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Melbourne  
Energy  
Institute



# Quarterly Energy Dynamics report Q1 2022

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Presenter: **Mr Kevin Ly, Group Manager – Reform Development  
and Insights, AEMO**

Moderator: **Prof Pierluigi Mancarella, Program Leader – Energy Systems,  
MEI**



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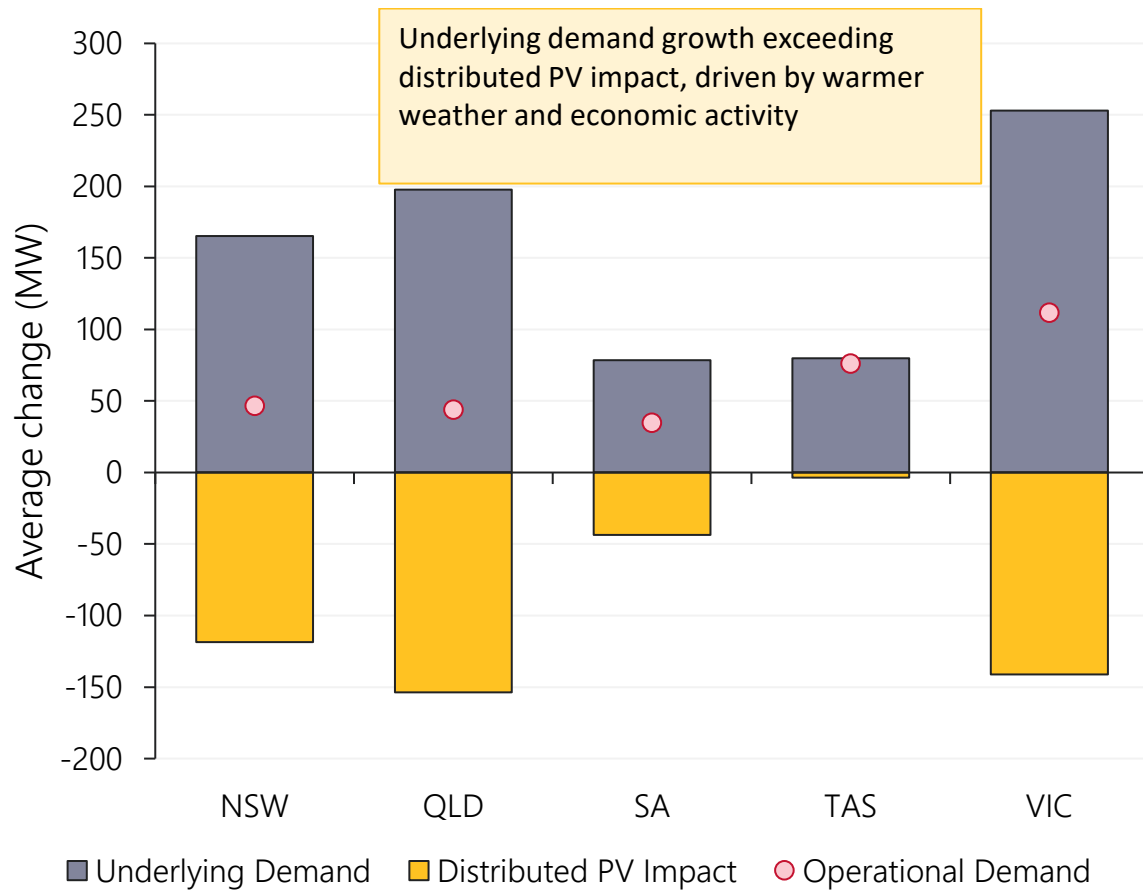
# Q1 2022 Highlights

1. NEM demand rebounds and spot prices rose sharply up from Q1 2021
2. Significant price volatility in Queensland with RERT dispatched on 1 Feb
3. Thermal outages and offer repricing drive lower output, higher spot prices
4. North-south gap in spot and futures prices persists
5. Substantial reductions in directions costs following first full quarter's operation of the four synchronous condensers in SA
6. East coast gas prices remain elevated, global fuels volatile

# Demand rebounded across the NEM

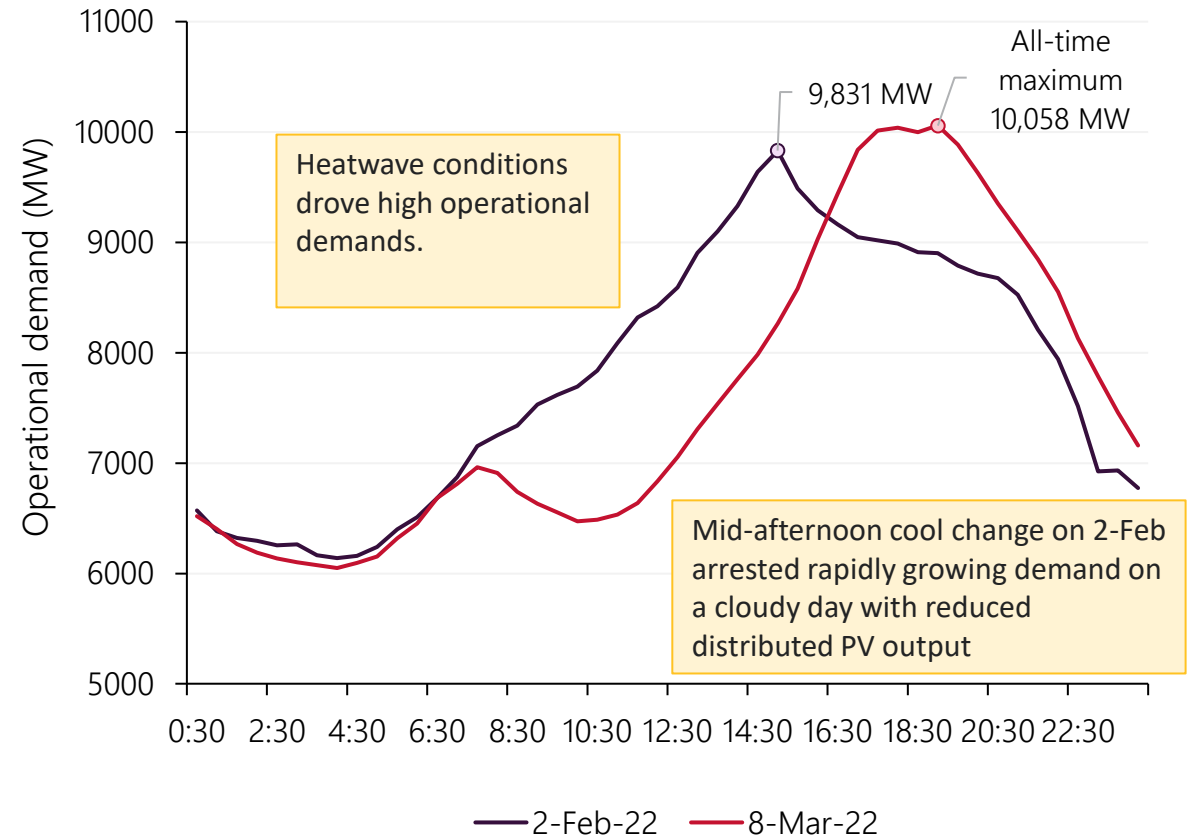
## Strong increases in underlying demand

Changes in demand components by state – Q1 2022 vs Q1 2021



## Maximum demand record for Queensland

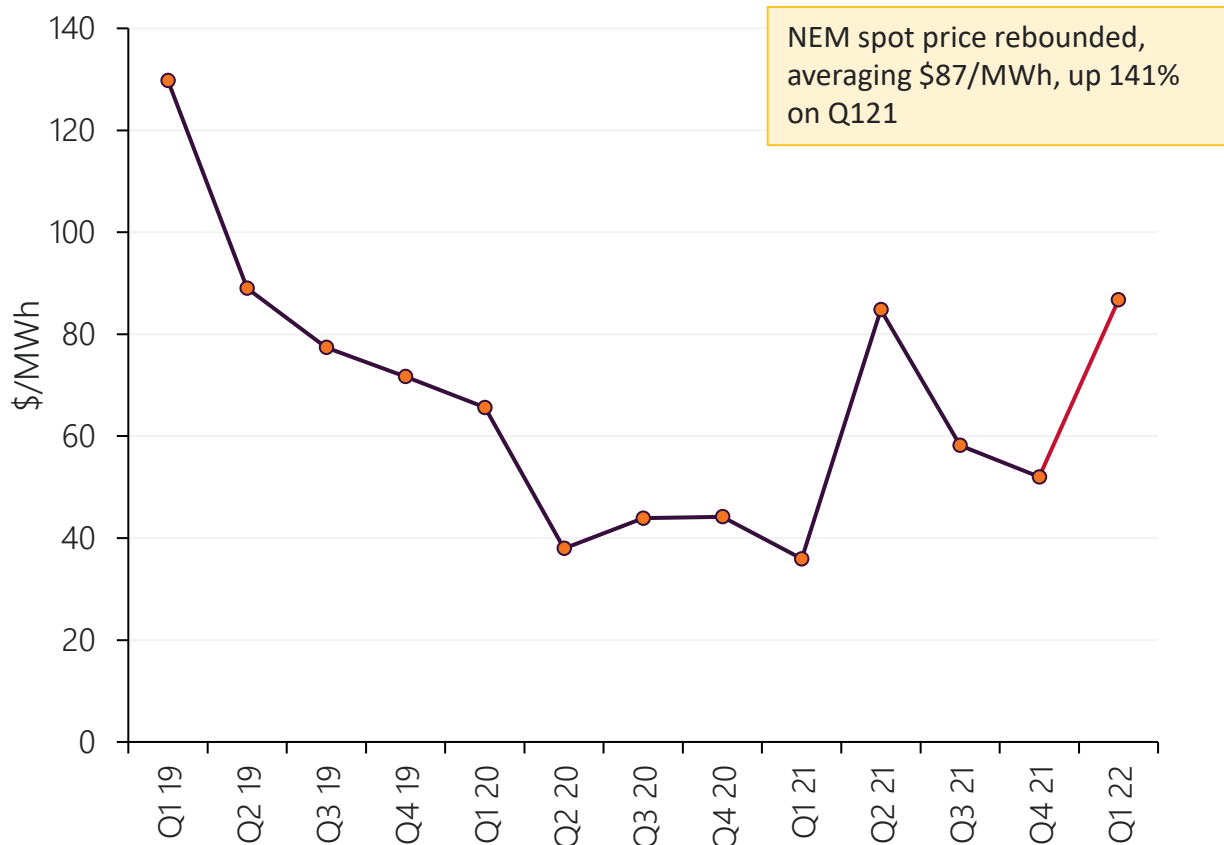
Queensland operational demand half hourly profiles



# NEM average prices rose sharply

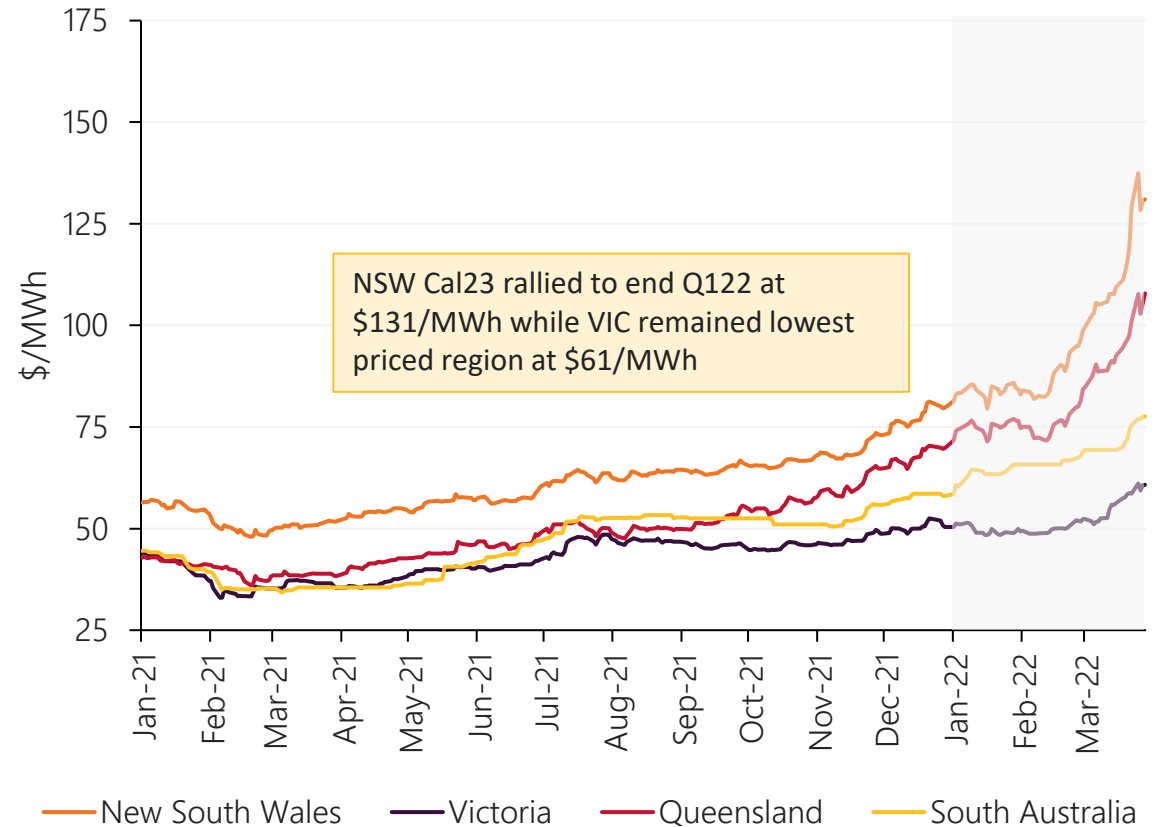
## NEM spot average more than double Q1 2021

NEM average wholesale electricity price



## Strong rally in ASX futures prices over Q1

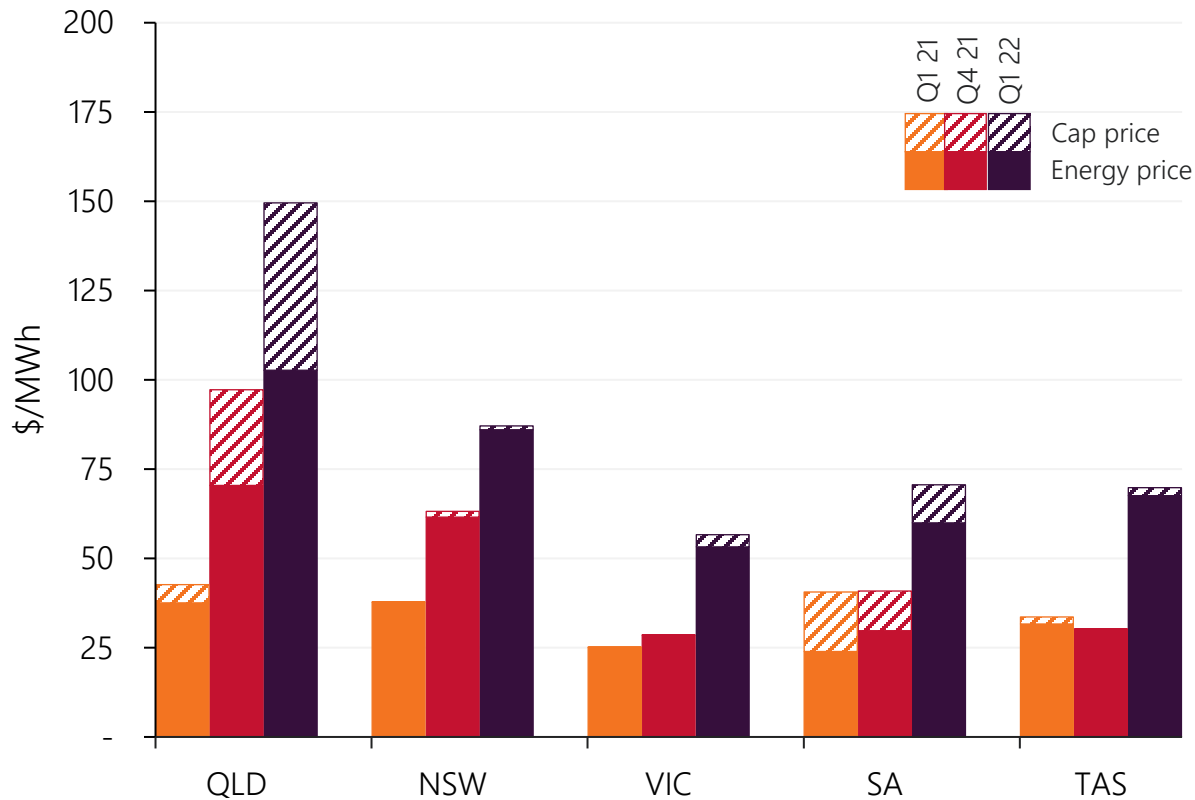
ASX Cal23 base futures prices, daily



# Queensland volatility on high demand and outages

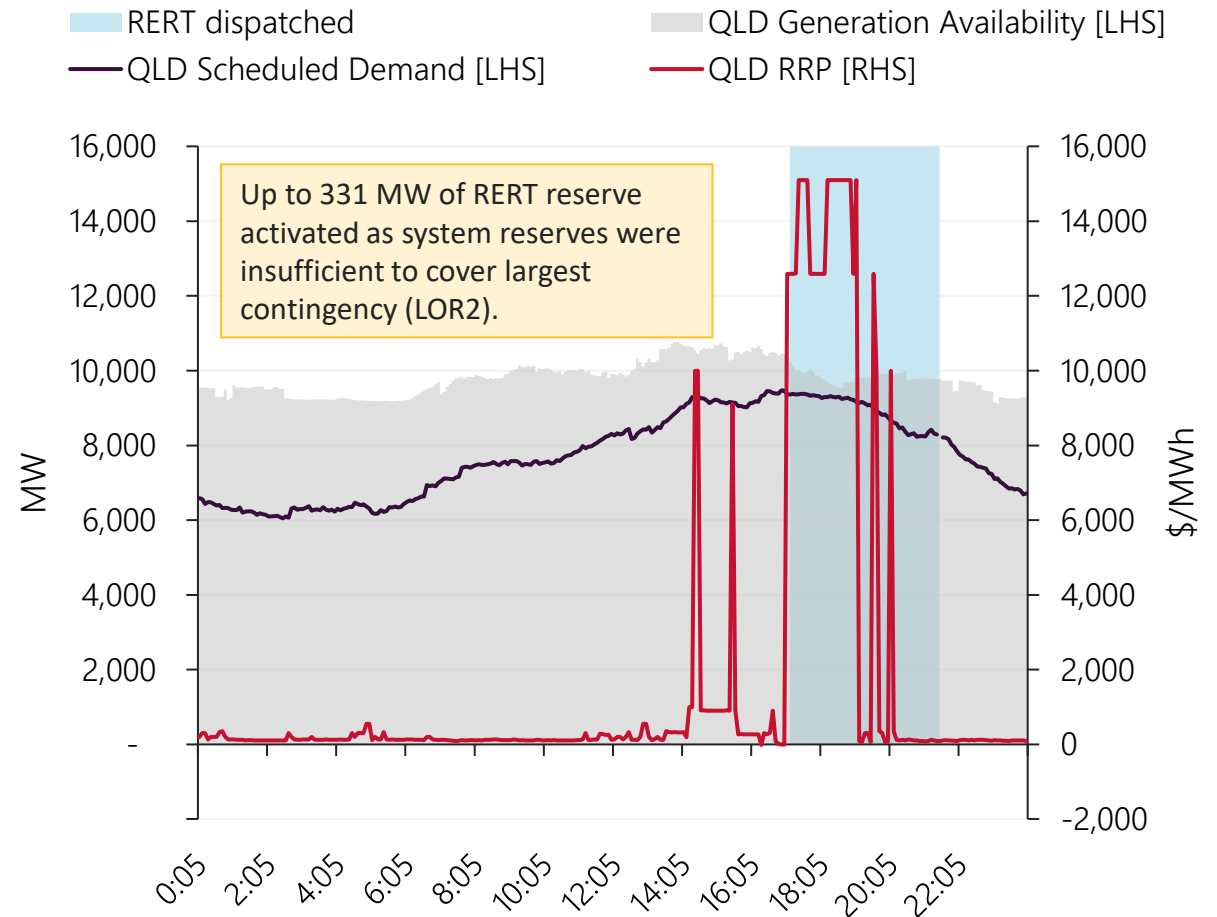
## Volatility amplifies price rise in Queensland

Average wholesale electricity price by region – energy<sup>1</sup> and cap component



## RERT dispatched to manage very low reserves

Dispatch outcomes – Queensland 1 Feb 2022

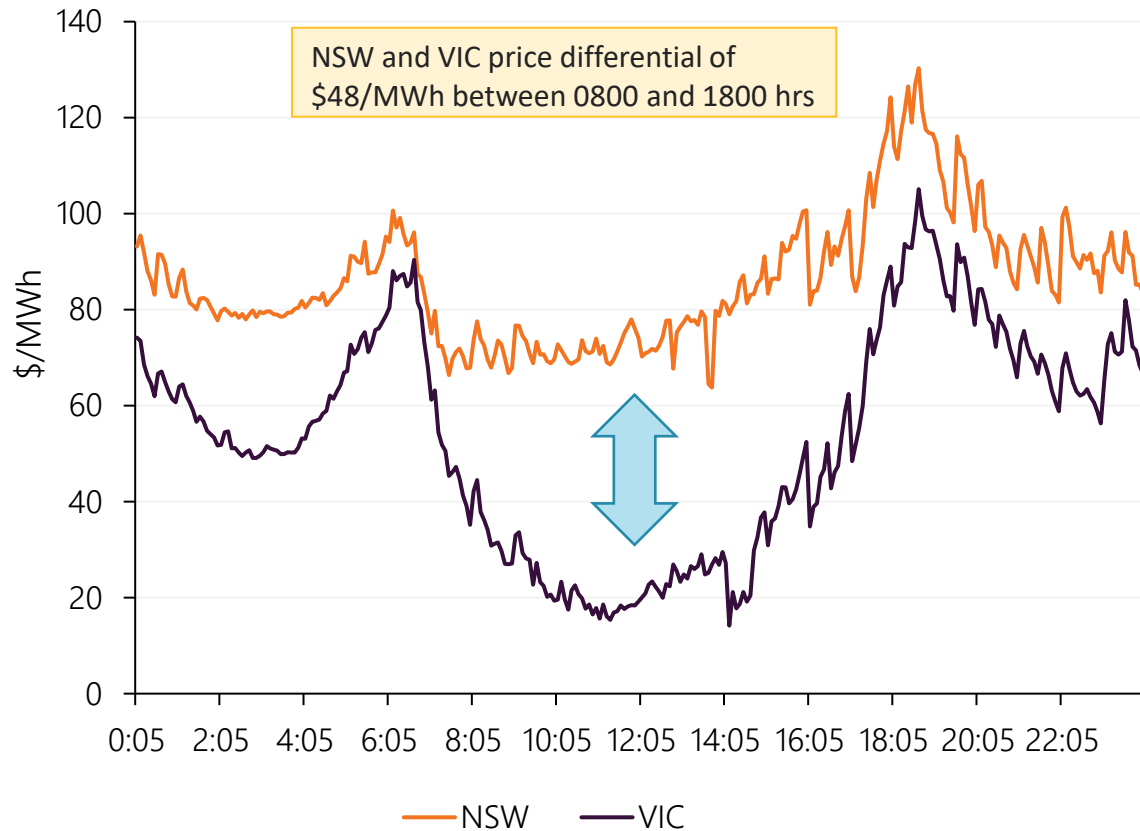


<sup>1</sup>Energy price<sup>1</sup> is used in electricity pricing to remove the impact of price volatility (that is, price above \$300/MWh).

# North to south spot price gap, but transfers fell

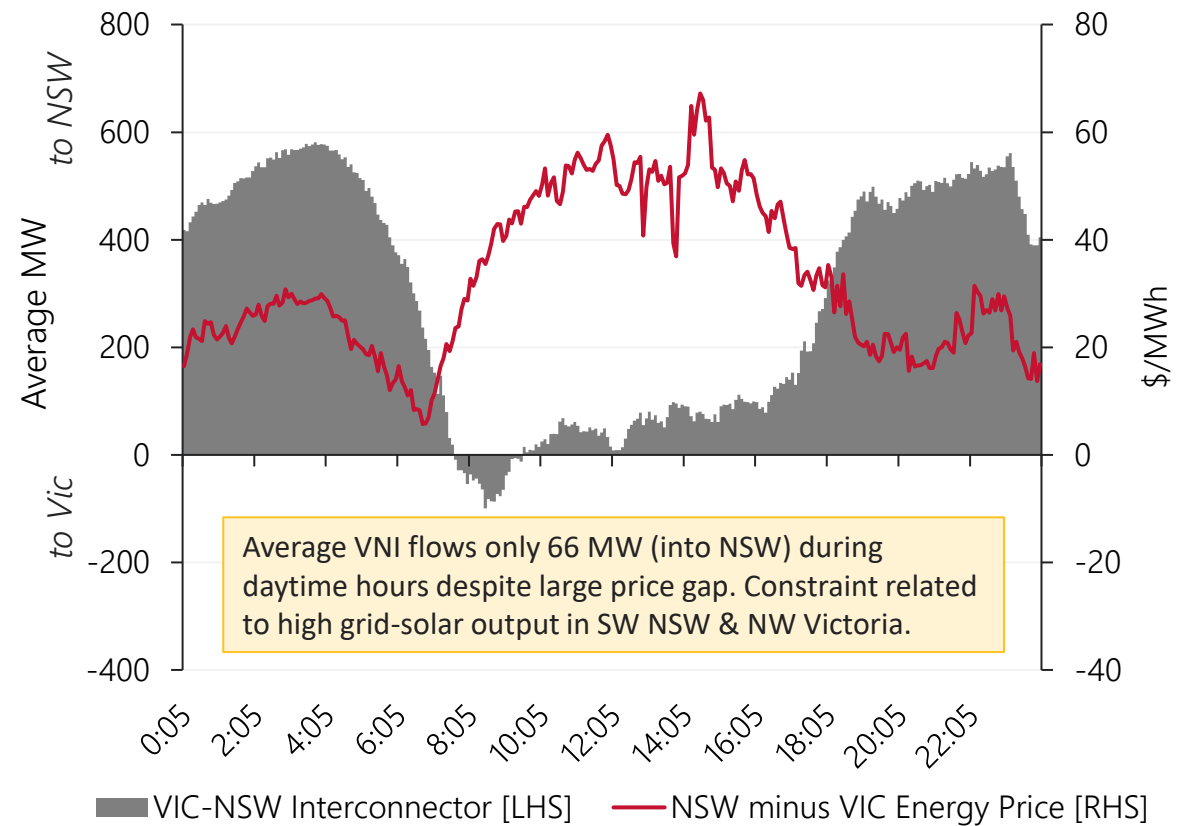
## North-south gap: large daytime price separation

Average energy price by time of day – New South Wales and Victoria



## VNI daytime flows fall sharply

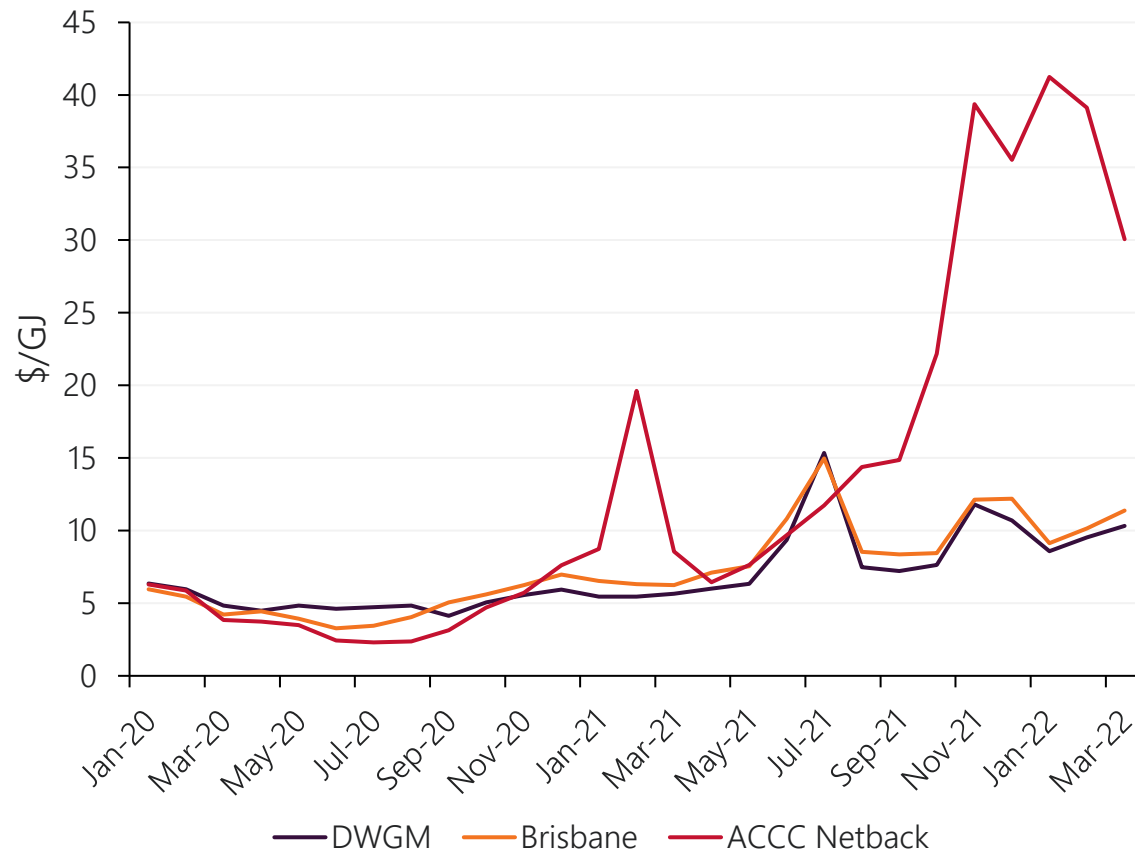
VNI average flows and NSW-Vic energy price difference, Q1 2022



# Gas prices still elevated, but below global markets

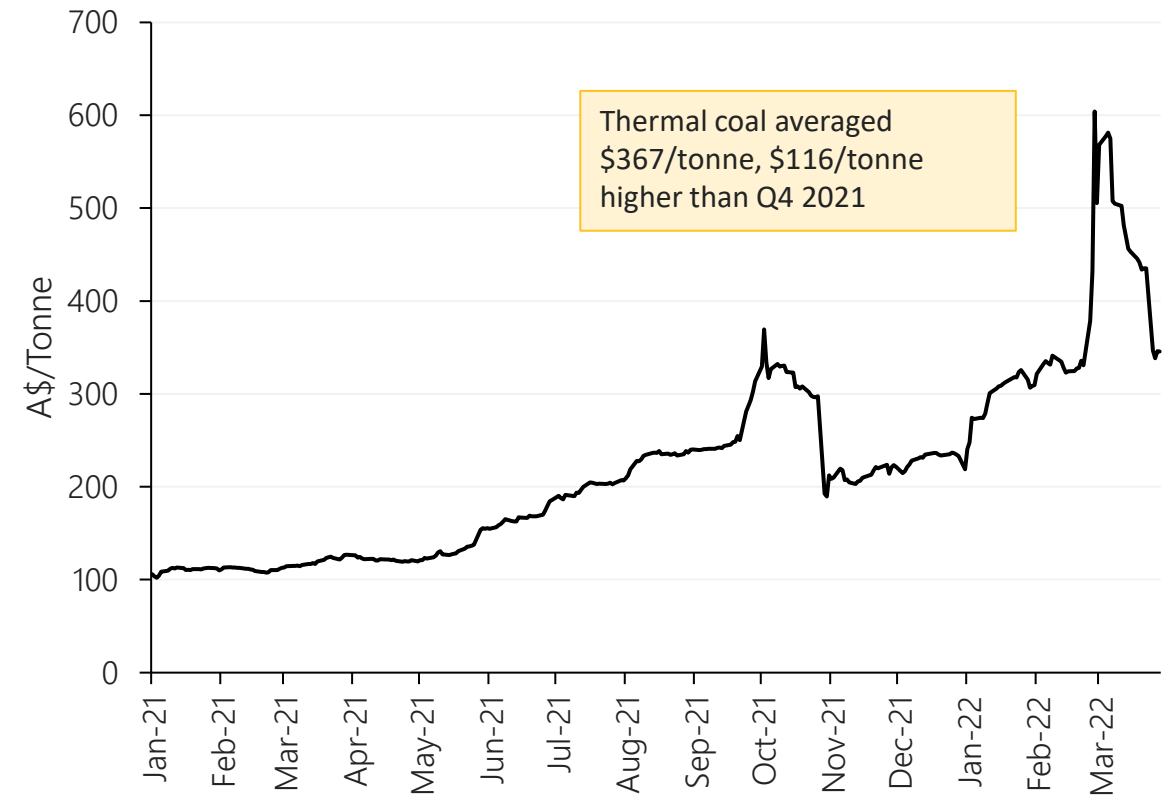
## East coast gas prices remain well up on Q1 2021

Domestic gas prices vs ACCC<sup>1</sup> netback - monthly



## Global market volatility extends to black coal

Newcastle export thermal coal price - daily



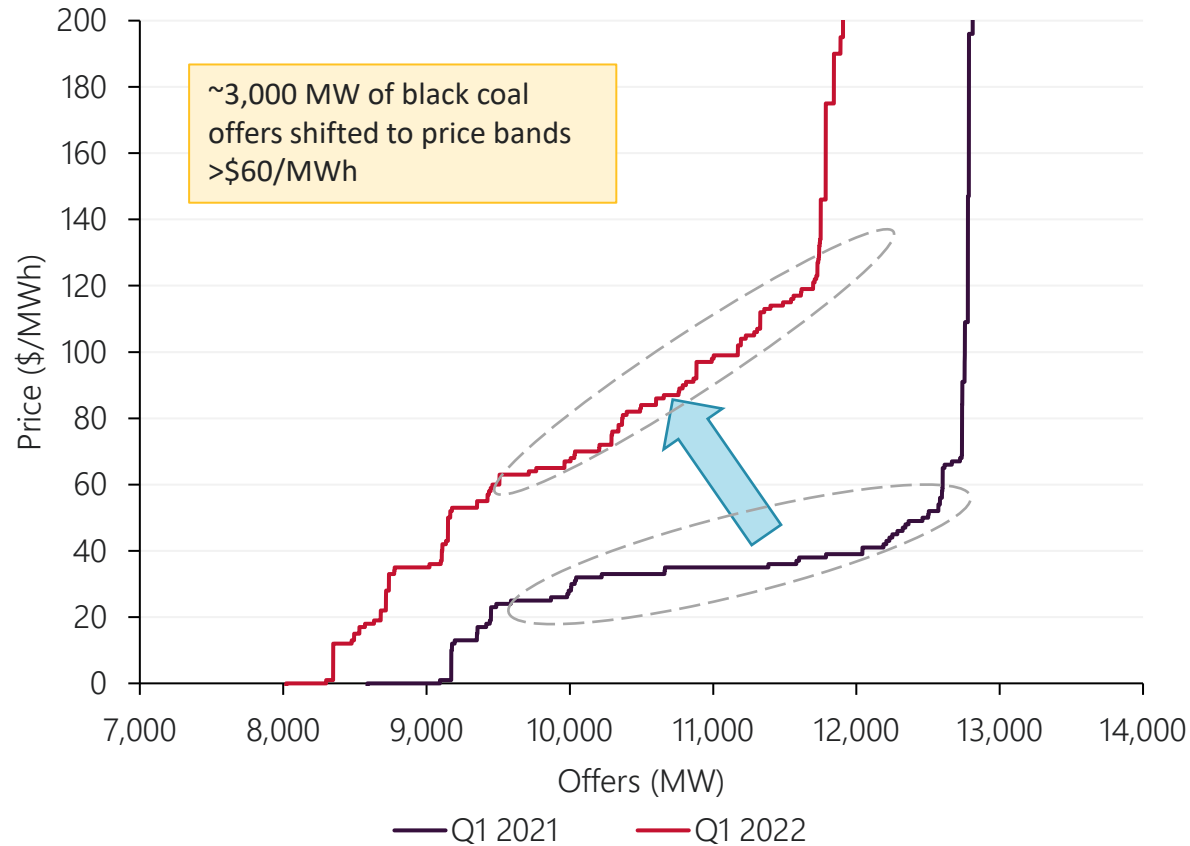
Source: Bloomberg ICE data

<sup>1</sup>Australian Competition and Consumer Commission

# Black coal generation offers repriced upwards

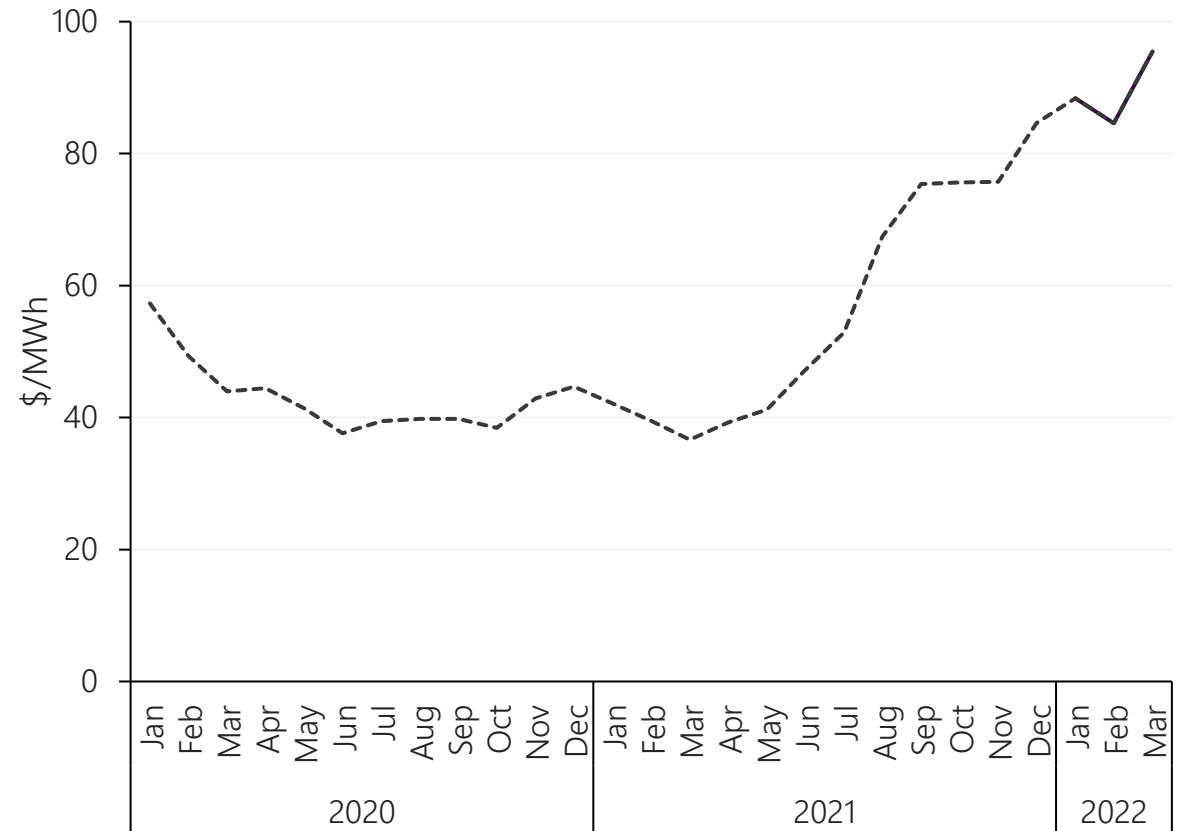
## Large reduction in volume offered below \$60/MWh

Bid supply curves, NSW & Qld black coal generation, Q1 2022 vs Q1 2021



## Upward repricing commenced from mid 2021

Average marginal offer price – selected generators<sup>1</sup>



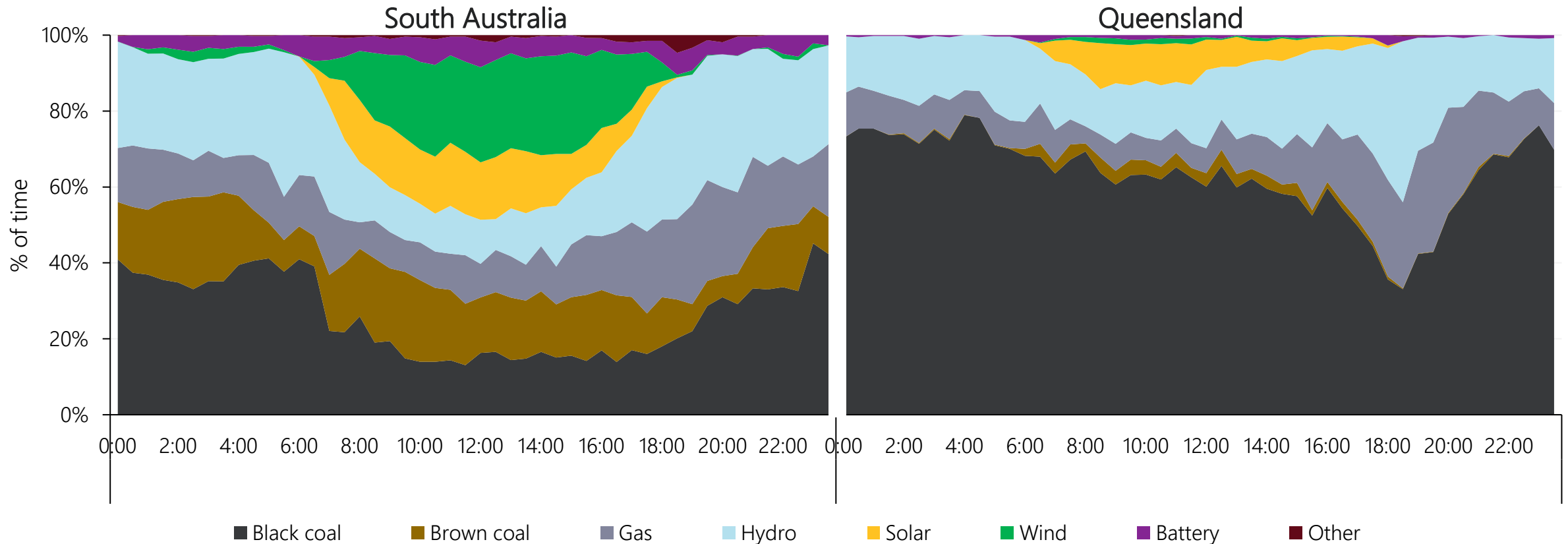
<sup>1</sup>Eraring, Gladstone, Mount Piper and Vales Point power stations



# Price-setting variations across the NEM

Renewables and batteries active in southern region price setting, black coal dominates in the north

Price-setting frequency by fuel type and time of day, Q1 2022 – South Australia and Queensland

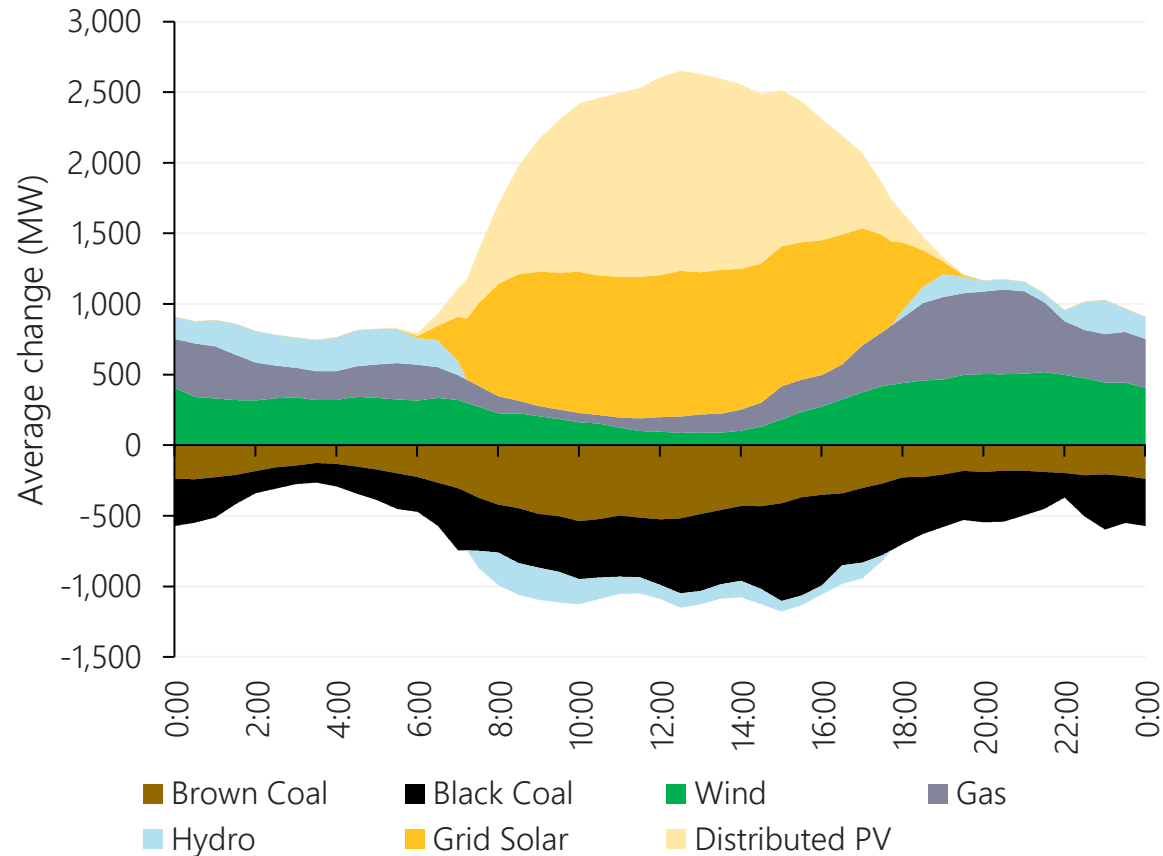


<sup>1</sup>The NEM's interconnected structure allows prices in one region to be set by market offers in a different region provided that interconnector flows are not constrained, meaning for example that offers from black coal generators in New South Wales or Queensland may at times set price in southern NEM regions as well as in those generators' home regions.

# Supply mix continues shift to renewables

## Solar leads growth in renewables

Average output change by time of day – Q1 2022 vs Q1 2021



## NSW grid-solar leads large scale VRE growth

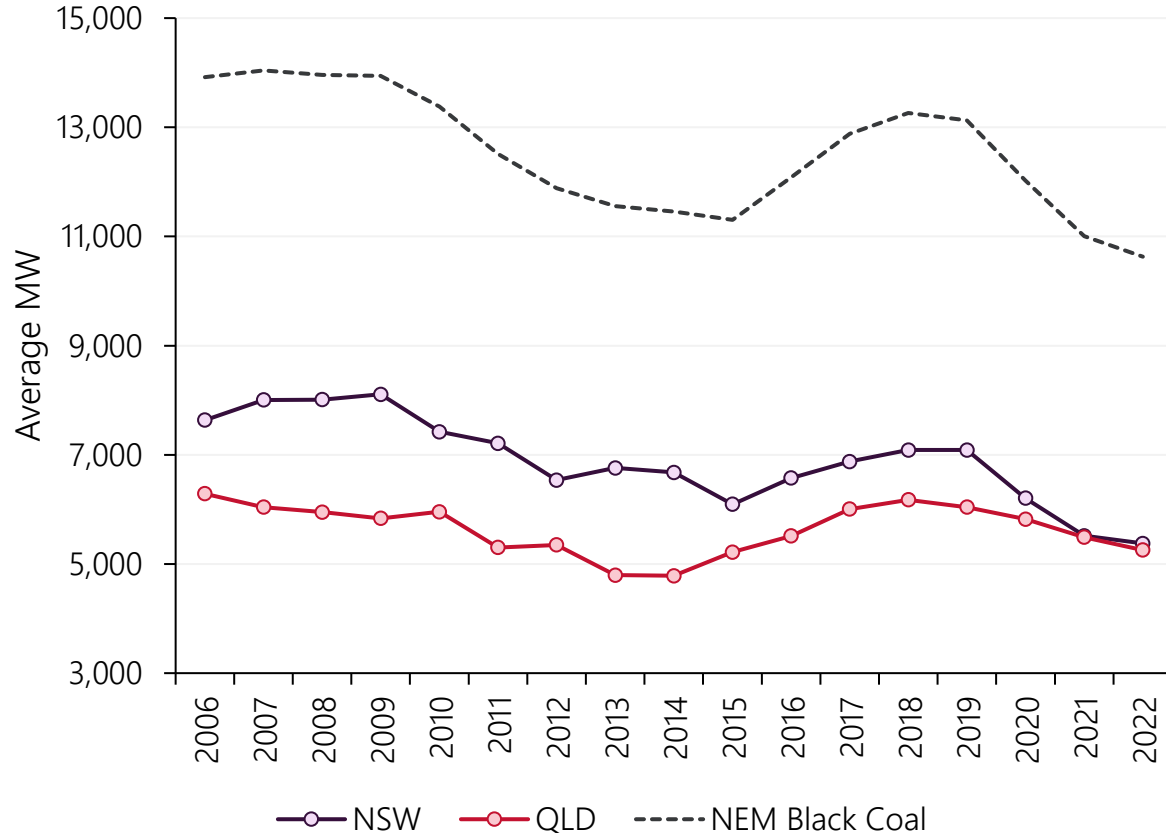
Average output change by energy source and region, Q1 2022 vs Q1 2021



# High outage levels a driver of lower coal output

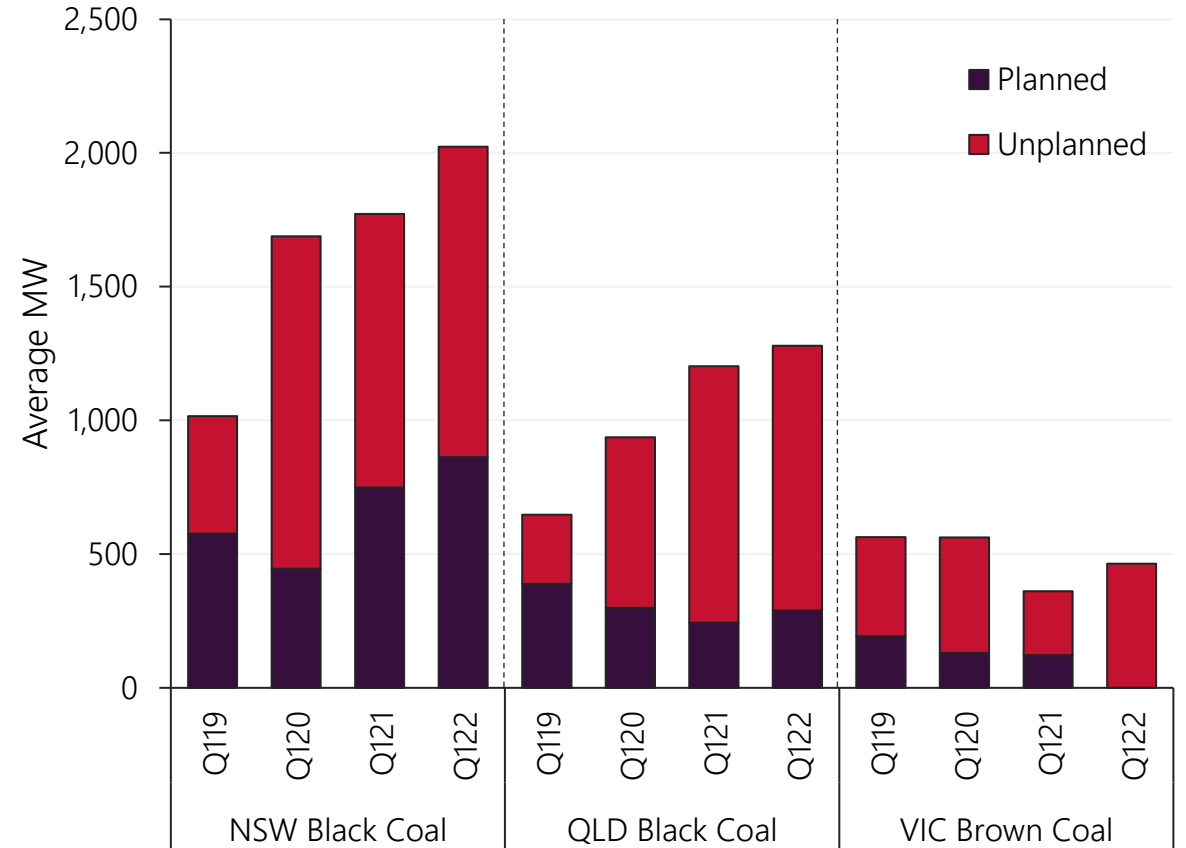
## Record low Q1 black coal output

Black coal generation output – Q1s



## High levels of Q1 coal outages

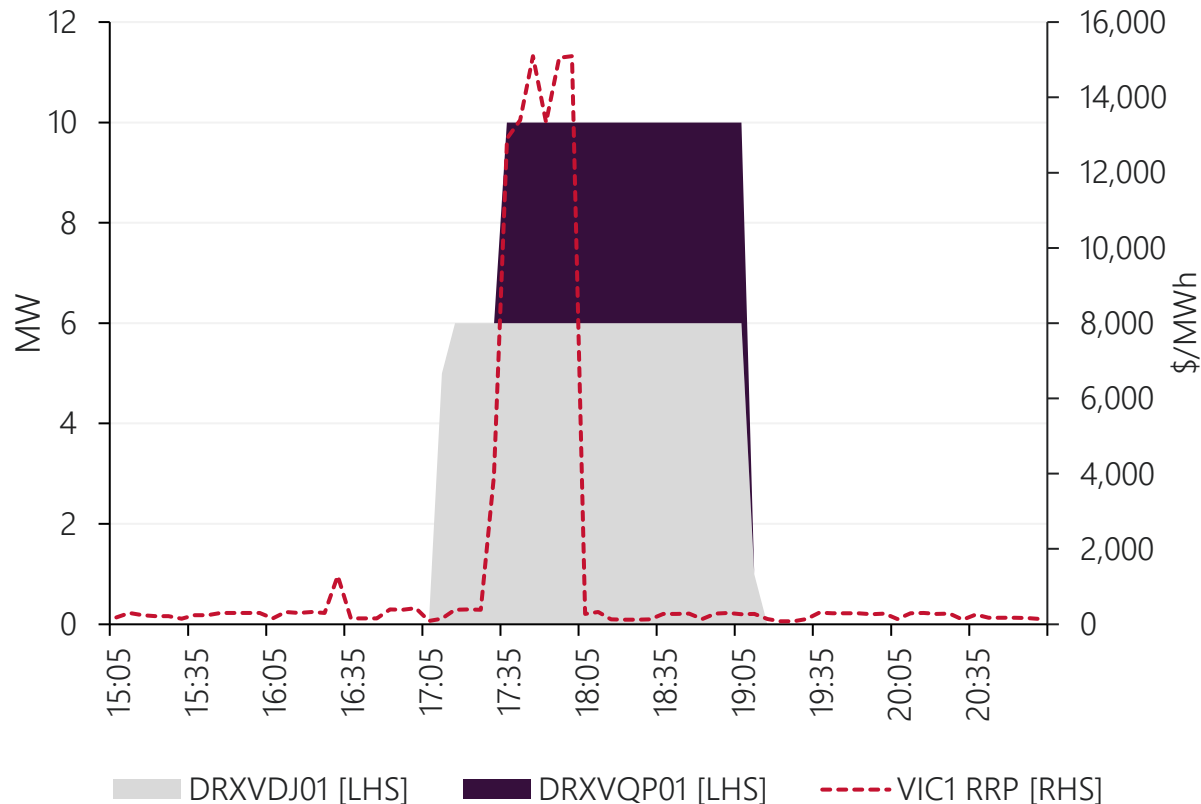
Coal generation outage classification – Q1s



# Newer technologies active in the NEM

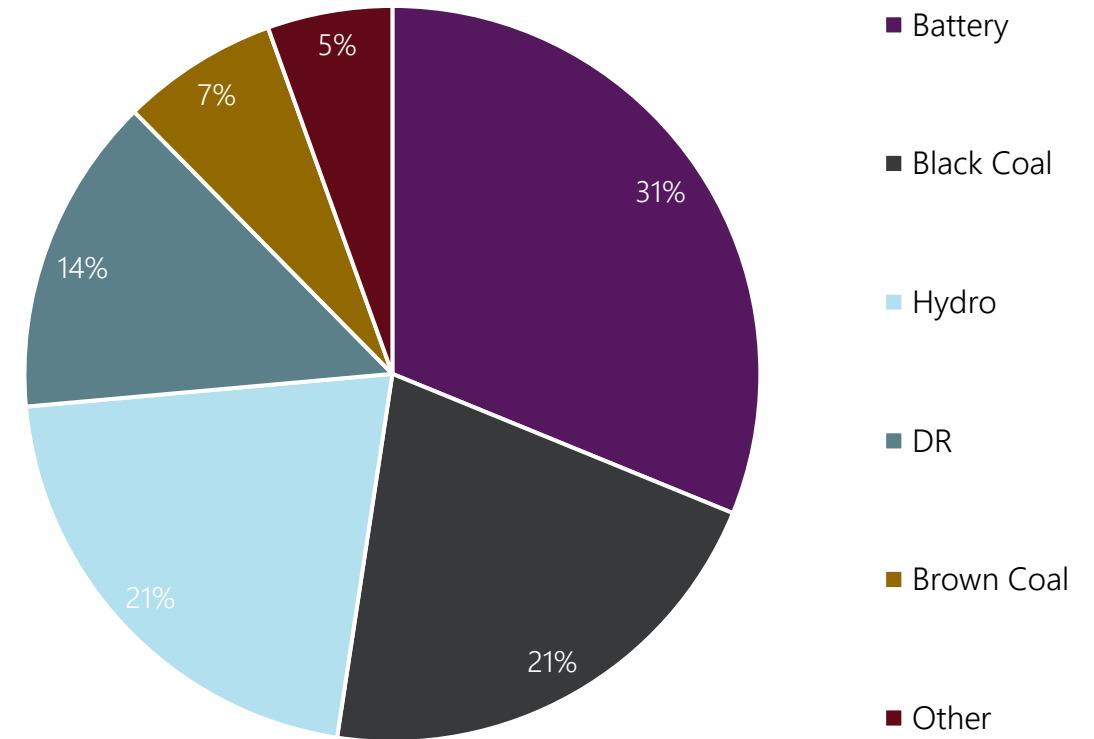
## First NEM dispatch of Wholesale Demand Response<sup>1</sup>

Victorian WDR dispatch and spot price – 31 January 2022



## Batteries lead FCAS market share

Share of total FCAS volumes by technology / fuel – Q1 2022

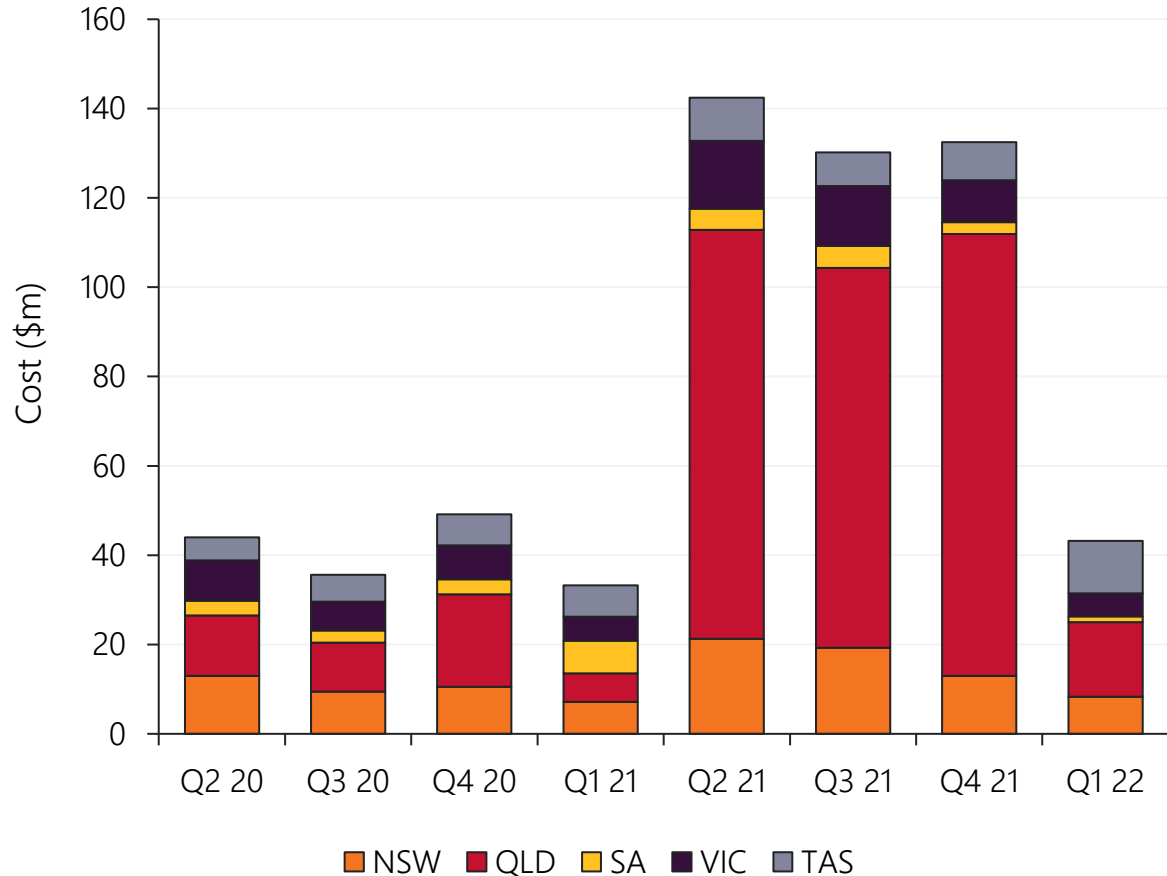


<sup>1</sup>WDR enables demand-side (consumer) participation in the NEM spot market separately from retail energy procurement, with the mechanism typically expected to be utilised at times of high electricity prices and electricity supply scarcity

# FCAS and directions cost fall

## FCAS costs down on Q2-Q4 2021

FCAS costs by region



## Syncons cut SA generator direction costs

Estimated direction costs and time on direction – South Australia

