

2020 ISP Webinar

24 August 2020

Host: Jonathon Geddes

Acknowledgement of Country

We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.

Agenda



1. Welcome from Nicola Falcon, Group Manager – Forecasting.
2. ISP background, inputs and resources (Eli Pack)
 - Presentation (15 min)
3. ISP highlights (Andrew Turley, Eli Pack)
 - Presentation (20 min)
 - Q&A (60 min) www.sli.do enter event code (#ISP)
4. Next steps (Eli Pack)
 - 2022 ISP timeline (10 min)
5. Webinar Survey

ISP background, inputs and resources

Eli Pack – Manager, Integrated System Planning

An actionable roadmap for Australia's energy future



The 2020 ISP provides an actionable roadmap for eastern Australia's power system that:

- Draws on extensive stakeholder engagement and internal and external industry and power system expertise
- Optimises consumer benefits through a transition period of great complexity and uncertainty.

ISP consultation, considerations and expected changes to 2040

Consultation



200+ stakeholders consulted



8 workshops held



85 written submissions provided



4 webinars hosted

Considerations



Grid technologies and services



Consumer investment in DER



Emissions reductions



Market reforms



Economic growth



Government policies

Changes to 2040



Coal generation retirements

15 GW

or 63% of coal-fired generators



DER

+200%

supplying from 7% to 13-22% of total consumption



New VRE

26 GW

(grid-scale wind and solar)



New dispatchable resources

6-19 GW

(pumped hydro, batteries, gas)

Stakeholder Consultation for the 2020 ISP



- + ISP Database
- + Interactive Map
- + Consultation Summary
- + Supporting Documents



I like the ISP, it's good to have and communicates some pretty complicated modelling

It isn't clear what the process is from ISP to action? Who makes the decision about which transmission is built?

Draft ISP workshops were held in Brisbane, Sydney and Melbourne, with over 100 stakeholders attending. A webinar was also provided with approximately 70 additional stakeholders.

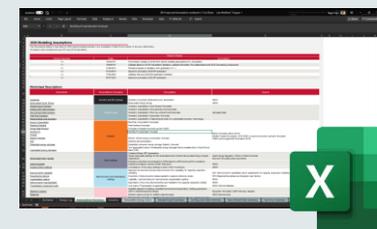
Where do I find...?



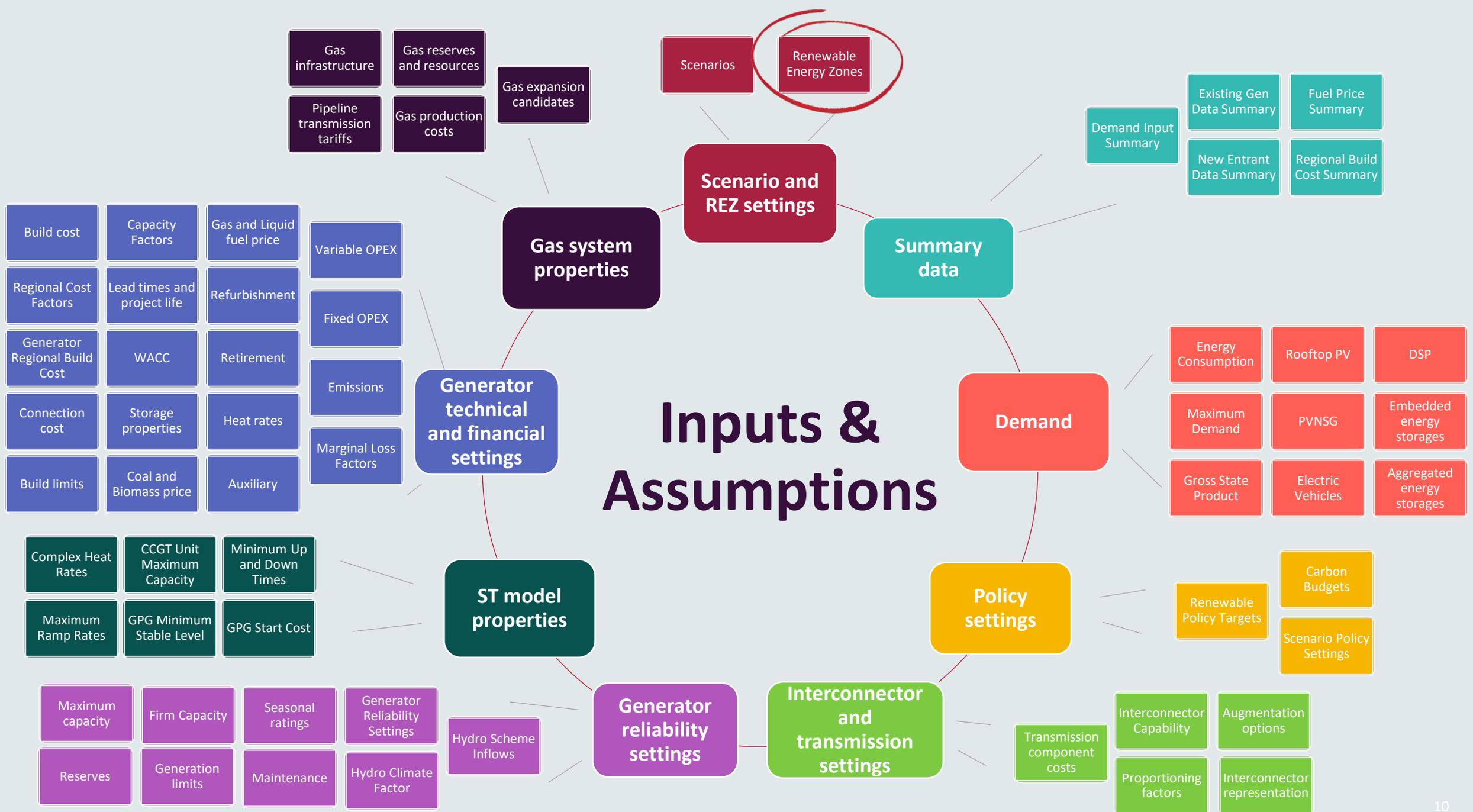
The ISP web page:

<https://www.aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2020-integrated-system-plan-isp>

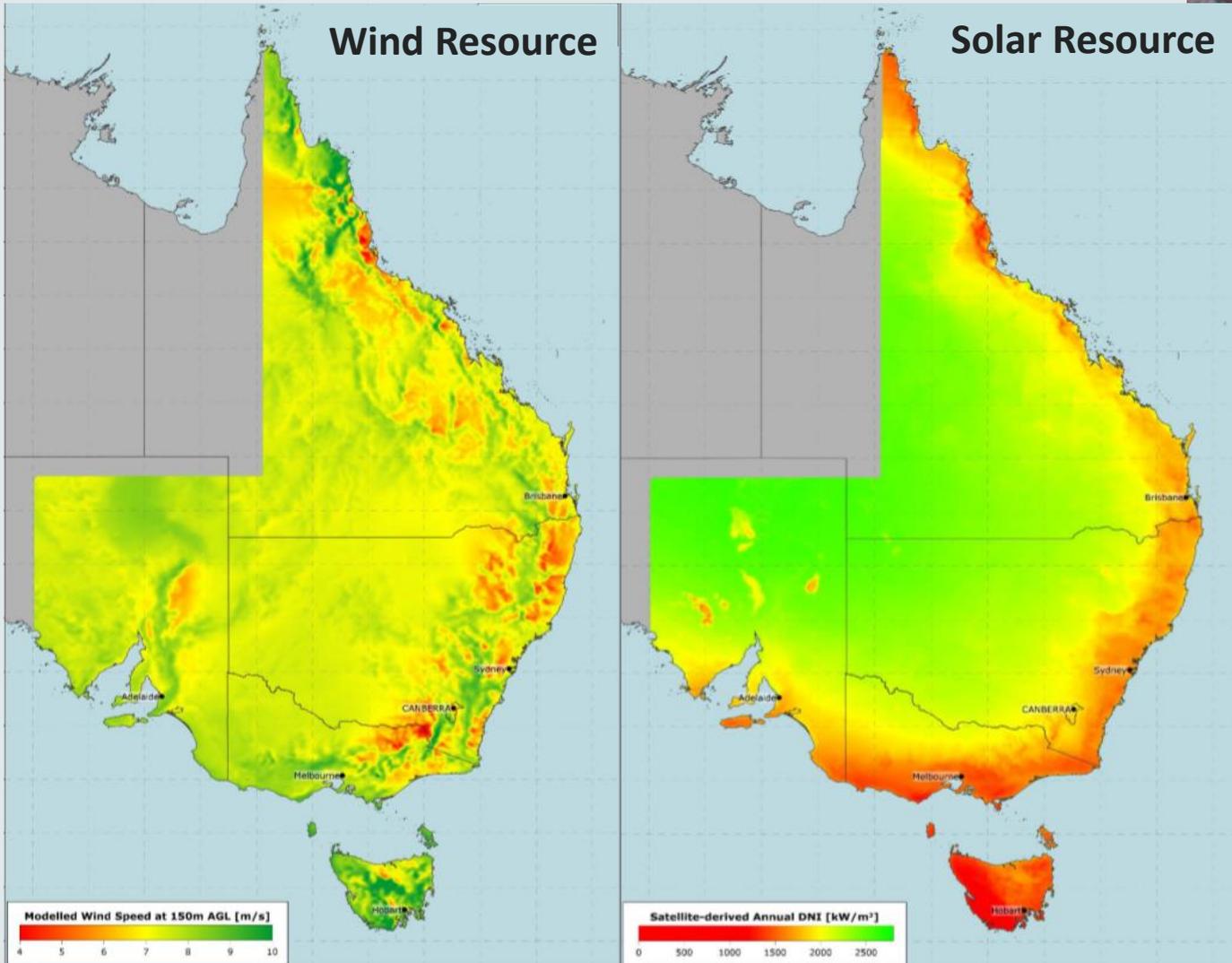
- 2020 ISP – Main Report, Appendices & Supplementary Reports
- Interactive map
- ISP Inputs and assumptions
- ISP database - traces
- Consultation information
- Chart data
- Data files – generation and transmission outlook



Inputs & Assumptions



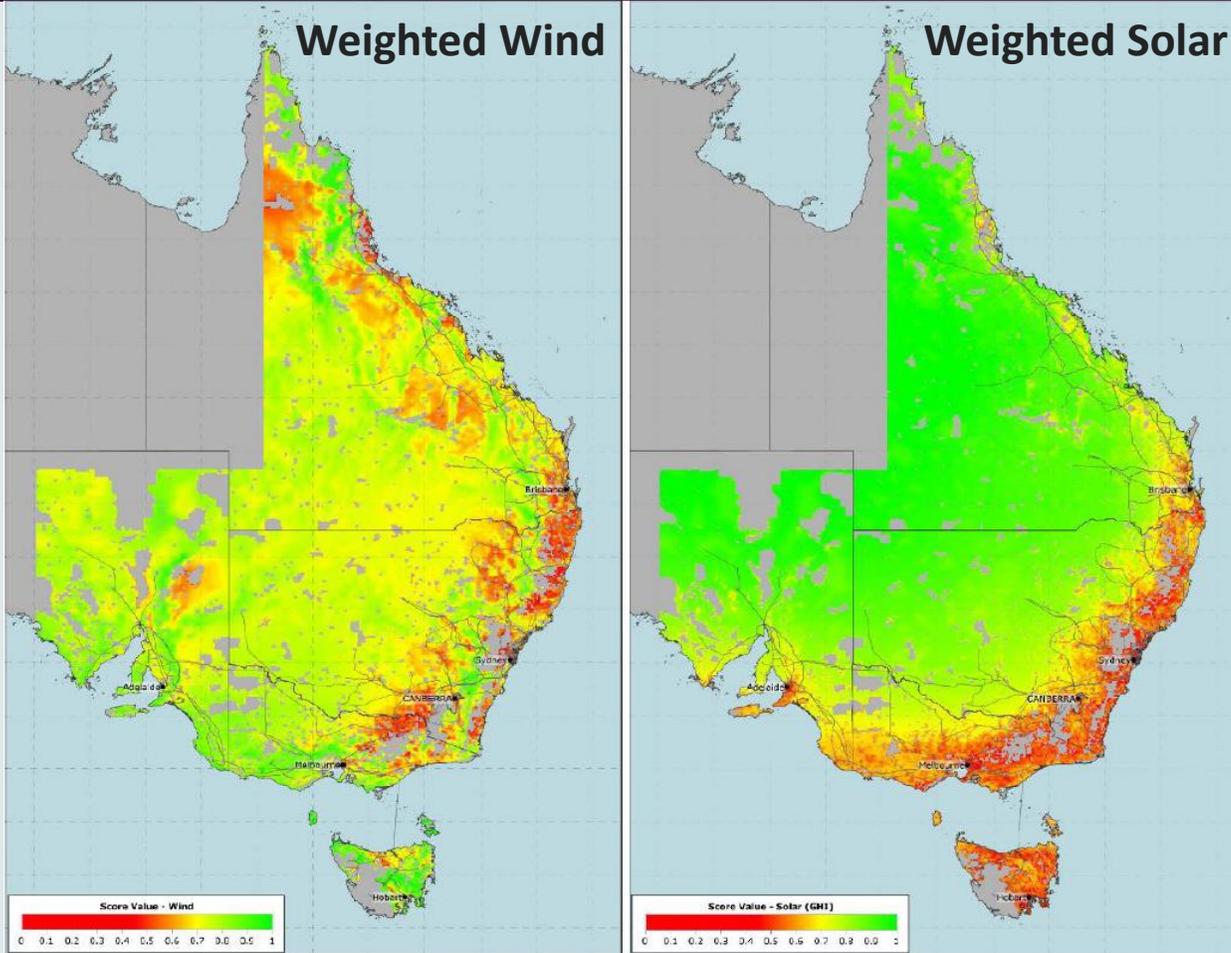
Candidate REZ Identification



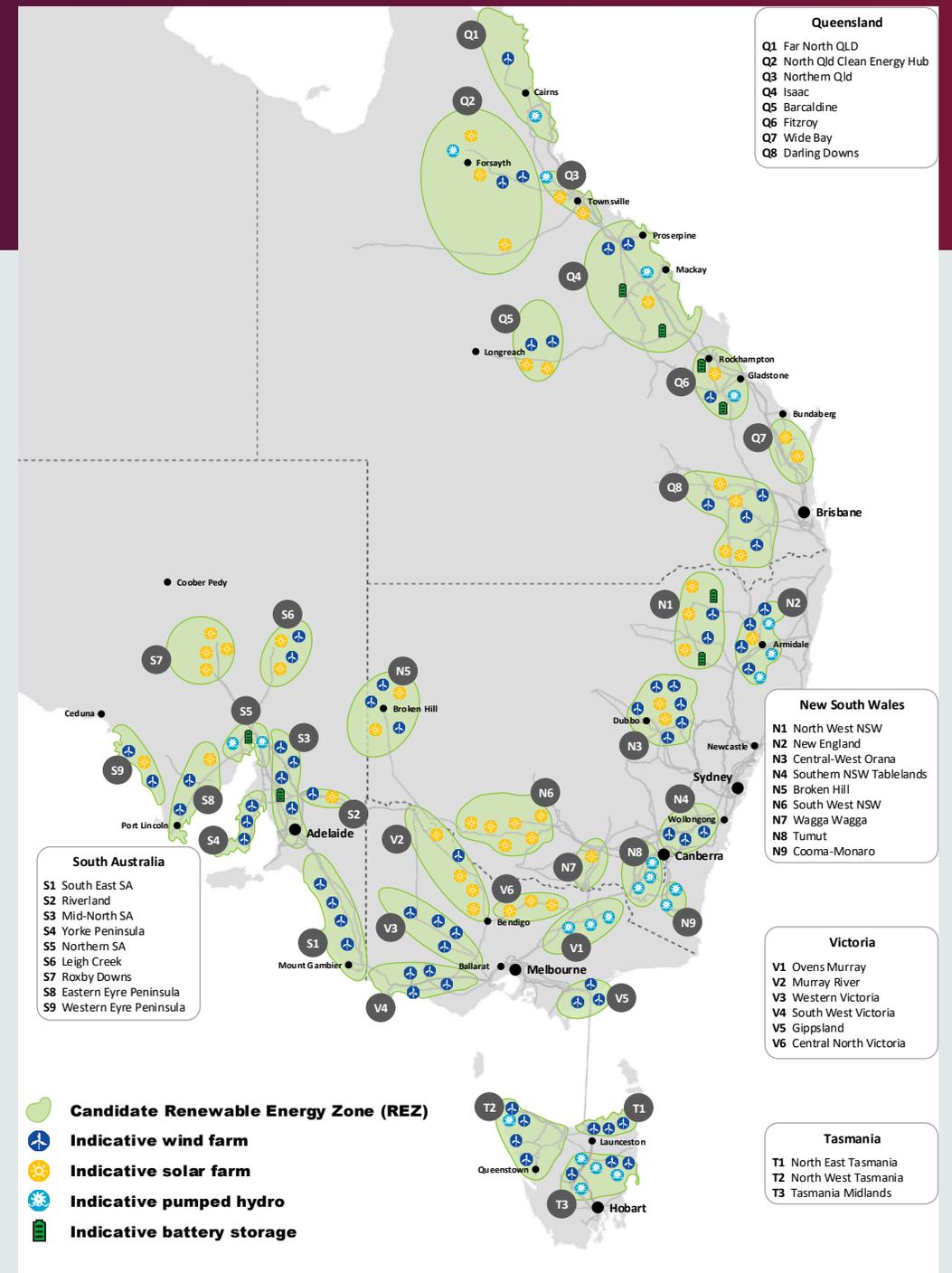
Source: DNV-GL



Candidate REZ Identification



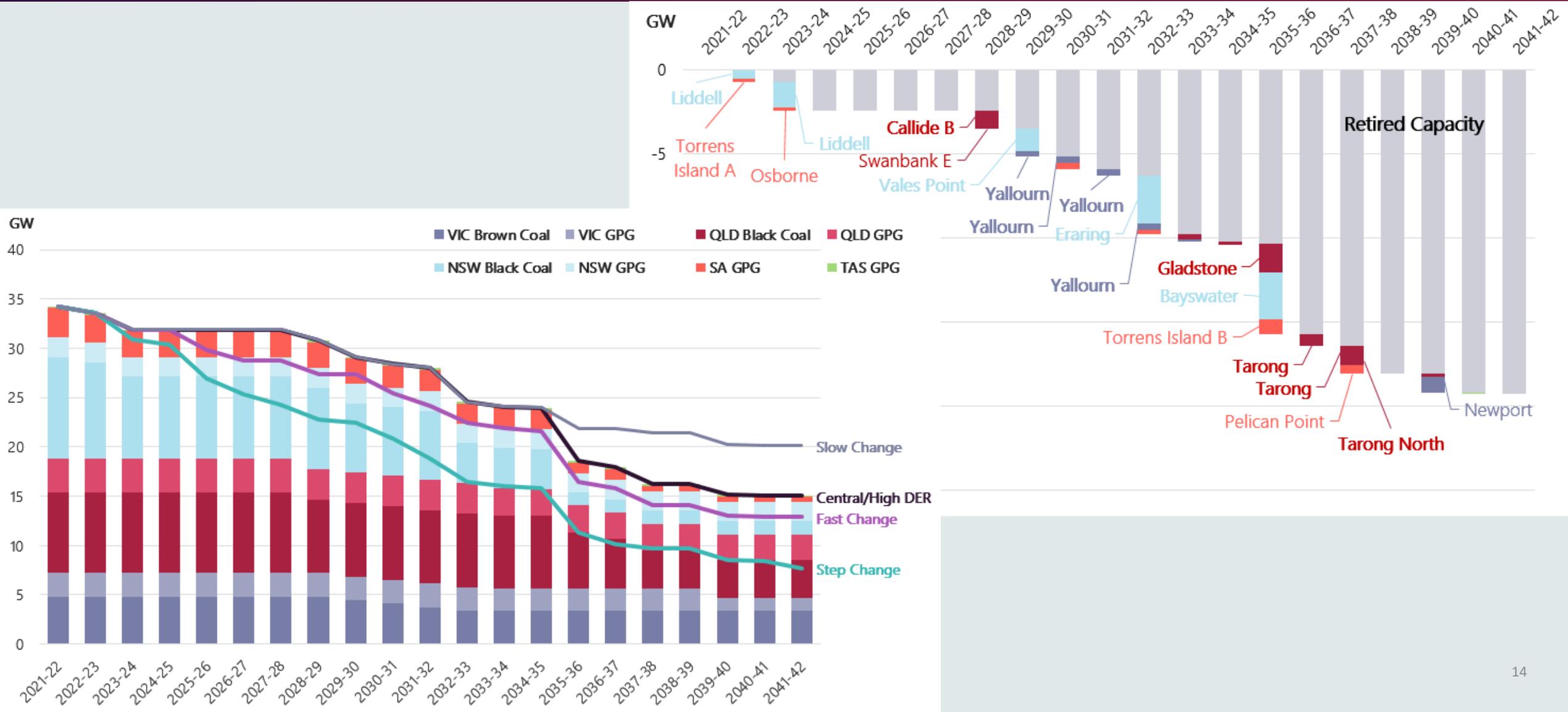
Considers: Resource quality, Correlation with demand, Land parcel density, Land cover, Road access, Terrain complexity, Population density, Protected areas, Electricity network + Alignment with developer interest and state initiatives (via consultation)



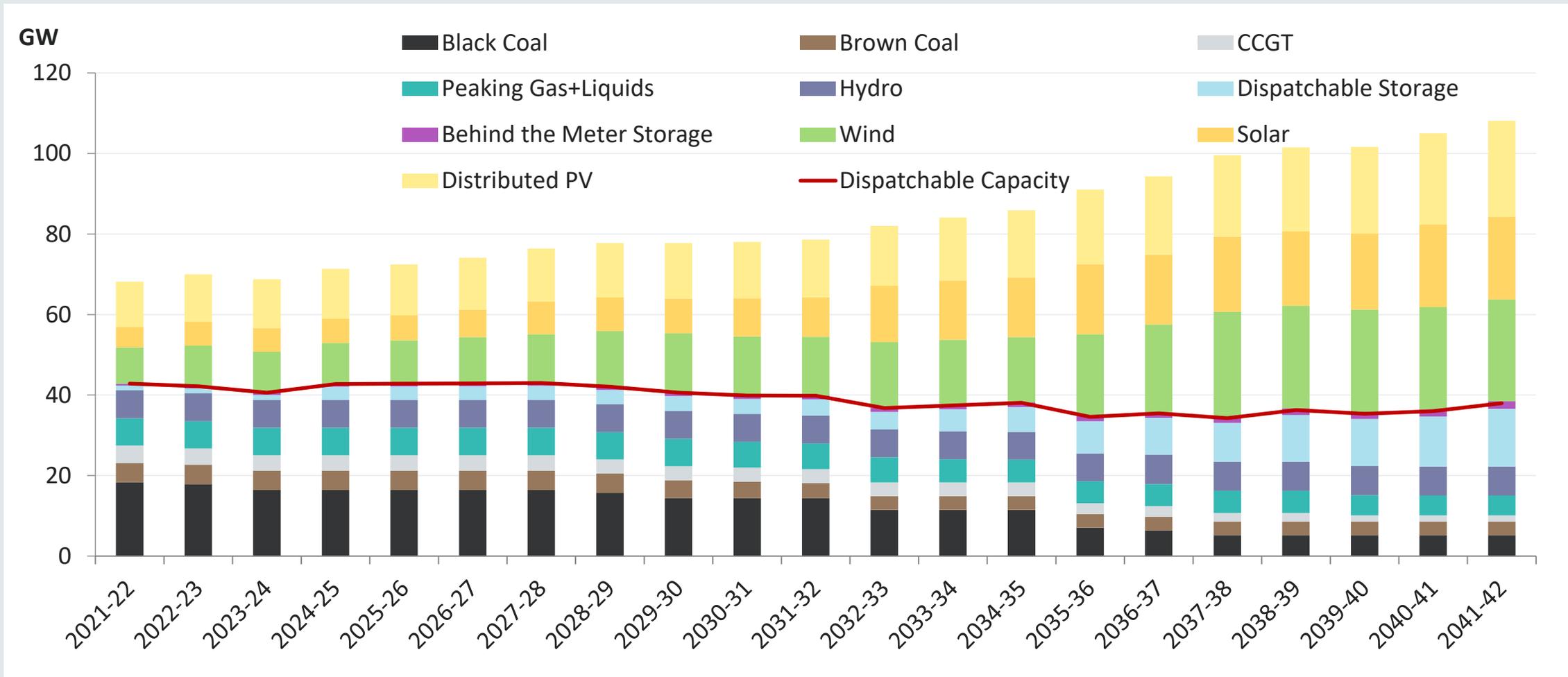
ISP Highlights: NEM-wide outlook

Andrew Turley – Manager, Integrated Energy Systems

Power station closures

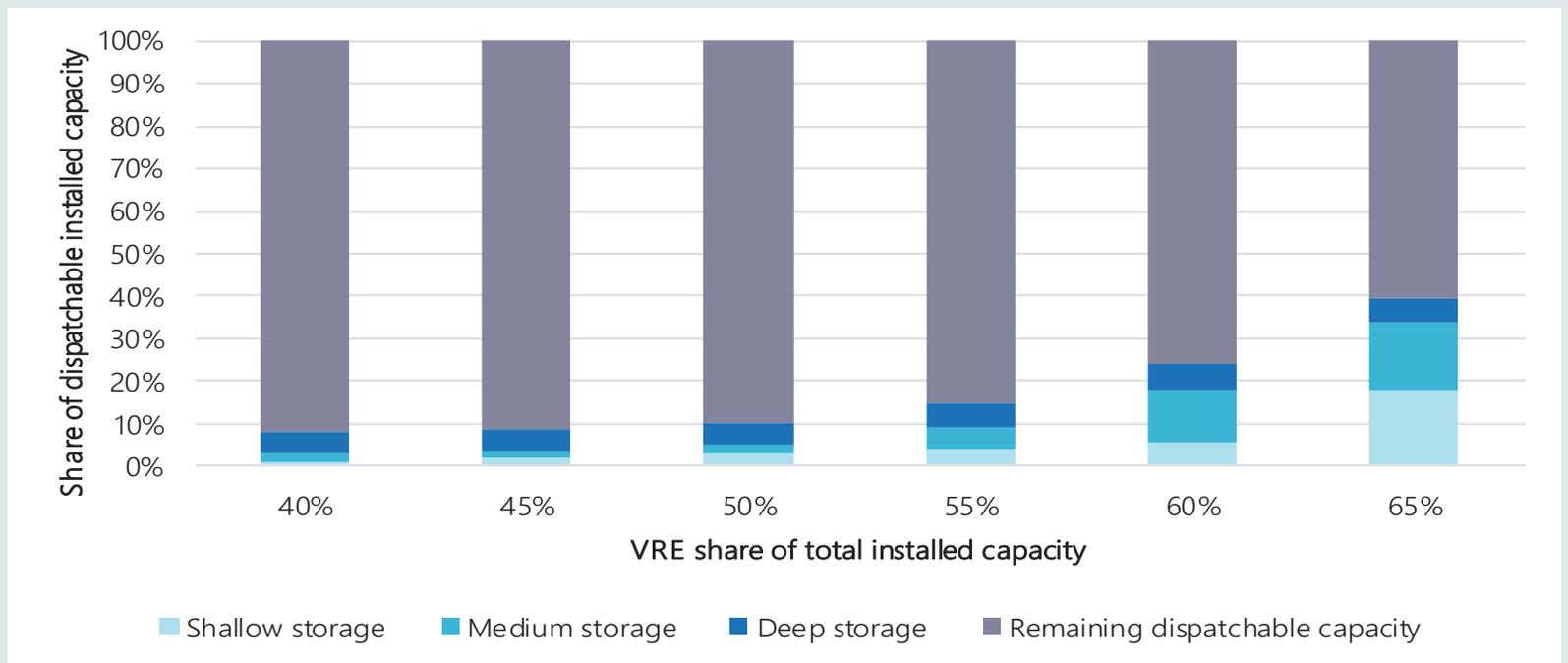
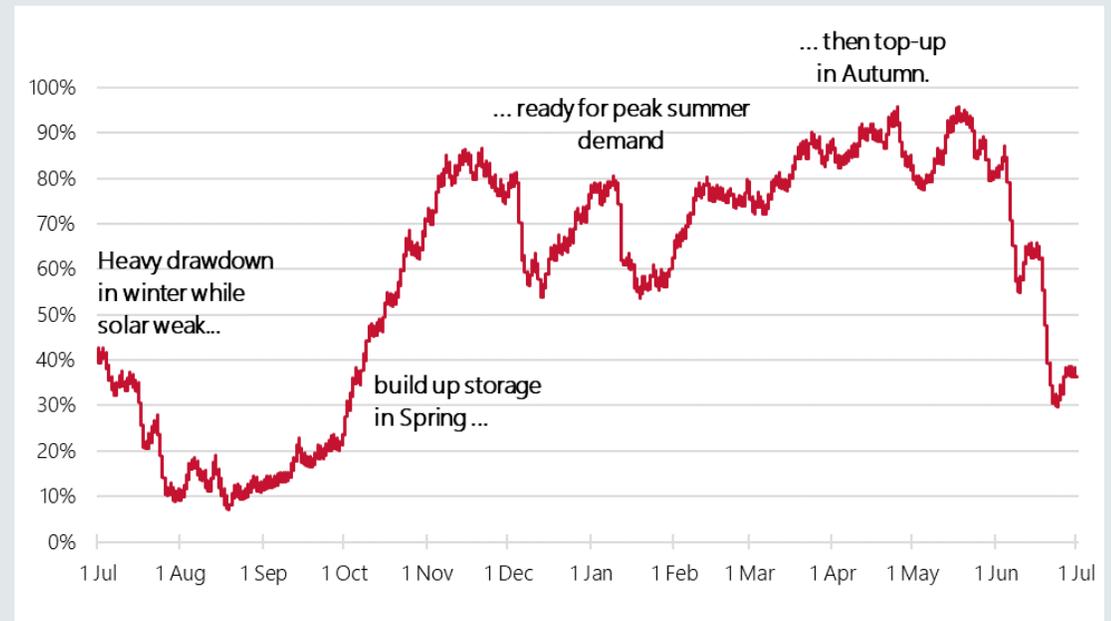


Across the NEM – Coal is replaced by VRE and DER...



...complemented by a portfolio of storages of all depths....

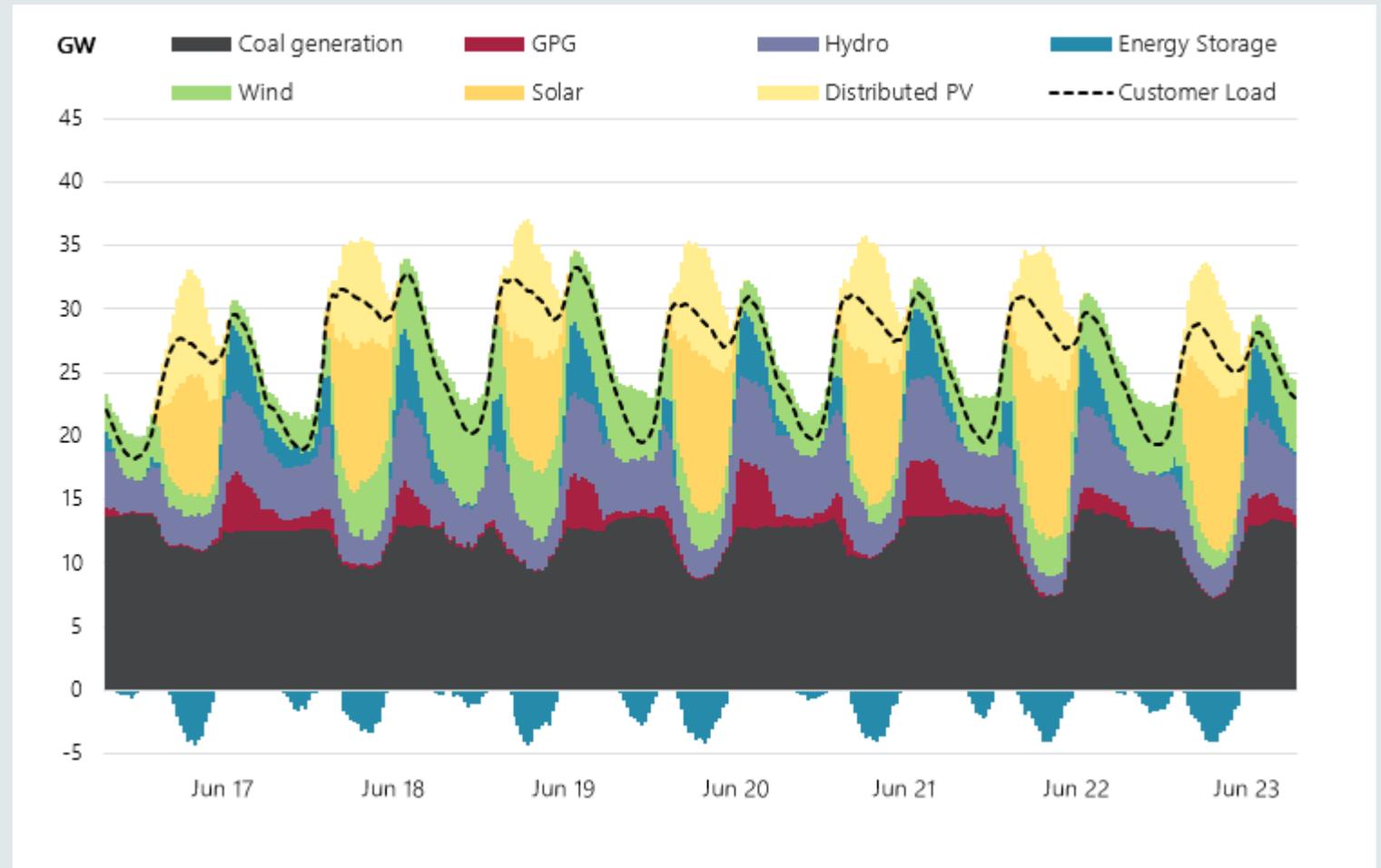
The value of deep pumped hydro storages (such as Snowy 2.0) becomes more obvious when utilisation is looked at seasonally.



...and gas has a role in helping to meet peak demand and firming of VRE

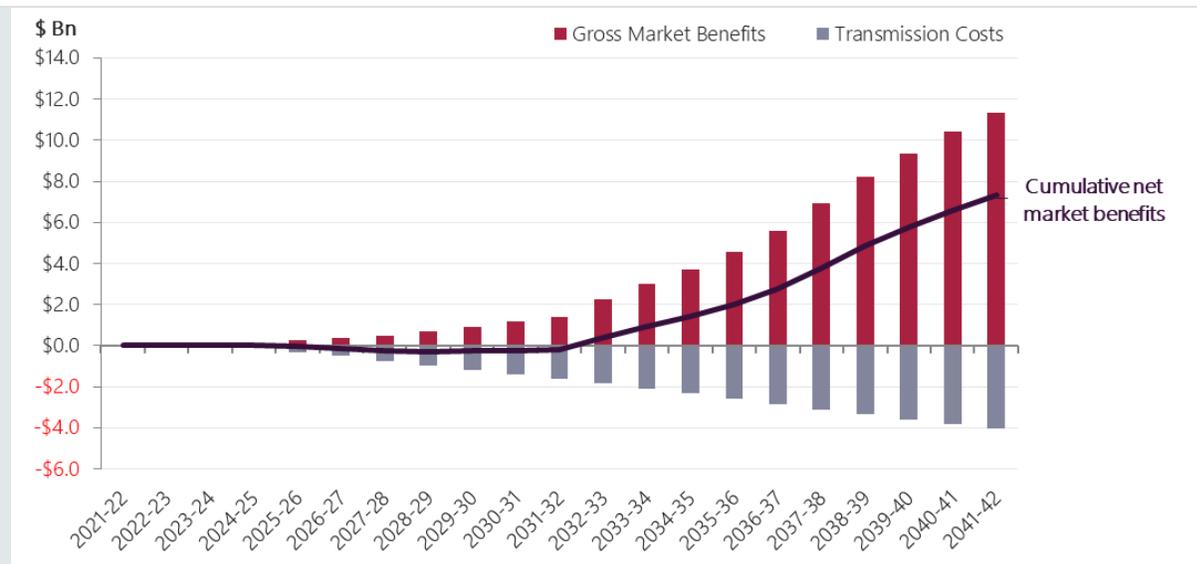
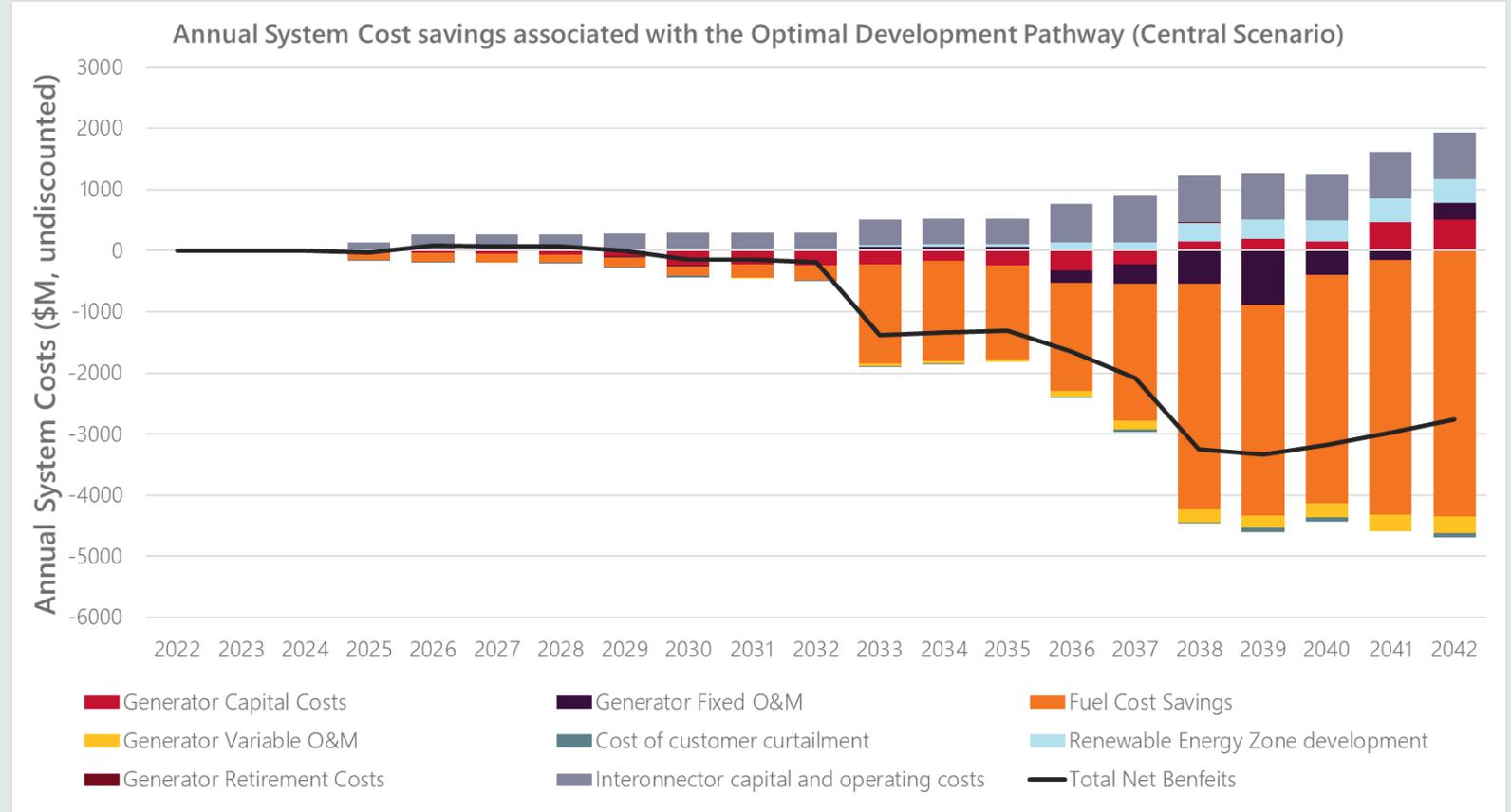
(but no new GPG developed in the central scenario)

Low VRE, high demand week in the NEM, 2035



Where do the benefits come from?

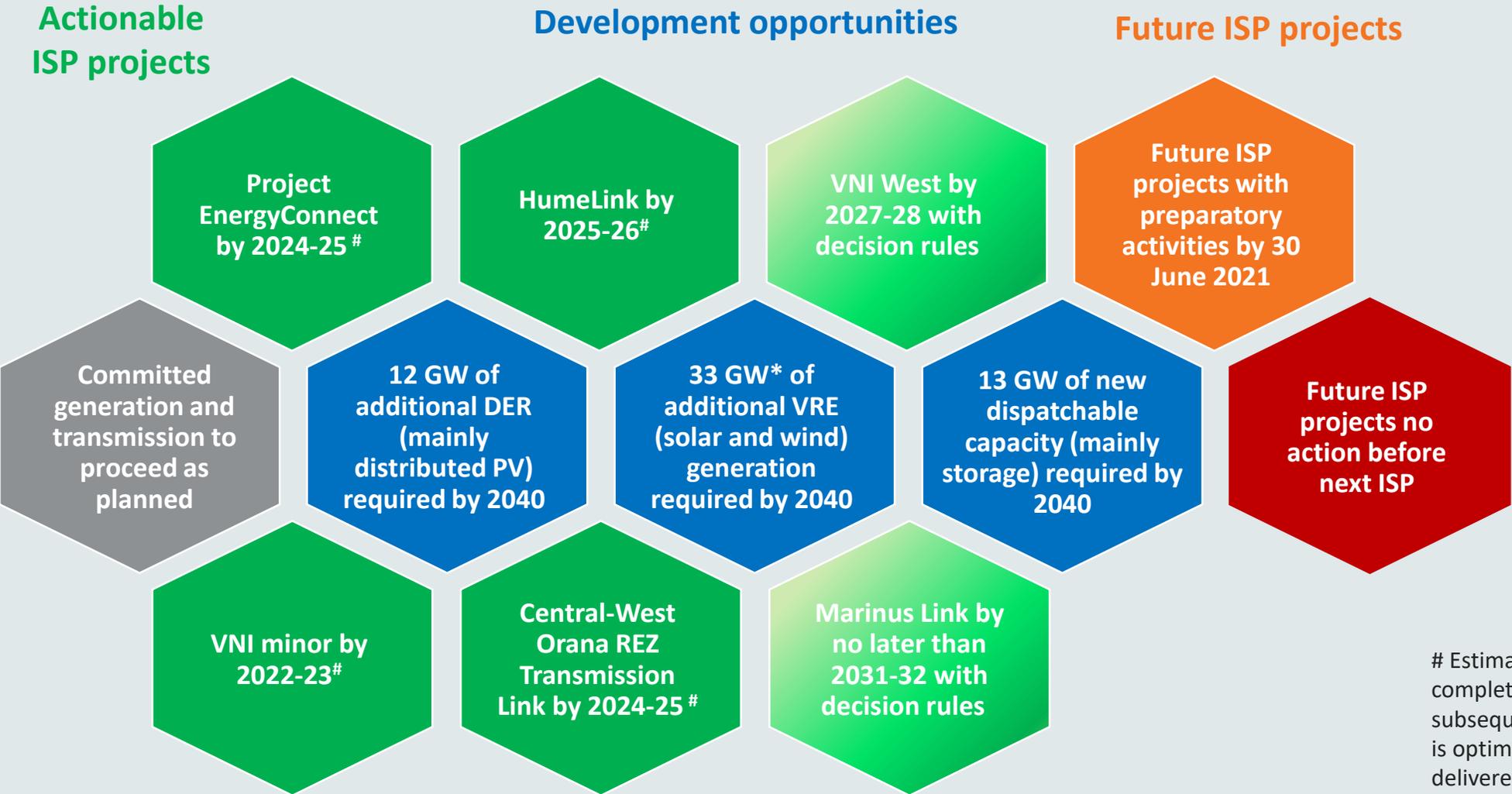
In Central scenario, majority of benefits are from fuel cost savings



ISP Highlights: The optimal development path

Eli Pack – Manager, Integrated System Planning

The optimal development path (Central scenario)



Estimated practical completion including any subsequent testing, project is optimal if can be delivered earlier

Optimal development path



Classification	Project	Indicative timing
Committed	SA System Strength Remediation	2021-22
	QNI Minor	2021-22
	Western Victoria Transmission Network Project	2025-26
Actionable ¹	VNI Minor	2022-23
	Project EnergyConnect	2024-25
	HumeLink	2025-26
	Central-West Orana REZ Transmission Link	Mid-2020s
	VNI West ²	2027-28
	Marinus Link ² - Cable 1 - Cable 2	2028-29 to 2031-32 2031-32 to 2035-36
Preparatory Activities Required	QNI Medium & Large	2030s
	Central to Southern QLD	Early-2030s
	Reinforcing Sydney, Newcastle and Wollongong Supply	2026-27 to 2032-33
	Gladstone Grid Reinforcement	2030s
	New England REZ Network Expansion ³	2030s
Future ISP Projects	North West NSW Network Expansion ⁴	2030s
	Far North QLD REZ	2030s
	South East SA REZ	2030s
	Mid North SA REZ	2030s

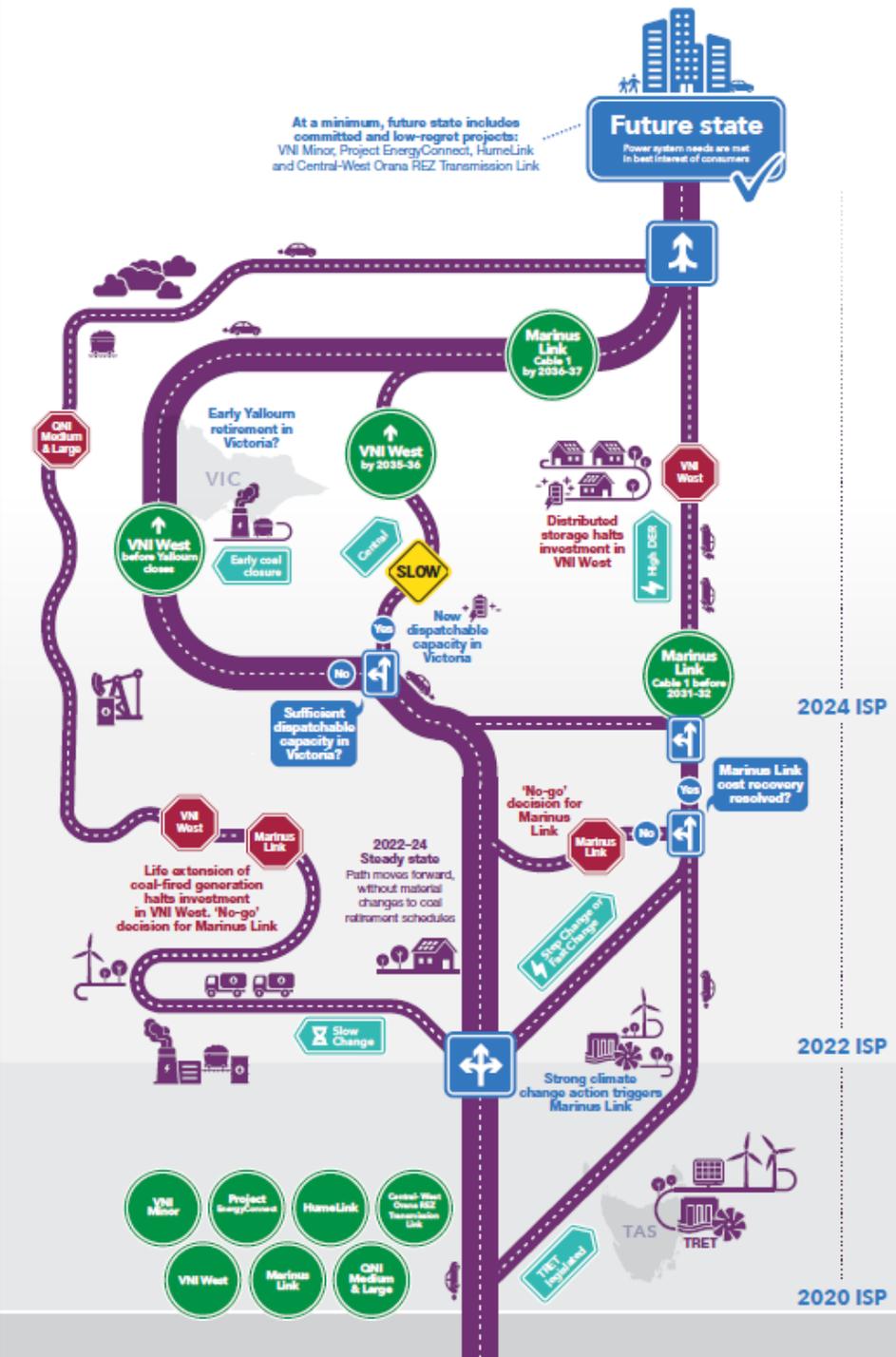
1 Estimated practical completion including any subsequent testing - projects may be delivered earlier
 2 Decision rules may affect timing
 3 May be accelerated by government initiatives
 4 Not shown on map. AEMO requires that preliminary engineering designs be completed by 30 June 2021

2020

2040

A dynamic roadmap with decision rules

- Progress VNI West by 2027-28 with early works as soon as possible; and defer to 2035-36 or pause if:
 - transmission costs, including any third-party contribution, are expected to exceed \$2.6 billion, or
 - sufficient new market-based dispatchable capacity is expected to be in place in Victoria ahead of the next brown coal closure in Victoria, or
 - the Slow Change scenario eventuates, which includes life extensions of existing coal-fired generation.
- Progress Marinus Link, with early works as soon as possible, as follows:
 - **Stage 1 from 2028-29** should the Step Change scenario eventuate, and by **no later than 2031-32**, provided:
 - there is successful resolution as to how the costs of the project will be recovered (from consumers or other sources), and
 - either TRET is legislated, or, either the Step Change or Fast Change scenario unfolds.
 - **Stage 2 between 2031-32 and 2035-36**, provided additional decision rules are satisfied (these decision rules to be decided in the 2022 ISP)



Questions – Head to www.sli.do
Enter code: #ISP

Panel Introductions

Next steps

Eli Pack

Survey – www.sli.do

Enter code: #ISP

Thank you for participating!

