East coast peak angst: energy is getting even more complex

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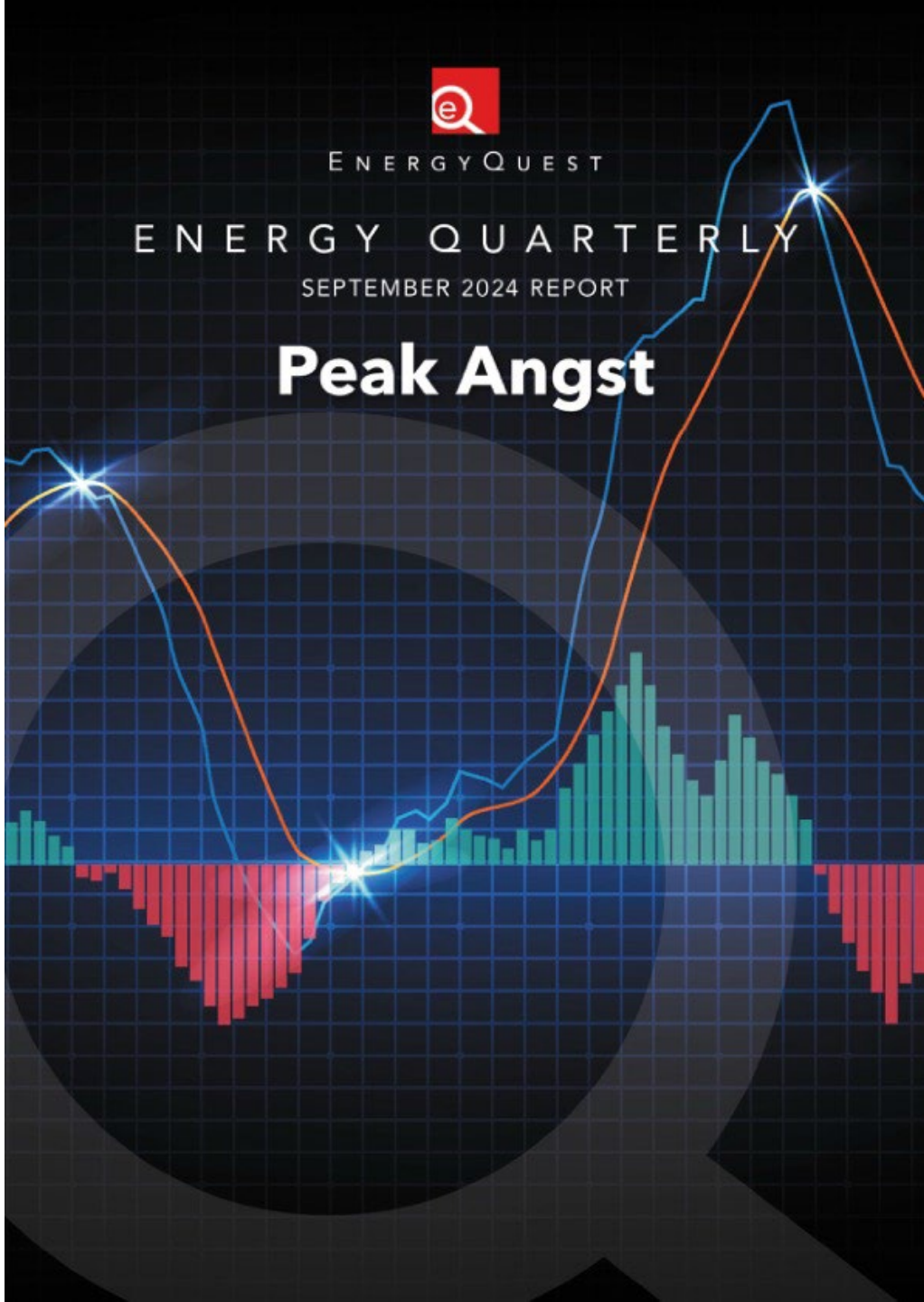


Introduction

East coast peak angst: energy is getting even more complex

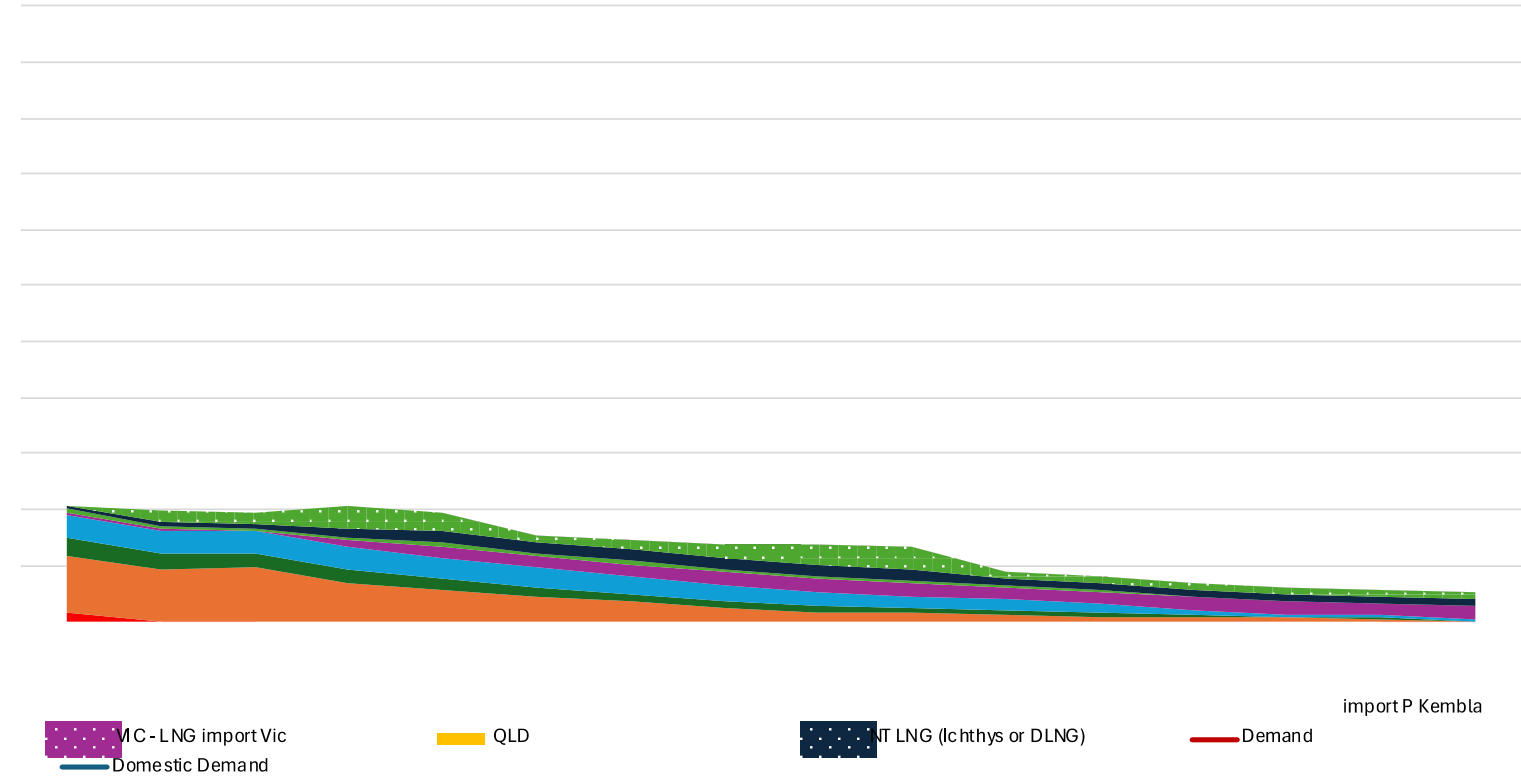
- East coast and NT gas supply/demand dominated by Queensland production
- Southern region supply is not likely to meet demand
- More supply and major upgrades to infrastructure are needed to meet peak and seasonal swings
- Australia is falling behind and could lose a golden opportunity in carbon capture

EnergyQuest…

- *an advisory firm, providing independent energy market analysis and strategy for energy companies, energy buyers, investors and governments around Australia and the world.*
- *Founded in Adelaide in 2005 by Graeme and Susan Bethune.*
- *Regular reports include the EnergyQuarterly, Australian LNG Monthly, East Coast Gas Outlook, and Western Australian Gas Outlook.*

East coast and NT gas supply

Gas supply to the east coast and NT markets is dominated by Queensland production



Source: EnergyQuest analysis

Southern Region: last three years

- **Gas supply to the Southern Region is changing quickly**

- Gippsland/Bass continues substantial decrease
- Otway projects increase supply
- Cooper continues decline
- Queensland to become a substantial supplier to the Southern Region

Southern Region: Demand and Supply

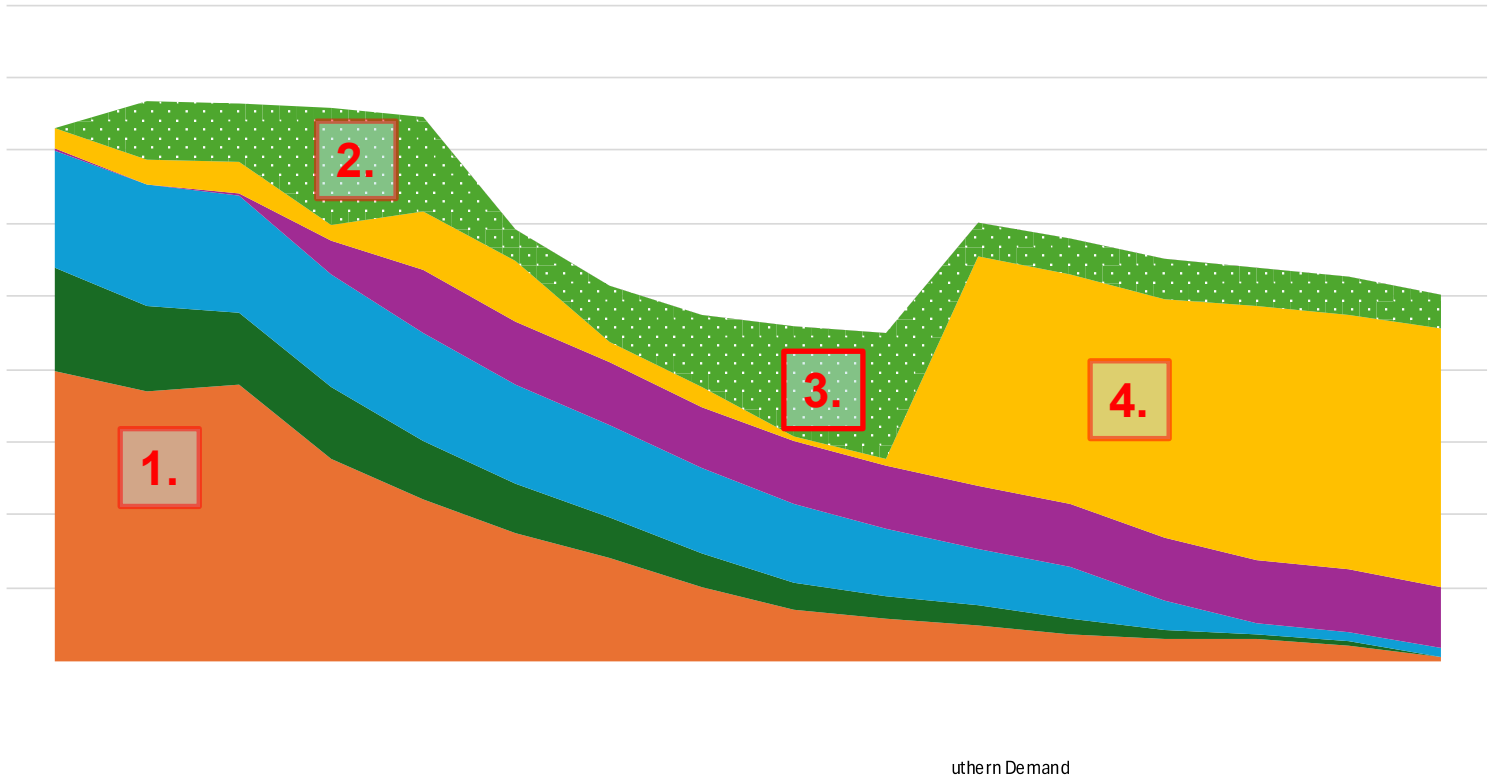
PJ/a	2022	2023	Change	Model 2024*	Change
Demand:	417	355	-62	388	33
Supply:					
VIC - Gippsland/Bass	315	219	-96	186	-32
VIC - Otway	48	38	-10	61	23
SA - Cooper	80	78	-3	70	-8
QLD	-26	10	36	38	28
Other/Storage/Balancing	-1	11	11	33	23
Supply	417	355	-62	388	33

* Indicative and preliminary
Source: AEMO, EnergyQuest analysis

Southern supply challenges

Gas supply to the Southern Region is changing quickly and unable to meet expected demand

1. Lower Gippsland production
2. LNG regas and additional storage required to meet ‘business as usual’ demand and peaks
3. Valley of death
4. Large Queensland CSG volumes after foundation contracts end

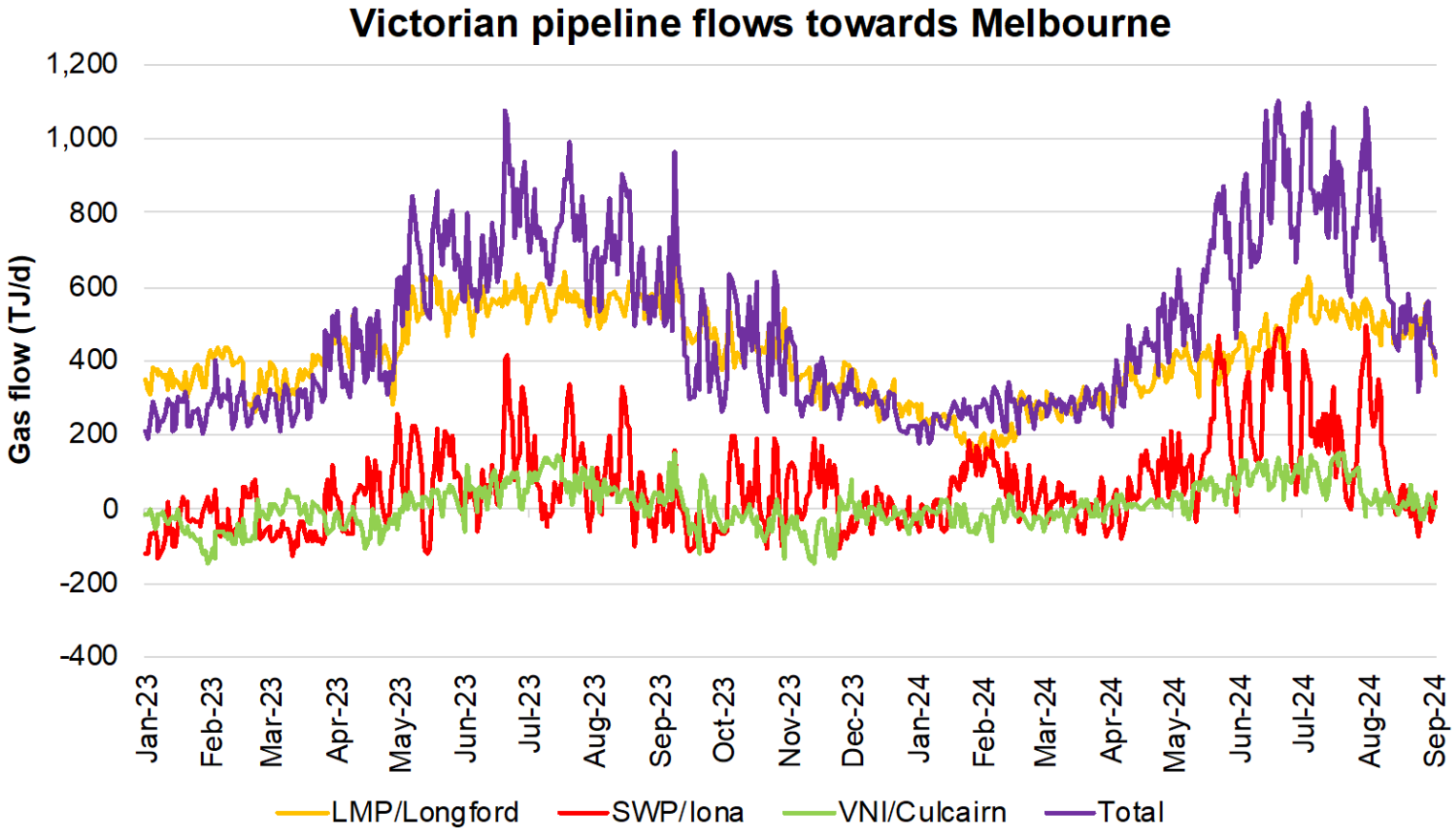


Source: EnergyQuest 2024 East Coast Gas Outlook modelling (preliminary)

Victorian seasonal and peak demand

Victoria is a particularly peaky energy market

- For Victoria, more energy is consumed from pipelines than over wires
- Seasonal gas demand swings by a factor of three
- Daily swings can be up to 50% of demand...
- ...so not just about annual supply, need gas available when needed (winter and peak days)

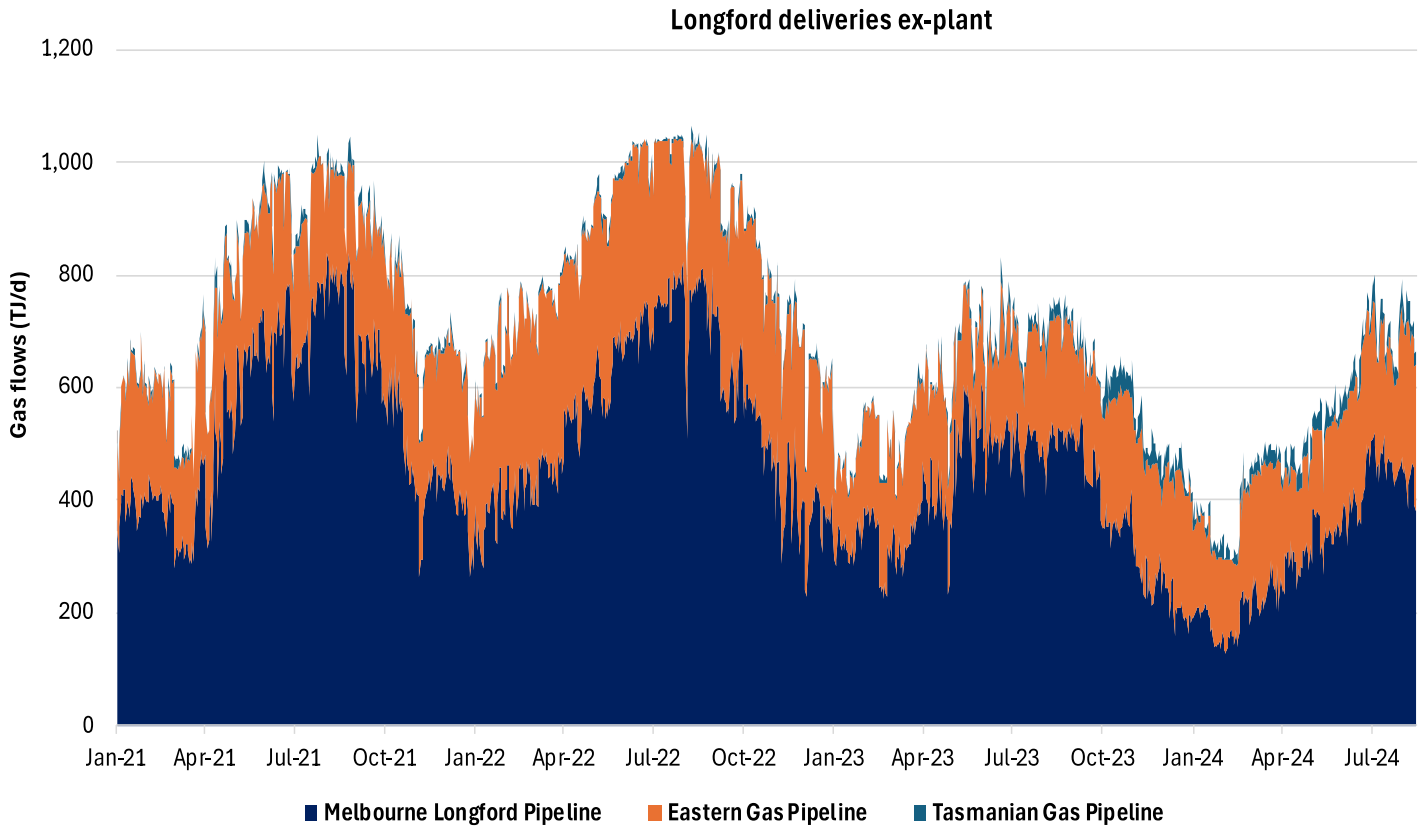


Note: Does not include Bass Gas
Source: AEMO, EnergyQuest analysis

Supply/Demand – seasonal and peak days

The decline of Longford supply is also in its peak capacity

- Peak capacity has declined 28% since 2022
- Further shutting down of capacity will see this decline by one third from 2022 capacity
- Replacing this loss in capacity would require doubling pipeline from north and/or storage
- Replacing a 200 TJ/d peak capacity with batteries would require 56 GWh of storage, or 25x's current installed battery capacity on NEM

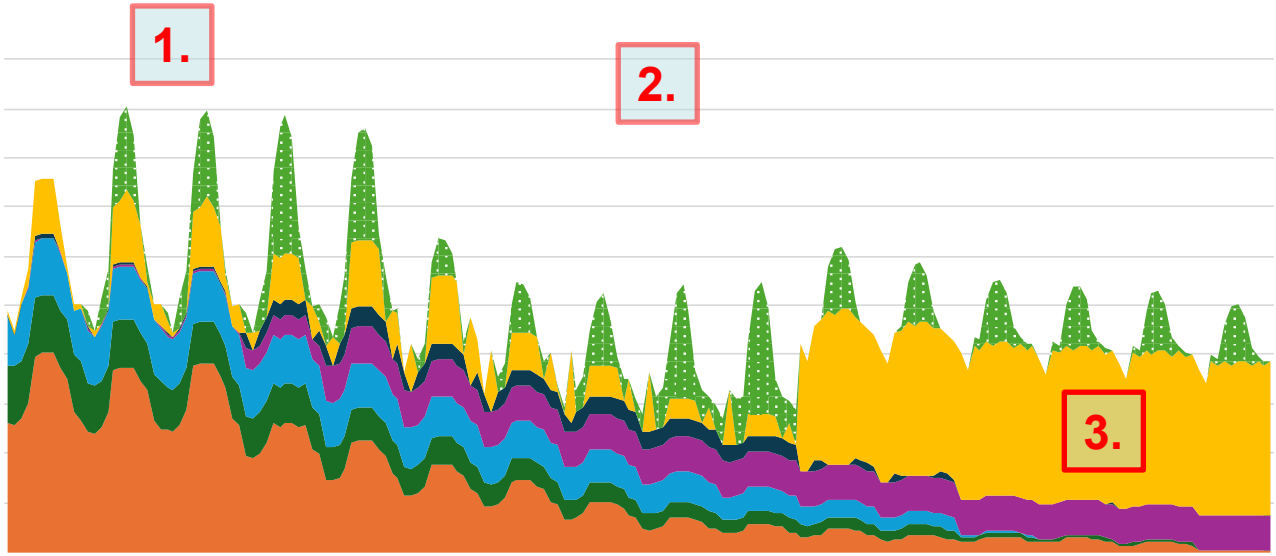


Source: AEMO, EnergyQuest

Southern supply challenges

More supply and major upgrades to infrastructure are needed to meet peak and seasonal swings

1. Current production cannot meet peak demand – more than 20% shortfalls in winter
2. Valley of death is when 2/3 of peak demand is not met by production
3. Large Qld CSG volumes cannot meet peak demand without major upgrades to infrastructure



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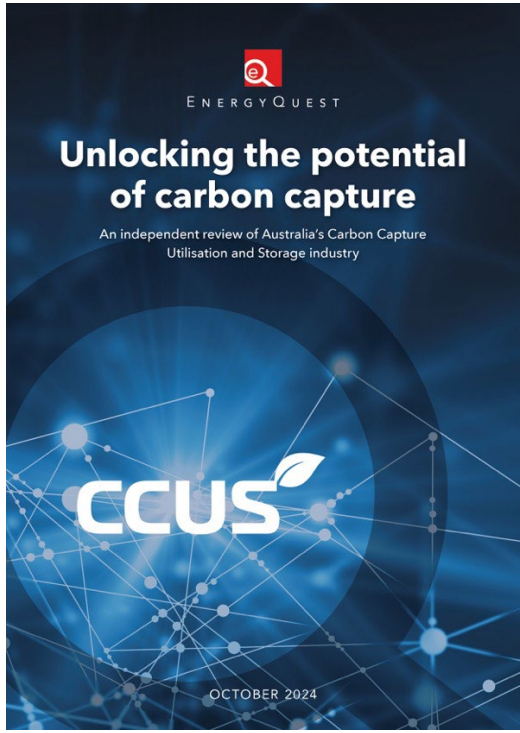
Source: EnergyQuest 2024 East Coast Gas Outlook modelling (preliminary)

Carbon capture

Australia is falling behind and could lose a golden opportunity in CCUS

- Australia is already home to one of the world's largest carbon capture and storage projects at Gorgon, and the recent successful start-up of another world scale CCS project by Santos at Moomba.
- Only seven of the remaining 19 proposed CCS projects have a public start date.
- Malaysia and Indonesia are already preparing to receive global CO2 shipments, competing with Australia for international storage opportunities.
- ACCUs are presently trading around $37/t CO2e, with a forecast to reach $60/t by 2030.
- By contrast, the EU currently trades carbon at around $117/t CO2e. Canada gave project developers $80/t in 2024 and will cap out at $189/t in 2030, while the US offers a tax incentive of $130/t of stored CO2.
- This combined with the low level of government incentives relative to other major countries, mean Australia is at risk of not realising the potential of carbon capture.



Thank you

EnergyQuest publications:

- **West Coast Gas Outlook 2024**
- **Unlocking the potential of carbon capture**
- **East Coast Gas Outlook 2024 (November)**

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