

# Gas markets – a bridge too far?



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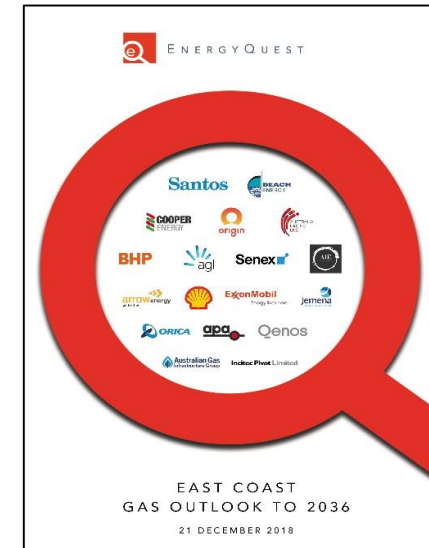
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# EnergyQuest

- Australian-based energy advisory firm, providing independent energy market analysis and strategy for energy companies, energy buyers, investors and governments.
- Delivering timely data, rigorous analysis and sound strategic advice.
- Expertise includes oil, gas, power, LNG, renewable energy, pipelines and transport fuels.
- Provides market intelligence through our flagship EnergyQuarterly report, multi-client reports and advisory services.



# Gas Supply and Demand

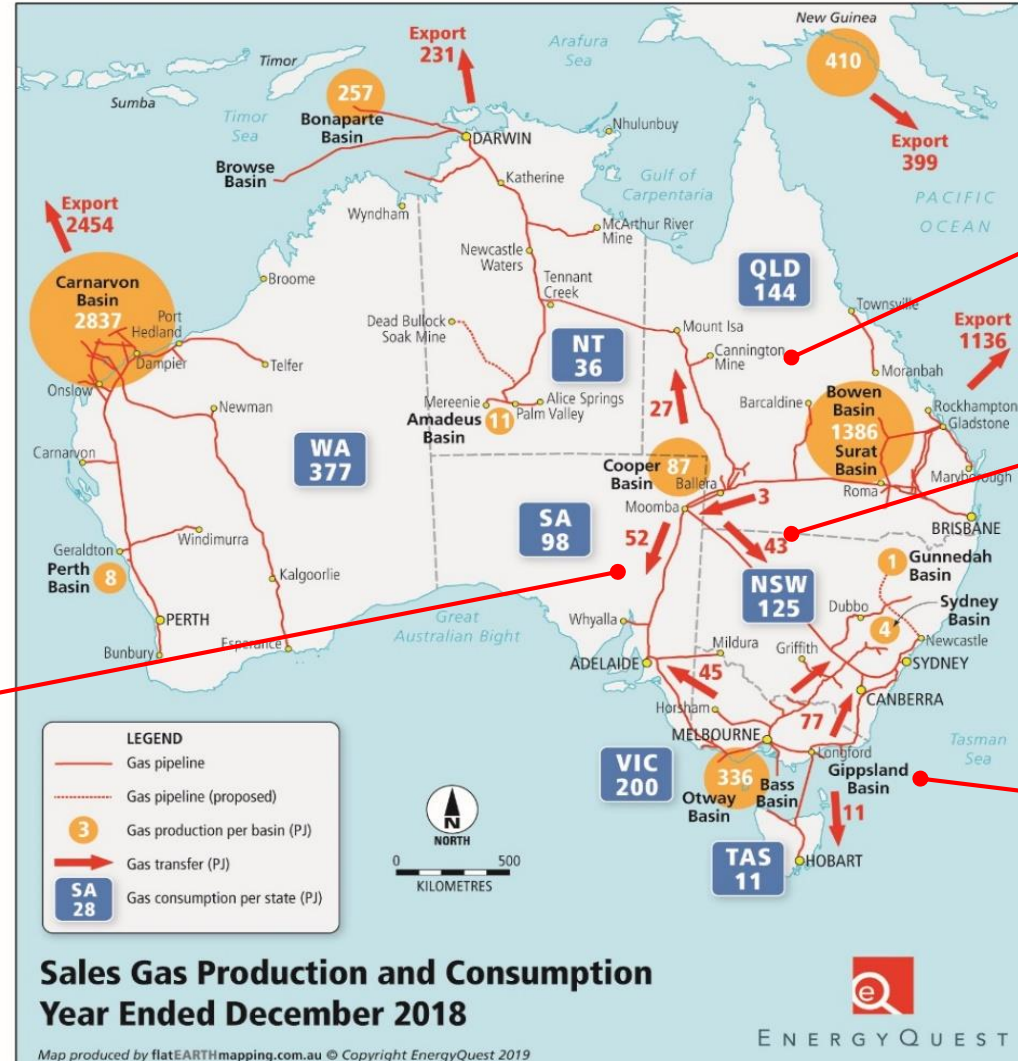
- The east coast is currently balanced, albeit at historically high prices.
- The west coast has gas prices comparable to Henry Hub.

South Australia is a small volume importer of gas

Queensland is self sufficient

Queensland provides the seasonal swing for the southern states

Gippsland supplies Victoria, Tasmania and NSW, but is expected to decline from 2022

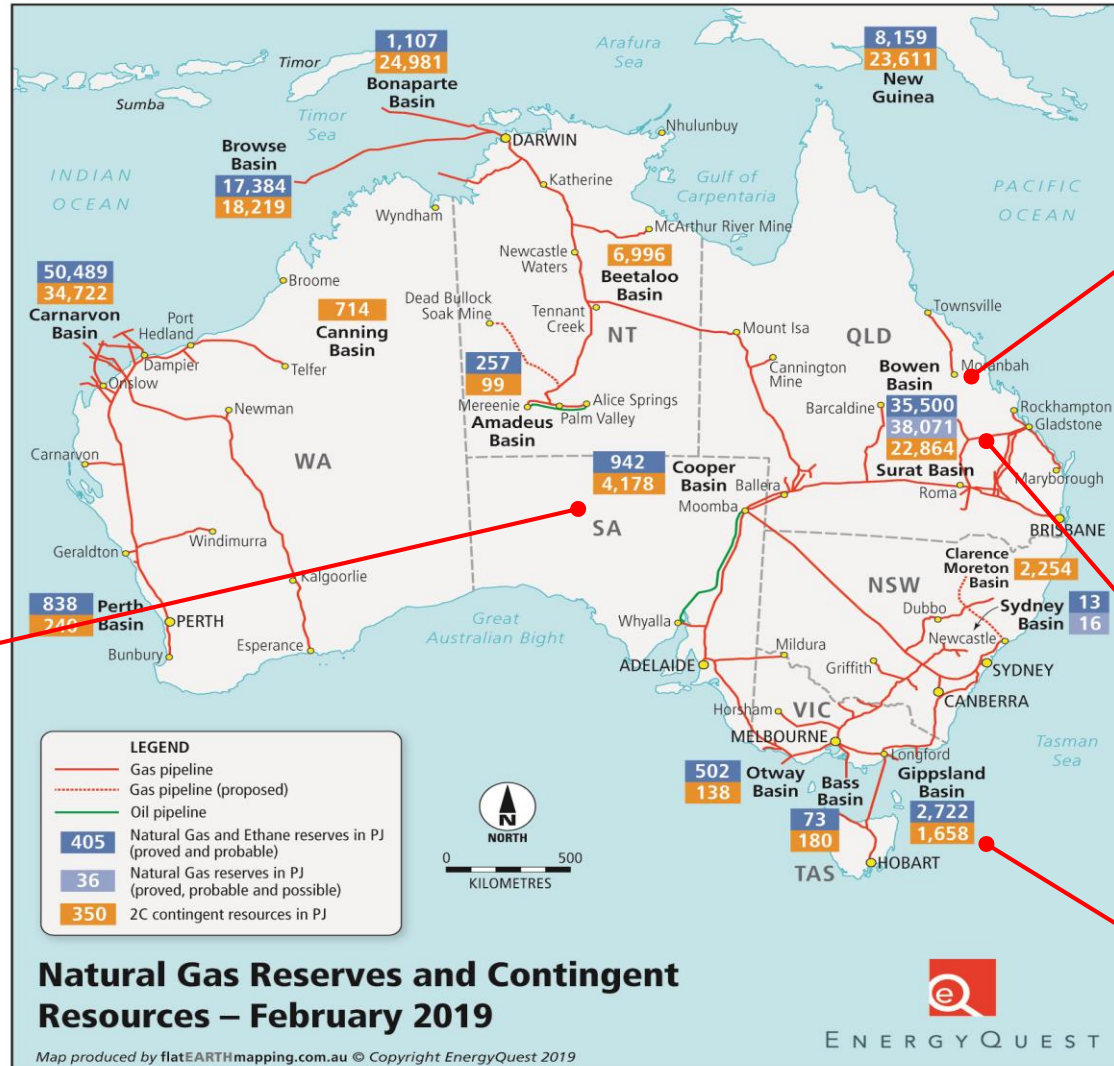


# Australian Gas Reserves and Resources

- East coast reserves have additional uncertainty.
- The conversion rates of contingent resources to reserves must improve.



Cooper Basin has 942 PJ of gas reserves



CSG is 89% of 2P reserves on the east coast/NT

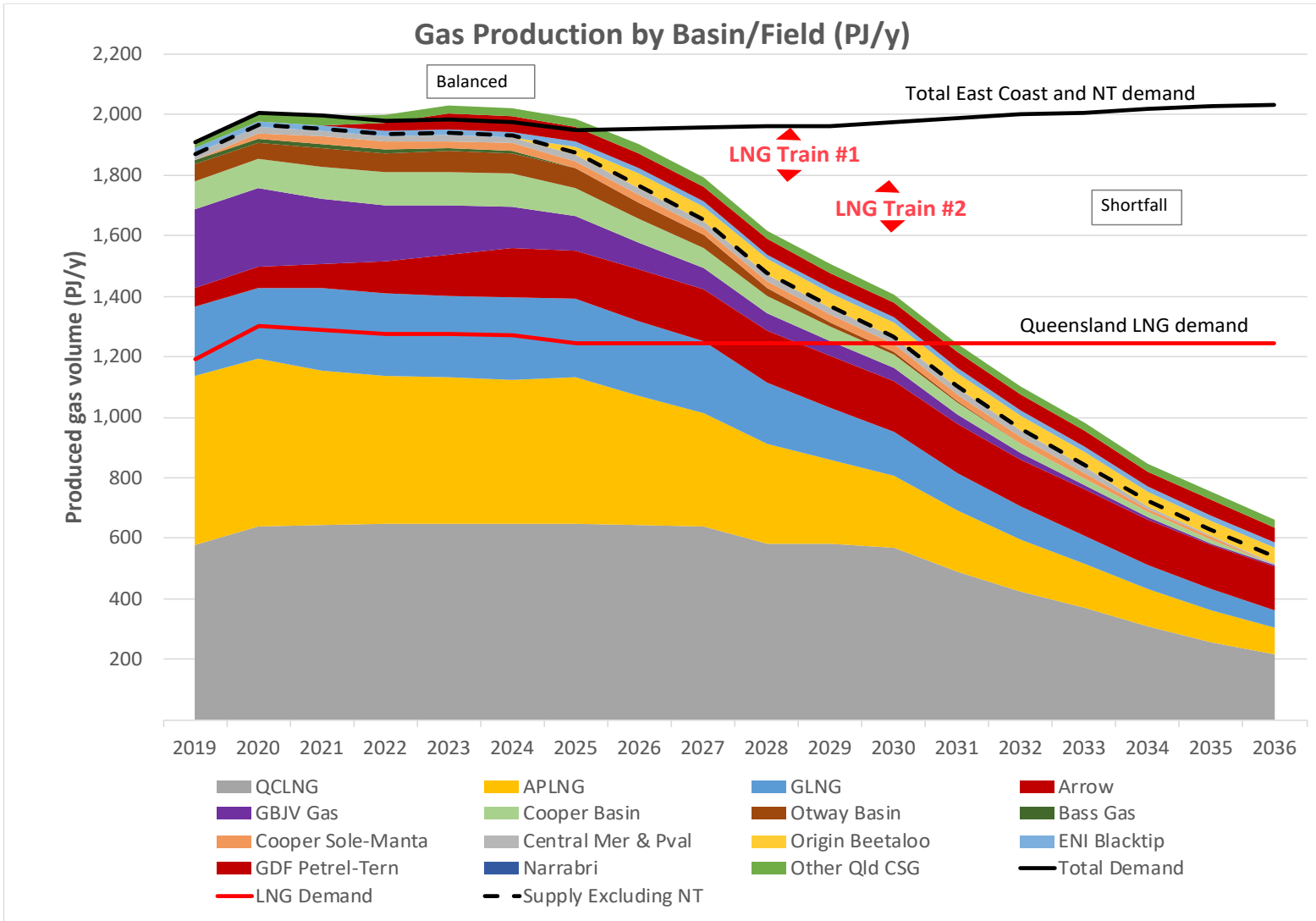
44% of CSG gas has no production history in the Production Licence

In the last 2 years more than 5,000 PJ of CSG reserves were downgraded to contingent resources

Gippsland production decline begins in 2022

# Gas Supply and Demand

- East coast and NT demand is expected to be short gas from 2026.
- Without additional gas, prices will remain high...
- ... and demand will fall.
- LNG trains may be mothballed.





# The Bridge to Renewables

The gas bridge to renewables is yet to appear

- Coal is holding up.
- Renewables are replacing gas-fired power generation.

## Electricity generation by fuel type

12 months to end...

TWh	March 2019		March 2018		% Change
Coal	146	72%	147	73%	-1%
Gas	16	8%	21	10%	-24%
Hydro	16	8%	13	7%	19%
Wind	15	7%	12	6%	25%
Solar farm	2	1%	1	0%	341%
Rooftop PV	9	4%	7	4%	25%
<b>Total</b>	<b>204</b>	<b>100%</b>	<b>200</b>	<b>100%</b>	<b>2%</b>

<b>Renewables</b>	<b>42</b>	<b>21%</b>	<b>33</b>	<b>16%</b>	<b>28%</b>
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Jan-Mar 19	Jan-Mar 18	% Change
37.3	37.8	-1%
5.2	4.8	7%
2.7	3.1	-14%
3.5	3.1	12%
1.0	0.2	465%
2.7	2.1	29%
<b>52.4</b>	<b>51.1</b>	<b>2%</b>

<b>10</b>	<b>8</b>	<b>16%</b>
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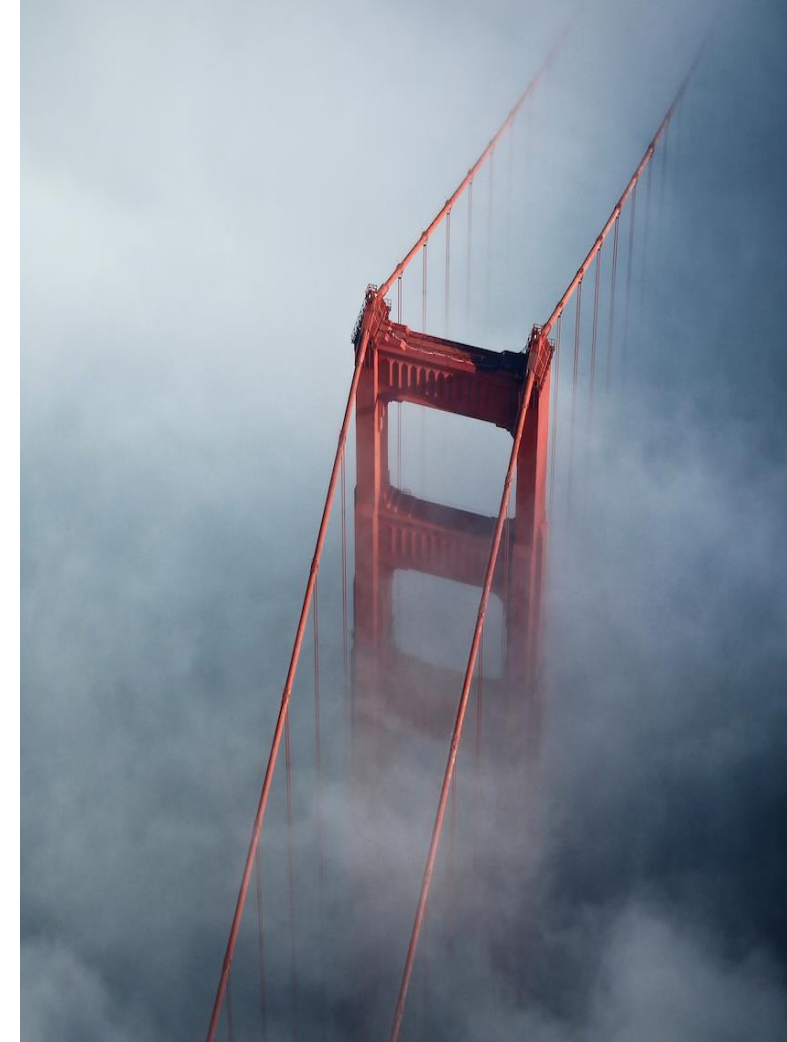


# Three Bridge Pylons

There are three options for the this outlook...

- Increase exploration, and bring on large volumes (multi Tcf) of low cost gas
  - North Bowen
  - Beetaloo
  - Offshore
  - New plays...but distance matters.
- Import LNG
- Decrease demand
  - Shut down one or two LNG trains
  - Higher gas prices work through the market

... or all of the above.



# Infrastructure and Investment

- **Capital is global, not just markets.**
  - if Australia gets too hard, or there are more profits in other countries, this will impact the industry development
  - The CSG production profile relies on an investment of \$2-3 billion each year.
- **Australian pipelines cover vast distances with relatively small volumes of gas.**
- **LNG import infrastructure has a place in Australia's gas supply.**
  - Ready peak supply capacity near demand centres
  - Competition for long distance pipelines
  - Ability to write long term gas supply contracts
  - Arbitrage opportunities to import low priced LNG
  - Flexibility to increase volumes with more shipments

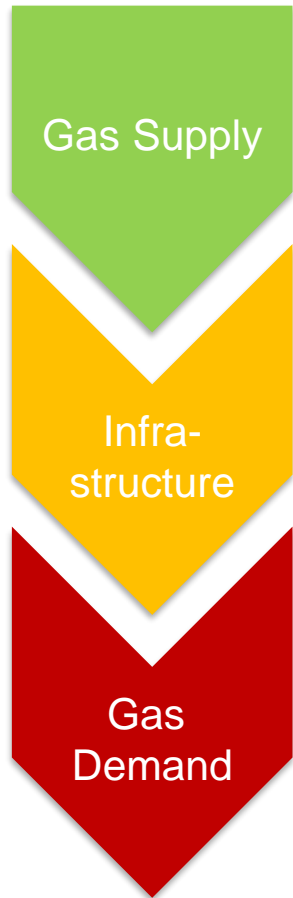




# Bridge Strategies

## Some headlines:

- Good times for explorers and producers who have gas, with high prices and strong demand
- Technical innovation to lower costs and tap the more difficult fields and new unconventional
- Smarter commercial deals with gas buyers to lower risk and increase options
- Pipeline success will (as always) depend on where the gas supply is
- LNG imports will change gas flows, and potentially strand assets
- Buyers should use a portfolio approach to gas supply
- Have long term gas in the portfolio, even when it costs more
- For lowest price gas, consider locating in WA



# Thank you



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