

Draft

2022 Integrated System Plan

Public launch briefing: 10 December 2021

Please note that this meeting will be recorded



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.

- Please ask questions using the meeting chat. When we come to your question, we will unmute you to allow you to engage with the answer
- We will answer questions with written replies, where possible
- If you have the Webex app, the Sli.do chat for Q&A will be embedded in the bottom right of your screen
- If you are joining via a web browser, join the meeting chat via another tab or window:

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#ISP

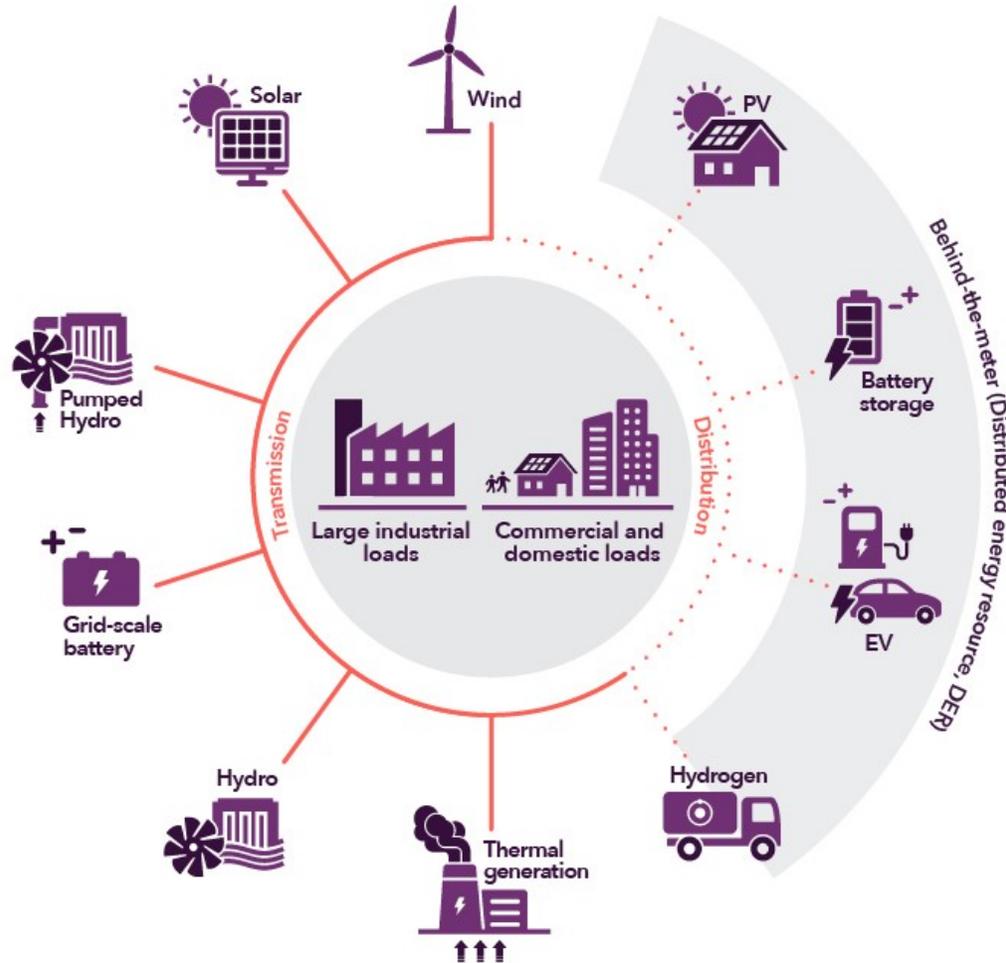
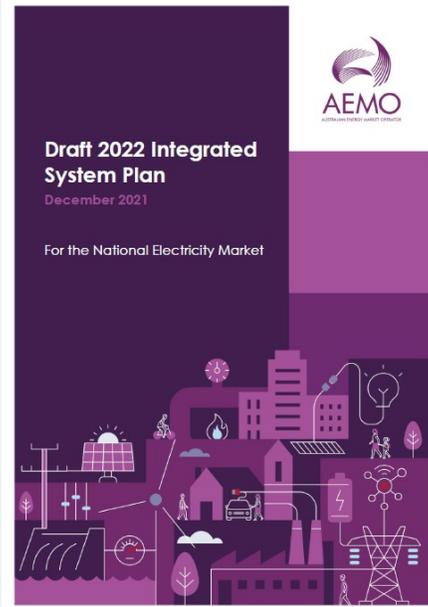
1. Welcome
2. The ISP – Purpose and process
3. Draft 2022 ISP – Key findings
4. Consultation on the Draft ISP
5. Questions and discussion



The ISP – Purpose and process

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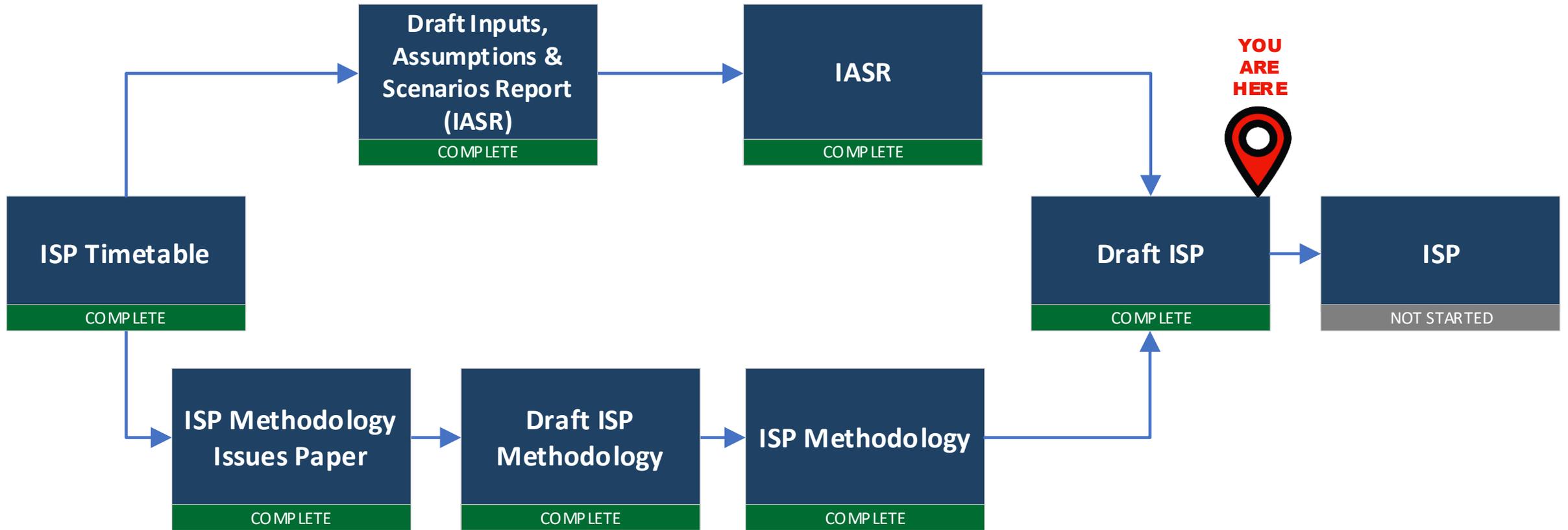
About the Integrated System Plan (ISP)



- Whole-of-system plan
- Informs policy makers, investors, consumers, researchers and other energy stakeholders
- Serves regulatory purpose of justifying actionable and future new transmission
- Maximises value to end consumers
- Optimal development plan/roadmap



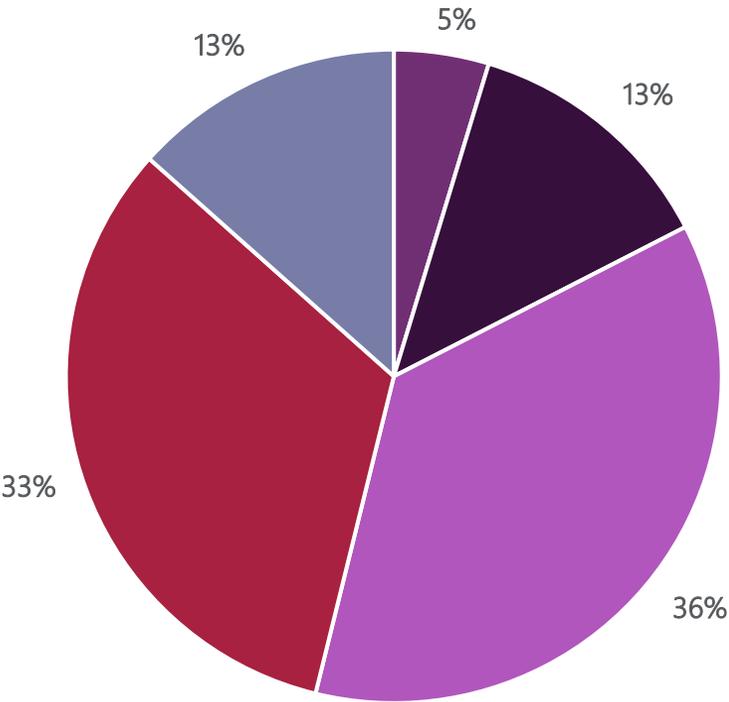
The ISP development process



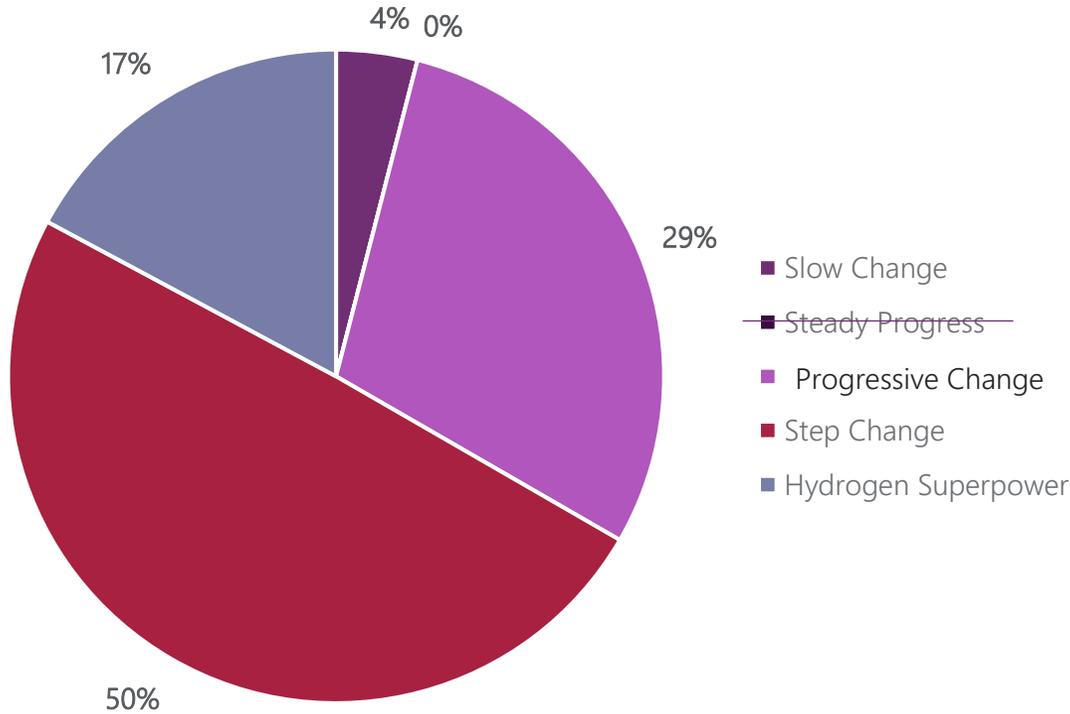
Since COP26, Delphi Panel now favours Step Change

- Delphi Panel 1: 5 scenarios

- Delphi Panel 2: 4 scenarios



- Slow Change
- Steady Progress
- Net Zero 2050
- Step Change
- Hydrogen Superpower



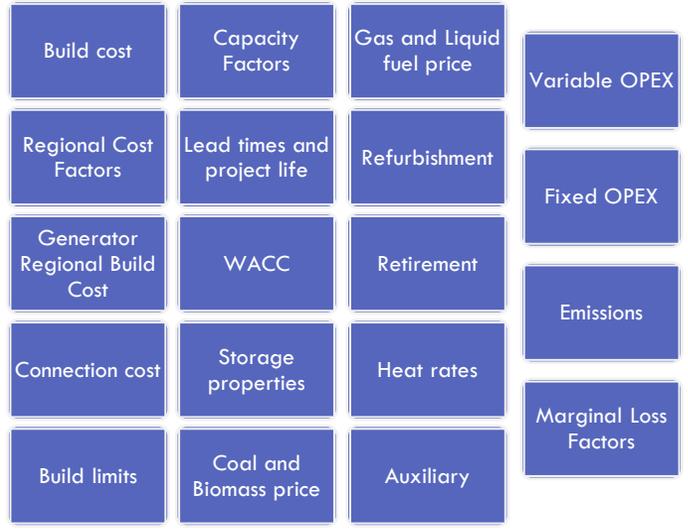
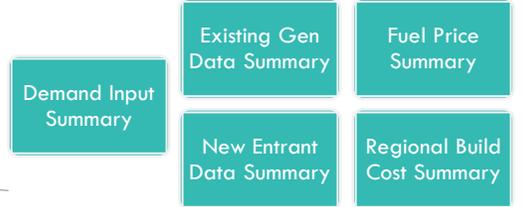
- Slow Change
- Steady Progress
- Progressive Change
- Step Change
- Hydrogen Superpower

Net Zero 2050 name changed to "Progressive Change"

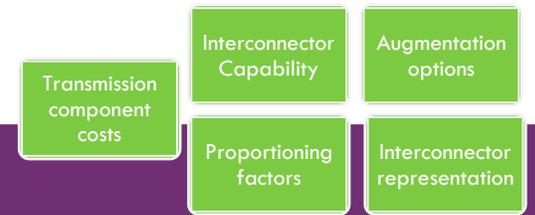
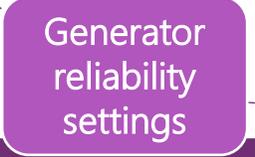
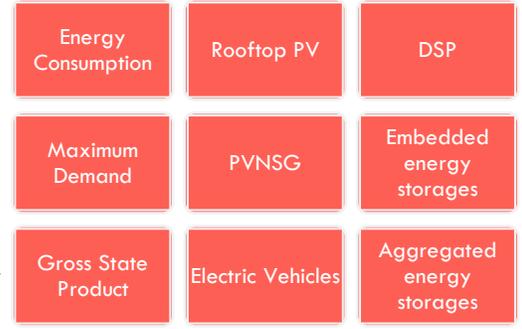
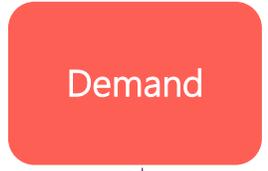
DEMAND	Slow Change		Progressive Change		Step Change		Hydrogen Superpower	
	2030	2050	2030	2050	2030	2050	2030	2050
Electrification								
- Road transport that is EV (%)	2	36	5	84	12	99	18	94
- Residential EVs still relying on convenience charging (%)	82	58	75	44	70	31	66	22
- Industrial Electrification (TWh)	-24	-21	4	92	27	54	37	64
- Residential Electrification (TWh)	0	0	0.2	15	4	13	2	4
- Energy efficiency savings (TWh)	8	19	14	40	22	55	22	56
Underlying Consumption								
- NEM Underlying Consumption (TWh)	163	213	201	394	222	336	243	330
- Hydrogen consumption - domestic (TWh)	0	0	0	32	0.1	58	2	132
- Hydrogen consumption - export, incl. green steel (TWh)	0	0	0	0	0	0	49	816
- Total underlying consumption (TWh)	163	213	201	425	223	394	294	1,278
SUPPLY								
Distributed PV Generation (TWh)	39	58	39	80	45	93	51	112
Household daily consumption potential stored in batteries (%)	3	5	5	22	12	38	13	39
Underlying consumption met by DER (%)	24	27	20	19	20	24	17	9
Coal generation (% of total electricity production)	34	5	38	2	21	0	6	0
NEM emissions (MT CO ₂ -e)	57.4	12.1	77.8	23.6	48.3	7.2	19.0	5.6
2020 NEM emissions (% of)	40	9	55	17	34	5	13	4

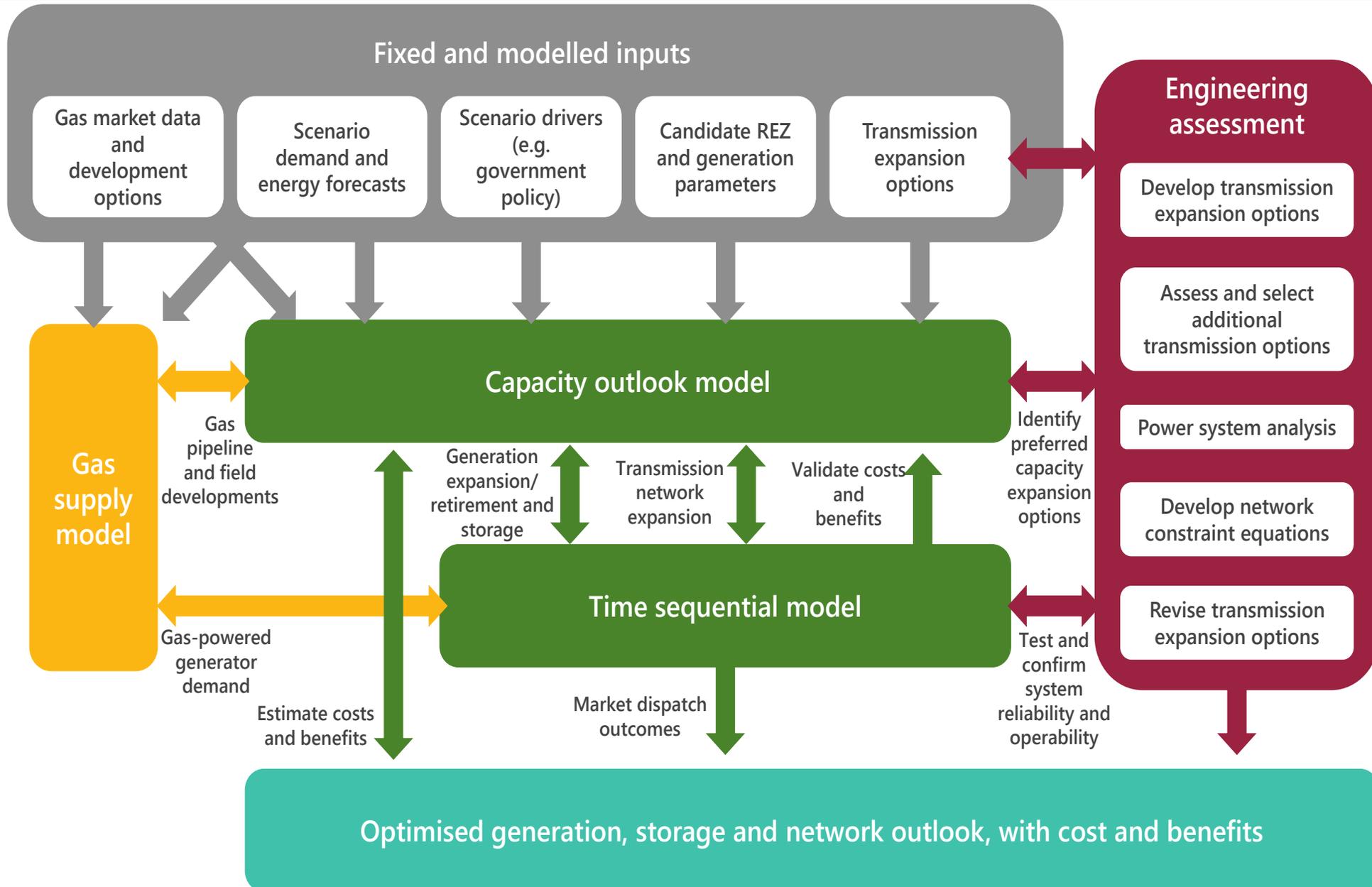
Level of change

Inputs & assumptions



Inputs & Assumptions



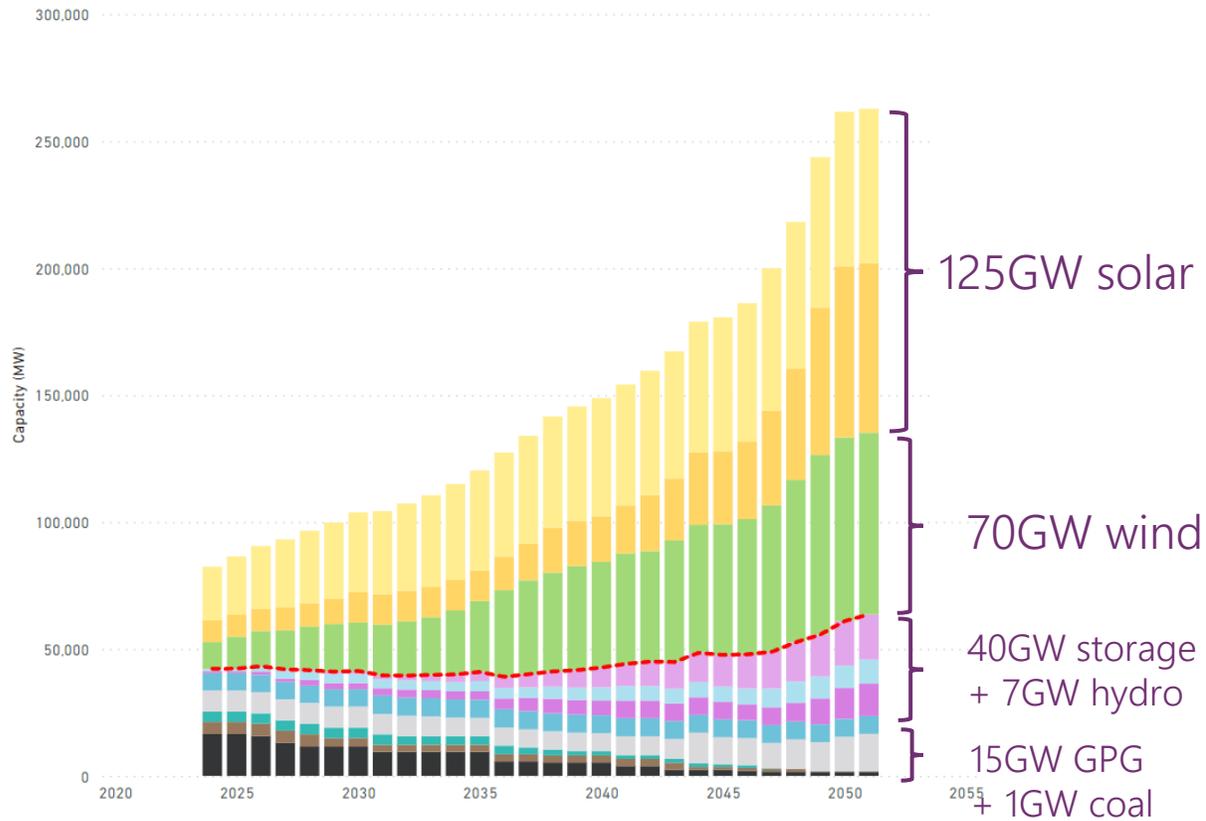


Draft 2022 ISP – Key Findings

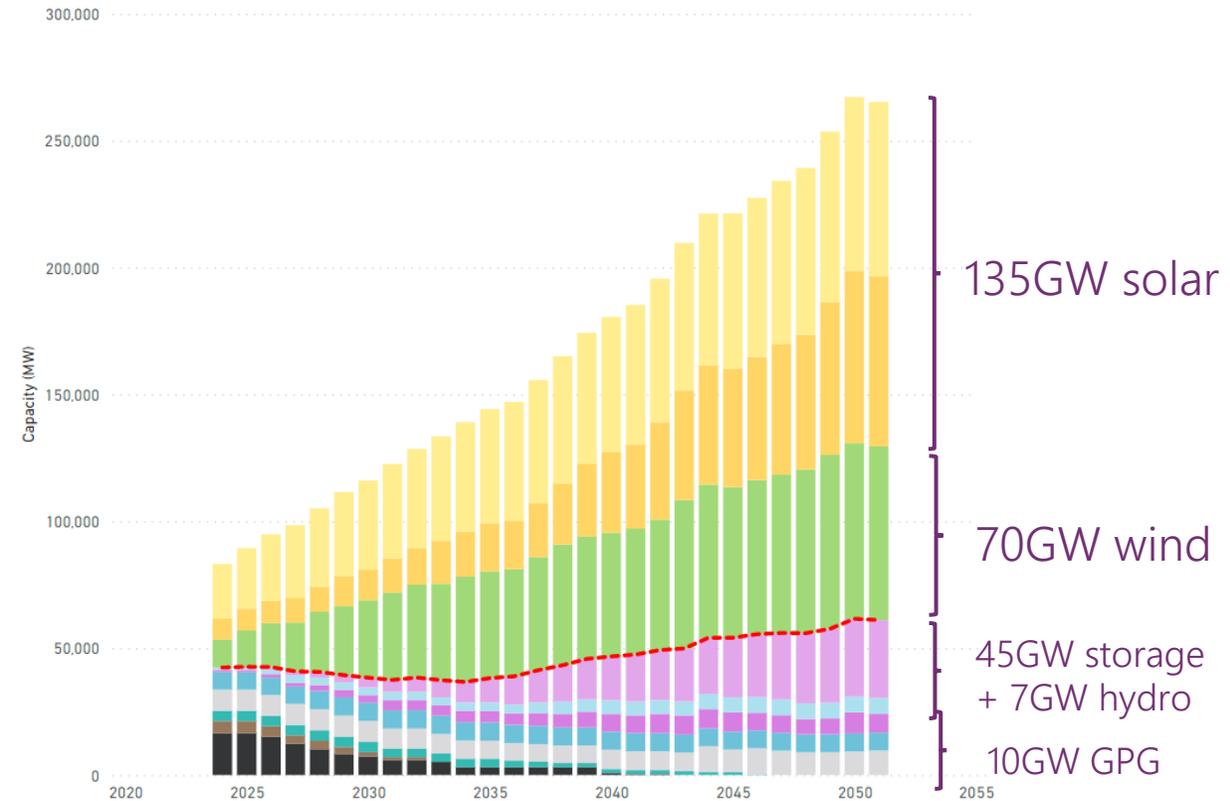
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Renewable generation capacity to at least double every decade from now to 2050 ...

Progressive Change – with transmission

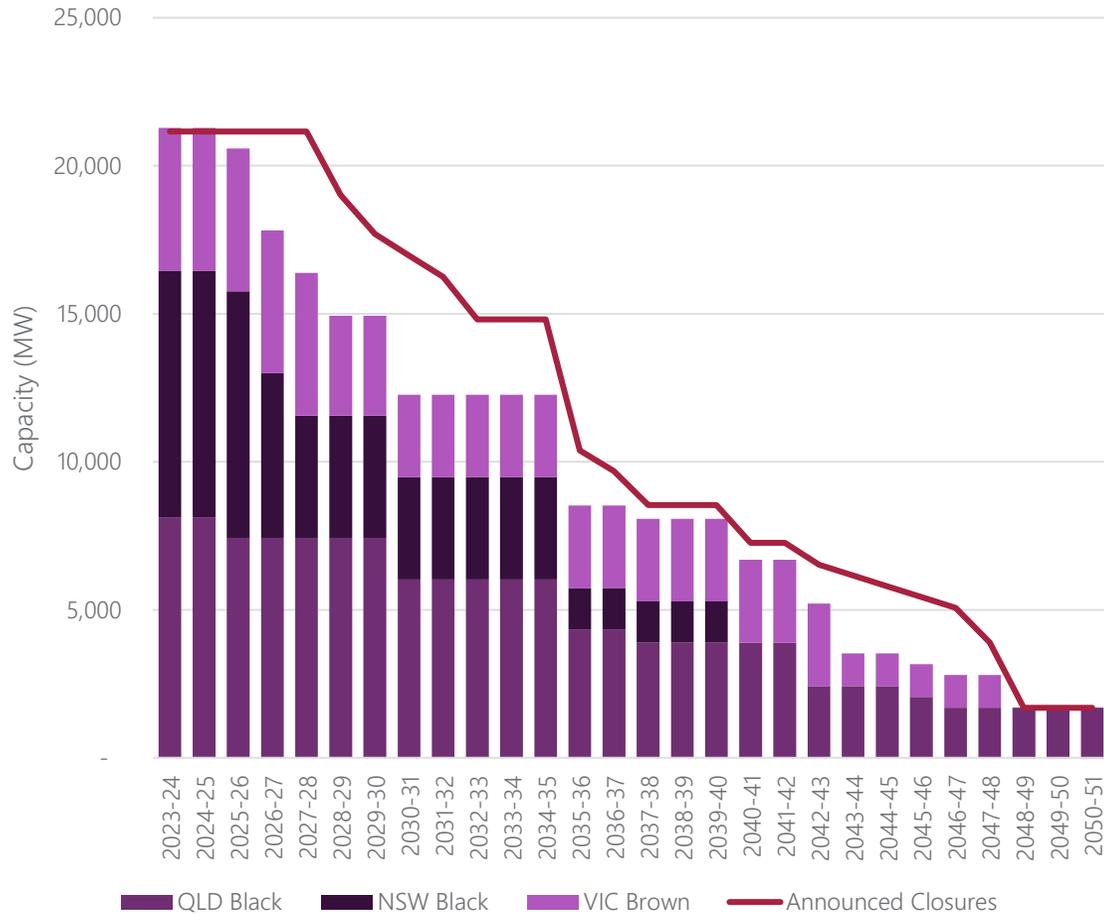


Step Change – with transmission

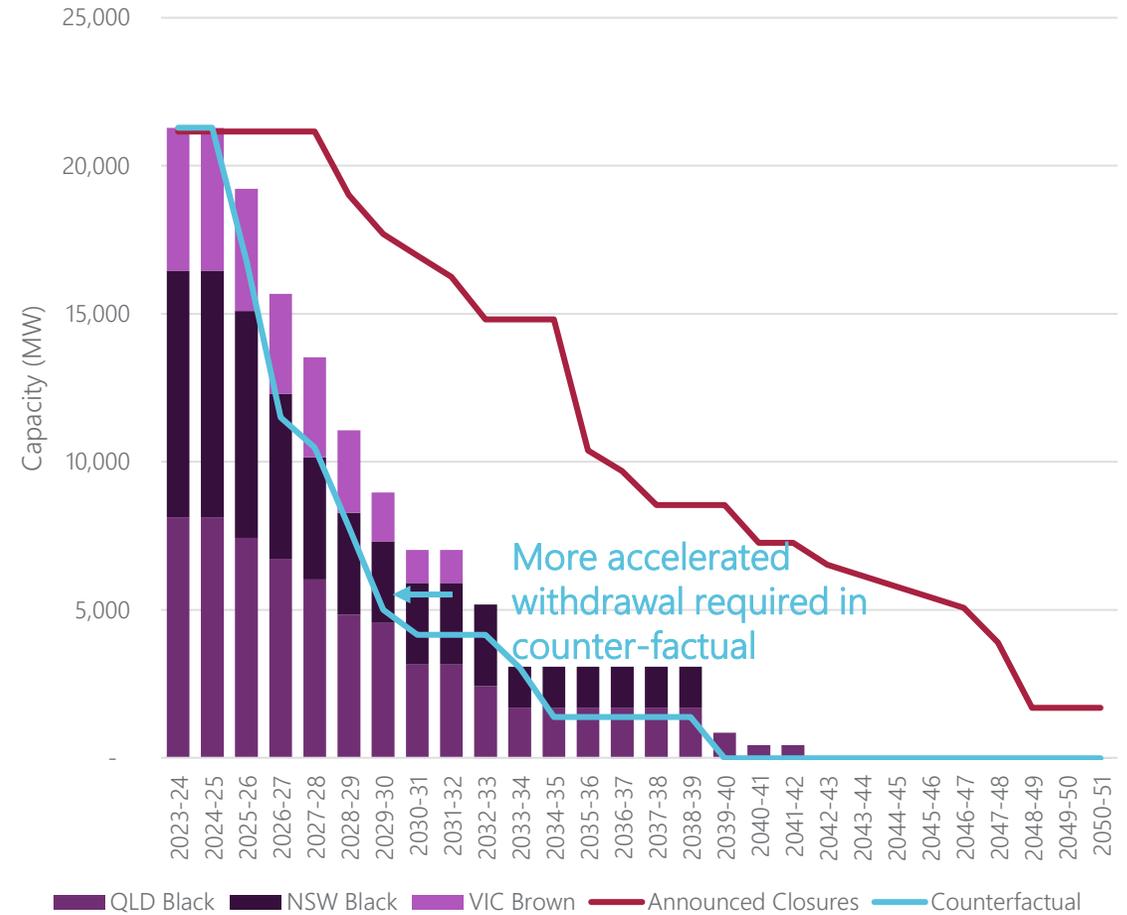


...coal likely to withdraw much sooner than expected...

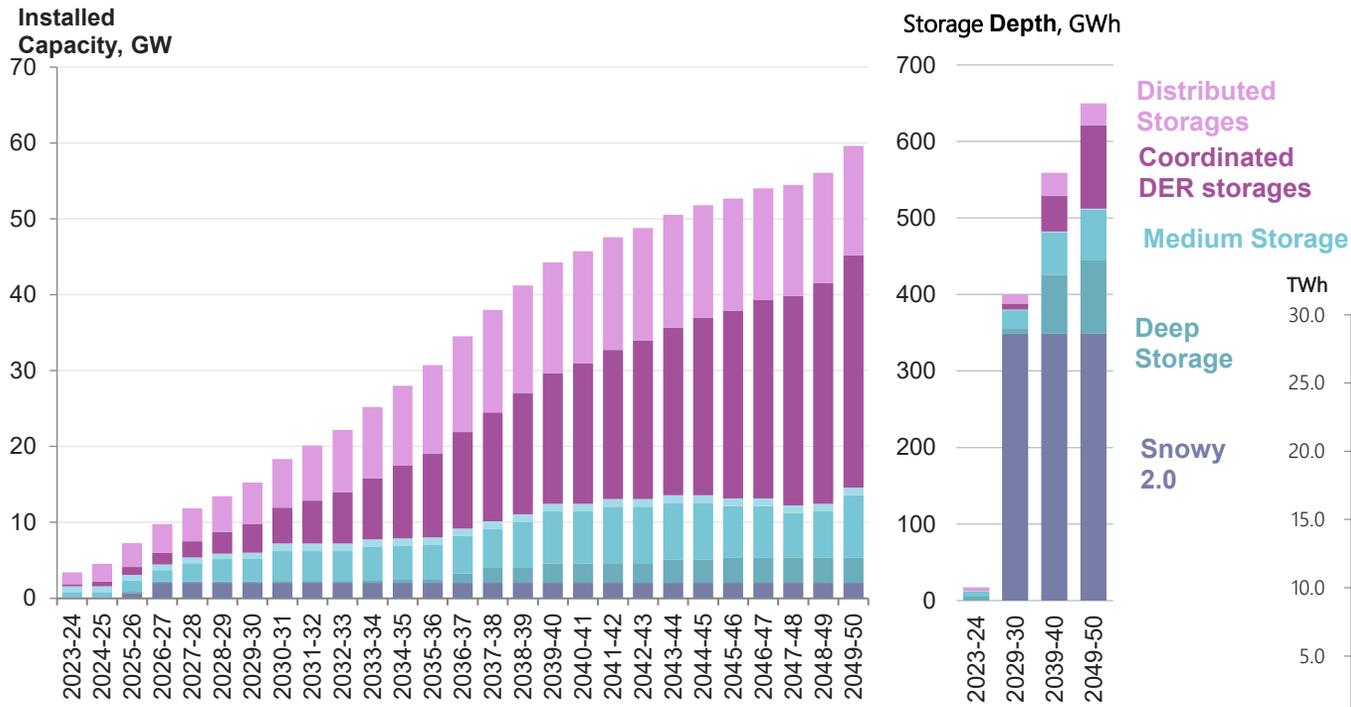
Progressive Change



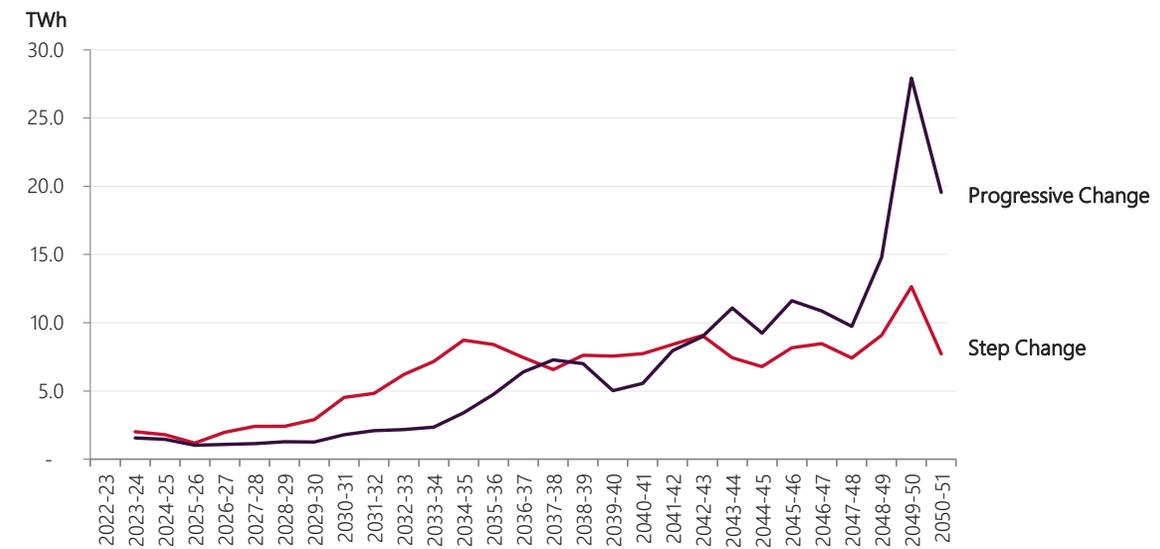
Step Change



New storage of all depths needed

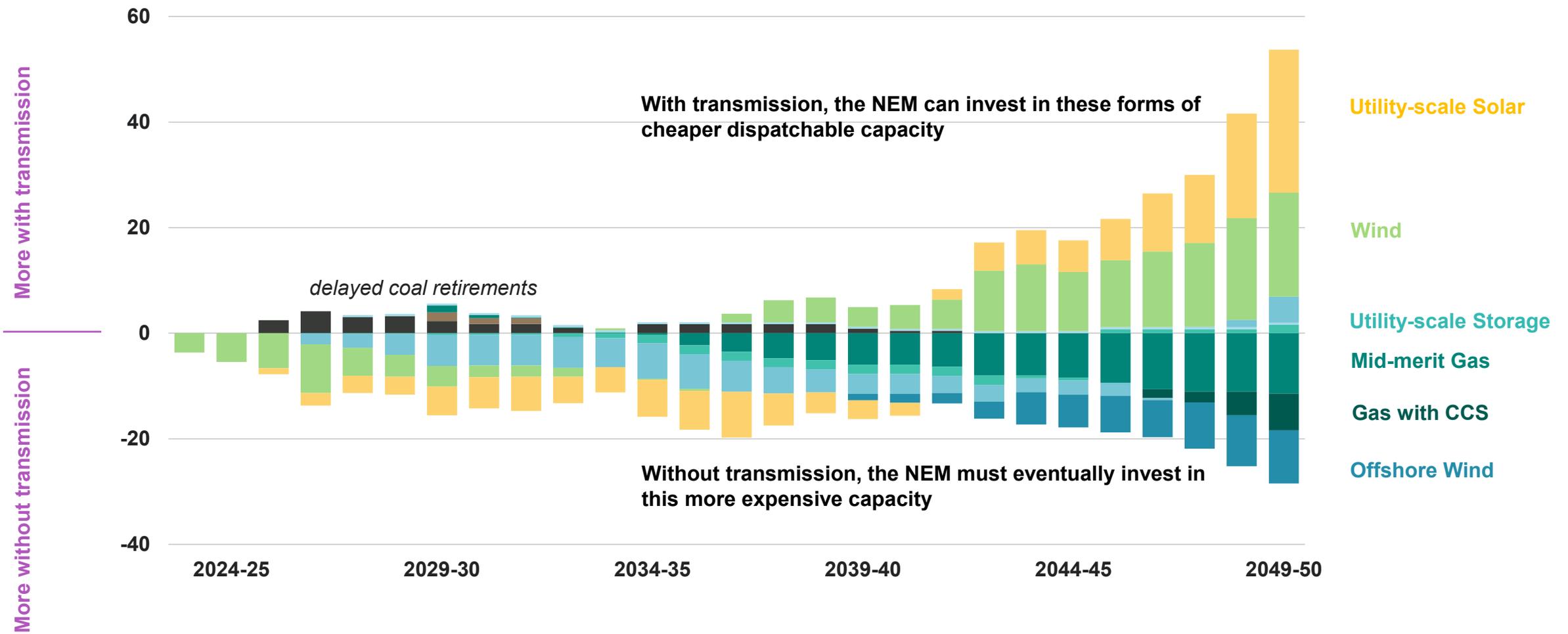


Gas operation increases as VRE penetration increases



Without transmission, more gas, storage and off-shore wind is required to meet same carbon budgets

Capacity difference (GW)



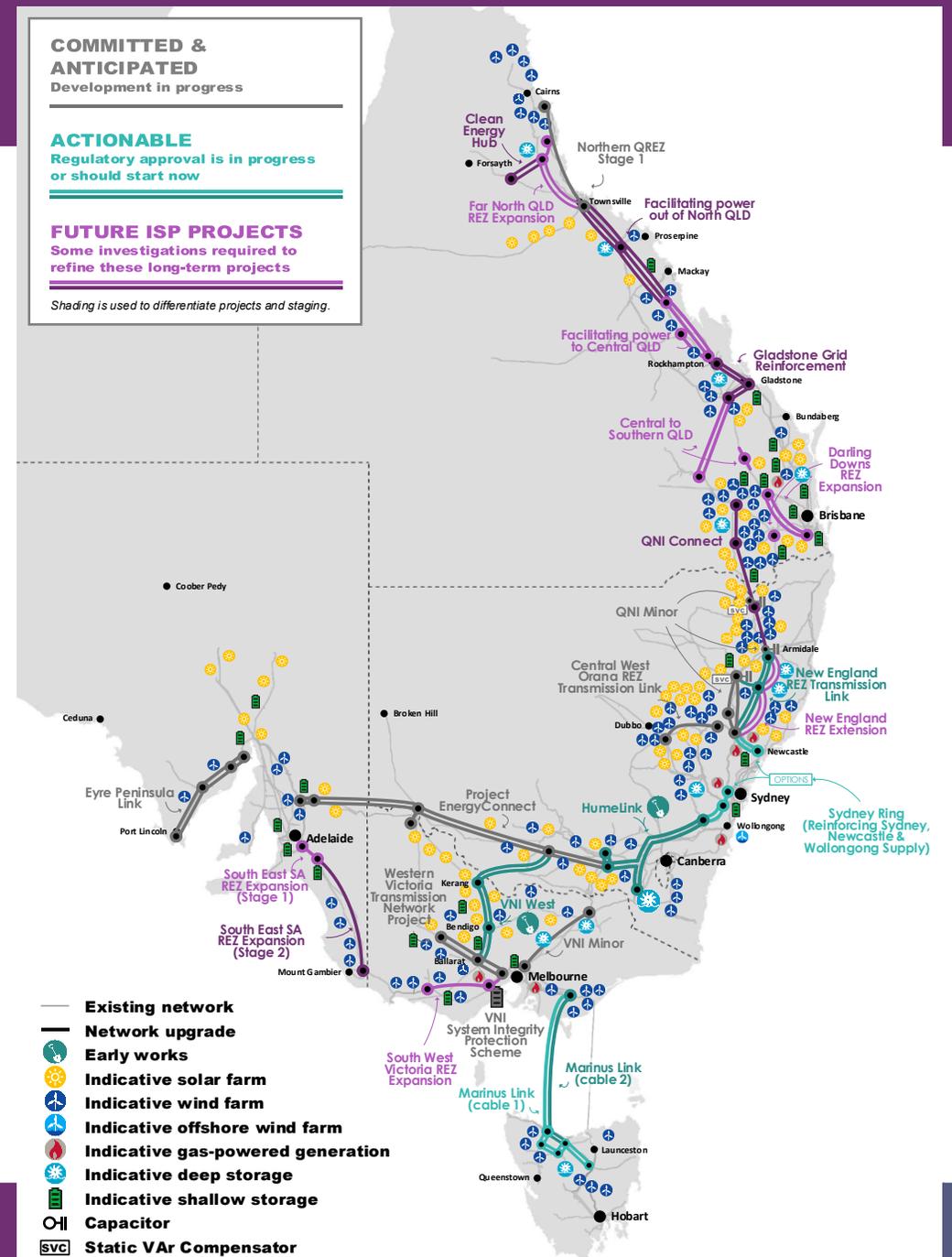
The draft optimal development path enables an efficient transition

The draft optimal development path (ODP) delivers **≈\$29 billion** in net market benefits

Retains flexibility to facilitate a **faster NEM decarbonisation by 2030** if desired

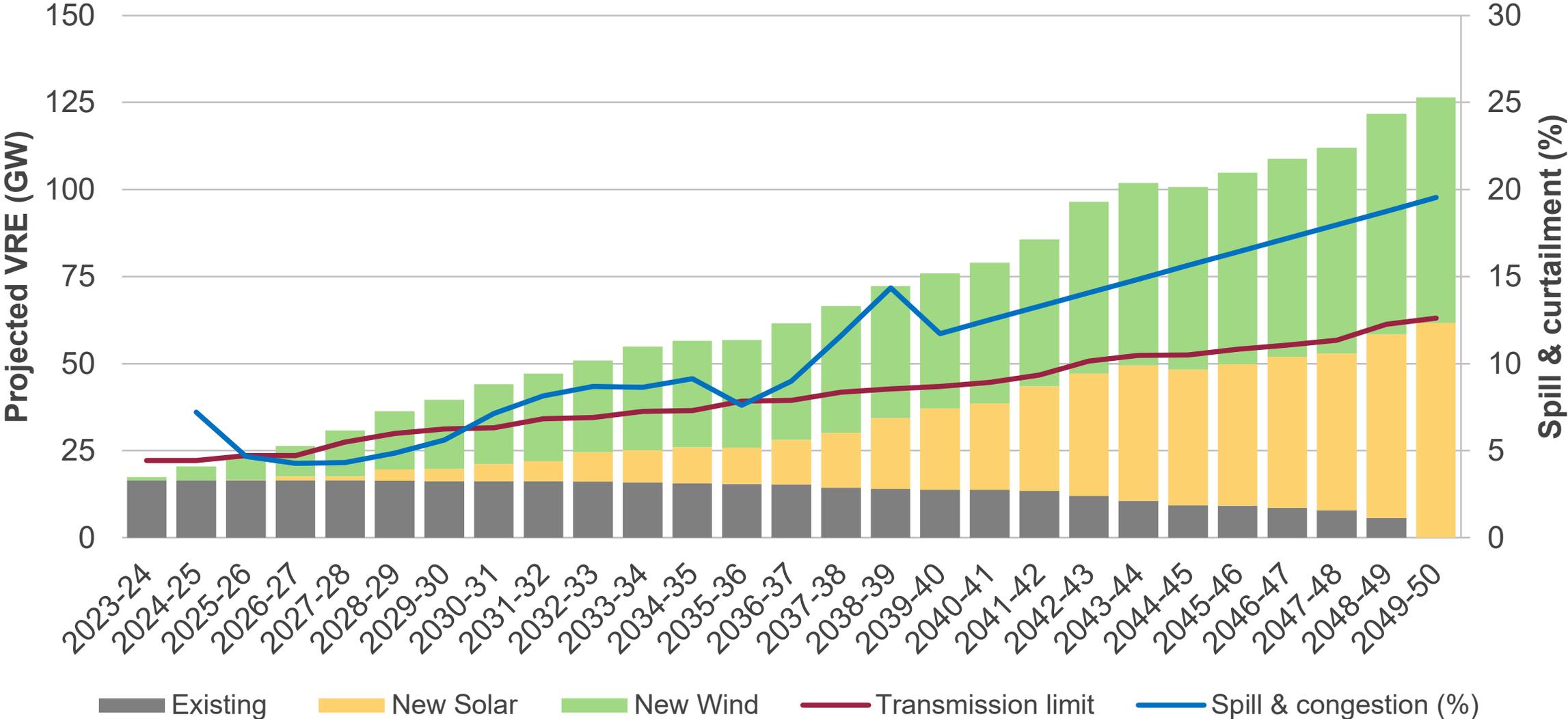
Helps **mitigate risk** of earlier than expected coal closures

This optionality comes at almost **no cost to consumers (\$20 million)**

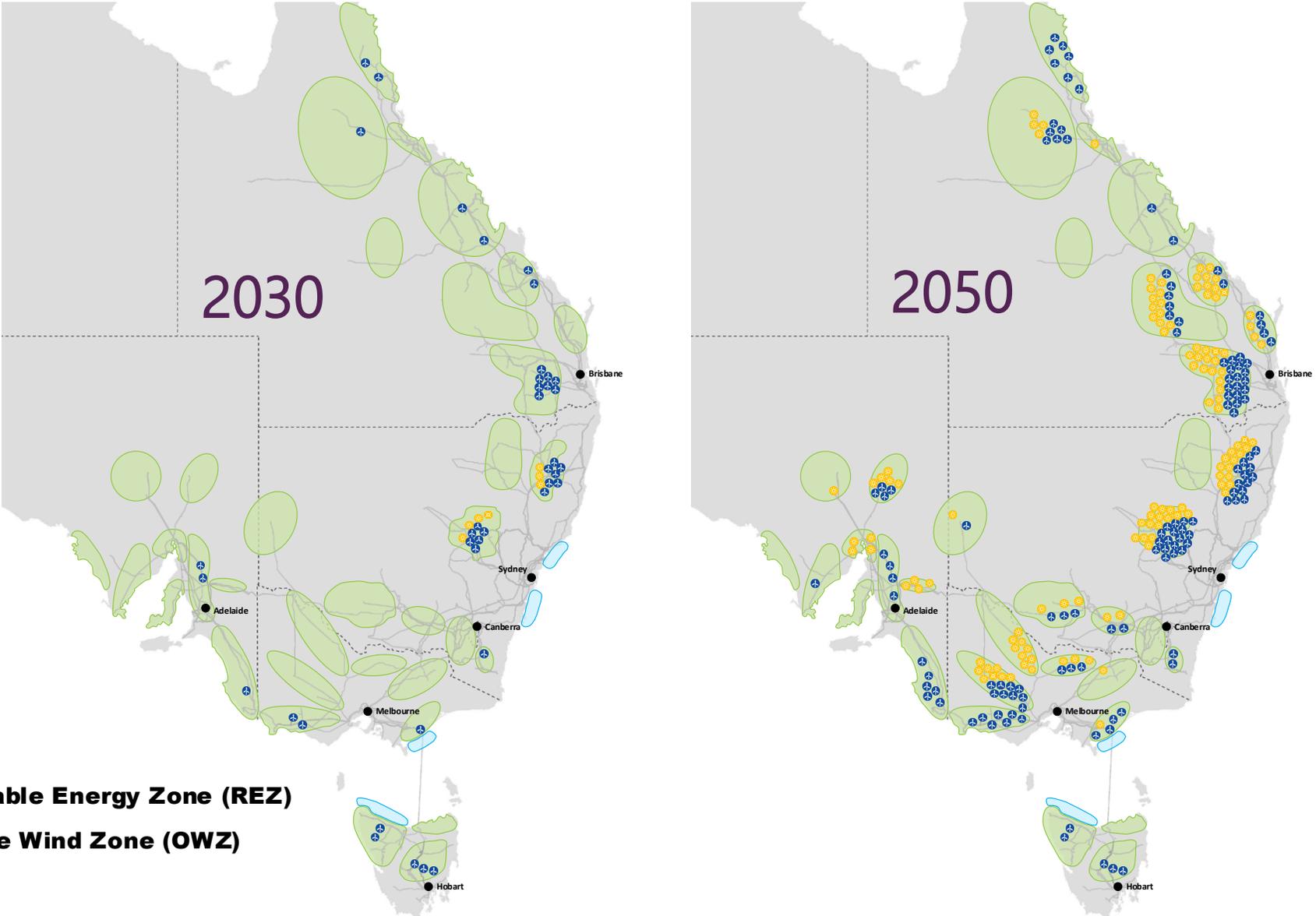


†Additional projects to expand REZs and upgrade flow paths after 2040 are highly uncertain, vary significantly between scenarios, and are not shown in this map. See Appendix 5 for more information.

...this efficient transition will have network congestion...



...Renewable Energy Zones will present a tremendous opportunity



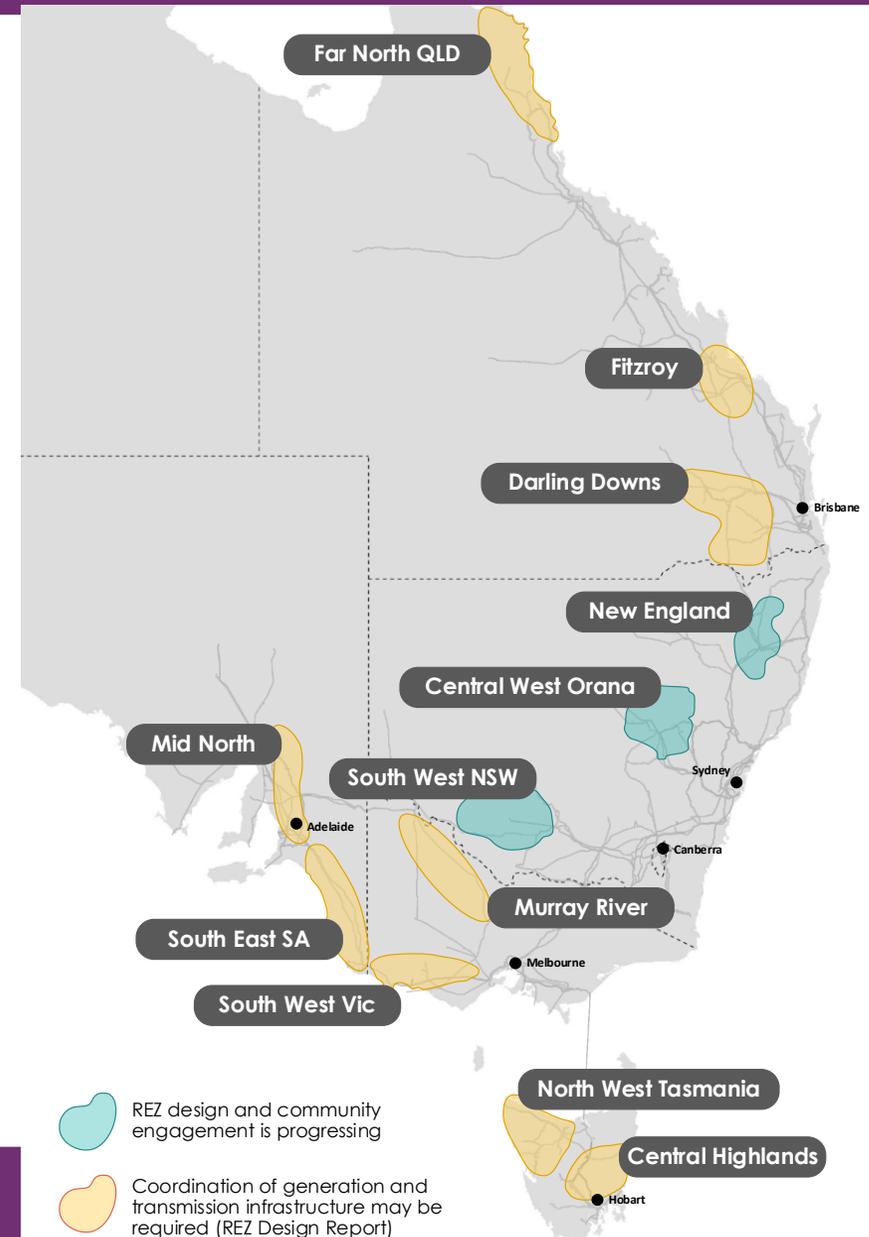
- Candidate Renewable Energy Zone (REZ)
- Candidate Offshore Wind Zone (OWZ)
- 500 MW wind
- 500 MW solar

... but the social and economic barriers must be considered

The final ISP can trigger REZ Design Reports for REZs that require coordination of generation and transmission investment within 12 years. This is a significant investigation that involves:

- Engineering designs, cost estimates and easement investigations that considers developer and community interest.
- Stages that can be delivered to meet capacity targets in the ISP.
- Identification of barriers to community acceptance and estimates of costs associated with overcoming them.
- A draft report and a 6 week consultation

Substantially expanded community engagement programs are needed to explore the social licence for both generation and transmission investments.



Consultation on the Draft ISP

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Next steps in the consultation process

- Pre-submission forum 1 Feb 2022.
- Written submissions to the Draft ISP are due by 11 Feb 2022.

Events for consumer advocates

- AEMO Consumer Forum 15 Dec 2021
- Verbal comment session 4 Feb 2022
 - Email StakeholderRelations@aemo.com.au

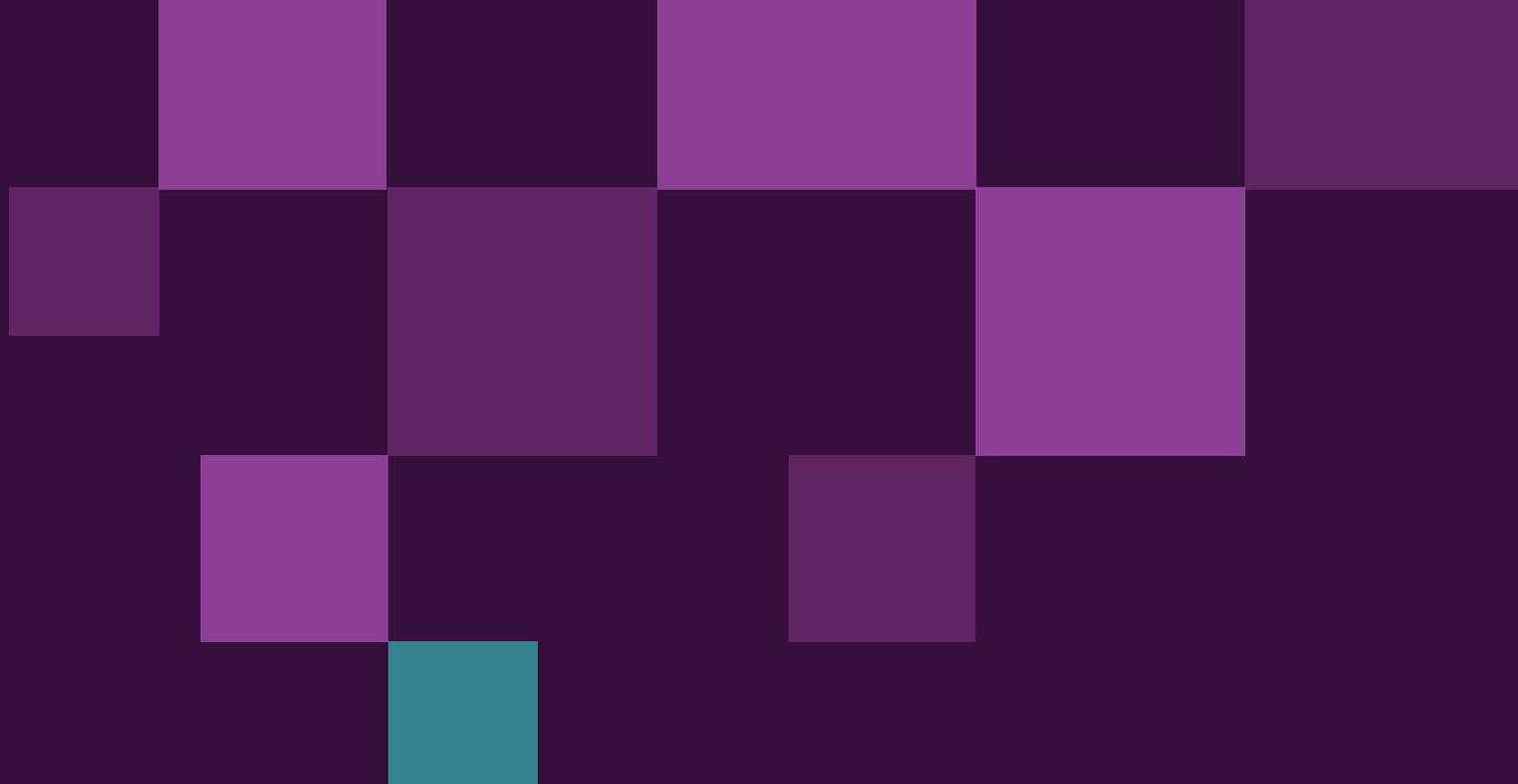
Reports from the AER and ISP Consumer Panel

- The AER's Draft ISP review report due one month after publication
- ISP Consumer Panel's report on Draft ISP due two months after publication

Question and discussion

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For more information
please visit www.aemo.com.au

