State of the Network

Prof. Paul Simshauser AM
Chief Executive

Energy as the foundation to the economy

Communication

Energy

Transport

Electricity as the foundation to the economy

Communication

Transport

Electricity

Investment

SuperGrid and Renewable Energy Zones

Renewable Energy Zones - Inflight

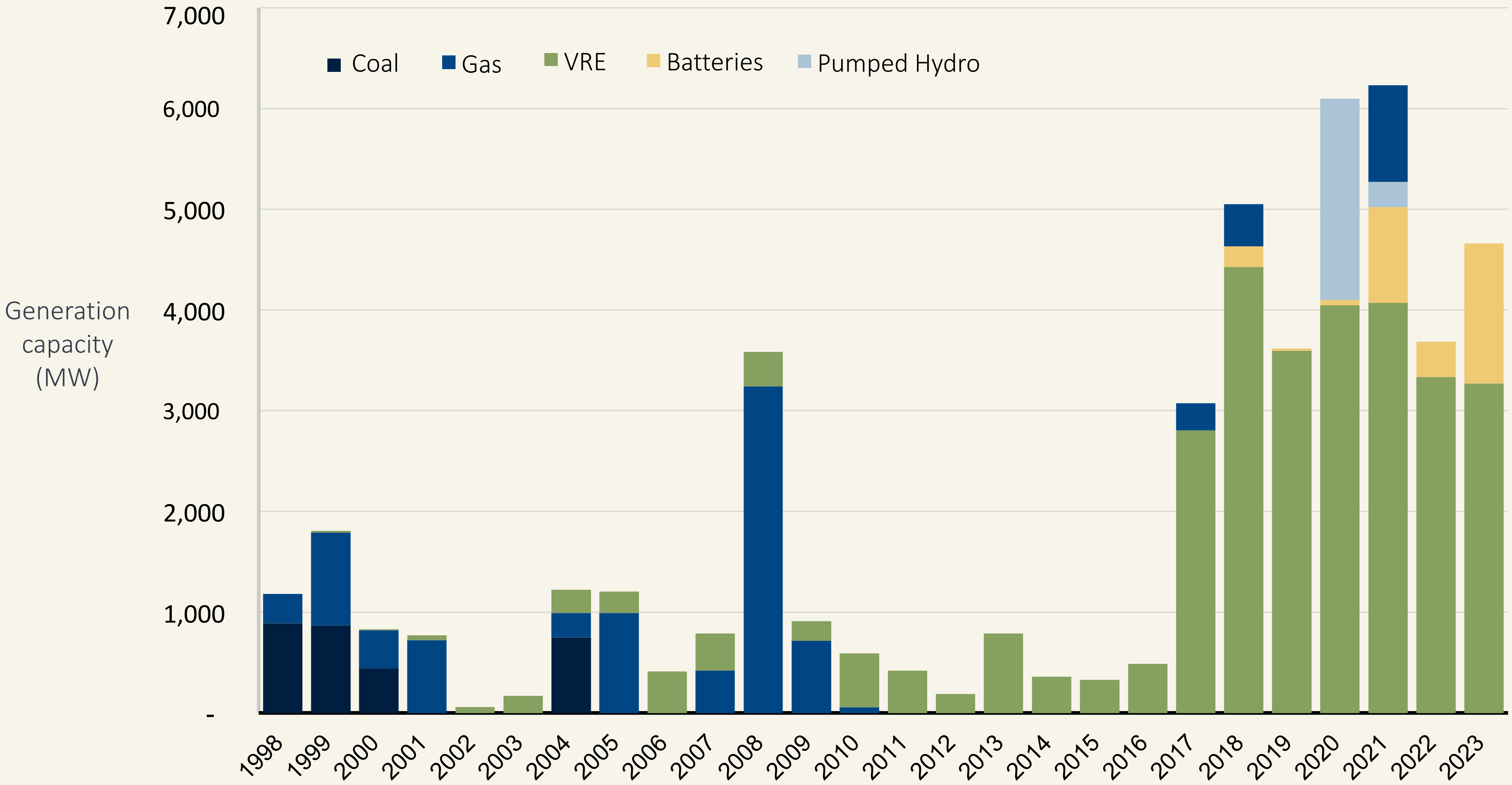
- Far North Queensland
- Southern Downs
- Western Downs

Strengthening Gladstone

Renewable Energy Zones - Phase 1: 2022 to 2024

- Calliope
- Callide

NEM 'plant commitments' by financial year

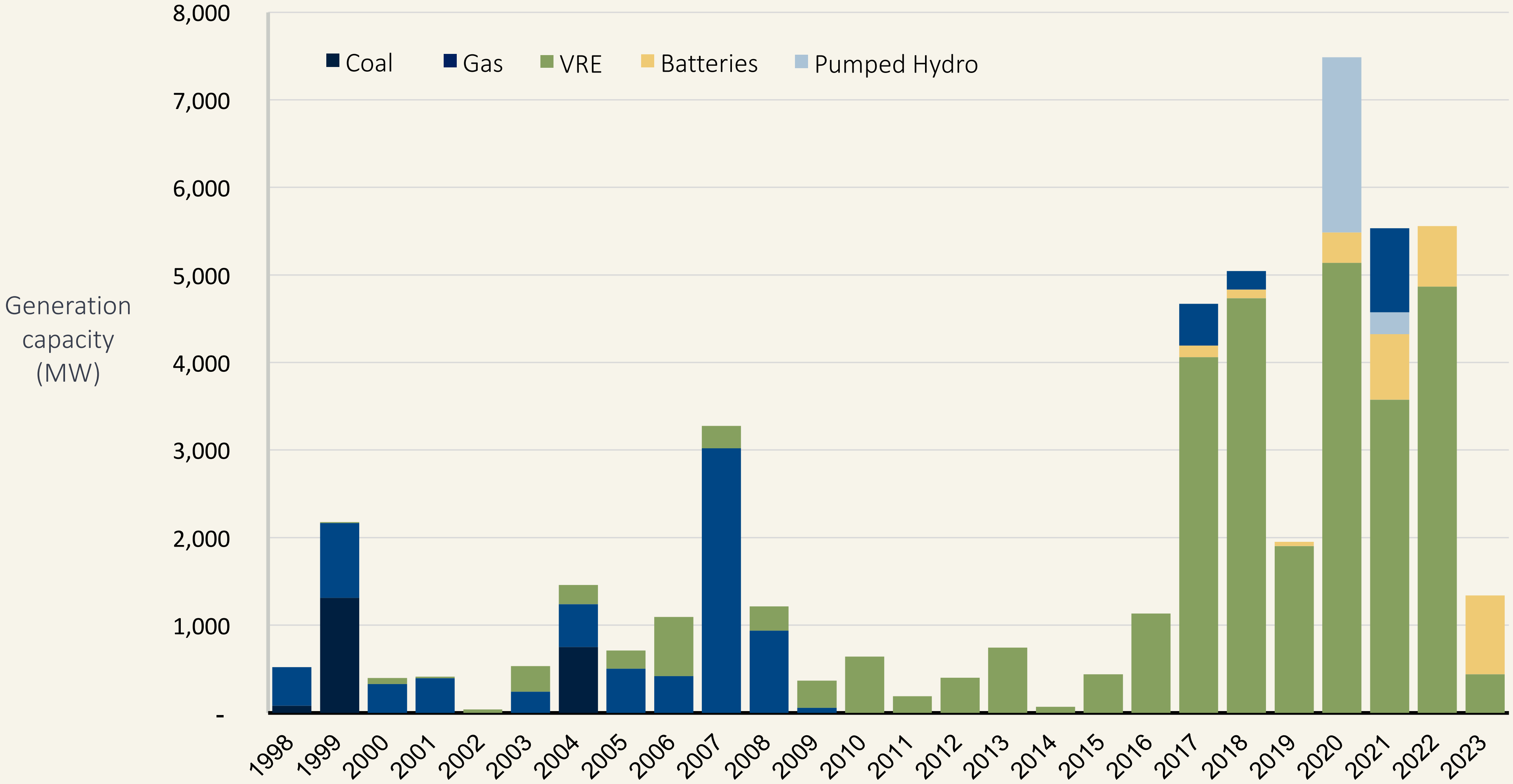


2016-2023
- 193 Projects
- 29 GW
- $63.8 bn

Wind
- 50 Projects
- 9.6 GW
- $23.0 bn

Solar
- 108 Projects
- 12.5 GW
- $20.4 bn

NEM ‘plant commitments’ by calendar year



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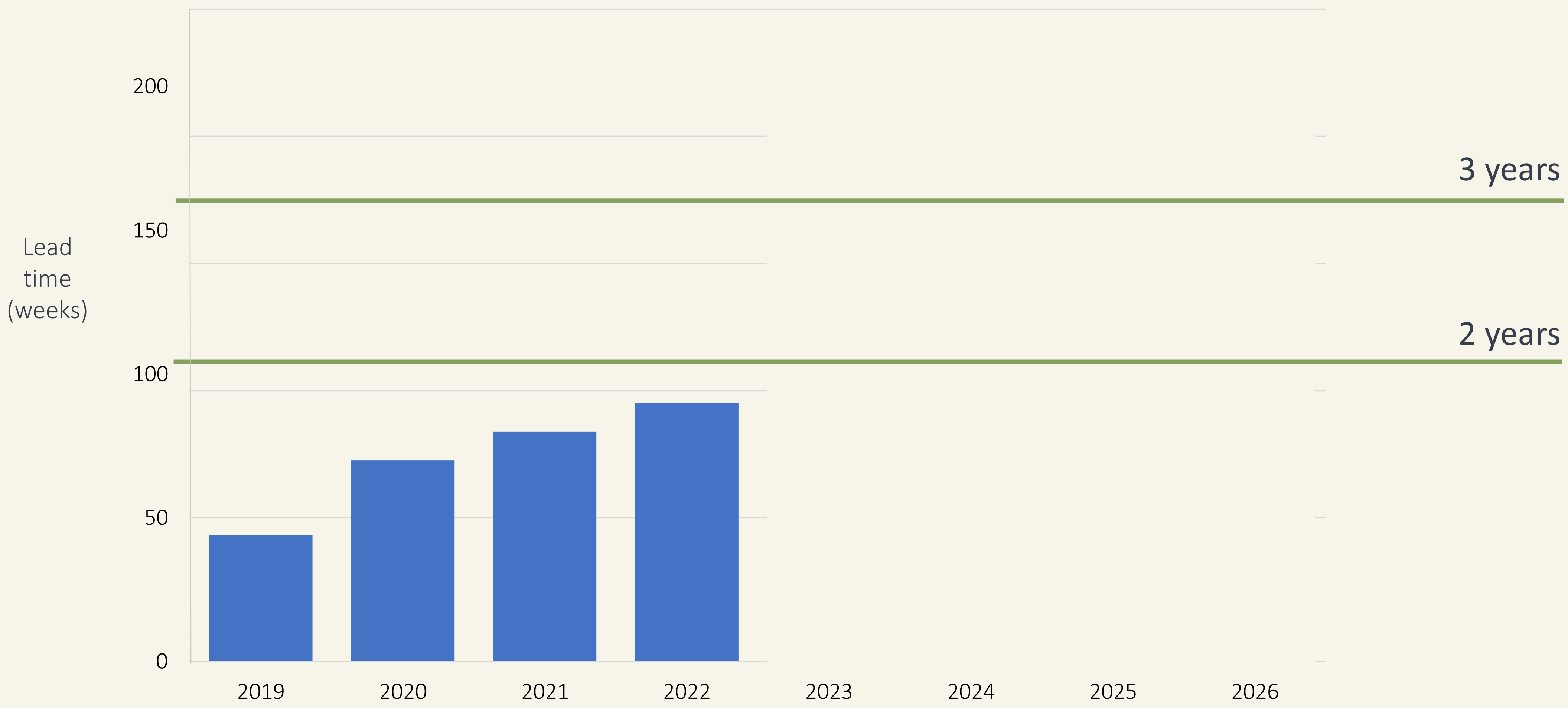
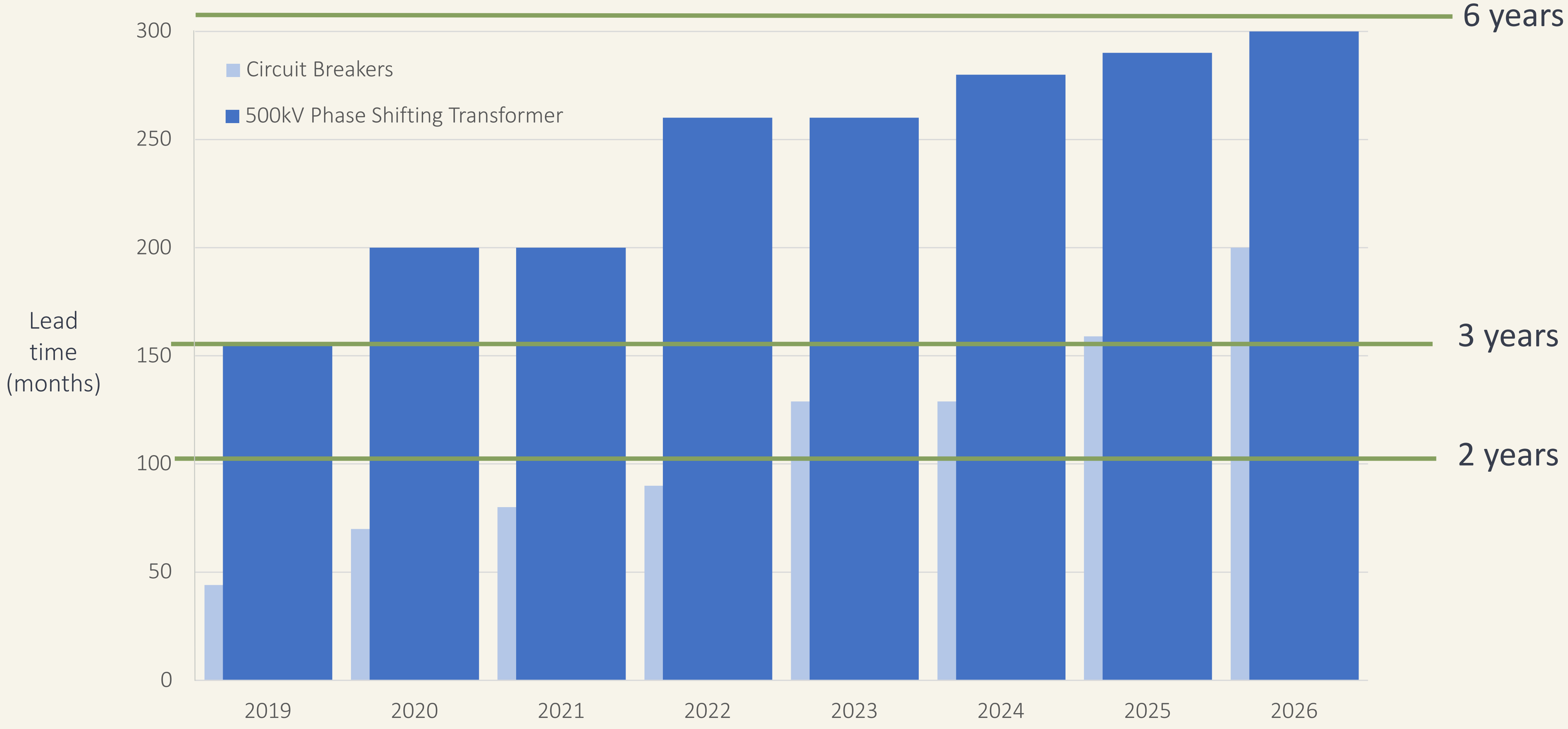
Circuit breakers - lead order time

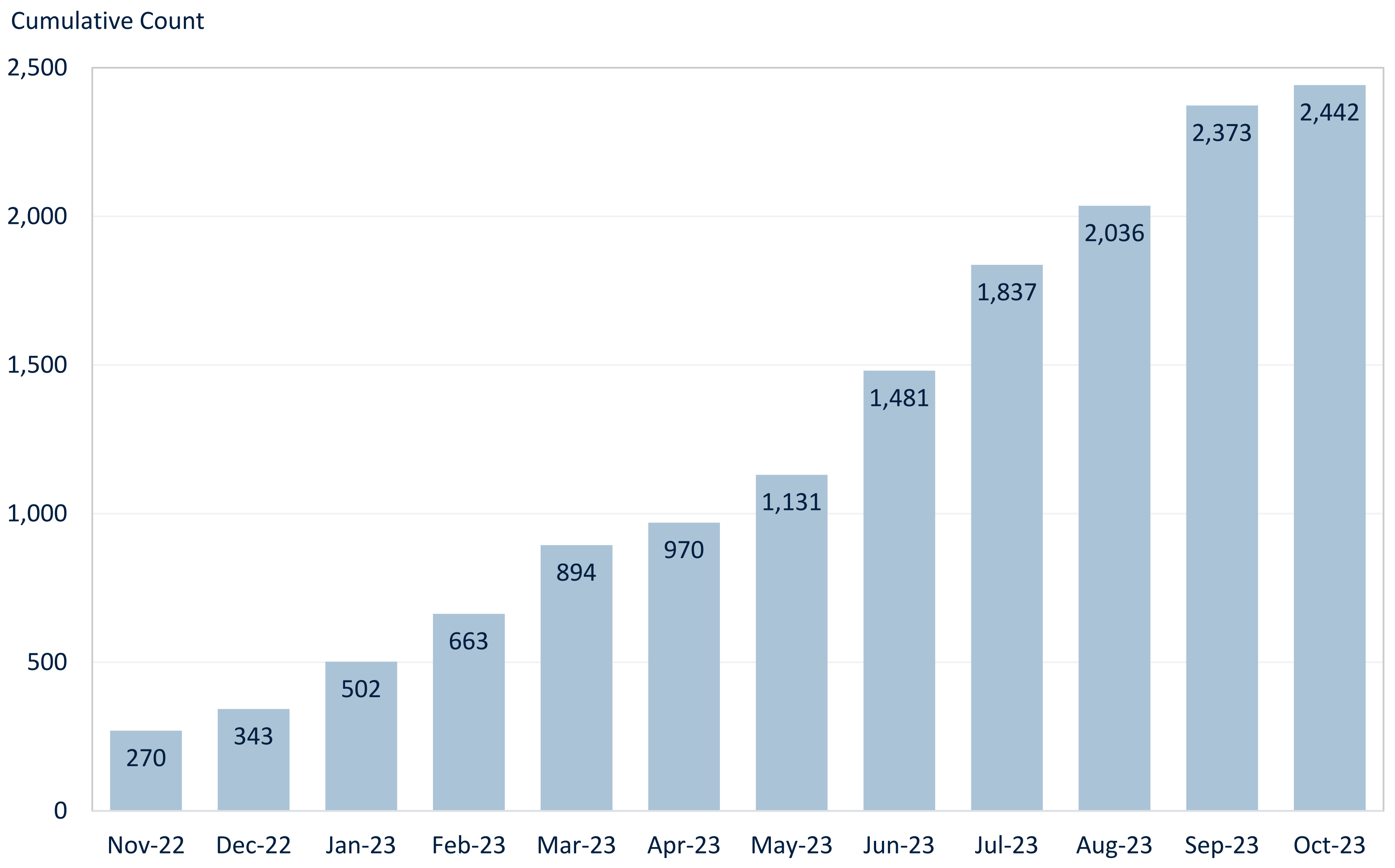


Phase shifting transformers - lead order time



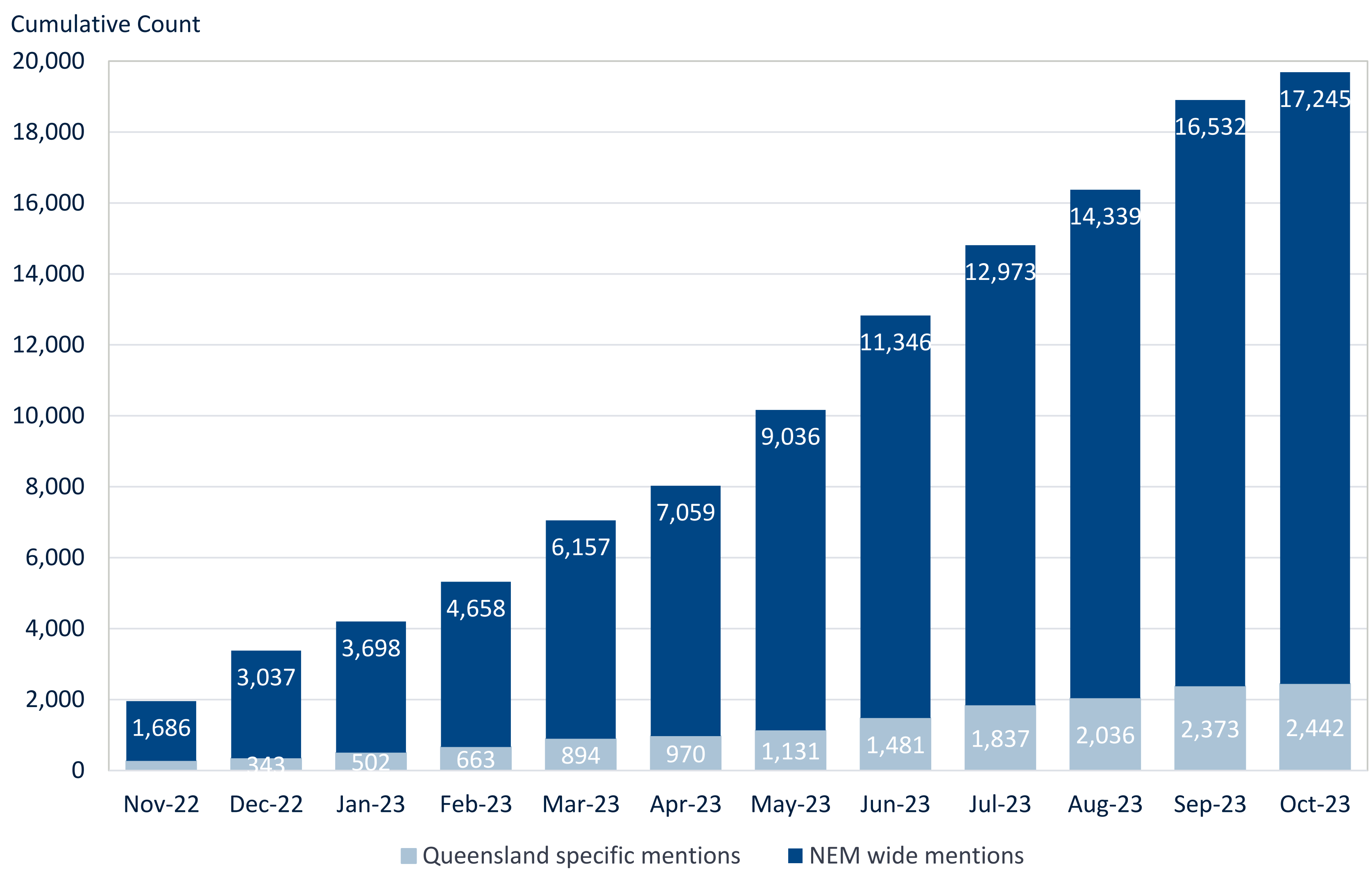
Media count: Queensland specific mentions

Social licence to operate + community engagement + energy + Queensland

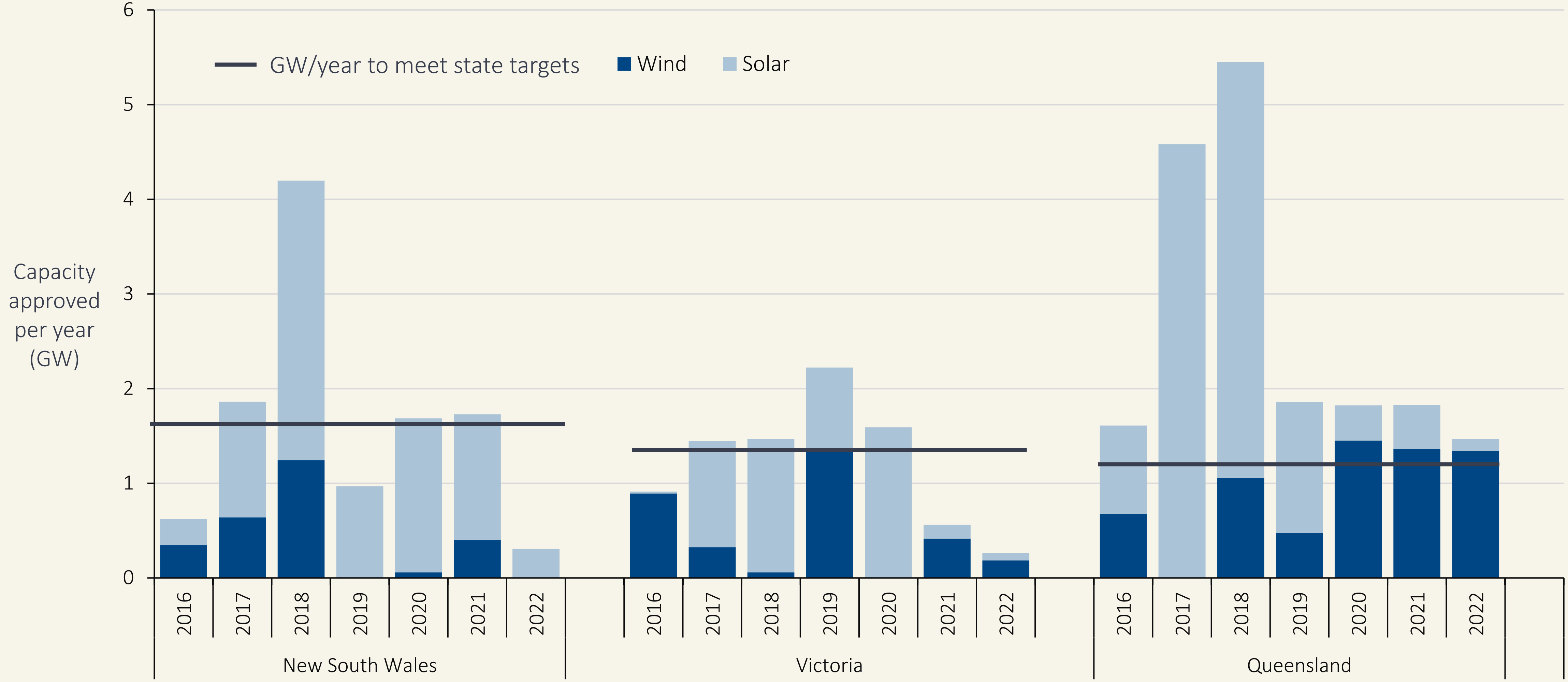


Media count: Queensland specific mentions v NEM wide mentions

Social licence to operate + community engagement + energy

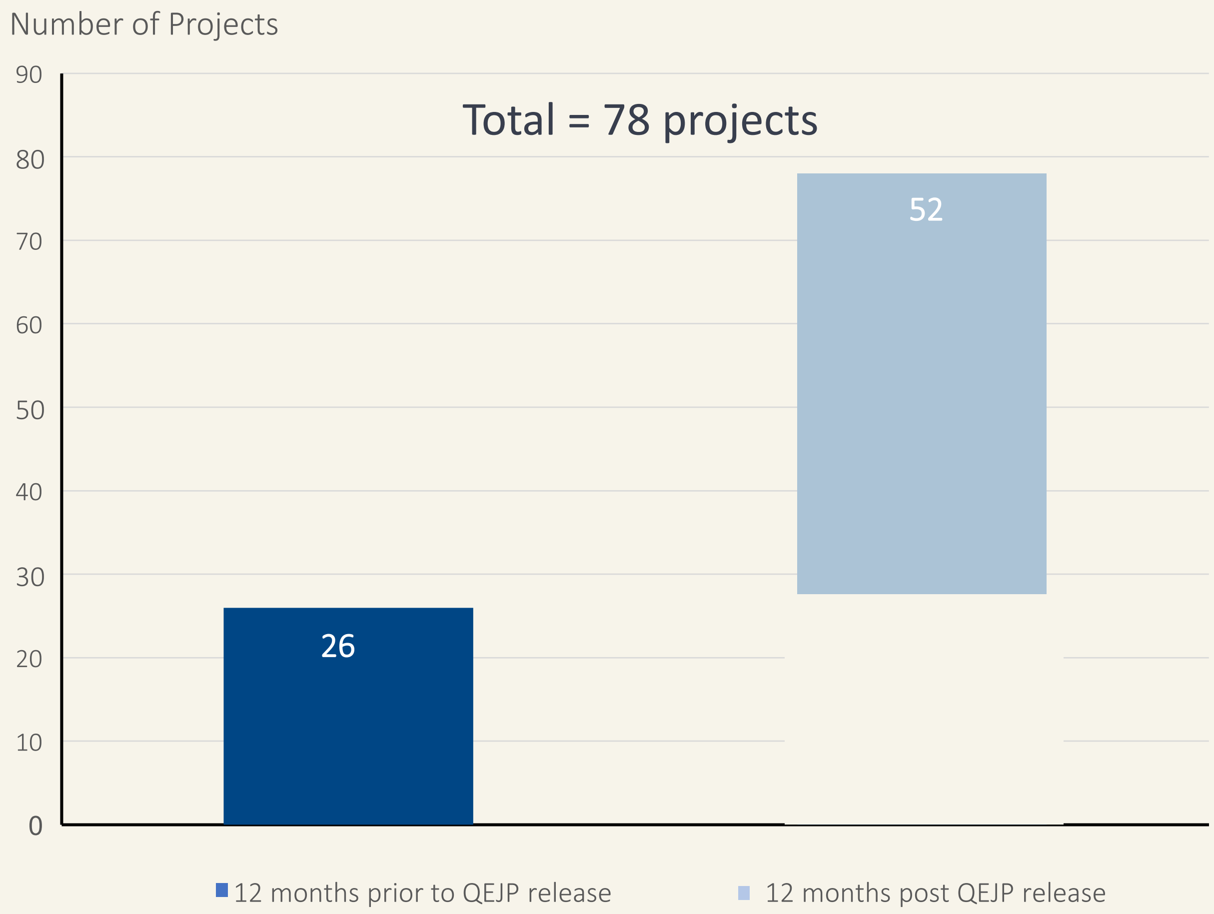


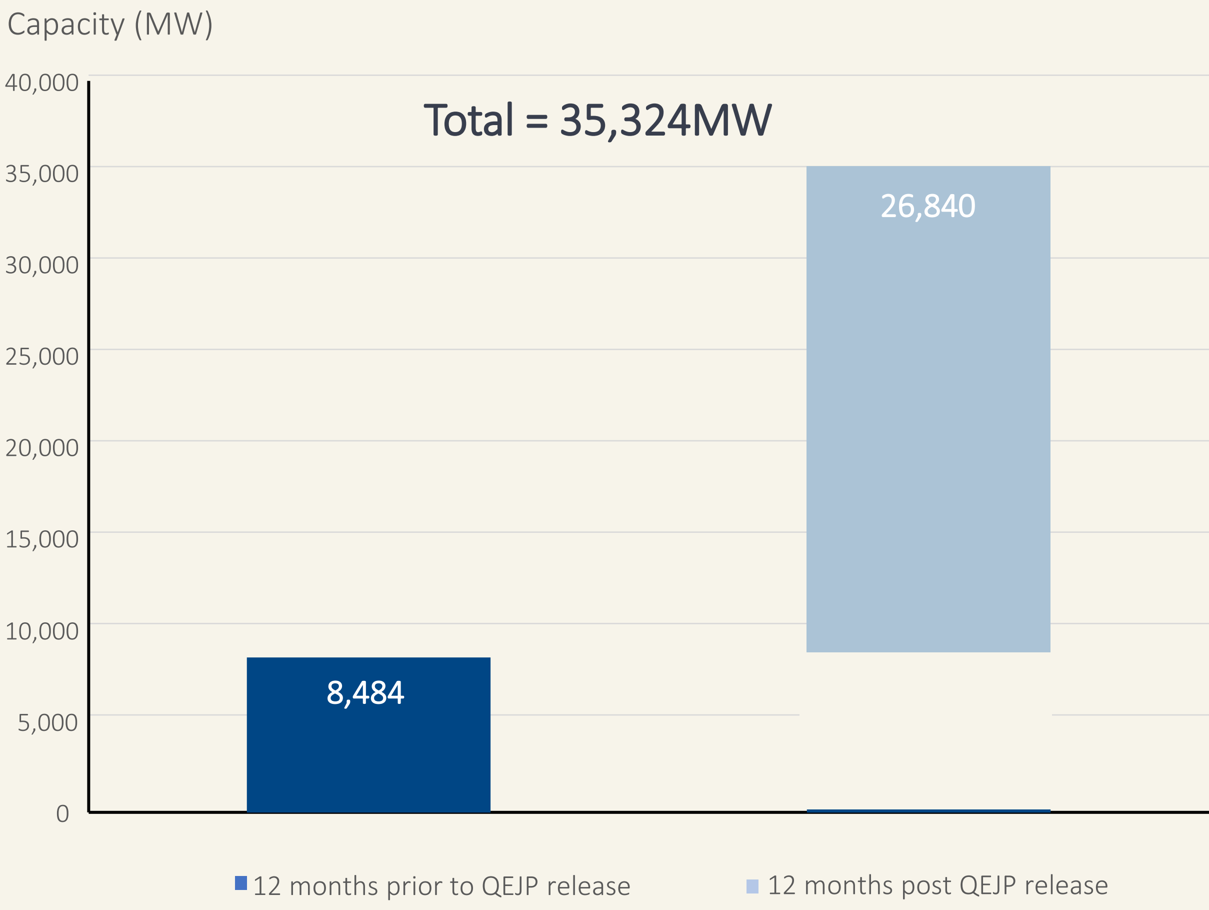
Renewable DAs by State



Source: Rystad Energy

Connection enquiries prior and post QEJP release





Queensland Renewable Energy Zones

Our REZ approach

- Merchant
- Fast
- Low capital cost
- Innovative financings which lowers user charges
- Divisible

	Far North Queensland	Southern Downs	Western Downs
Network capacity	~500MW	~ 2,000MW	~1,800MW
Contracted capacity	157MW	1,026MW	500MW
Application date	September 2019	December 2020	January 2021
Energisation date[1]	October 2022	December 2023	October 2024
Cycle time[2]	3.2 years	3.0 years	3.7 years

[1] Energisation of first generator
[2] Connection application to connection of first generator

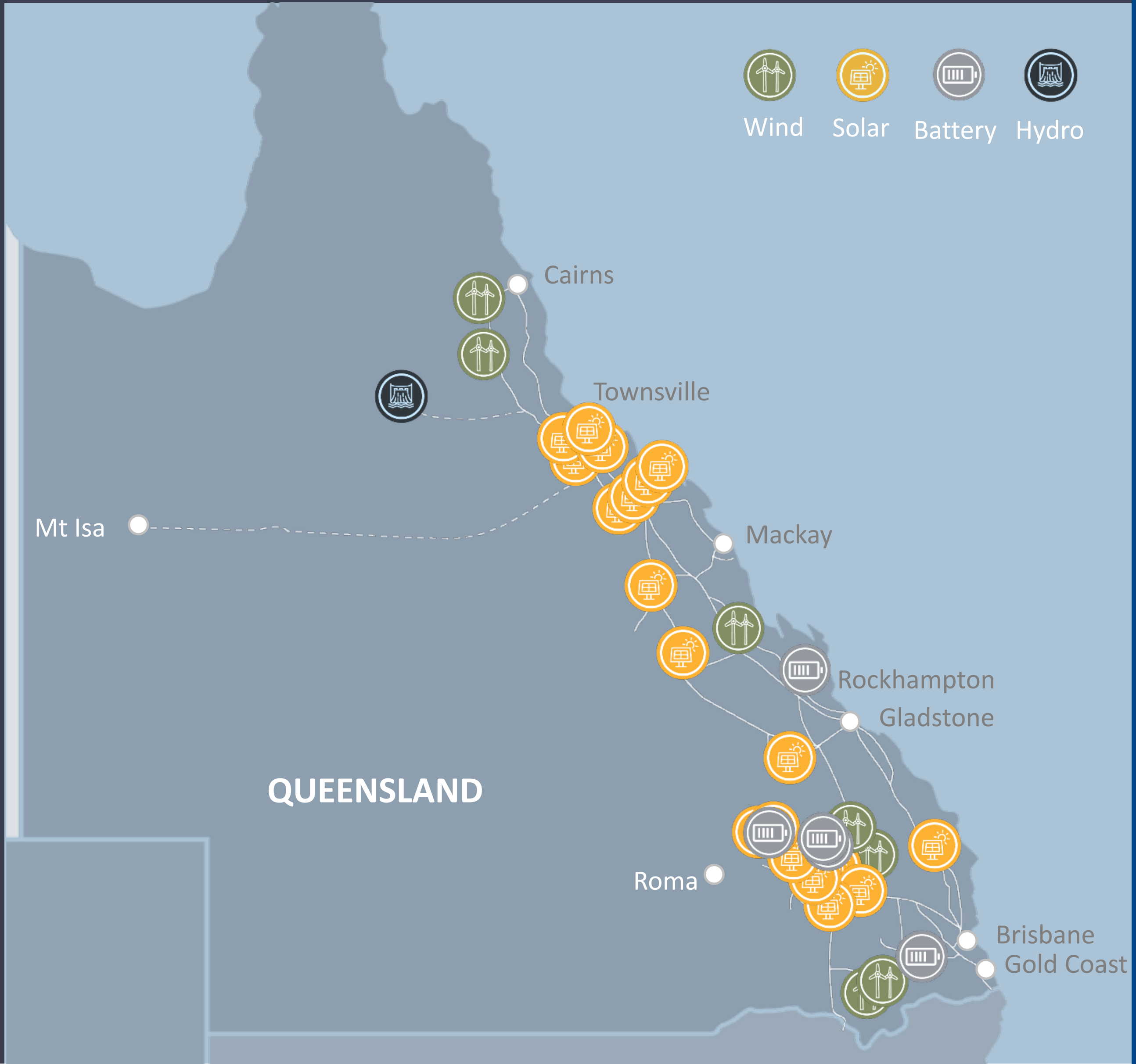
Queensland connections

32 renewable & storage projects operational or under construction with combined maximum output of **5,730MW**

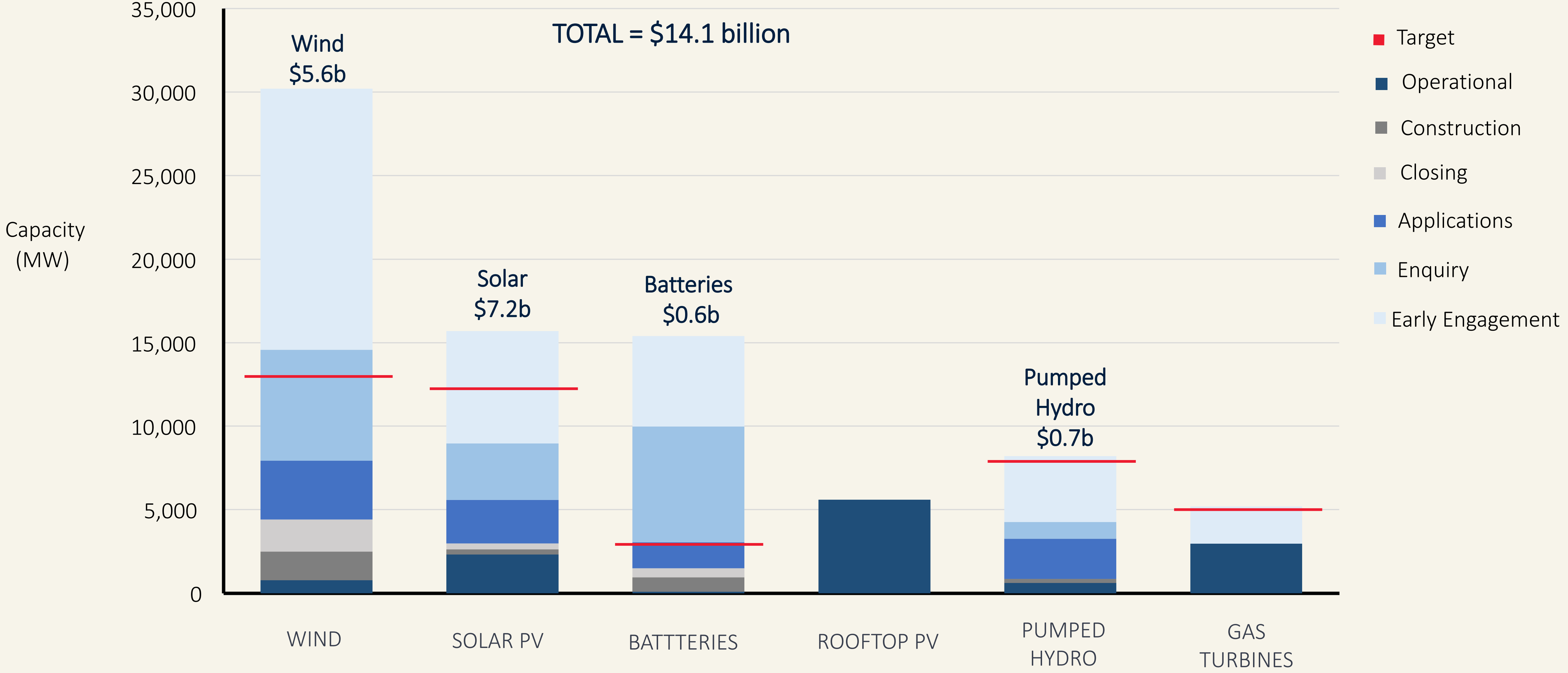
As at September 2023, **52 renewable applications** being processed representing **~19,036MW**

Projects at the enquiry stage (including early engagements) with combined max output of **~74,100+MW**

More than **30,000MW** of renewable generation projects in initial project development stage

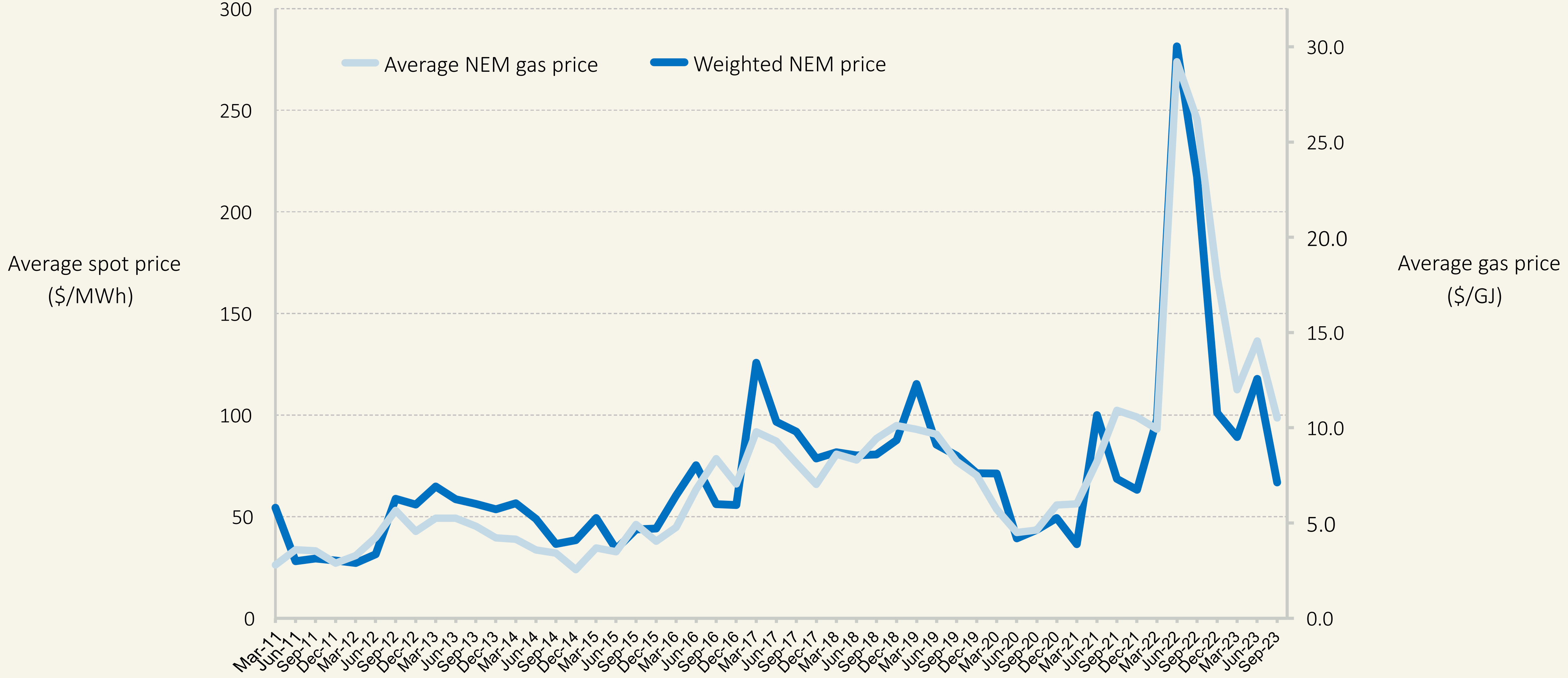


Queensland forward pipeline

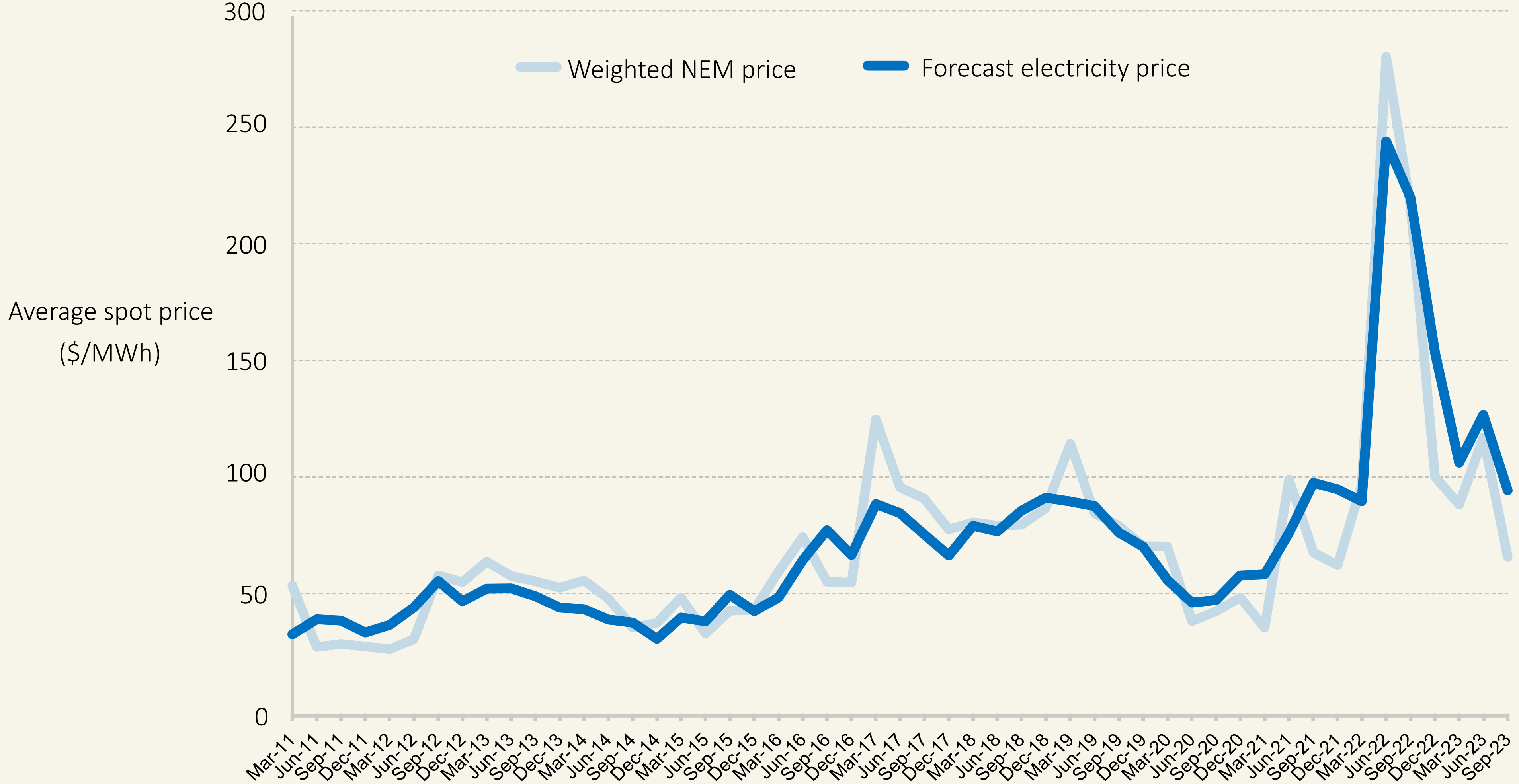


Prices

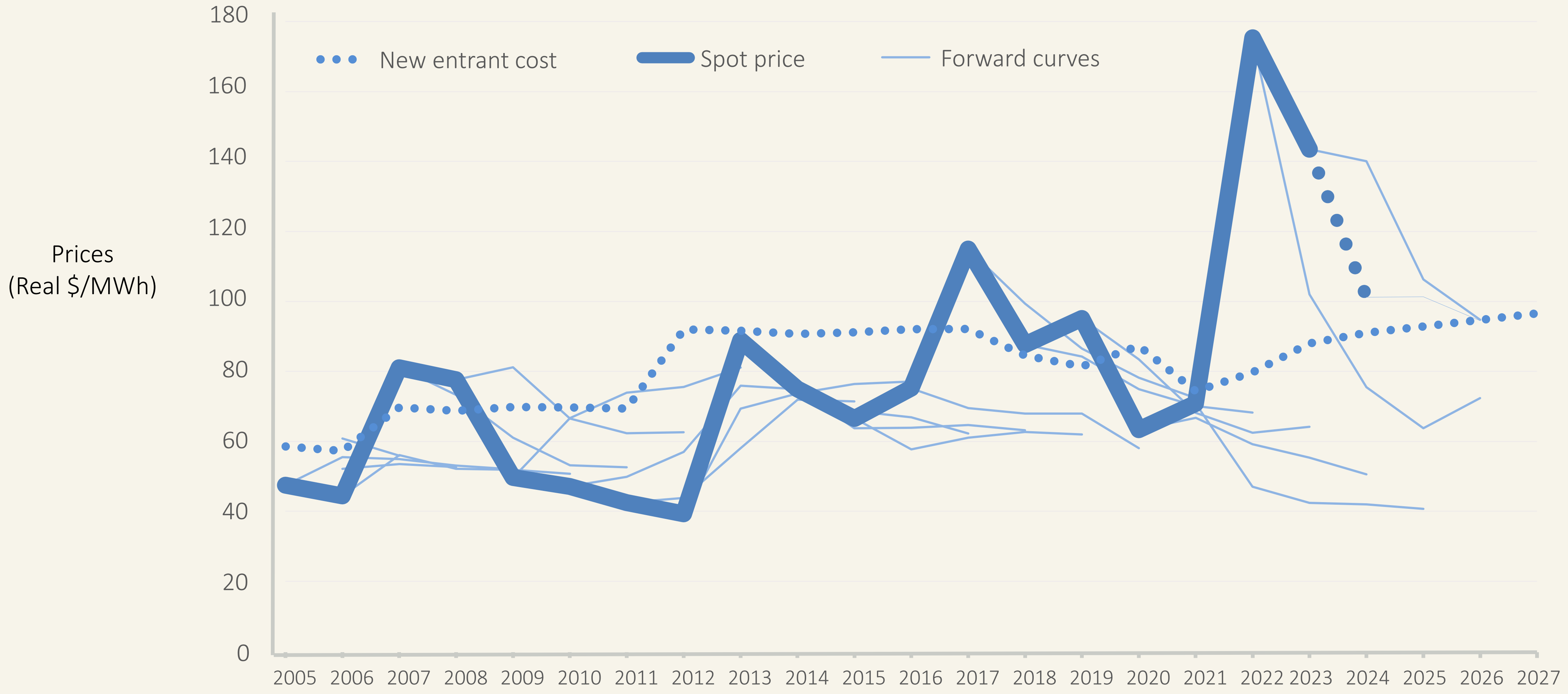
Wholesale prices (gas and electricity)



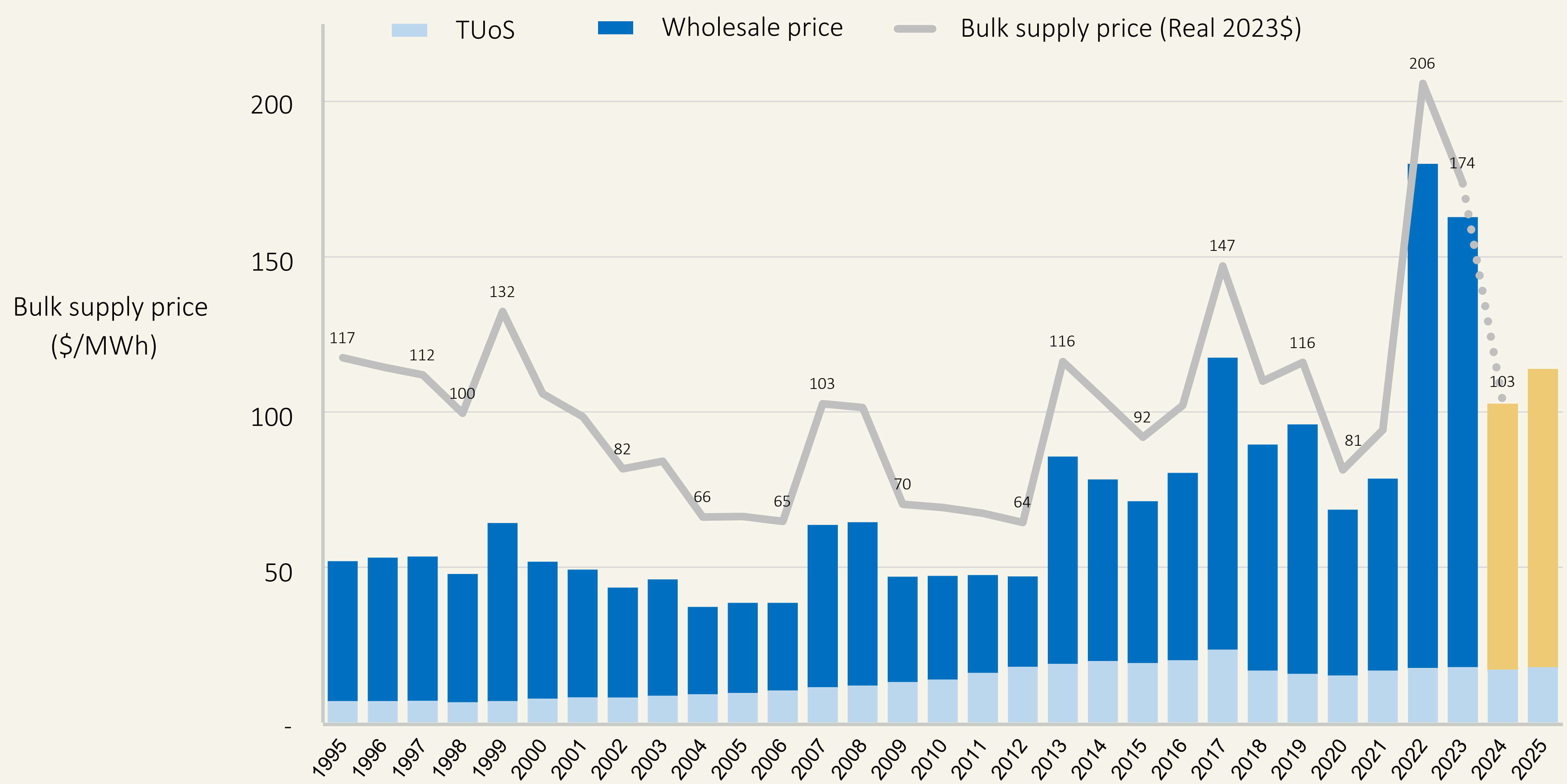
Electricity price forecast = $11/MWh + (8 x Gas Price)



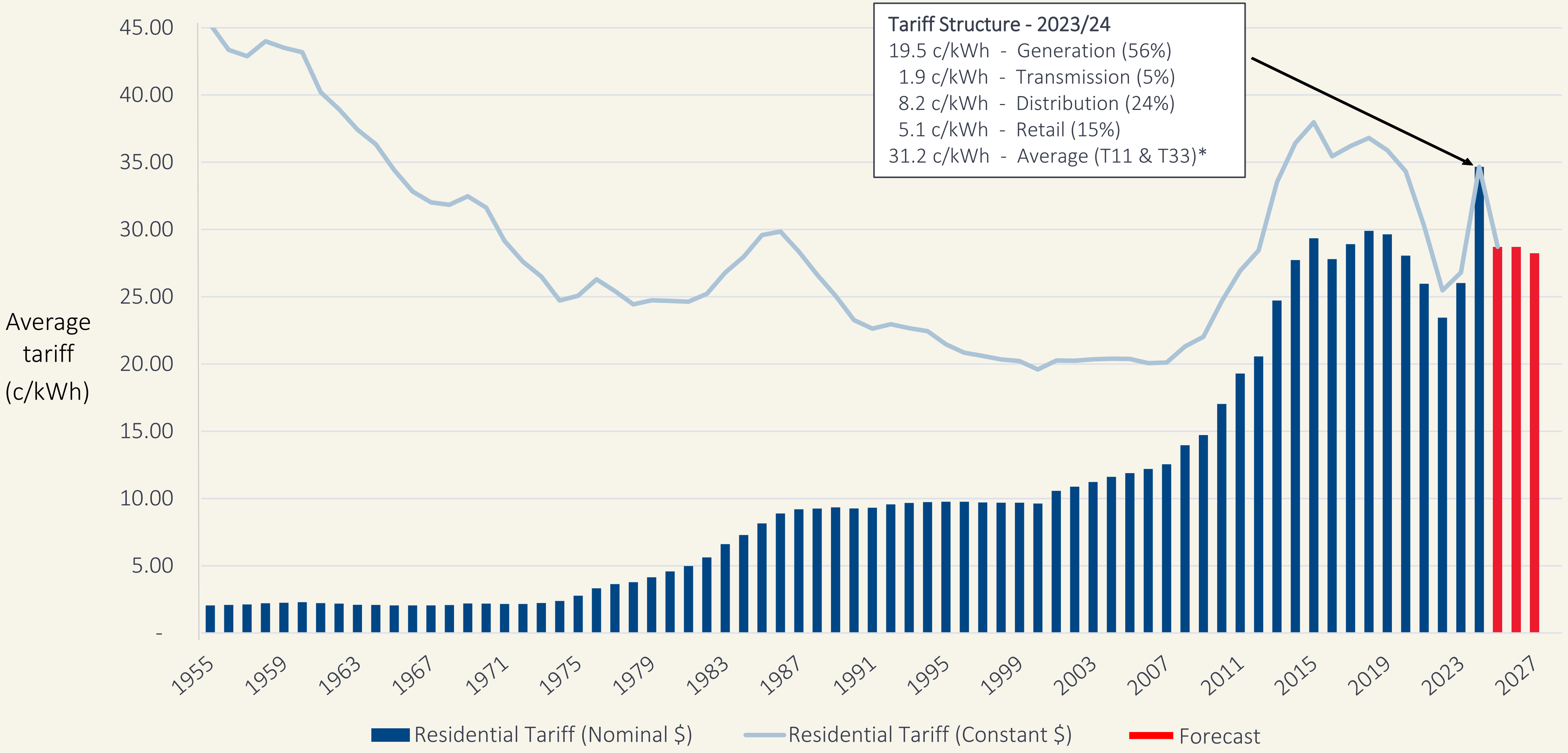
Forward prices – mean reverting



Bulk supply price



Queensland residential tariff (1955-2023)

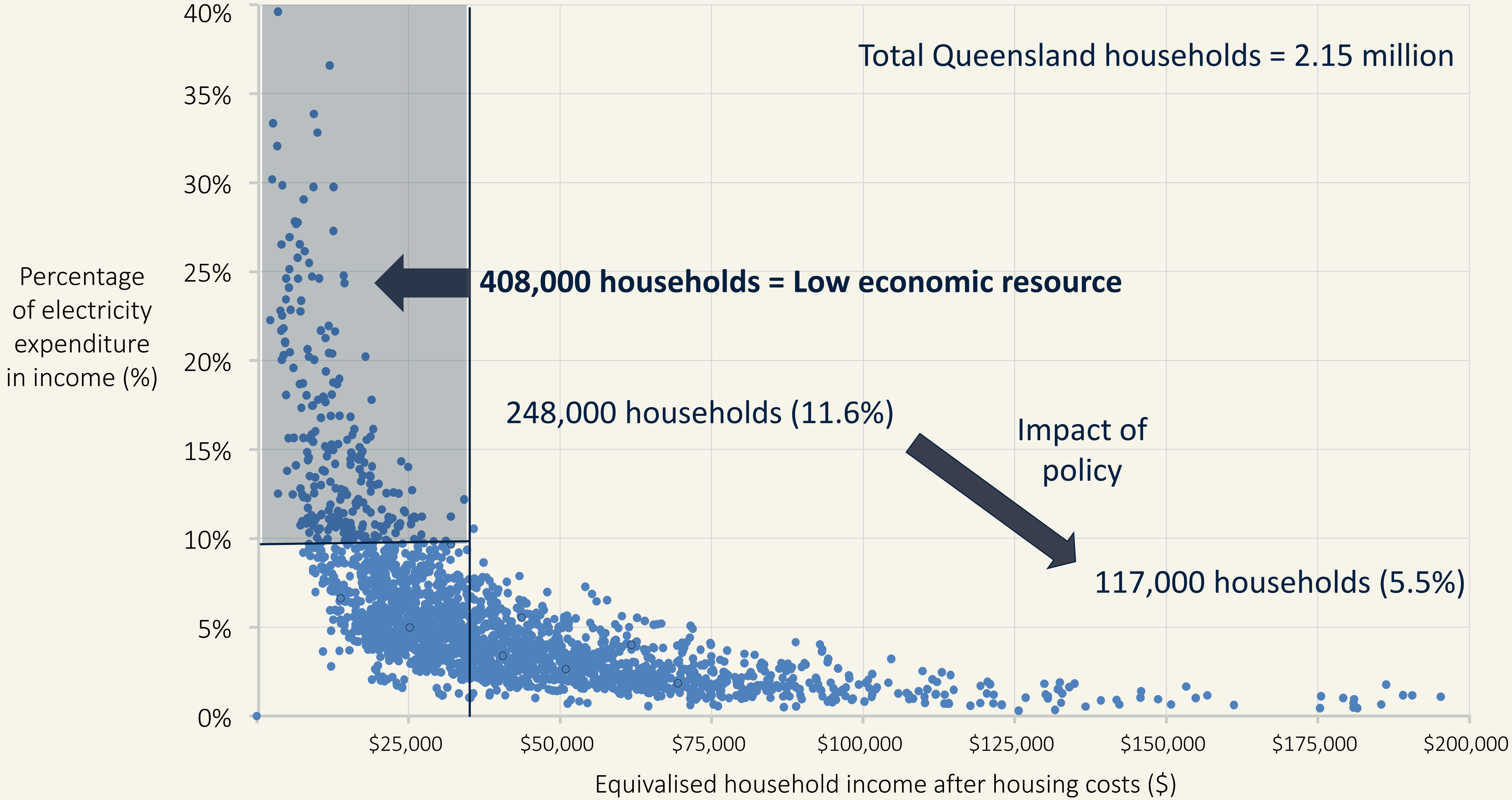


*T11 is the standard household tariff and T33 is a controlled tariff (16 hours supply)

Source: Simshauser & Miller (2023) 'On the impact of targeted and universal electricity concessions policy on fuel poverty in the NEMs Queensland Region', CAEEPR Working Paper No.2023-10.

2023 Queensland household electricity expenditure v Income

Engel curve (electricity)



Source: Simshauser & Miller (2023) 'On the impact of targeted and universal electricity concessions policy on fuel poverty in the NEMs Queensland Region', CAEEPR Working Paper No.2023-10.

Queensland Renewable Energy Zones

REZ – Network v RE capacity

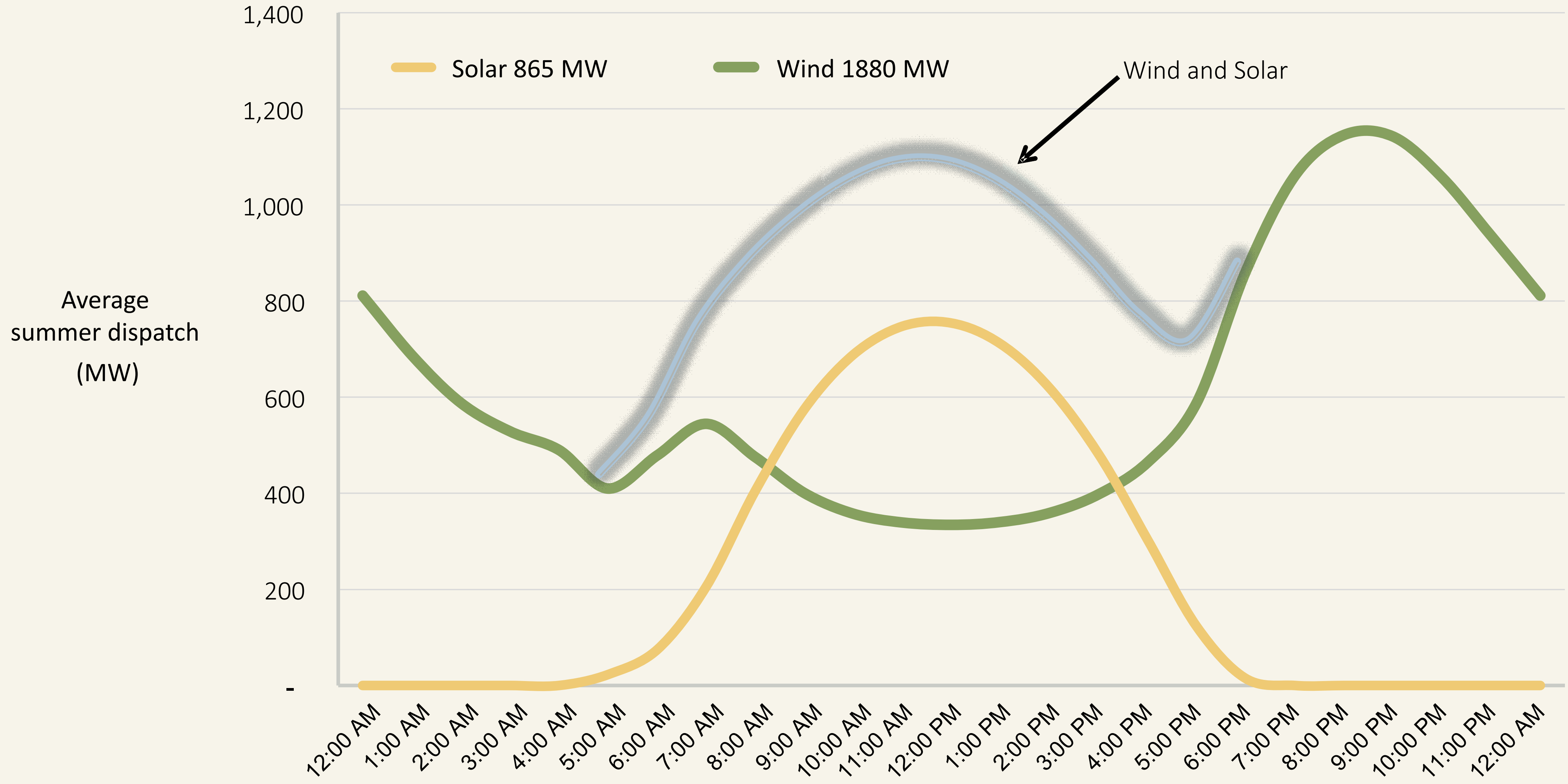
REZs are a lead indicator of renewable investment

- There are three critical drivers:
    - The complementarity of wind and solar resources in Queensland REZs
    - Peak-to-average (wind) production ratios
    - The NEM's non-firm access regime

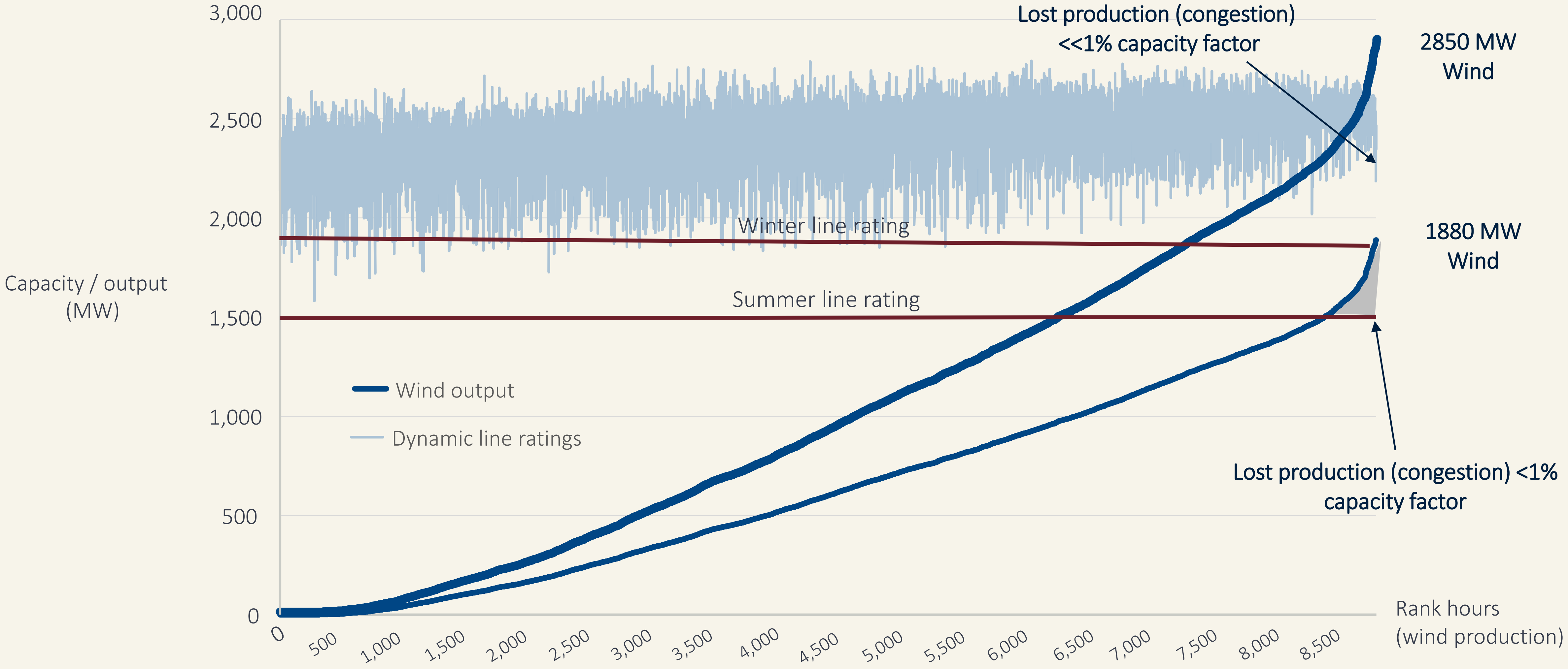
- Non-firm access means congestion is shared

- Priority access forces curtailment from average to marginal

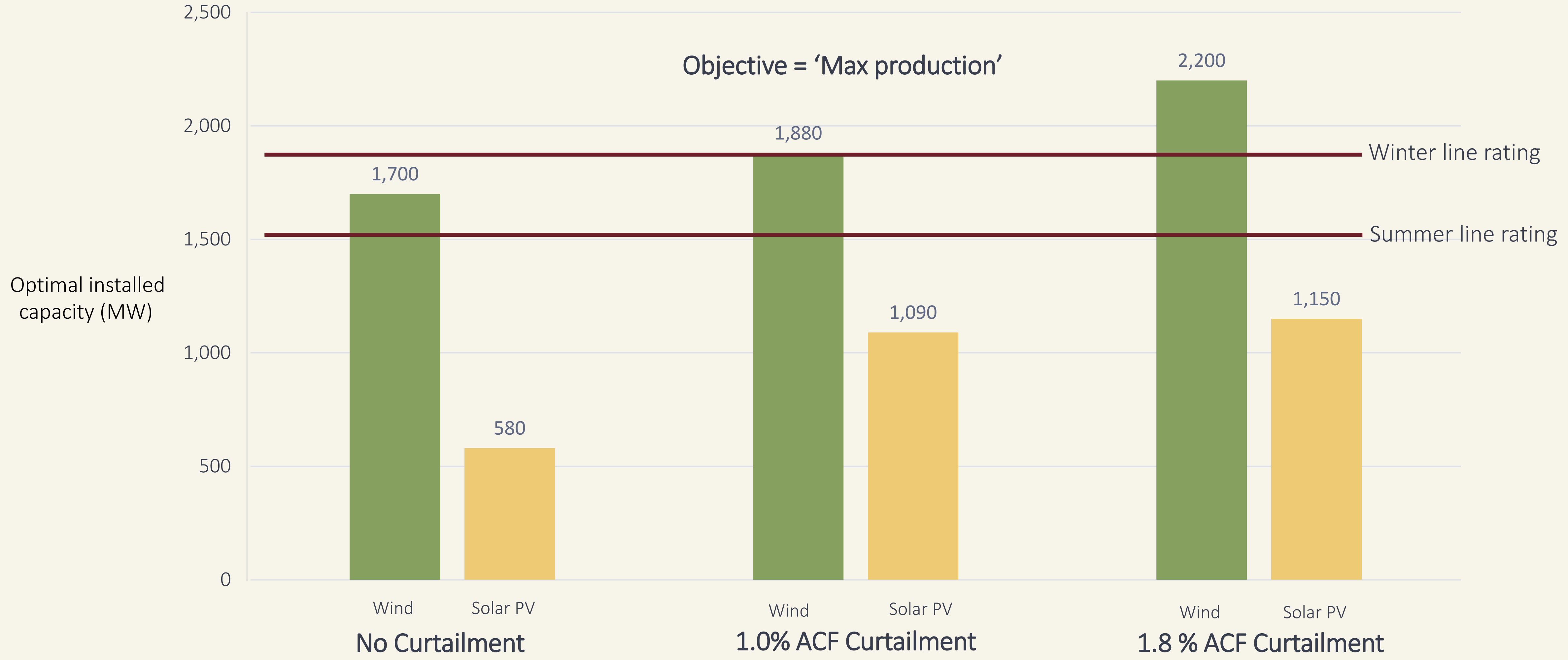
Queensland wind and solar (Western Downs)



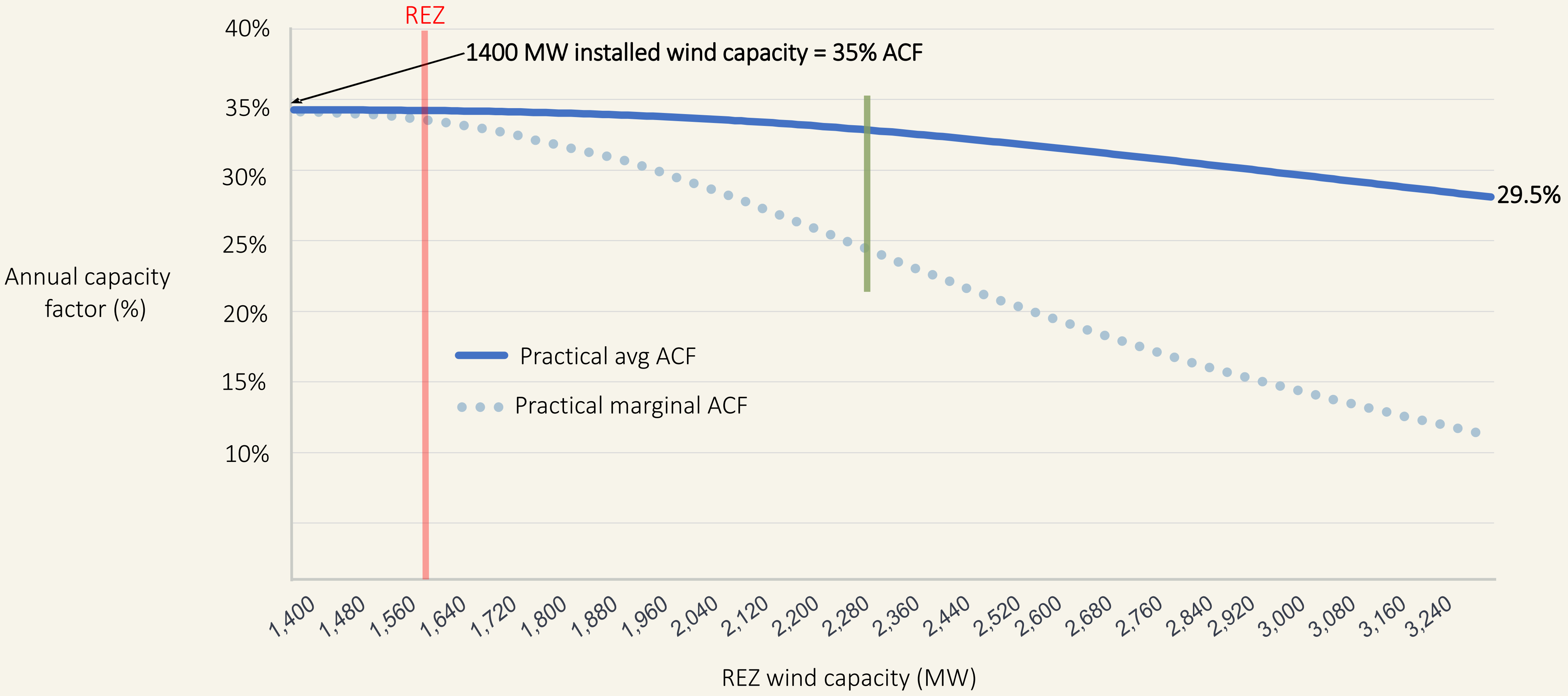
Line ratings v Peak-to-average production



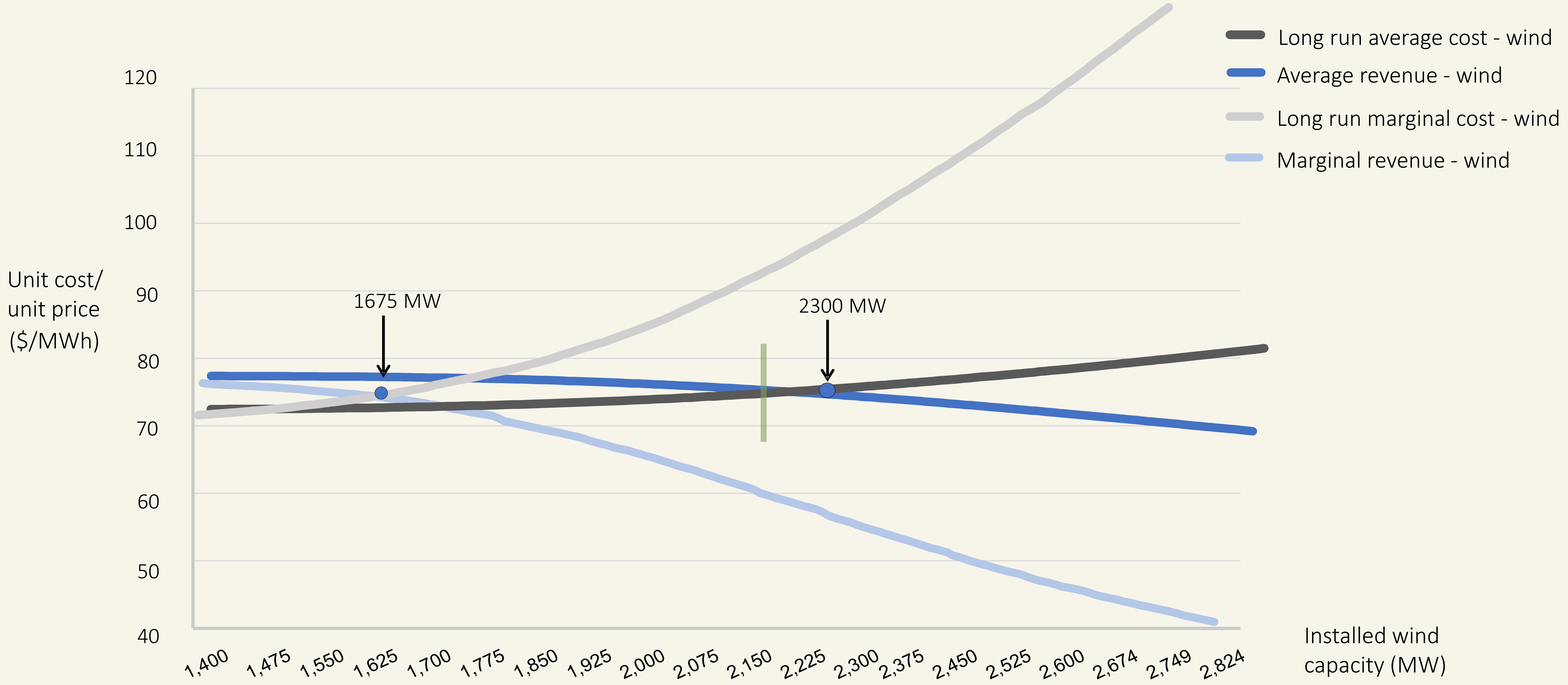
REZ network capacity v Renewable plant capacity



Average v Marginal curtailment rates - wind



Average v Marginal costs and revenues - wind



“One of our stated objectives is to *‘guide the market’* but we’re not smarter than the market...

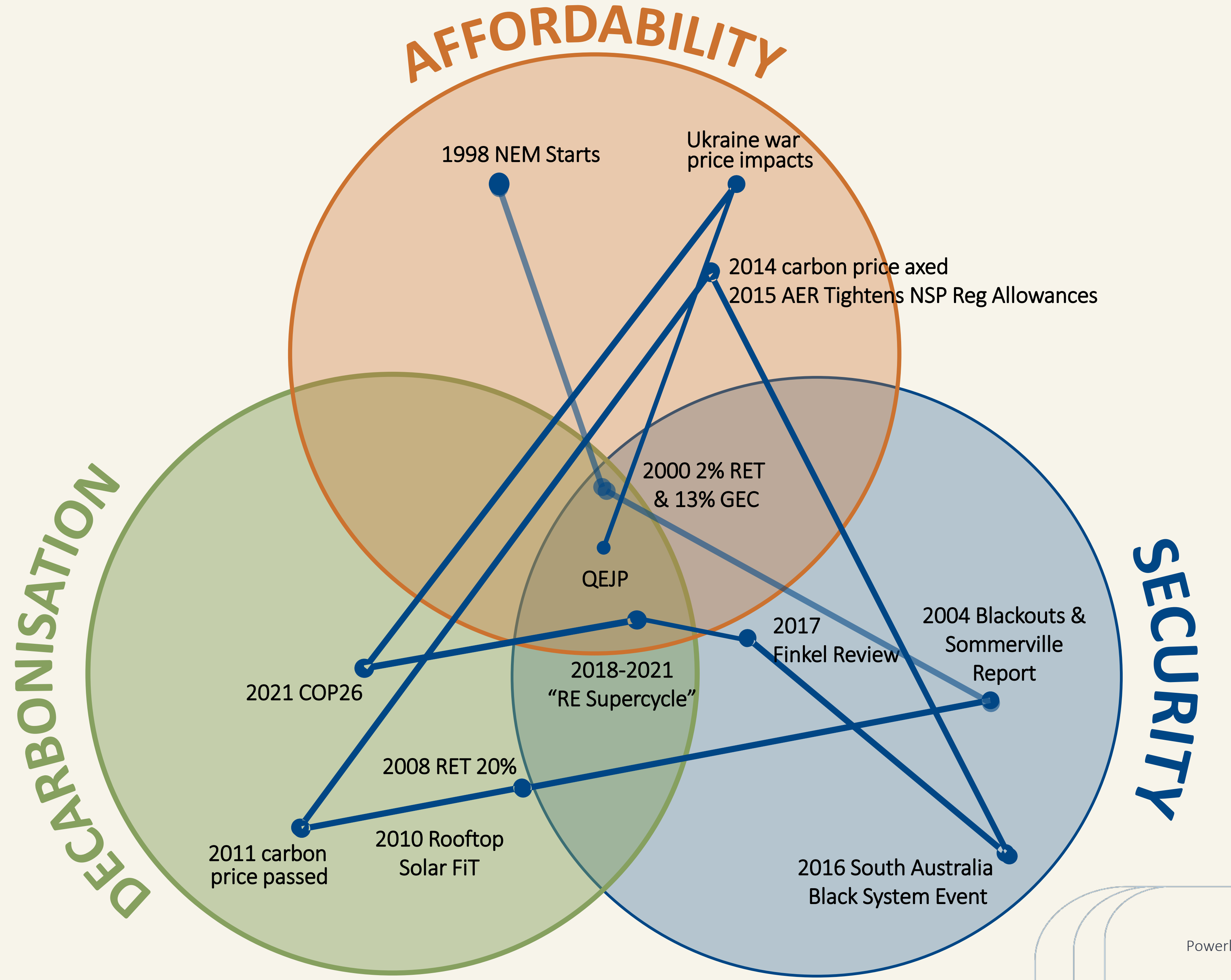
The market is smarter than we are…

Our first REZ will be at Western Downs…

Market investment is trending towards ‘underweight wind’…

We need to undertake an EOI process for batteries…

Synchronous condensers are too big for individual VRE projects…


AFFORDABILITY
DECARBONISATION
SECURITY
1998 NEM Starts
Ukraine war
price impacts
2014 carbon price axed
2015 AER Tightens NSP Reg Allowances
2000 2% RET
& 13% GEC
QEJP
2017
Finkel Review
2004 Blackouts &
Sommerville
Report
2018-2021
“RE Supercycle”
2021 COP26
2008 RET 20%
2010 Rooftop
Solar FiT
2011 carbon
price passed
2016 South Australia
Black System Event

Question time