

Draft 2022 Integrated System Plan

Pre-submission public forum
1 February 2022



This event will be recorded and the recording published on AEMO's website

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 Slido.
- We will answer questions with written replies, where possible.
- Other questions will be answered based on 'likes' and the order received.
- If you have the Webex app, Slido will be embedded in the bottom right of your window
- If you are joining via a web browser, join Slido another tab or window

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1. Welcome
2. Engagement on the Draft ISP
3. Recap of the Draft ISP
4. Questions submitted
5. Other questions



Introducing the AEMO Planning and Forecasting teams

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Engagement on the Draft ISP

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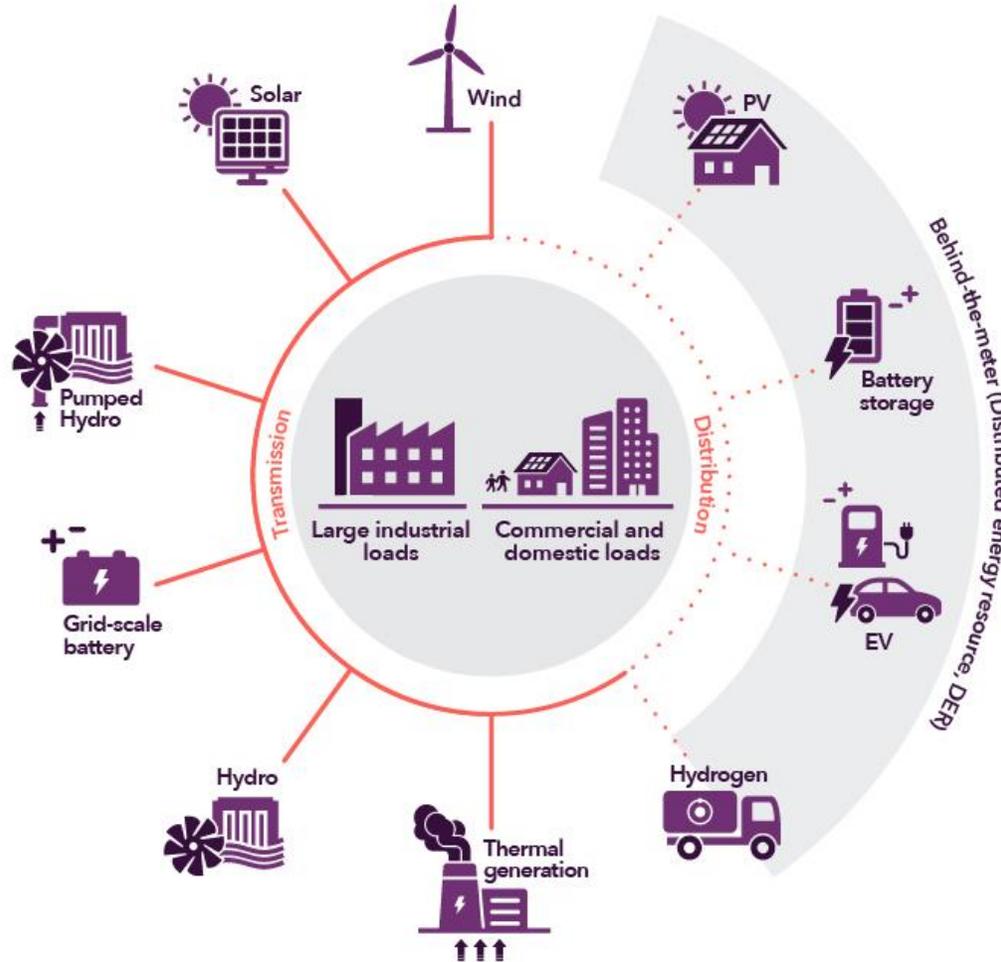
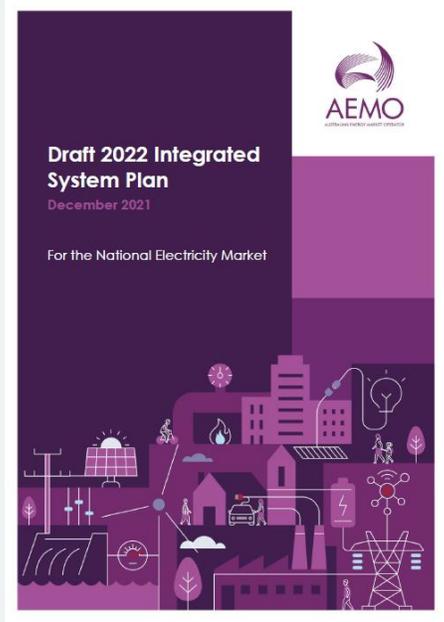
Engagement on the Draft ISP

Date	Milestone
10 Dec '21	Draft 2022 ISP published, public launch briefing held
15 Dec	AEMO Consumer Forum <ul style="list-style-type: none">- Tailored overview of the Draft ISP provided- Additional session requested (held 25 Jan)
7 Jan '22	Australian Energy Regulator's Transparency Review of Draft ISP published
19 Jan	ISP Consumer Panel 'ask any questions' session
25 Jan	Additional consumer session on key topics
1 Feb	Pre-submission public forum (Q&A)
4 Feb	Consumer advocate verbal comment session
10 Feb	ISP Consumer Panel's report on the Draft ISP provided to AEMO
11 Feb	Written submission to Draft ISP due

Recap of the Draft 2022 ISP

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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

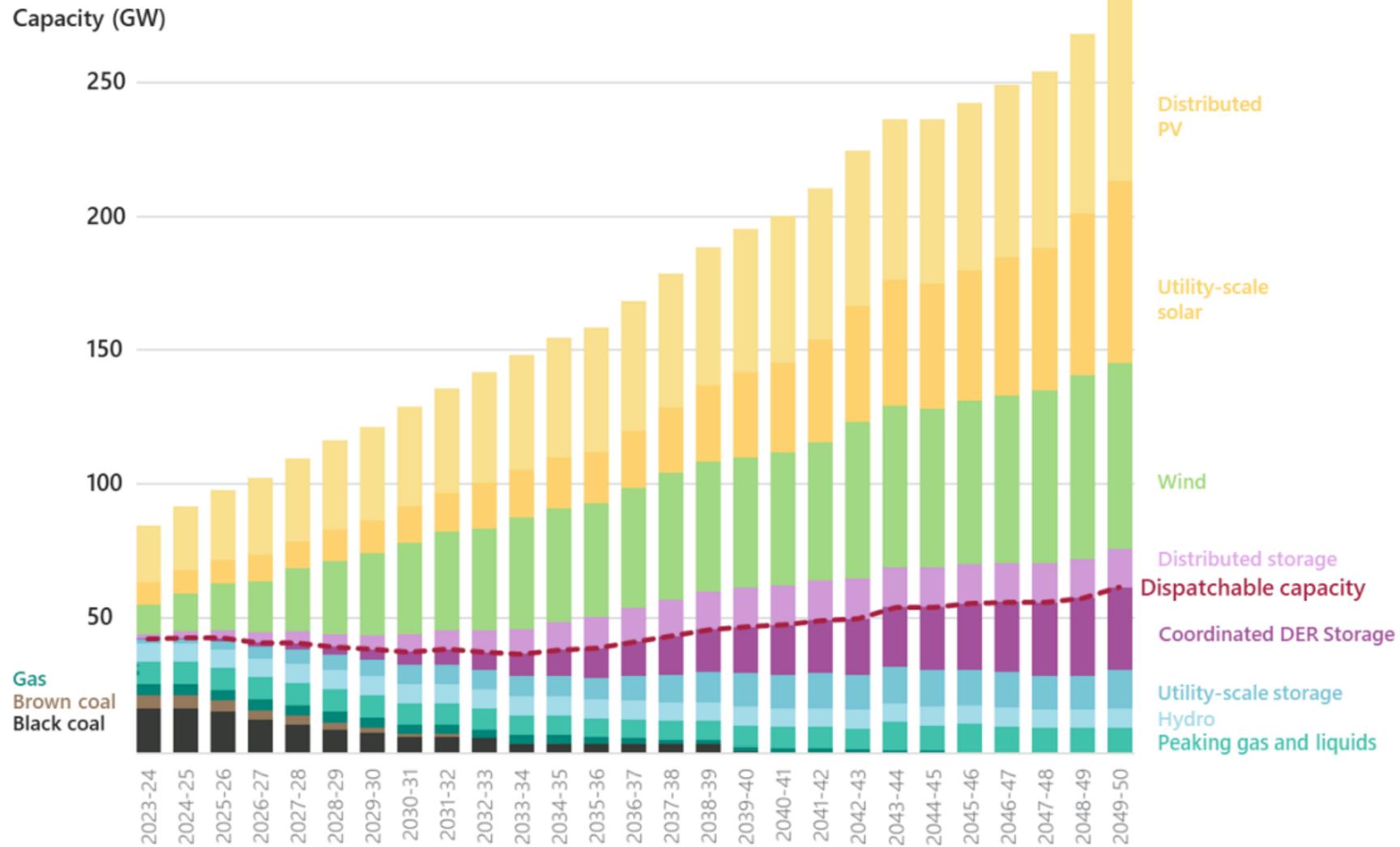


Four scenarios cover a breadth of potential futures

	 Slow Change		 Progressive Change		 Step Change		 Hydrogen Superpower	
	2030	2050	2030	2050	2030	2050	2030	2050
DEMAND								
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

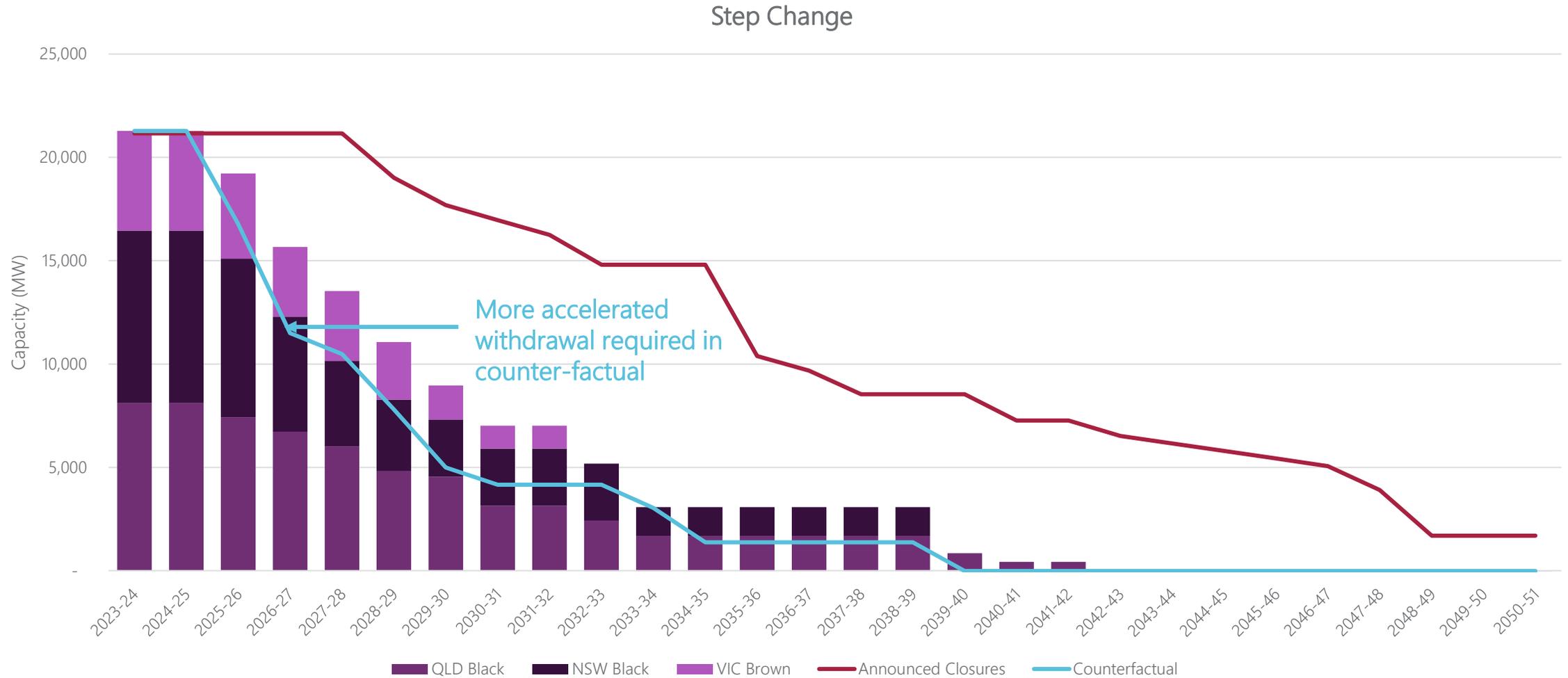
Level of change

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



Step Change

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



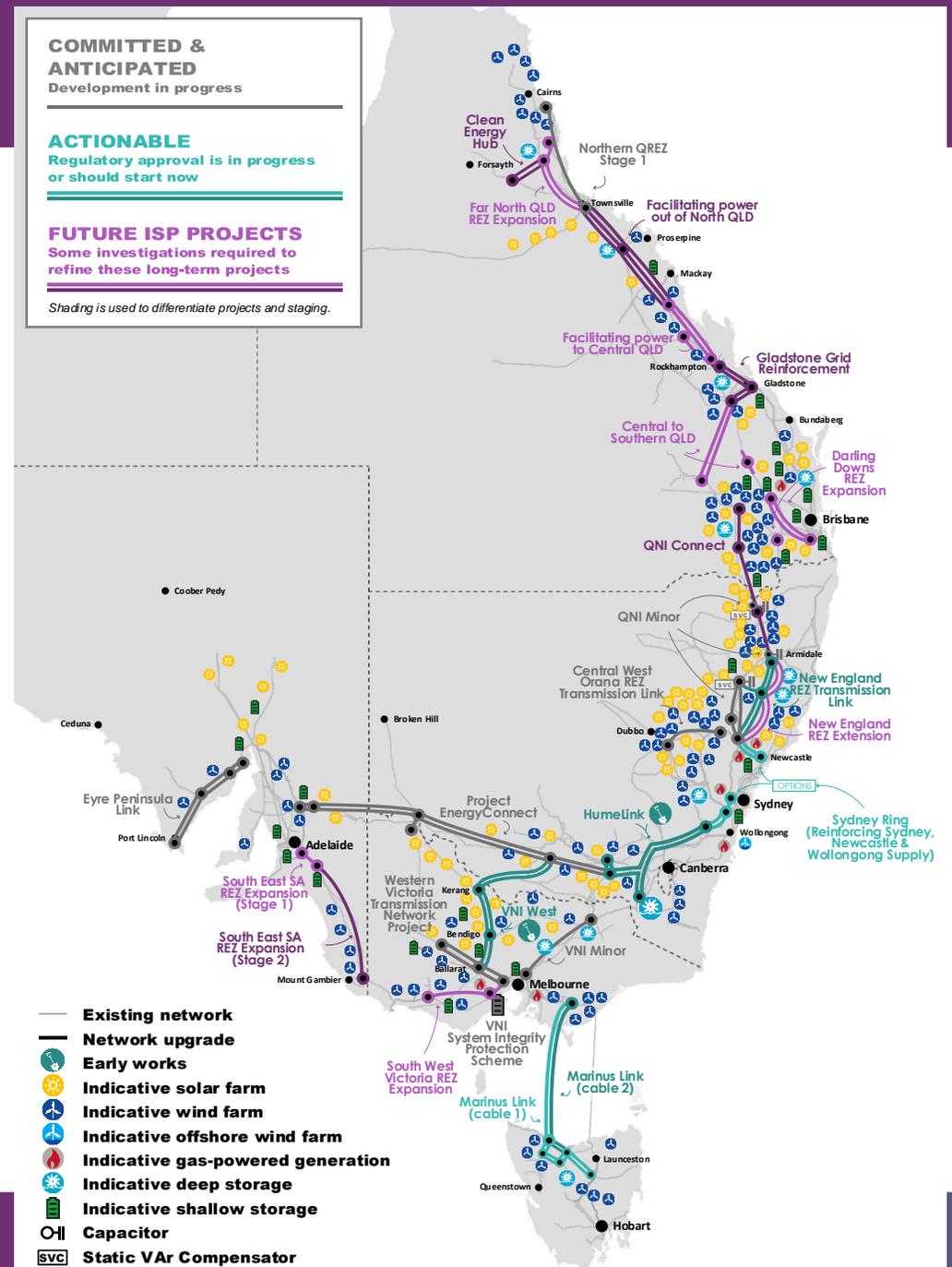
The draft optimal development path enables an efficient transition

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, schedule slippage, or delayed delivery of storage.

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



Question submitted in advance

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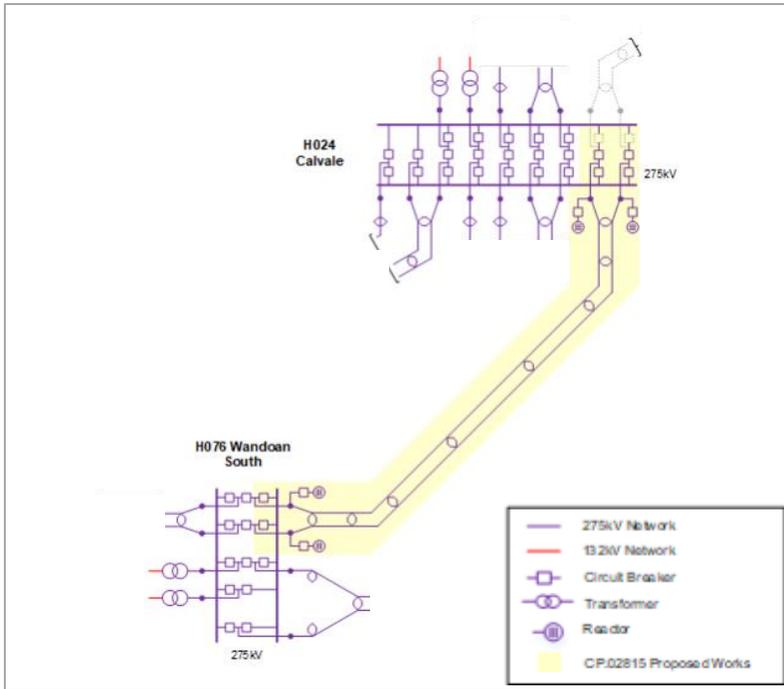
1. Will the 2022 ISP report include a “worst week” energy balance?
E.g. After Vic's coal-fired power stations have closed, where will the energy come from to power Melbourne through a cloudy, calm winter week?
2. How many GWh from in-state energy storage, how many from NSW, Tas etc?
Such info is important to build confidence that AEMO's projections are solid.

1. Is it correct that energy reliability (resource adequacy) is the key driver of new build modelled?
2. Does the model include any co-located storage assets? (i.e. hybrid facilities?)
If not, why not?
3. How do essential system service requirements feed into asset build-out? What assumptions are made about the role of advanced (grid-forming) inverters?

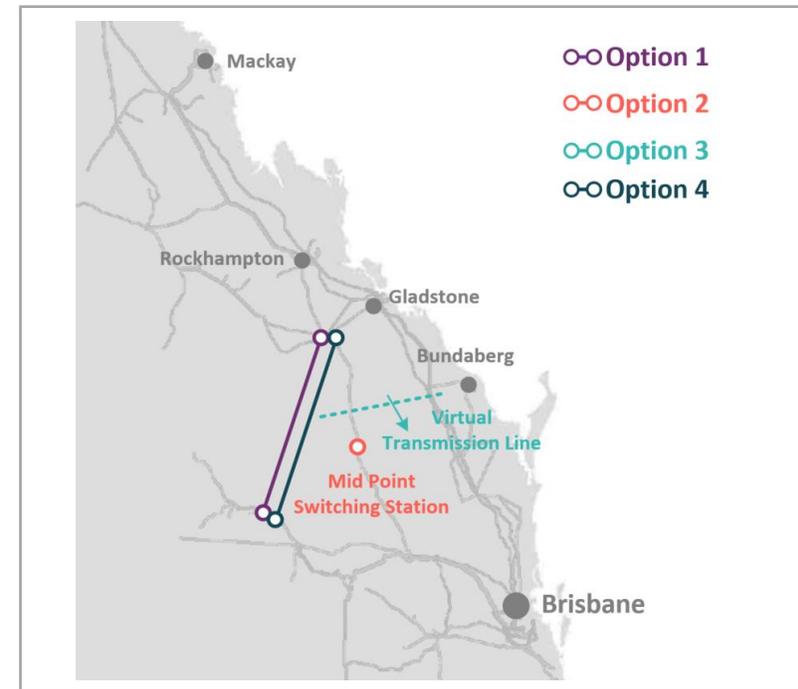
1. In the Delphi panel voting on scenario likelihood, there is a group of stakeholders called “Others” – what is the makeup of this group – academics and interested community members?
2. In the 2020 ISP, there was discussion of the MLF robustness of different REZs, but I couldn’t find equivalent analysis in the draft 2022 ISP. Will it feature in the final ISP, and if not, what was the thinking for removing it? I thought it was quite helpful in the 2020 ISP – not that you would rely on the figures as a developer, but just to get a high-level comparison across zones.
3. Some REZs scored low on wind potential, despite having fairly large pockets/ridges of good wind. Has there been consideration of making certain REZs more focussed geographically to avoid missing good resource areas that are otherwise lost from averaging the wind resource across a wide area?

4. The Future ISP Project “Central to Southern QLD” with a double circuit 275kV line from Calvale to Wandoan South will apparently connect into a single 275kV line to the south. This appears to be a missed opportunity to increase the north-south transfer capacity for central Queensland generation to supply southern Queensland load and NSW load. Were any alternative options looked at that extended the new double circuit line beyond Wandoan South into a stronger part of the network?

Overview of proposed works (Powerlink Preparatory Activities – CQSQ Transmission Link)



CQ-SQ transmission augmentation options considered for the Draft ISP

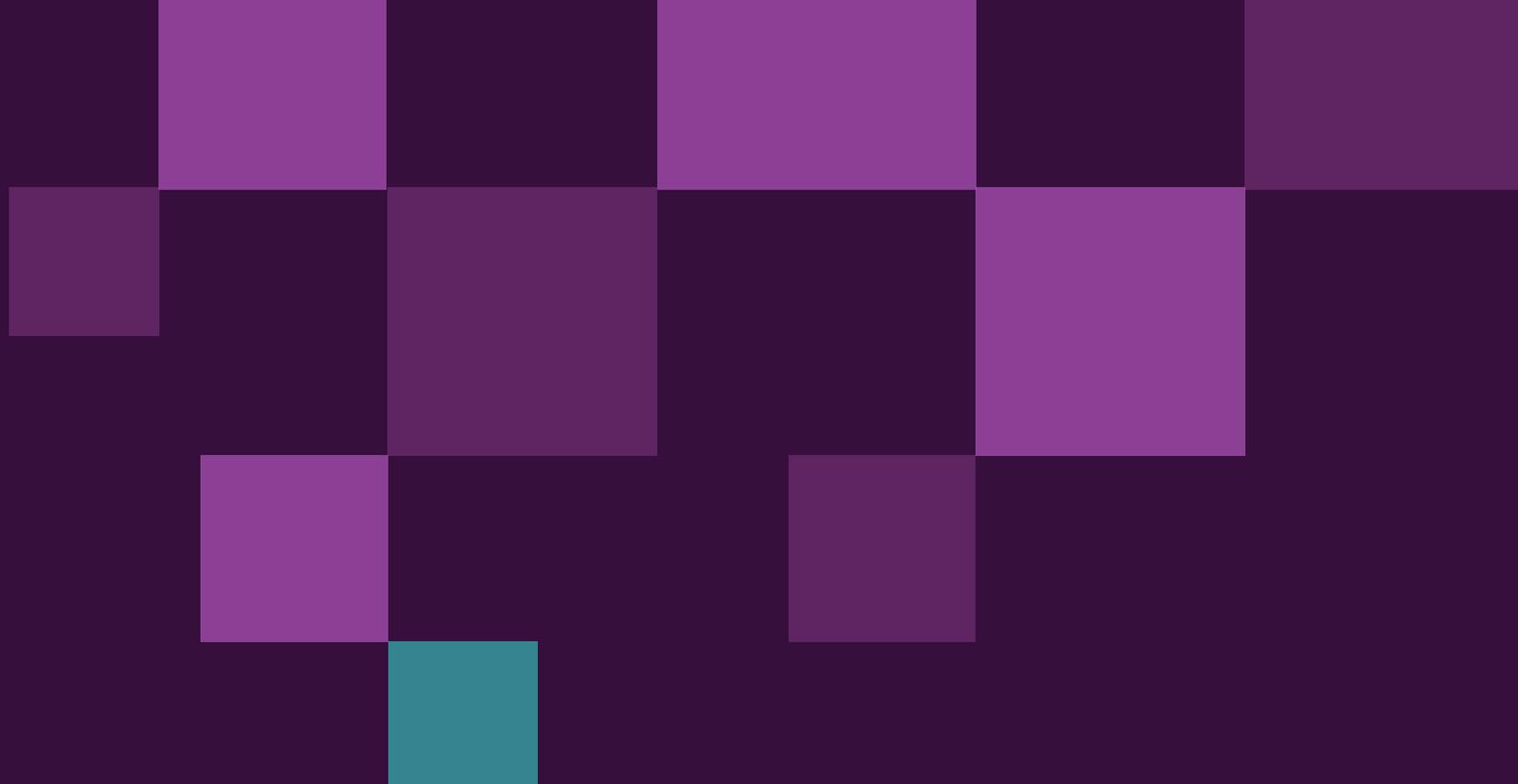


1. How are decisions about who pays for ISP projects made, beyond simple cost benefit aggregates?" This includes questions of how the costs and benefits are assessed for different classes of customers as well as intergenerational incidence of costs.
2. How are cost blow outs reviewed and cost allocation for overruns determined? ISP history shows that costs generally rise more than do benefits once assessment of projects occurs.

Other questions

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

