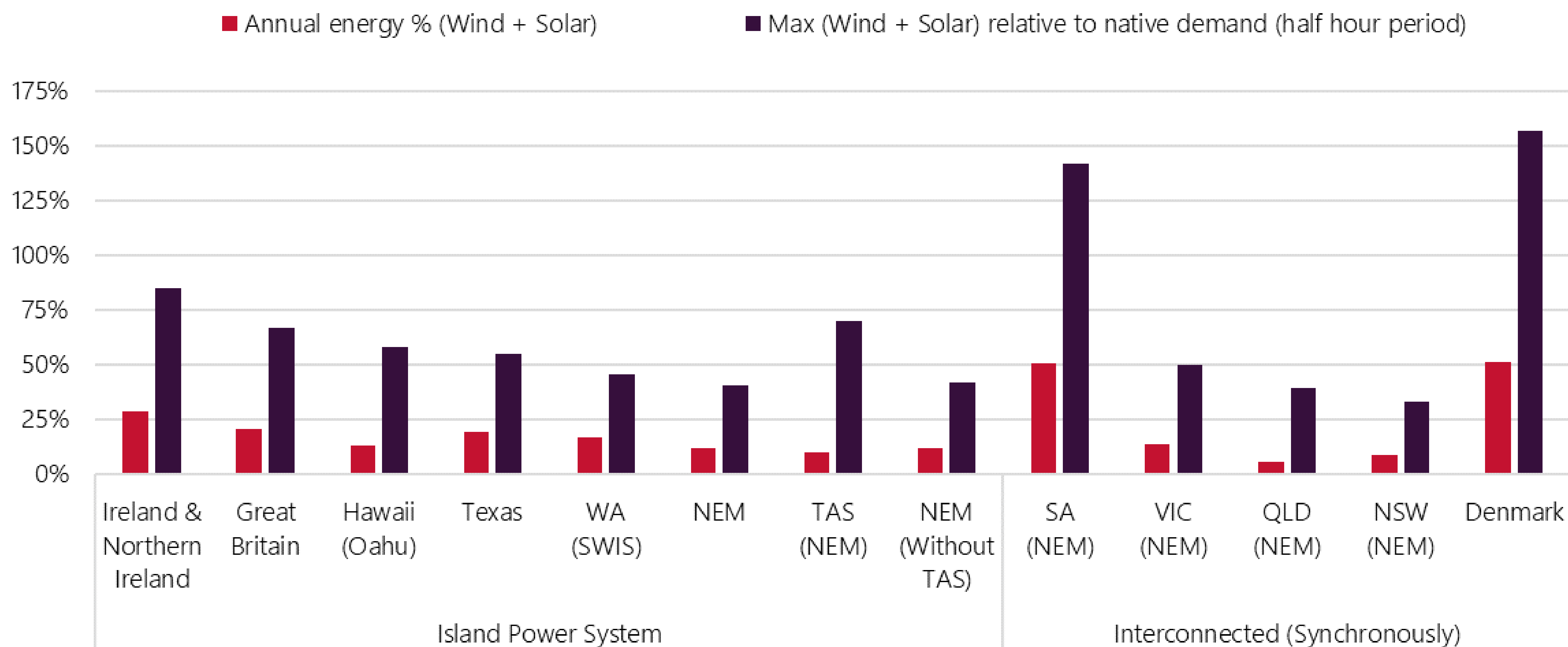
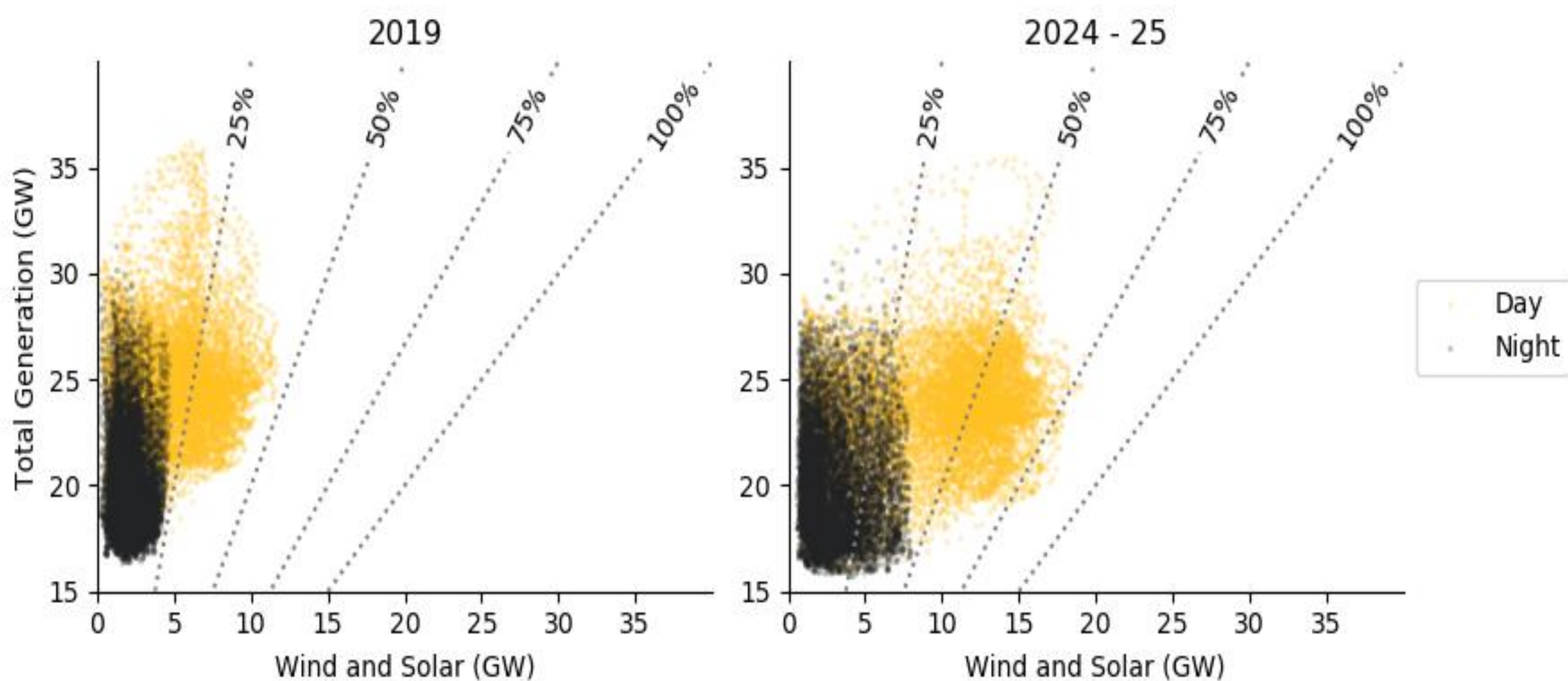


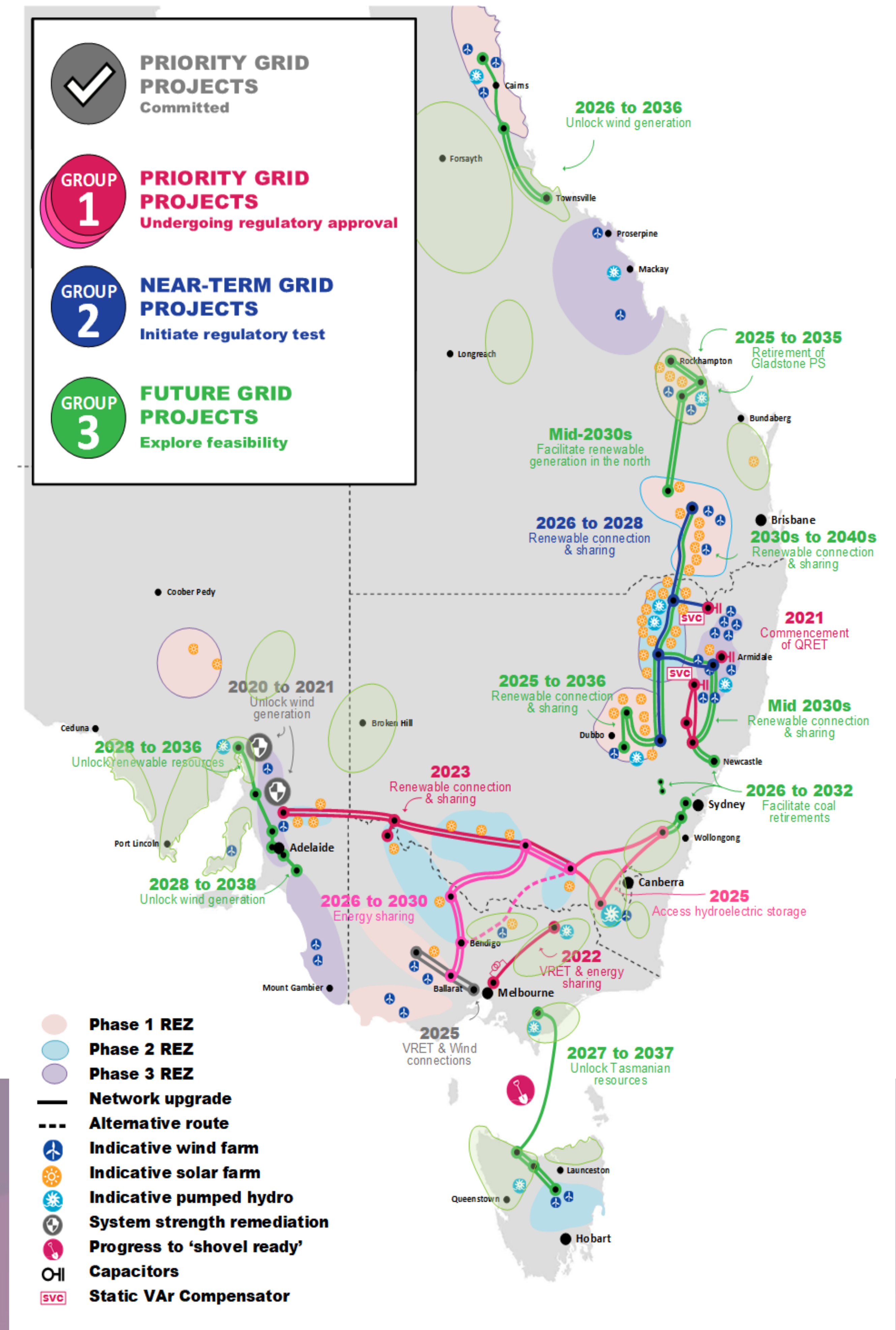
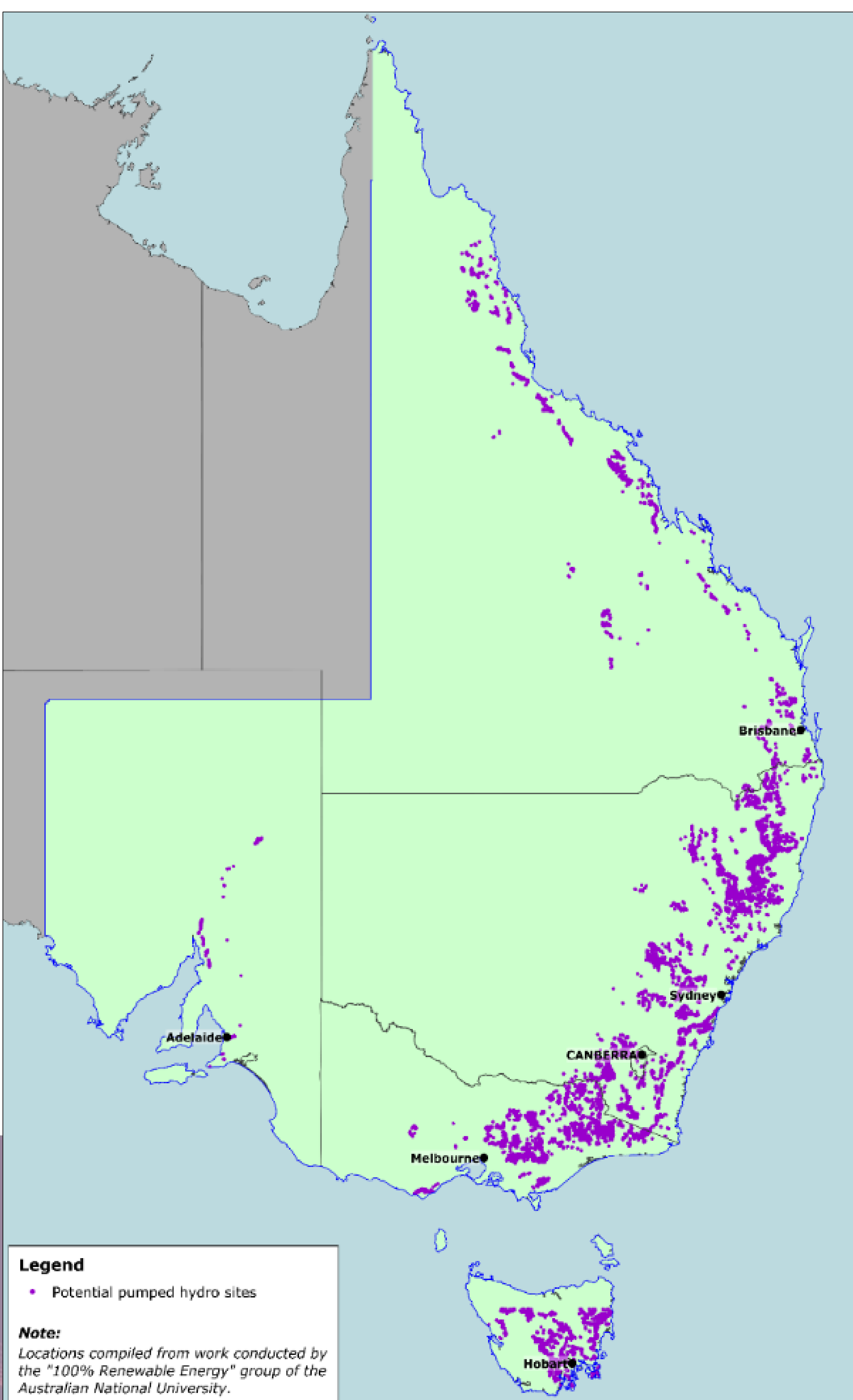
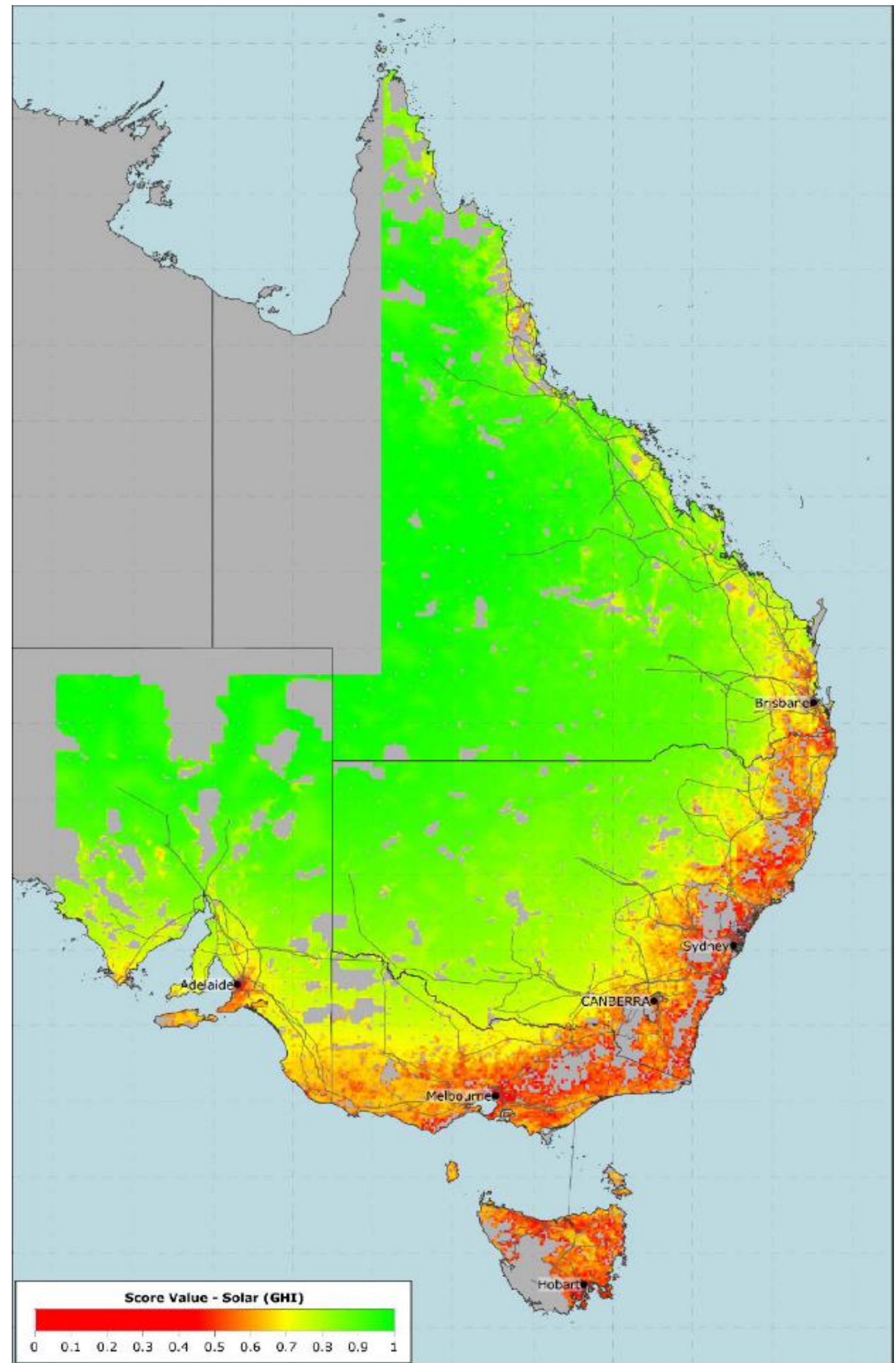
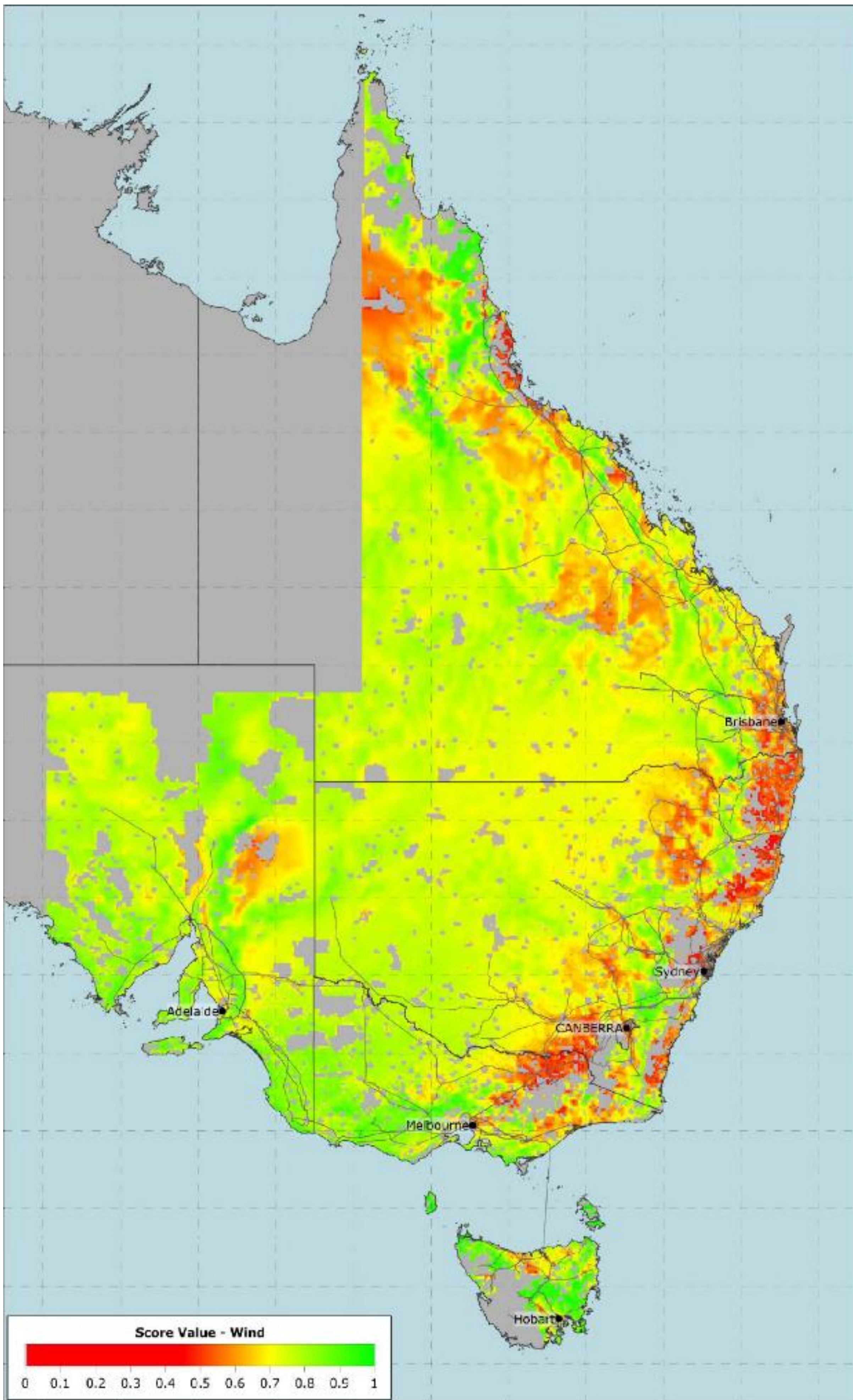
# REZ & Renewable Integration

Large international power systems operating with high instantaneous penetrations of wind and solar generation, and Australian comparisons



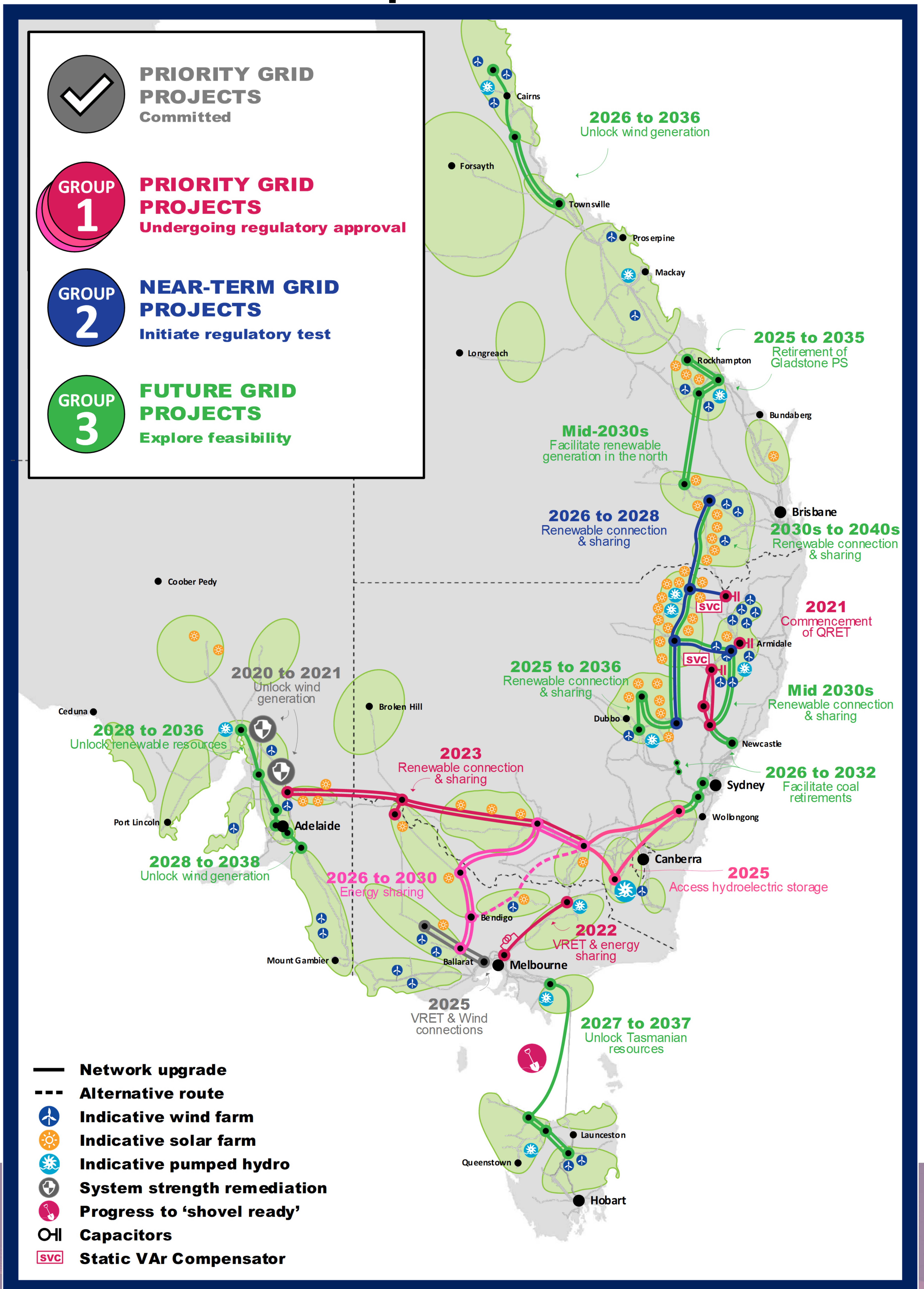
NEM total generation and wind and solar PV generation 2019 (actual) and 2025 (central scenario)







# Planning: Network and non-network options



# Your Input...

We have a few items that we could look at over the next 3 months before we issue the plan as final. To help us with our prioritisation, please place a star on your top two.

Route selection for **VNI-West path** (via Kerang or Shepparton)

More **technical details on the recommended network upgrades**

**Understanding the impact of transmission cost changes**

Exploration of **minor Central to Southern QLD** upgrade options in medium term

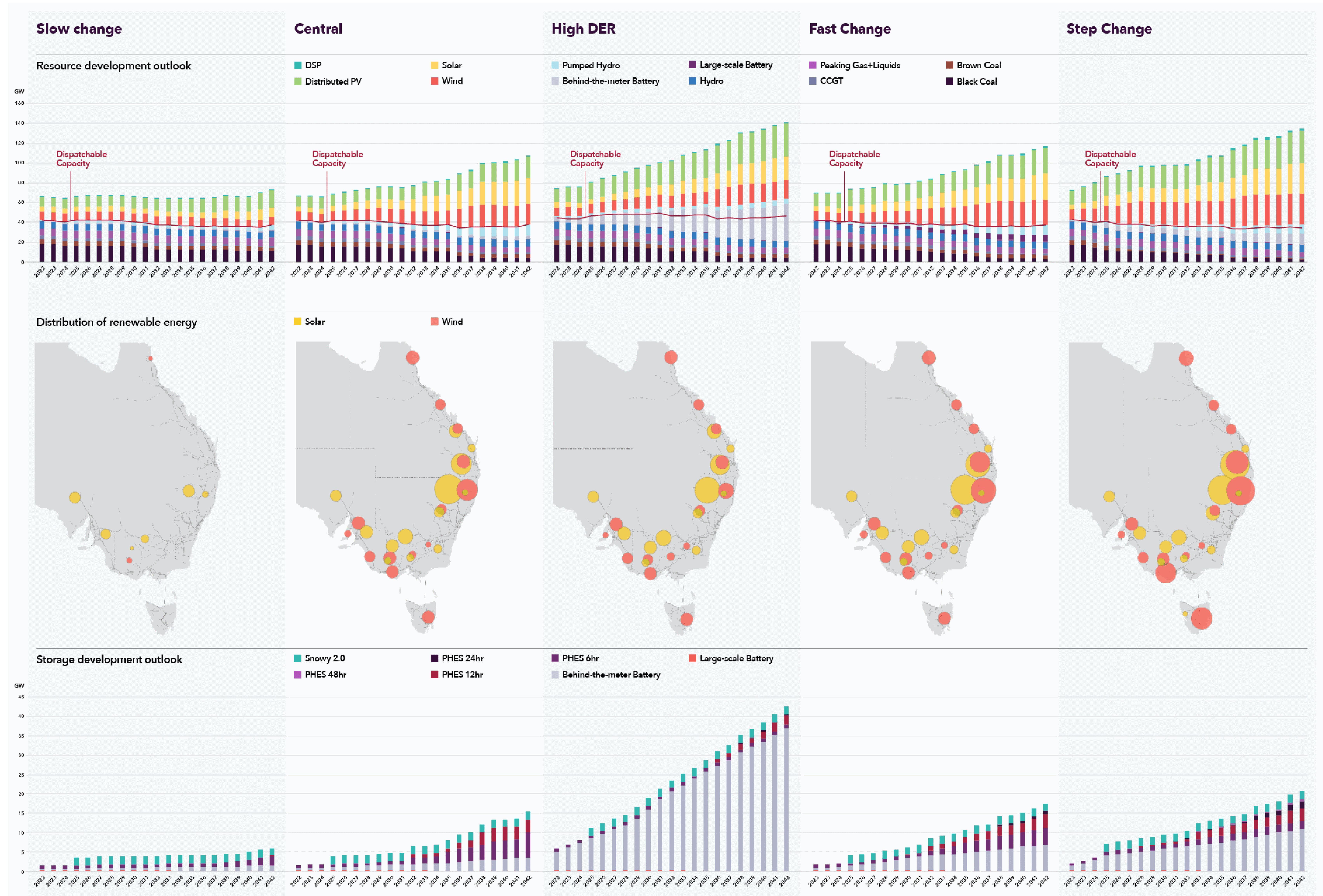
Economics behind **non-network options**

What does **'shovel ready'** mean

More analysis of **climate resilience for networks**

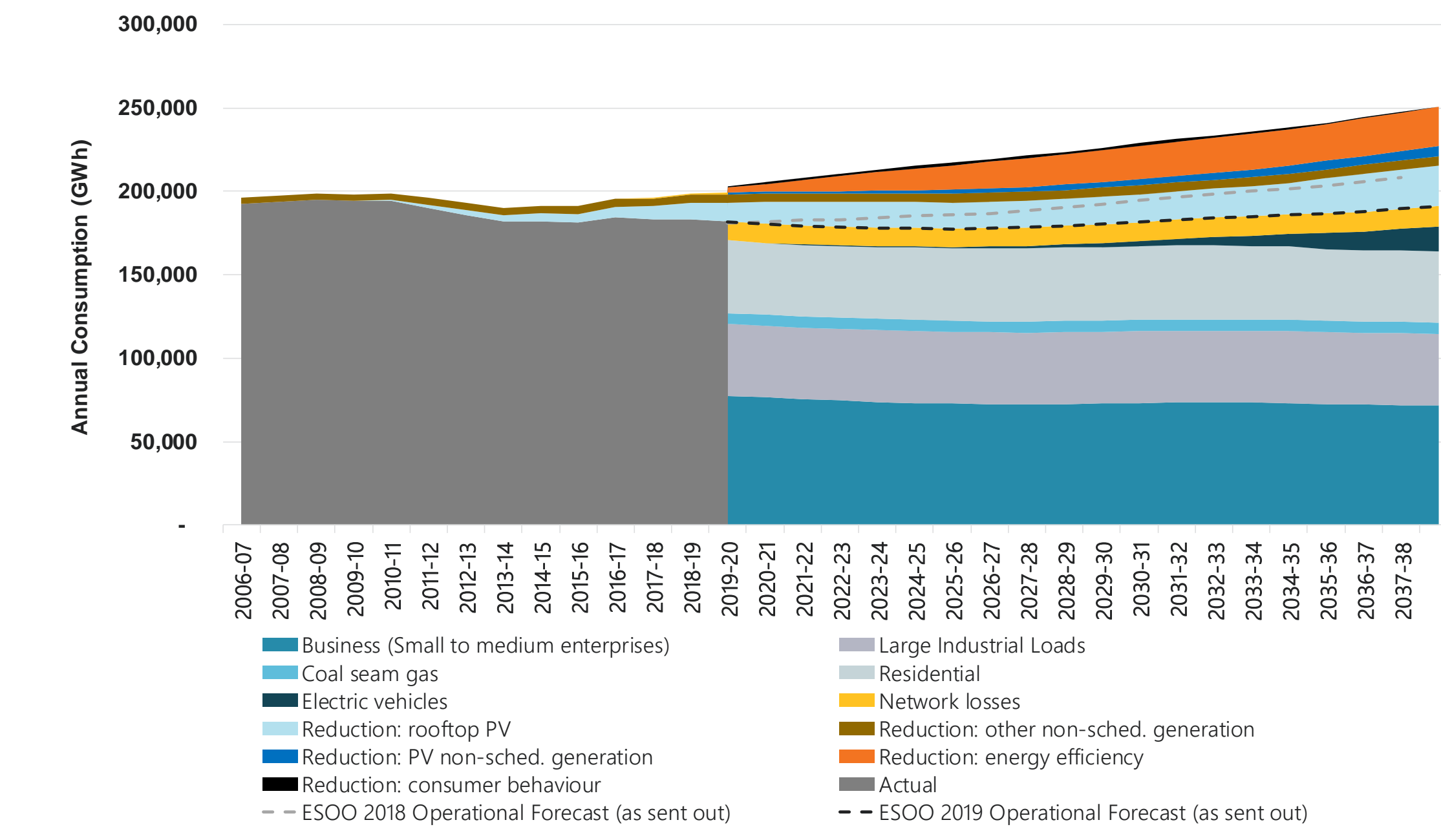
Have an idea that's not on our list? Please add it

# Energy Outlook: Forecasts, DER, Storage to 2040

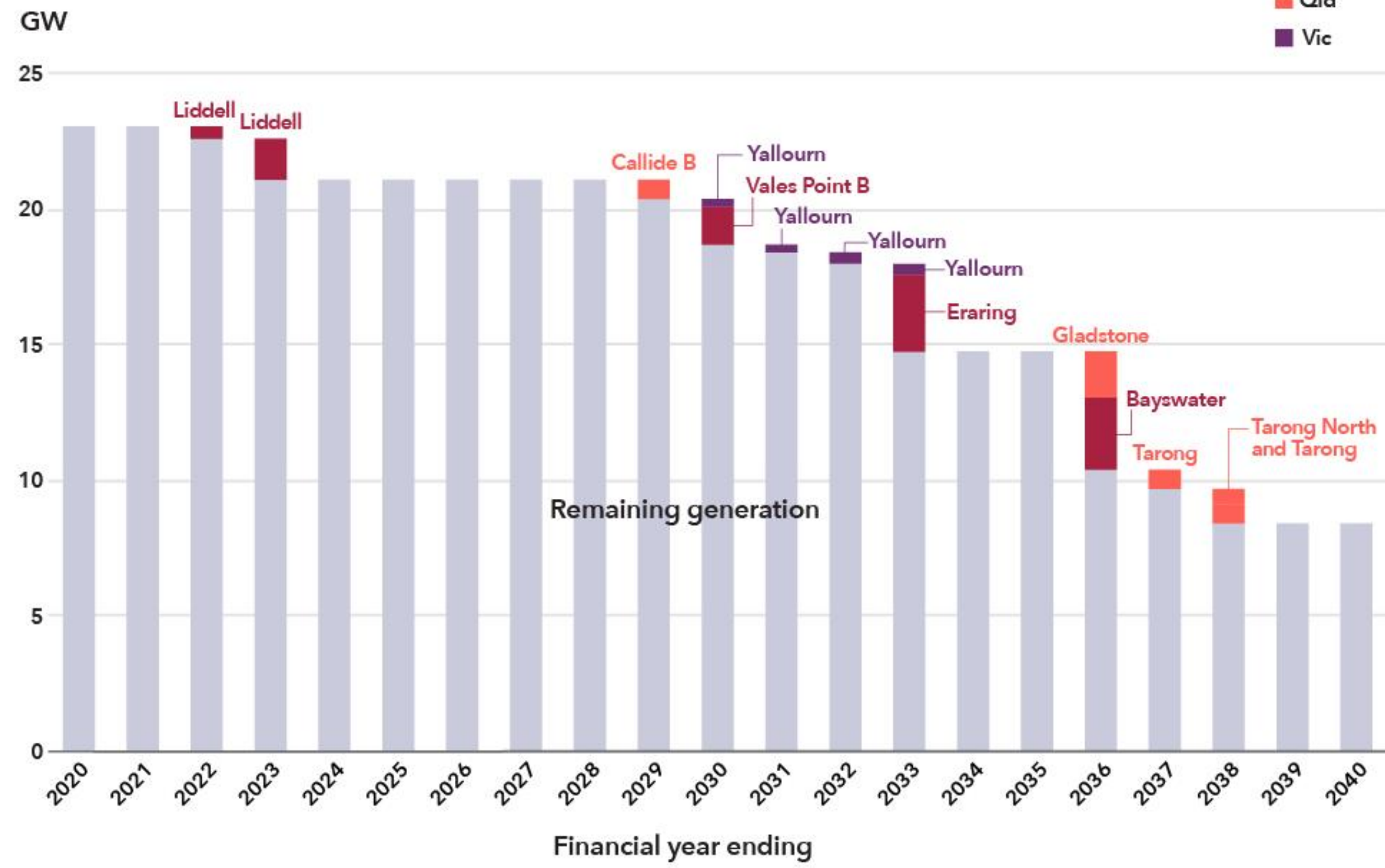


# Energy Outlook: Forecasts, DER, Storage to 2040

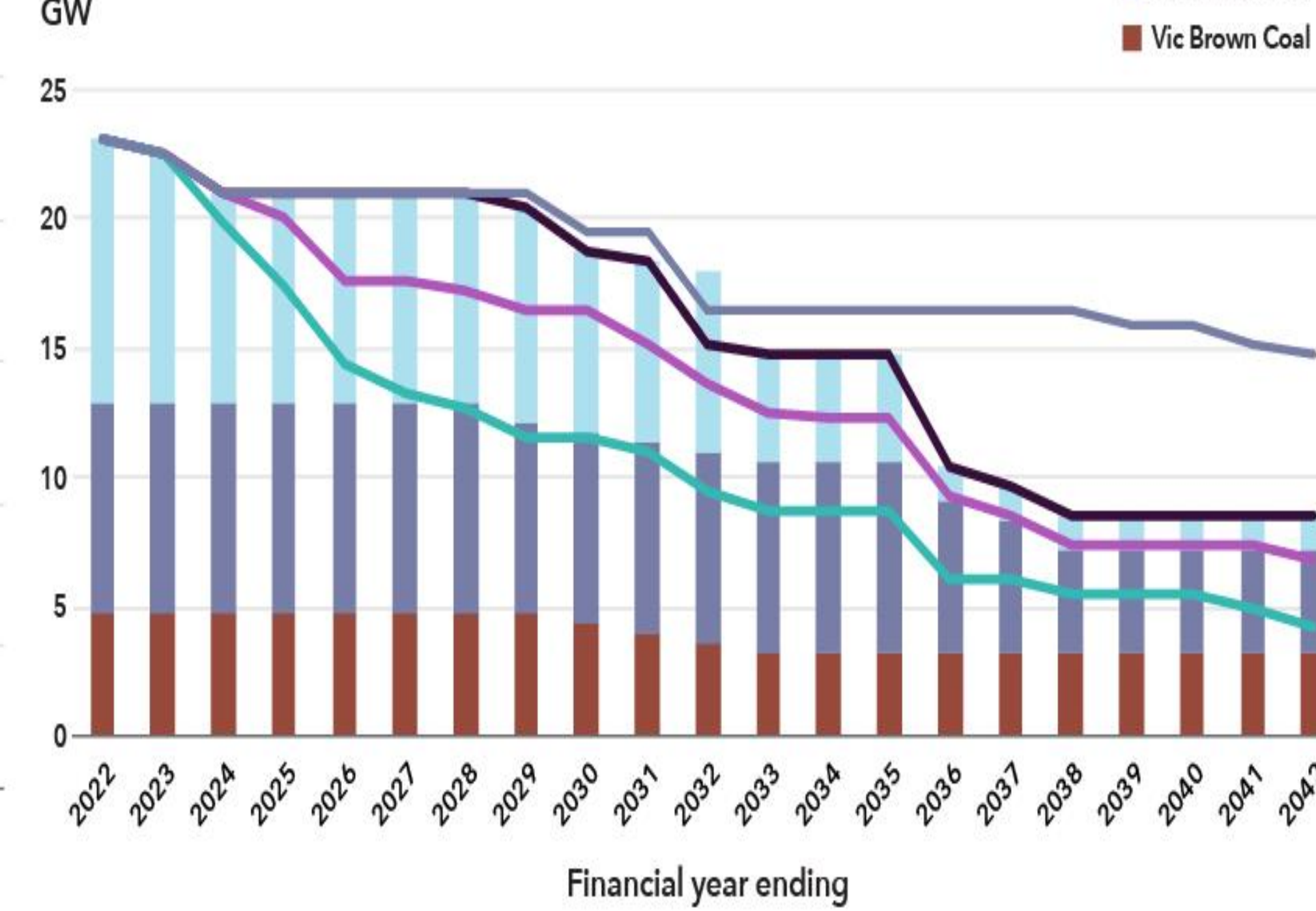
Consumption



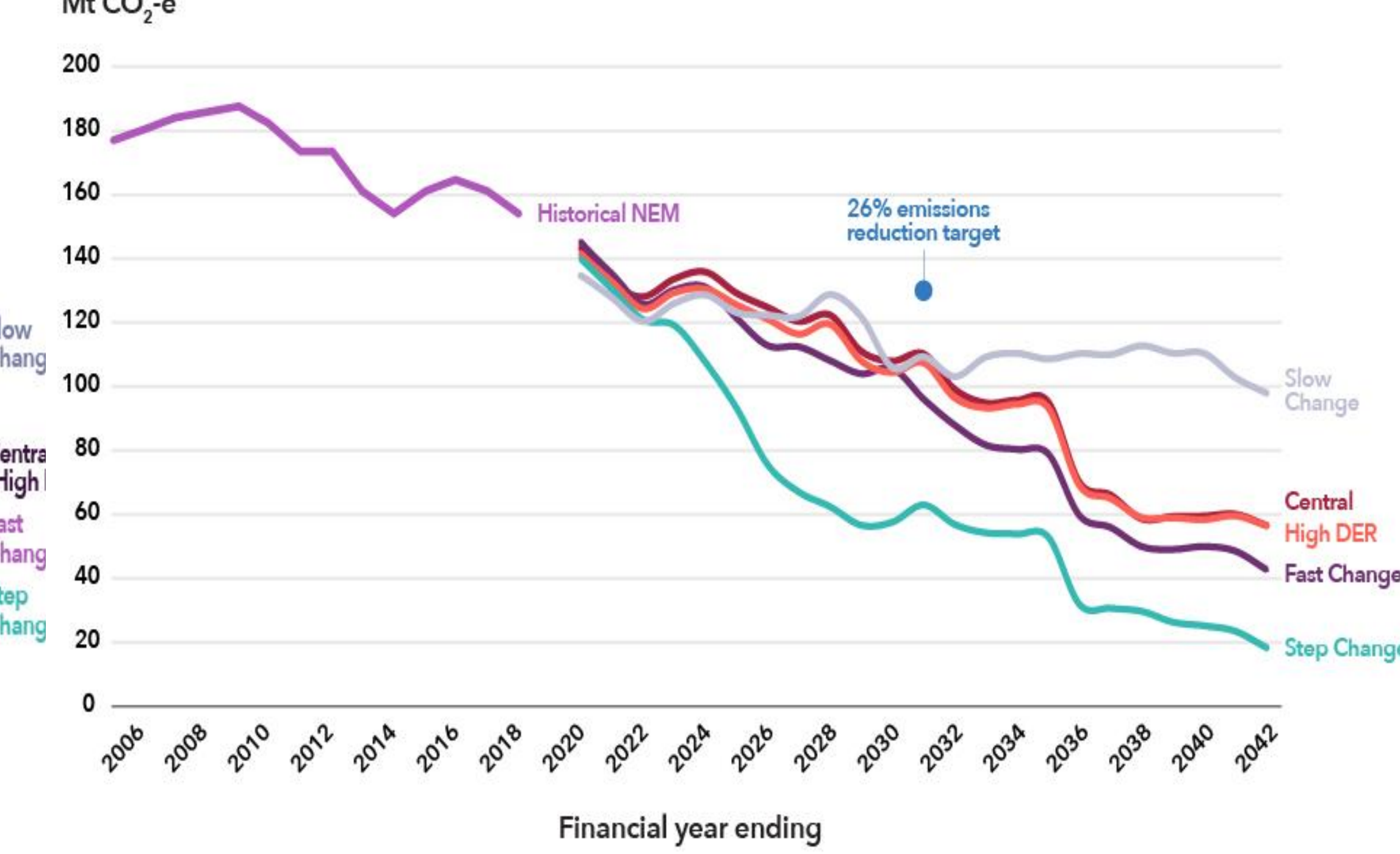
Announced Retirements



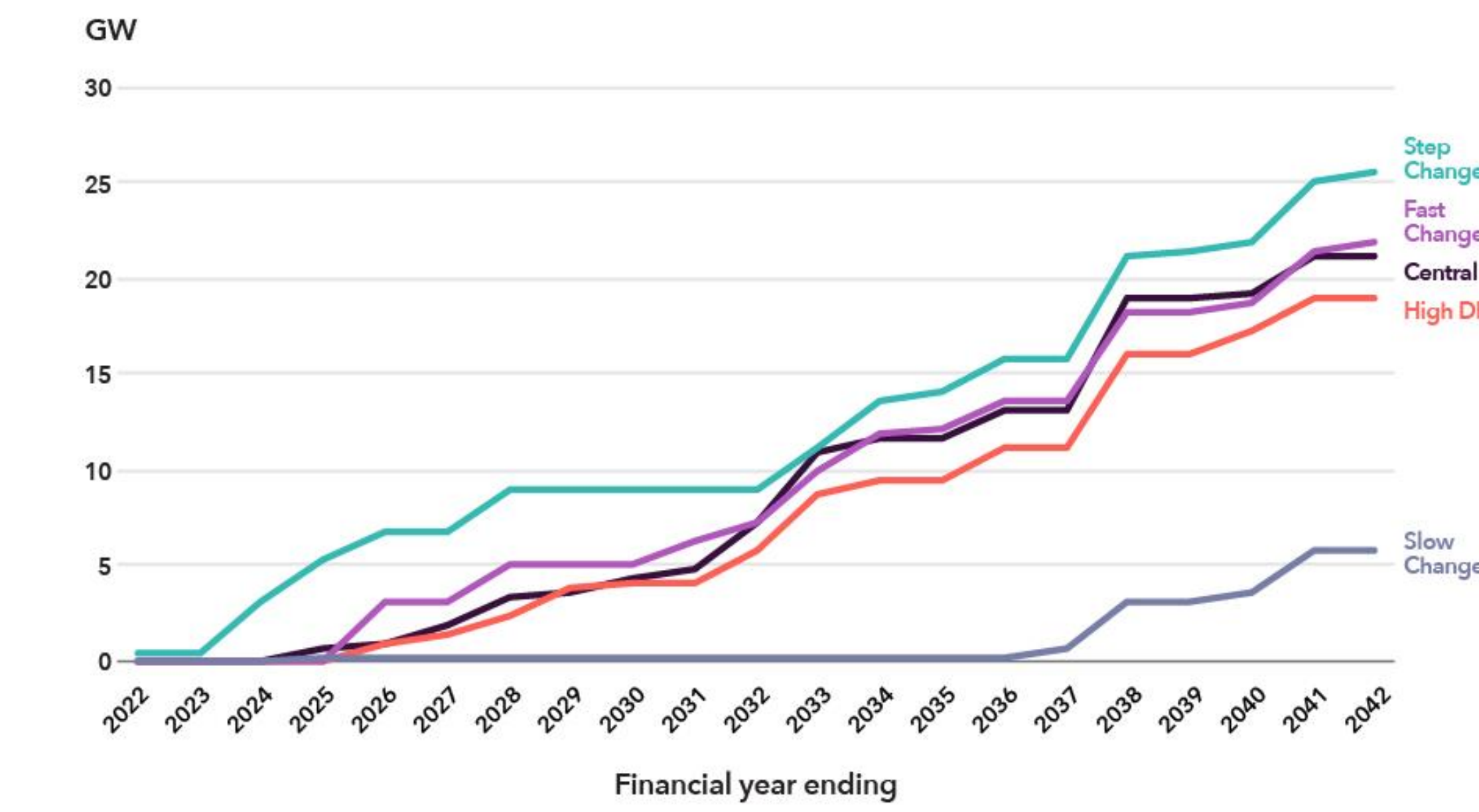
Modelled Retirements



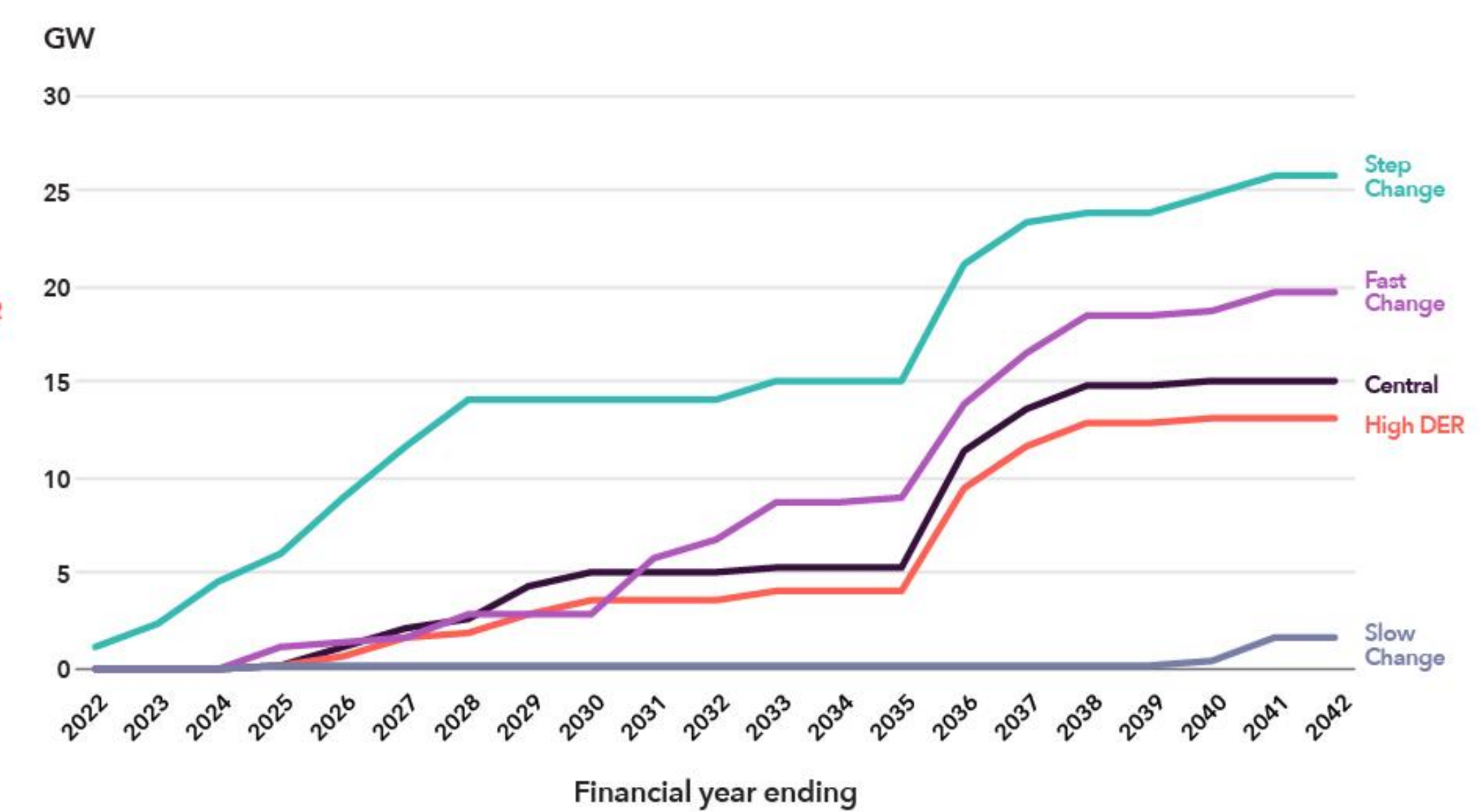
Emissions



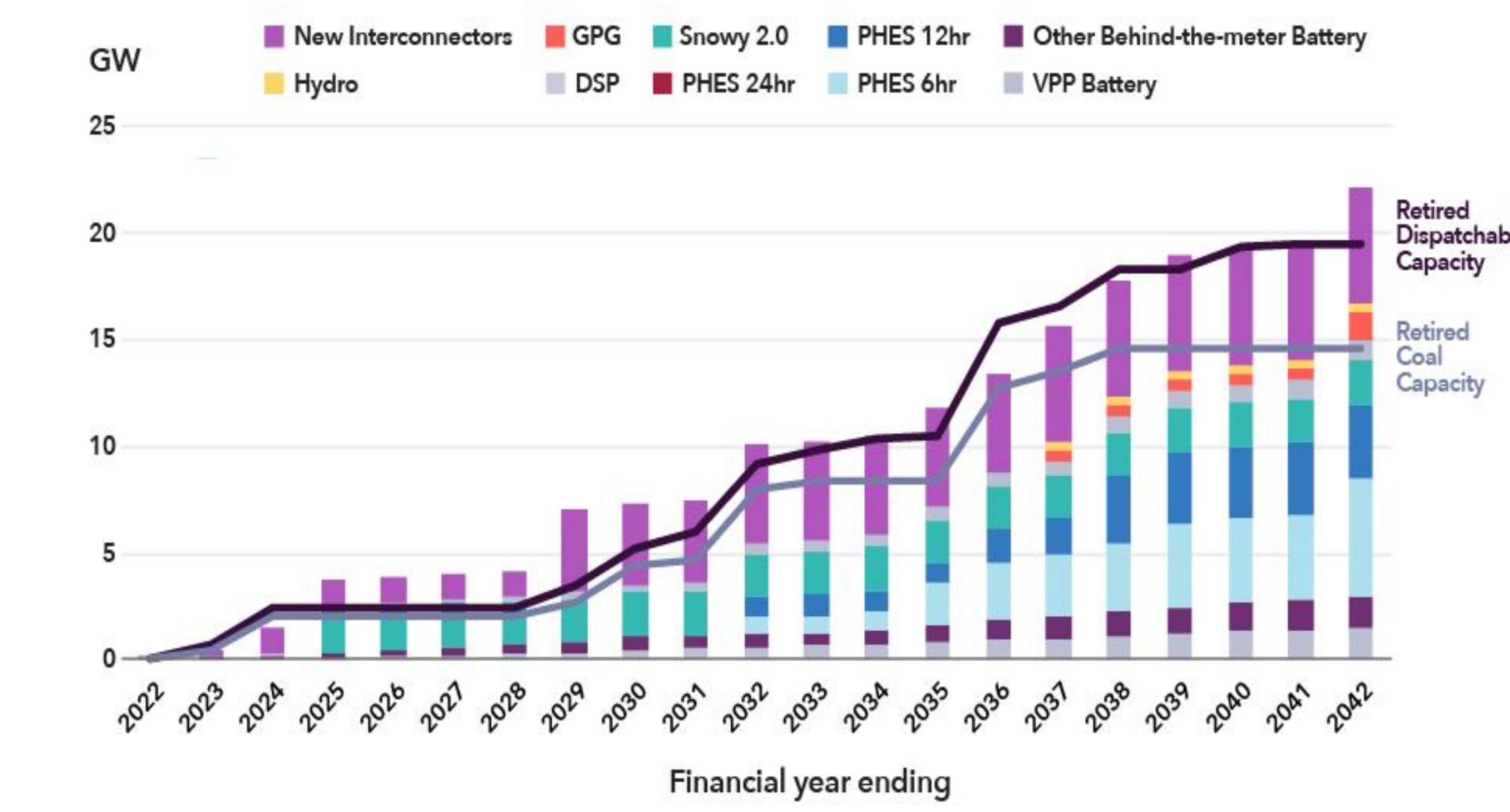
Solar developments



Wind developments



Retirements and Build - Central







# Decision Making and Least Worst Regrets

## Common developments in all pathways

- QNI Minor
- VNI Minor
- EnergyConnect
- Humelink
- QNI Medium

## Candidate Pathway #1: No Accelerated Action

- Deferred decisions on VNI West and Marinus Link

## Candidate Pathway #2: Accelerate VNI West

- Immediate commencement of VNI West to deliver by 2028-29 (or as early as 2026-27 if expedited)
- Provides resilience to early retirements

## Candidate Pathway #3: Accelerate Marinus Link

- Immediate commencement of Marinus Link to deliver by 2026-27
- Provides resilience to early retirements

## Candidate Pathway #4: Accelerate VNI West and Marinus Link

- Immediate commencement of both VNI West and Marinus Link
- Provides maximum resilience to early retirements

## Candidate Pathway #5: Accelerate VNI West and maintain early delivery option for Marinus Link

- Immediate commencement of VNI West
- Progress design and approvals for Marinus Link (making it 'shovel ready')
- Provides maximum resilience to early retirements

Scenario / Sensitivity	No accelerated action	Accelerated VNI West	Accelerated Marinus Link	Accelerated VNI West and Marinus Link	Accelerated VNI West and shovel-ready Marinus Link
Central	\$0M	-\$67M	-\$288M	-\$380M	-\$108M
High DER	\$0M	-\$83M	-\$279M	-\$470M	-\$124M
Step Change	-\$240M	-\$139M	\$0M	\$0M	\$0M
Slow Change	\$0M	-\$25M	-\$130M	-\$155M	-\$155M
Fast Change	\$0M	-\$80M	-\$25M	-\$170M	-\$121M
<b>Worst Regret</b>	<b>-\$240M</b>	<b>-\$139M</b>	<b>-\$288M</b>	<b>-\$470M</b>	<b>-\$155M</b>
Early retirement sensitivity	-\$118M	\$0M	-\$156M	-\$307M	-\$41M



# Prioritisation for final ISP

We have a few items listed here that we have identified as important for us to incorporate in our workscope over the next 3 months before we finalise the ISP. Please add further suggestions on sticky notes below. To help us with prioritisation, please place a star on your top two items (whether a new suggestion already added on stick note, or one we have identified).

Further validation of the plan through detailed hourly simulations

Resilience to climate change – we will be including a chapter on this in the Final ISP

Central West NSW REZ – other sensitivities with generation development in this zone

Choice of route selection for VNI West

In step change scenario, are we confident the system is operable in 2040?

Cost increases on interconnectors or generators (capex generally)

Projections of Marginal Loss Factors (MLFs)

Other?

# Suggested workshop areas that have been screened out

In prioritising the most important analysis, it has also been necessary to identify further analysis that is “nice to have” but unable to be delivered in time for this ISP, as listed below. Please add a star on anything you feel should be prioritised ahead of items listed above, and add reasoning on a stick note. Feel free to add other suggestions raised during this workshop that you do not consider relevant for the Final ISP.

Detailed analysis of FCAS/ancillary services to value other services delivered by storage

Sensitivities with and without Snowy 2.0

Price outcomes

Detailed analysis of impact of hydrogen

Black start requirements at each region

Other?