirements
- **LNG offers a flexible supply option**, enabling access to new domestic and international gas sources and brings added supply security in the event of Beetaloo development delays

Note: (1) Average 2032 southern production includes firm supply and selected pre-FID projects in NSW, SA, TAS, and VIC, and is determined by averaging annual supply across 365 days. SWQP capacity assumed at 90% utilisation. Storage capacity includes maximum withdrawal capacity from Iona and the average withdrawal capacity for storage facilities in Dandenong and Newcastle; (2)Accounts for remaining pipeline capacity in the 50TJ/d Sturt Plateau Pipeline (2025-2030) and the 500TJ/d new Beetaloo-Ballera pipeline (2031-2035) that is available after subtracting capacity taken up by base case Beetaloo volumes; (3) Bowen/Surat base case supply volumes assumed to be absorbed by demand from LNG plants in Queensland, enabling full availability of SWQP capacity from Wallumbilla to Ballera/Moomba. Source: Rystad Energy research and analysis; Rystad Energy UCube; Squadron Energy; AEMO

Starting 2026, spot LNG to Sydney is expected to range from A$14-19/GJ, with ~18% lower prices in June-August

LNG Delivered Price to Sydney by LNG Price Marker
AUD/GJ (Real 2025)



- Global spot LNG prices are likely to see a decline towards 2030 driven by an anticipated surplus in global LNG supplies
- Australian LNG buyers can **leverage the country's counter-seasonal demand** to procure spot LNG at a lower price
- **LNG buyers could secure LNG at seasonal prices approximately 18% lower** than the annual average during the Australian winter
- **Shipping of domestic LNG is estimated to be ~A$0.10-0.70/GJ cheaper** than importing[5]

Note: (1) Squadron Energy has announced a 2026 commencement timeline for the Port Kembla Energy Terminal; (2) Spot LNG price refers to prices of spot LNG cargo delivered to East Asia (Japan), and is used as proxy for delivered price to Australia due to minimal variations in voyage distance and duration between two destinations (<10%); (3) Spot purchase LNG is linked to JKM price marker, and suits short-term or seasonal needs; (4) Oil-linked long-term contracts provide supply stability during prolonged supply deficits. Brent-linked LNG prices assumes a long-term Brent price of 70 USD/bbl and a 13-14% indexation between 2025-2035; (5) Subject to Australia's maritime cabotage guidelines.
Source: Rystad Energy research and analysis; Rystad Energy GasMarketCube

Compared to Northern supply, regasified LNG offers more readily available, diverse and flexible supply in times of a domestic shortfall providing price insurance when its needed

Comparative Analysis of the ECGM Supply Options

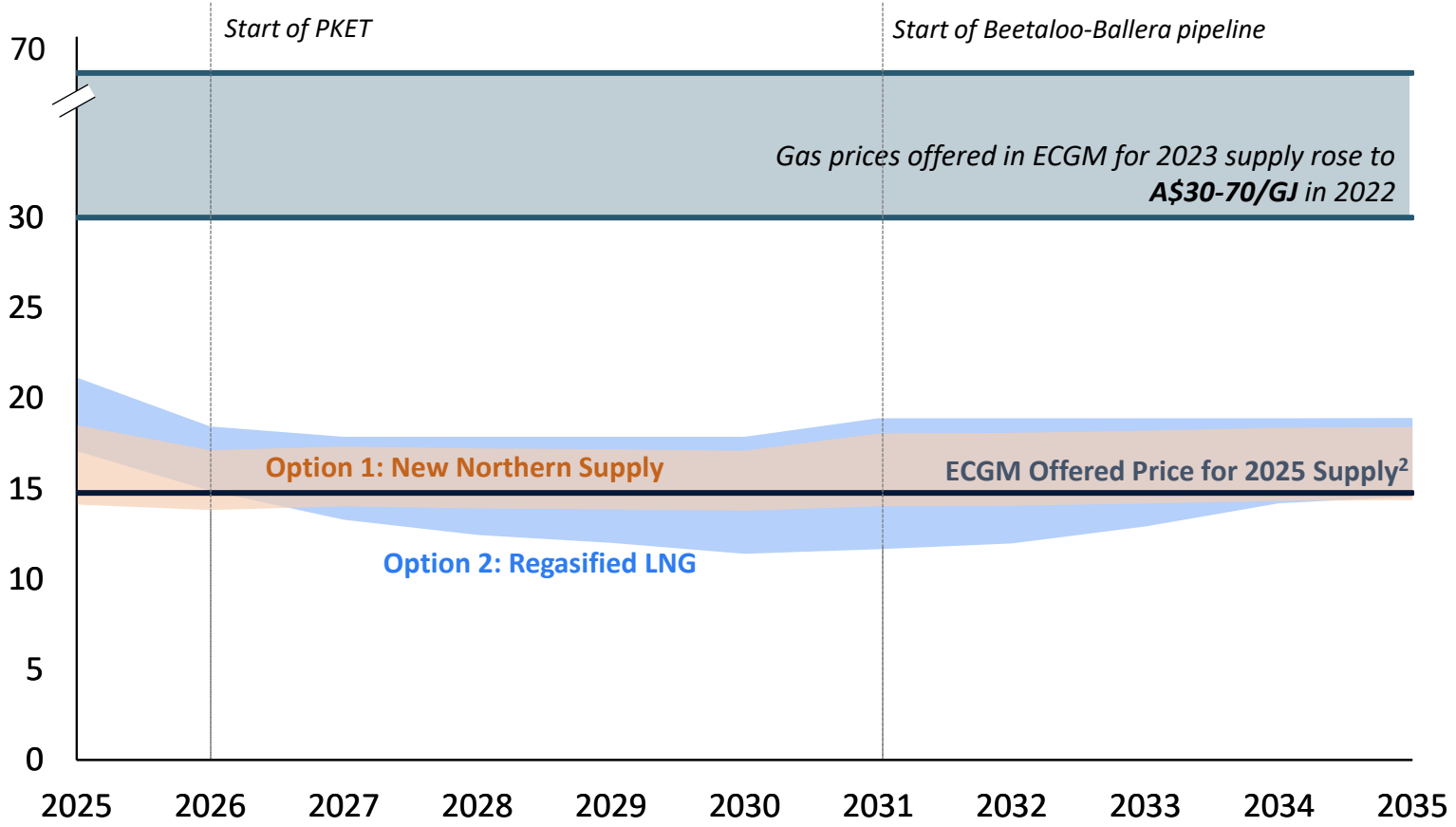
	Considerations	OPTION 1: New Northern Supply		OPTION 2: LNG Regasification Terminal	
Availability of Supply	Availability of supply in adequate volumes and at required time to address the ECGM shortfall	🟡	*Northern supply is unlikely to meet the ECGM shortfall in time and at sufficient volume, due to time required to develop upstream resource, construct new pipelines and the downstream capacity constraints of existing pipelines*	🟢	*Sufficient uncontracted LNG is expected to be available in the international market and from domestic LNG export projects through 2035*[1]
Diversity of Supply	Diversity in gas supply, reducing dependence on a singular gas source or supplier, and restoring system resilience	🟡	*Relying on just Northern supply could concentrate production with few producers and a single supply transportation pathway, reducing competition, and increasing pipeline risks, as any disruptions could significantly impact supply*	🟢	*LNG buyers can access multiple suppliers both domestically and globally and switch between them depending on contract terms and availability*
Flexibility of Supply	Flexibility to scale supply volumes in response to market-driven fluctuations in gas demand	🟡	*Upstream gas production is generally not flexible enough to respond quickly to short-term demand spikes, requiring additional storage to manage peak day and seasonal demand fluctuations*	🟢	*Spot LNG offers flexibility, and is suitable for use to meet short-term demand spikes. Oil-linked LNG is less flexible, but FOB-based procurement could enable cargo diversion if demand is lower than expectations*
Security of Supply	Vulnerability to disruptions caused by geopolitical factors and extreme weather events	🟡	*Domestically-produced supply's value chain is less exposed to international volatility but can be affected by it through its connection to the QLD export terminals*	🟡	*The international LNG market is vulnerable to geopolitical disruptions such as tariffs and route blockades, which can impact costs and delivery time. Diversifying supply sources helps mitigate these risks*

Note: (1) Assumes available Australian-flagged LNG carriers
Source: Rystad Energy research and analysis

🔴 Low suitability 🟡 Medium suitability 🟢 High suitability

Regasified LNG unlocks supply diversity, price certainty, and access to long-term gas alternatives, enabling cost competitiveness now and into the future

Delivered Price to Sydney by supply options[1]
AUD/GJ (Real 2025)



- **Without sufficient supply, domestic gas prices will spike beyond LNG netback,** risking extreme price spikes as seen in the domestic gas market in 2022
- **LNG regasification unlocks access to additional gas.** More supply in the market would lead to lower prices for end-use customers
- **Regasified LNG can be competitive with the delivered price of new Northern supply**, especially when procured during Australia's winter, when seasonal spot LNG prices typically fall below the annual average

Note: (1) The price range reflects all assessed arrangements for the two supply options: Option 1, "New Northern Supply," includes the highest and lowest assessed prices for Beetaloo and Surat/Bowen Basin volumes delivered to Sydney via existing, new, or expanded pipelines, while Option 2, "Regasified LNG", accounts for sensitivities around spot LNG, oil-linked LNG, inverse seasonality, LNG origin (domestic and international); (2) Producer Volume Weighted Average Price for offers in ECGM for 2025 supply during Jan-June 2024 period. Source: Rystad Energy research and analysis; Rystad Energy Eastern Australia Gas Market Analysis Dashboard; ACCC

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