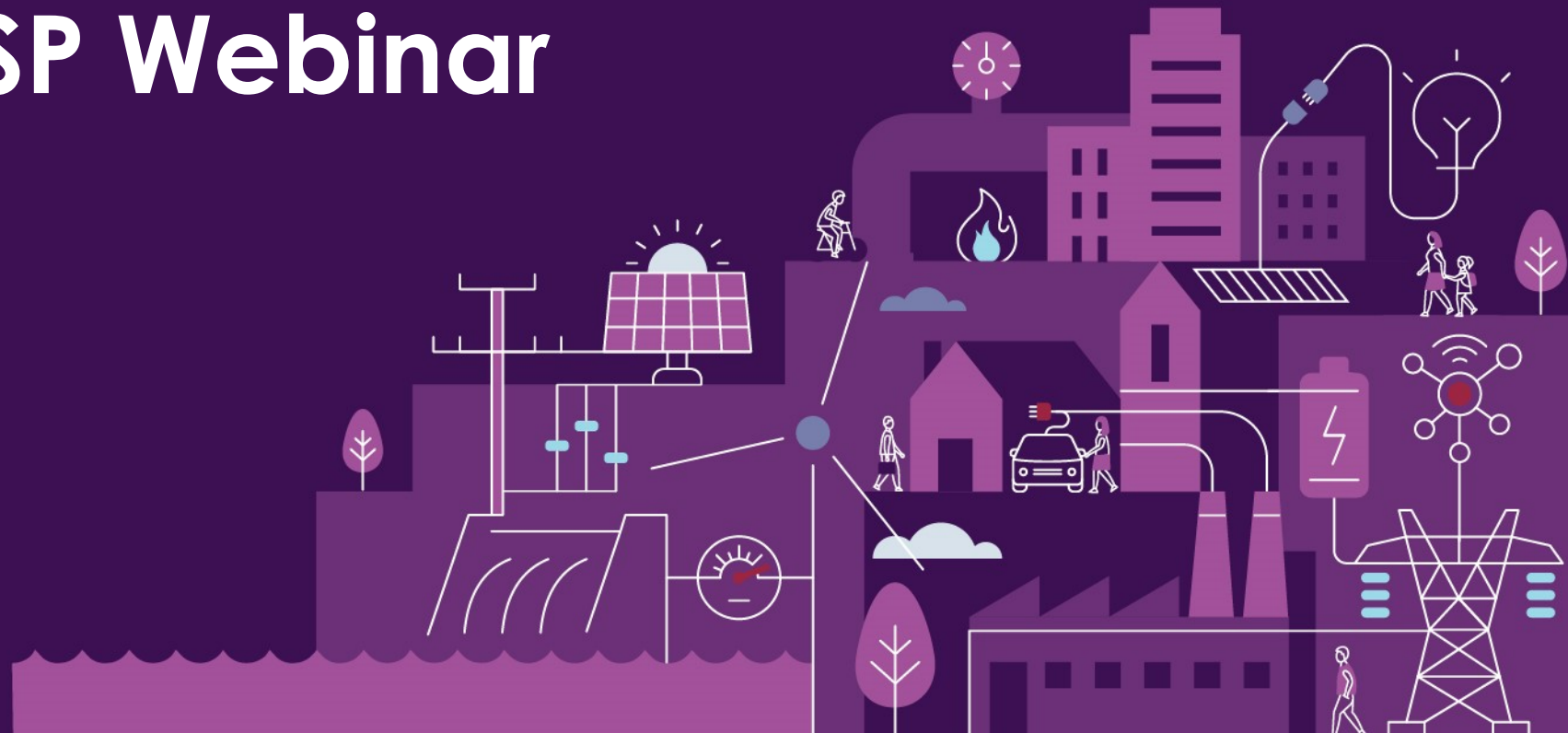


Draft 2024 ISP Webinar

December 2023

This webinar will be recorded
and published online



We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

We pay respect to Elders past and present.

Agenda

- **Welcome**
- **Draft 2024 ISP Overview**
- **The past** – *The energy transition is well under way*
- **The future** – *Scenarios are used to forecast the future*
- **The plan** – *The ISP is a roadmap for the energy transition*
- **Consultation**
- **Q&A**

How to interact today

www.sli.do
#AEMO

- Please ask question using Slido www.sli.do #AEMO
- Questions can be up-voted
- Written replies may be provided through Slido if appropriate
- AEMO will not provide responses to unanswered questions

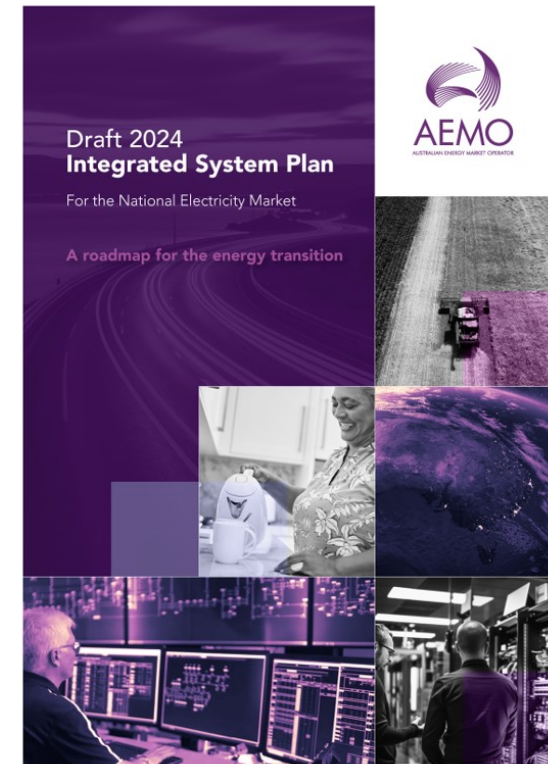
Today's objectives



Present key insights from the *Draft 2024 Integrated System Plan (ISP)*, which is now open for consultation.

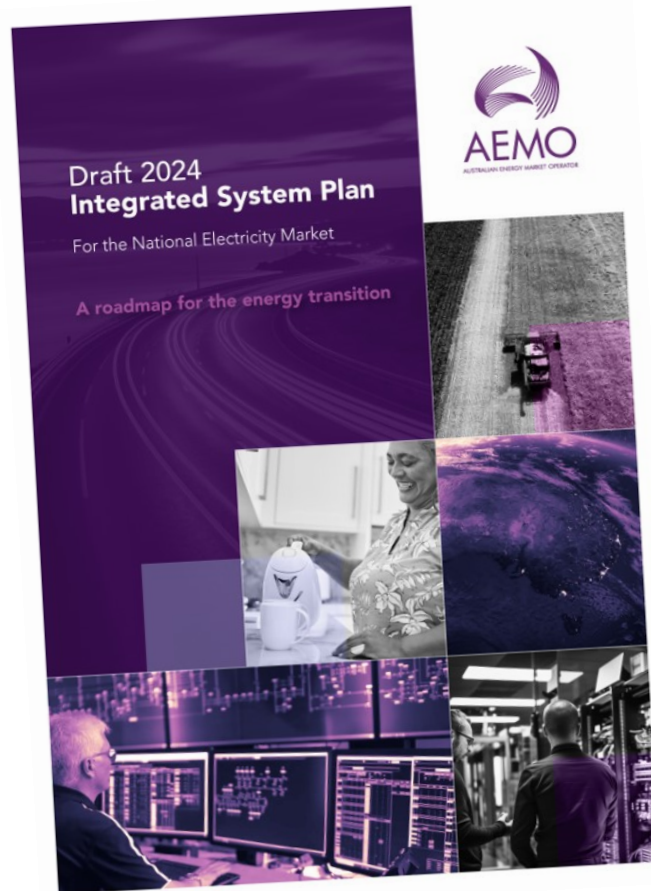


After the presentation, you will have the opportunity to ask AEMO questions, using Slido.



Read the [report and associated material](#)

Draft 2024 Integrated System Plan



- A roadmap for the NEM energy transition
- Optimal development path for reaching net zero by 2050
- Least-cost path for transition within Commonwealth and State policies
- Provides lots of detailed information for policy makers, investors, consumers, communities, researchers and other stakeholders
- Serves regulatory purpose of justifying actionable and future new transmission

Stakeholder collaboration

AEMO's Draft 2024 ISP reflects feedback from a wide range of different groups and sources, including workshops, webinars, public forums, other engagements and submissions.



1,300+
stakeholders engaged



10
webinars hosted



60+
presentations and reports

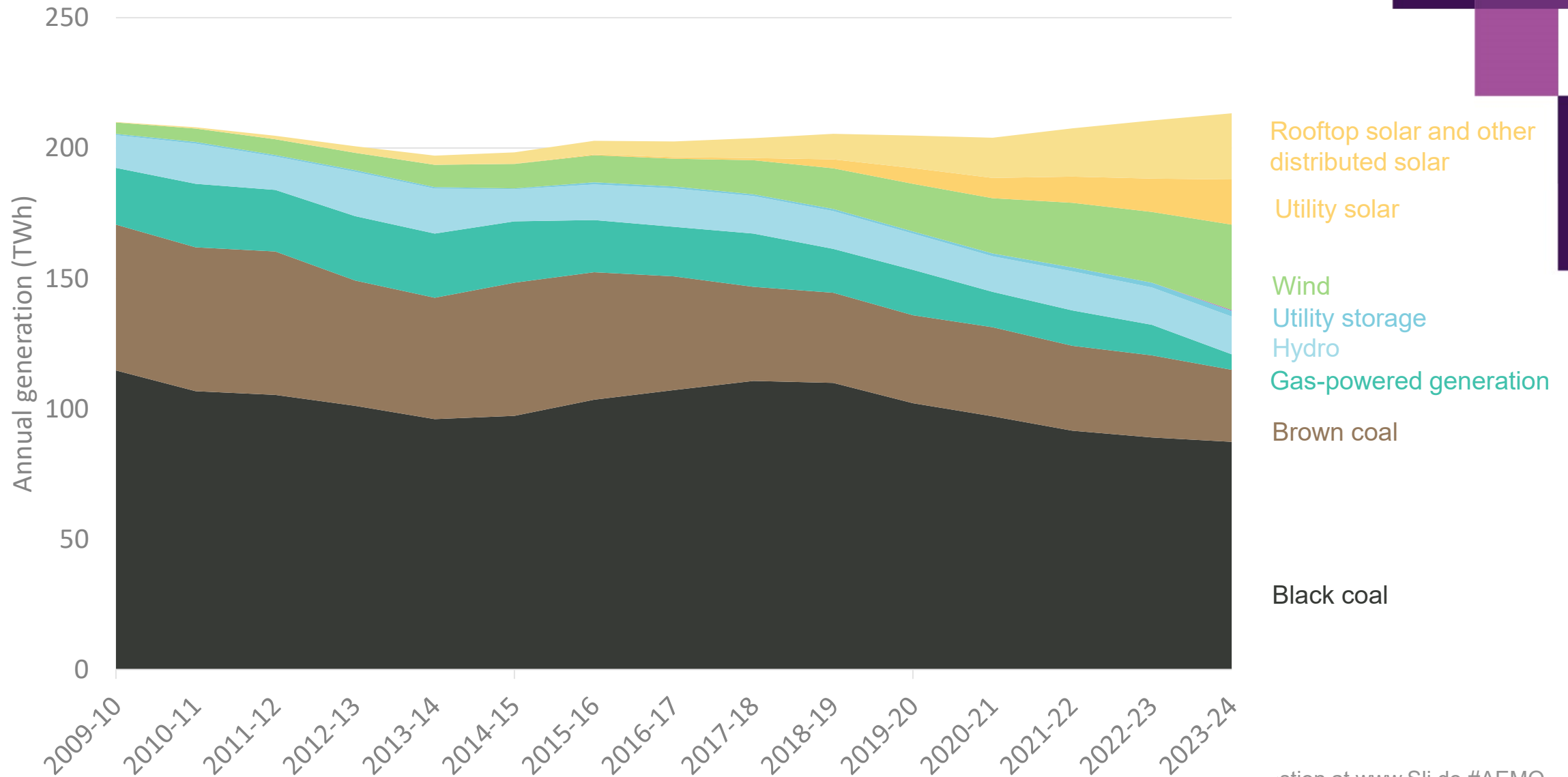


110+
written submissions considered

Consumer and community voices in the Draft 2024 ISP:

- **ISP Consumer Panel**
Independent expert consumer-focused advice to inform the development of the 2024 ISP.
- **Advisory Council on Social Licence**
Perspectives from landholder, agriculture, rural and regional communities, First Nations, consumer and environmental groups.

The transition is well underway





*Renewable energy connected with **transmission**,
firmed with **storage** and backed up by **gas-powered
generation** is the lowest cost way to supply
electricity to homes and businesses throughout
Australia's transition to a net-zero economy.*

Scenarios are used to forecast the future

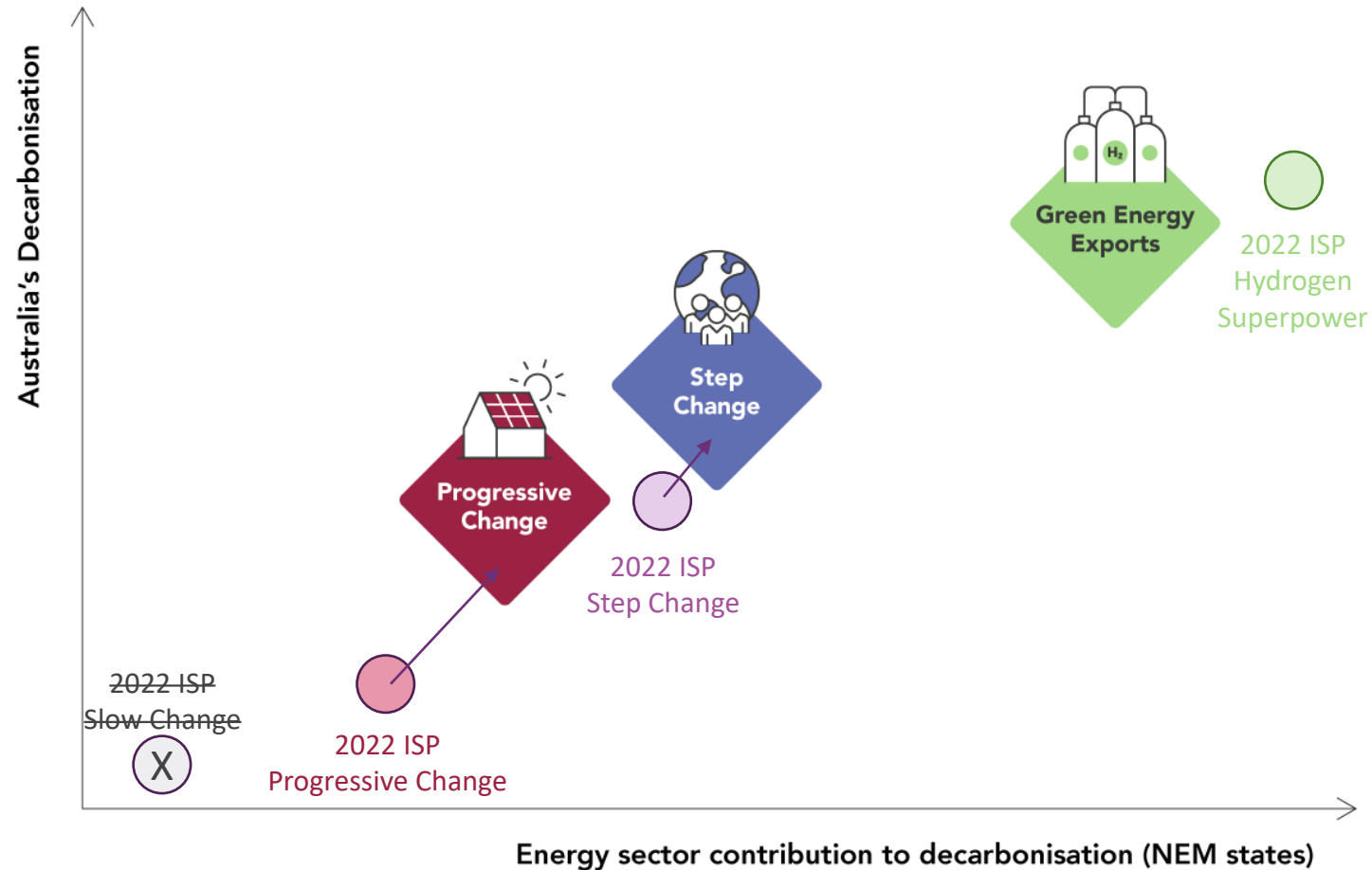
THE FUTURE

All scenarios target net zero by 2050 and include committed energy policies

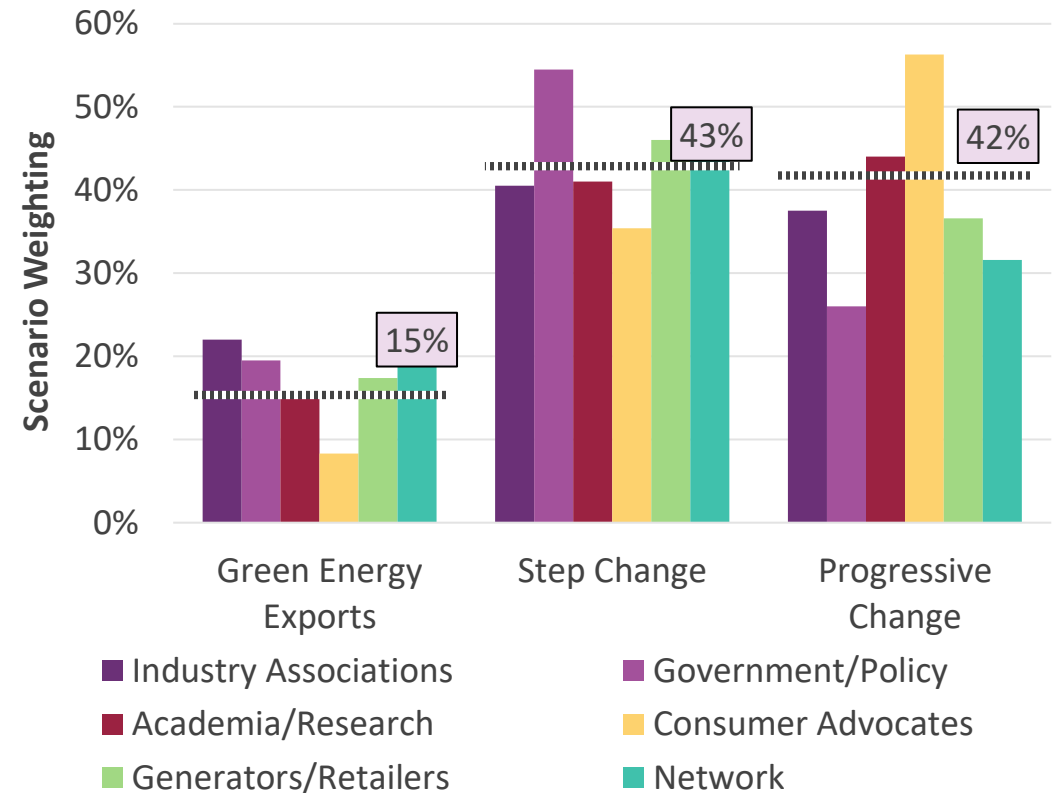
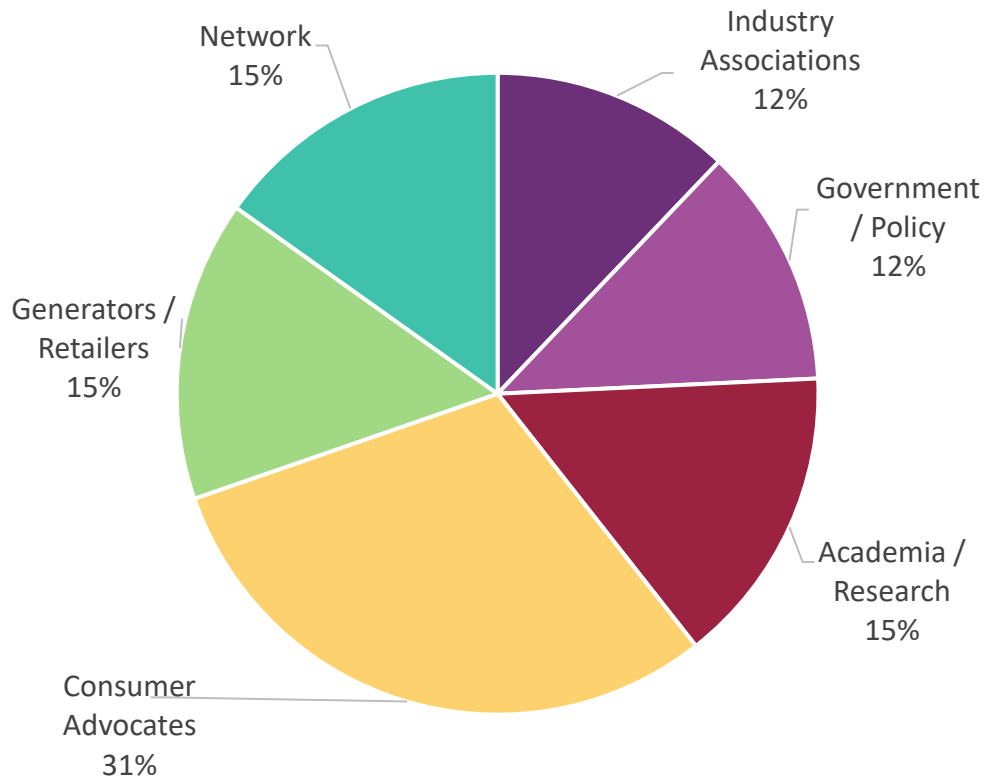


- ✓ **Commonwealth:** Powering Australia Plan's 82% renewable energy by 2030, 43% emission reduction by 2030, Safeguard Mechanism, and the initial Capacity Investment Scheme target (6 GW).
- ✓ **Queensland:** Latest QRET targets, Borumba Pumped Hydro, CopperString 2032, and transmission options from the Queensland Energy & Jobs Plan.
- ✓ **New South Wales:** 50% emission reduction by 2030, Electricity Roadmap targets for renewable capacity and deep storage.
- ✓ **South Australia:** Hydrogen Jobs Plan, including 250 MW electrolyser and 200 MW hydrogen capable generator.
- ✓ **Victoria:** Latest VRET and emission reduction targets, storage, and offshore wind targets.
- ✓ **Tasmania:** TRET and Battery of the Nation options.

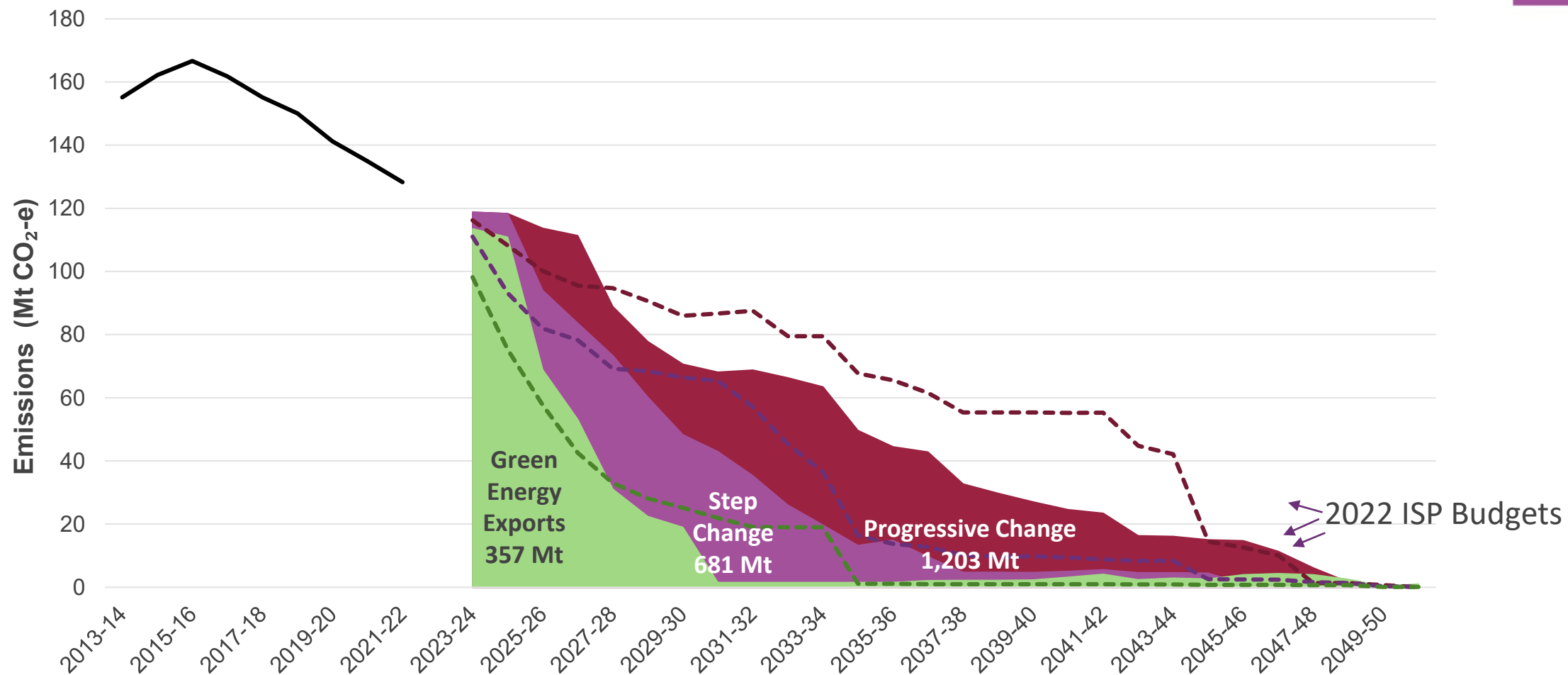
Three scenarios explore the pace of change to reach net zero by 2050



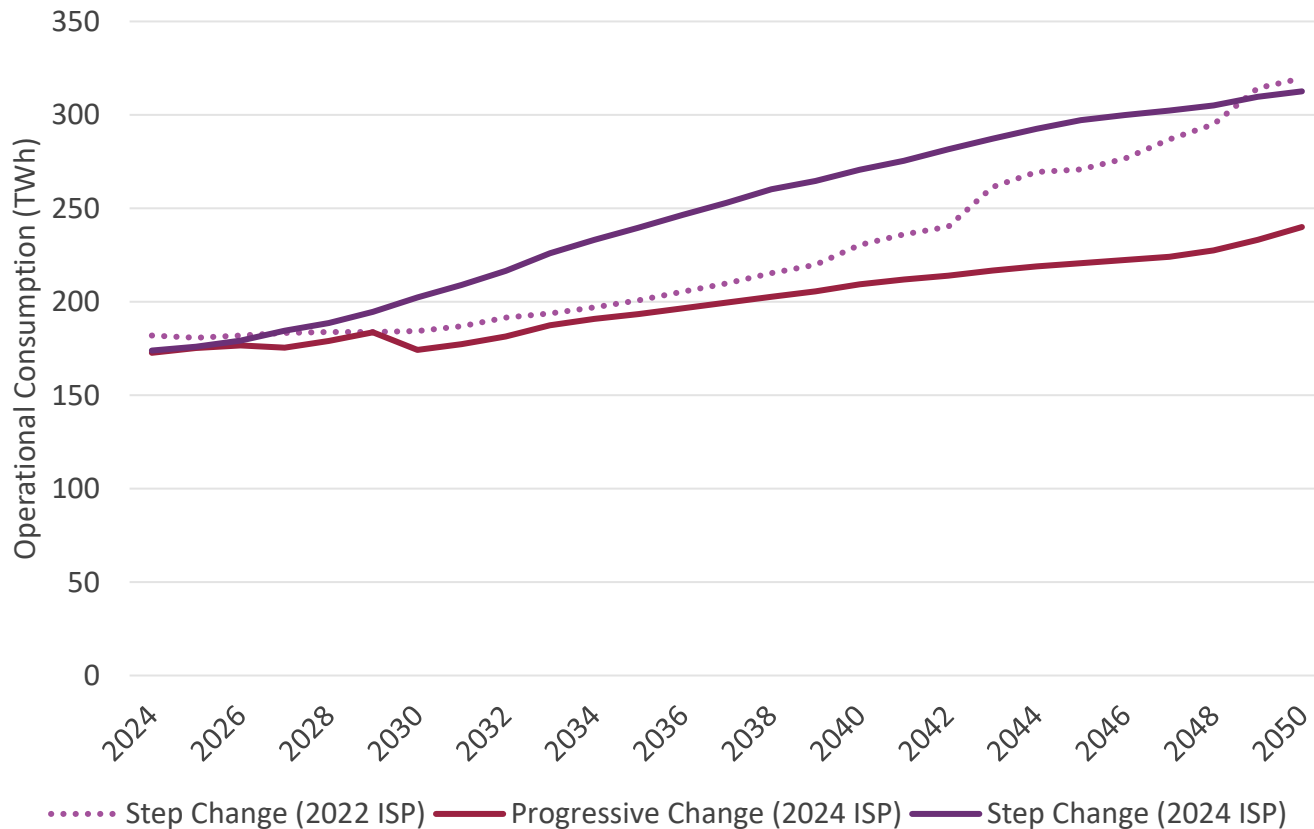
AEMO confirmed *Step Change* as 'most likely' following a Delphi Panel



2024 ISP Carbon budgets – compared against 2022 ISP



Demand projections applied for Draft 2024 ISP are higher than for 2022 ISP



Drivers for change since the 2022 ISP:

- Stronger growth in business consumption, including earlier investments in domestic hydrogen production
- Slower investments in commercial energy efficiency measures and on-site generation options (small non-scheduled generators)
- Higher forecast electric vehicle charging loads
- Increased large industrial load activity

Slightly offset by slower electrification investments than forecast in the 2022 ISP.

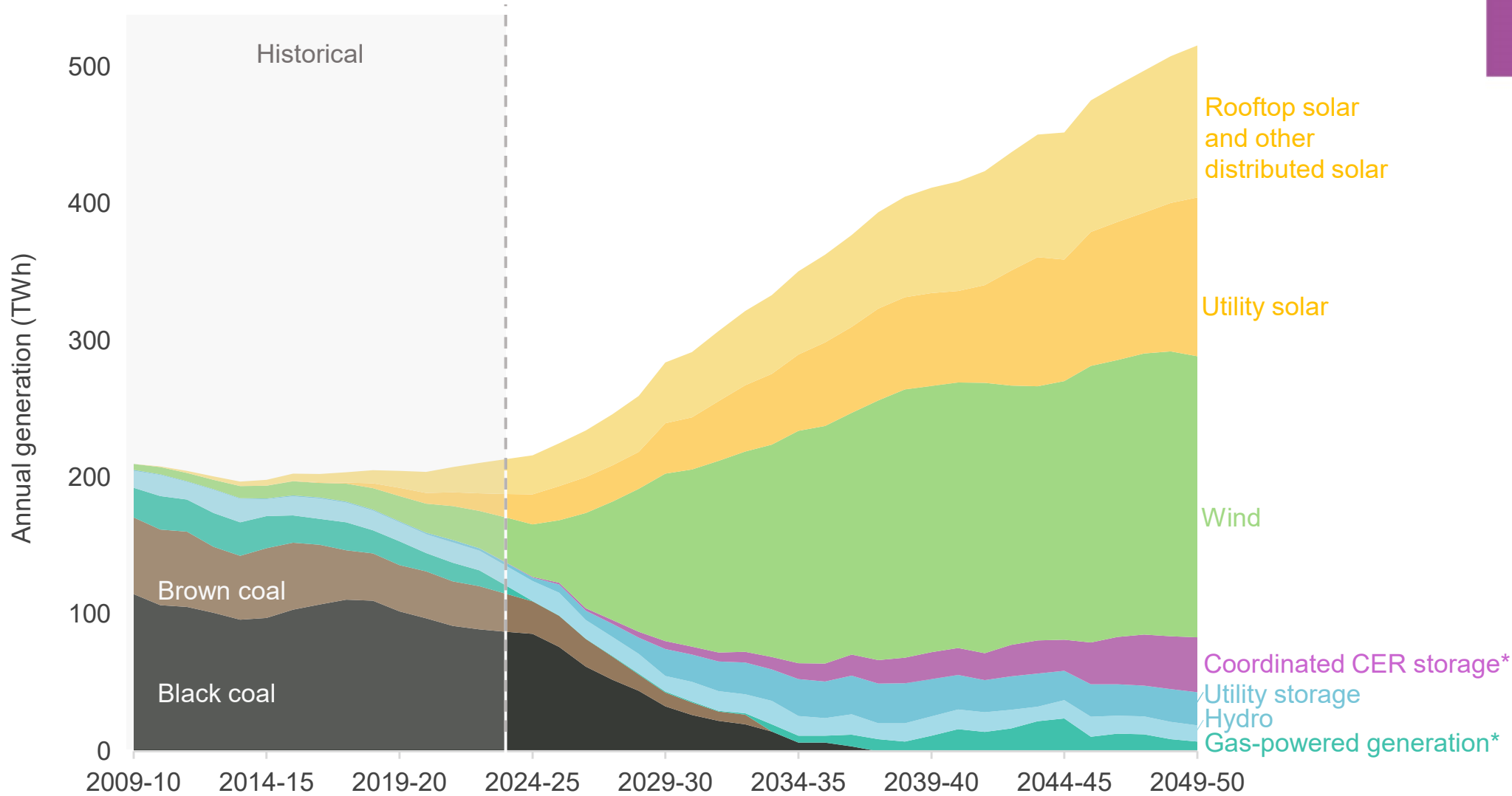
The ISP is a roadmap for the energy transition

THE PLAN



Renewable energy connected with transmission, firmed with storage and backed up by gas-powered generation is the lowest cost way to supply electricity to homes and businesses throughout Australia's transition to a net-zero economy.

Past and forecast generation mix in the NEM, 2005-2050 (GWh)

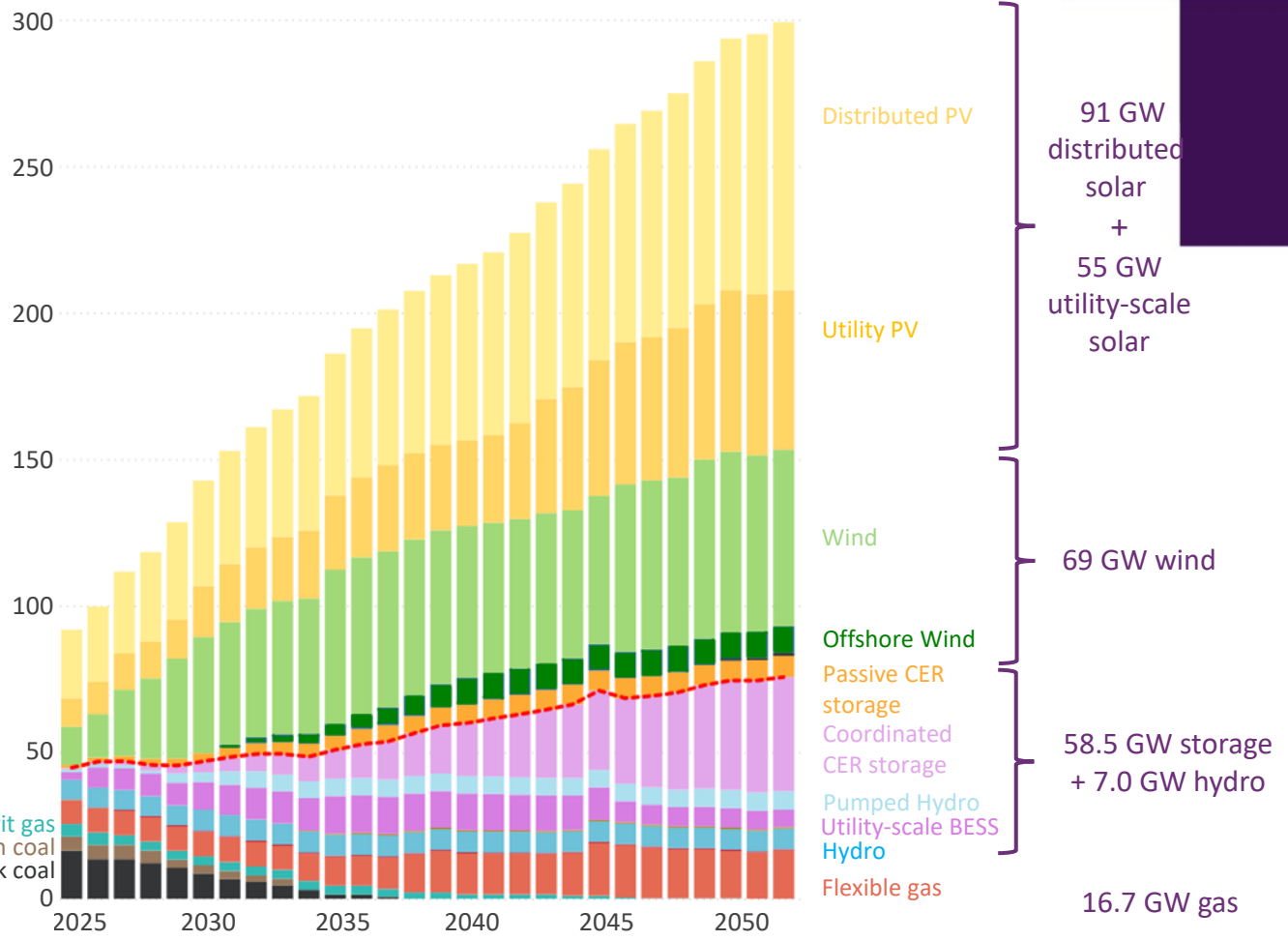
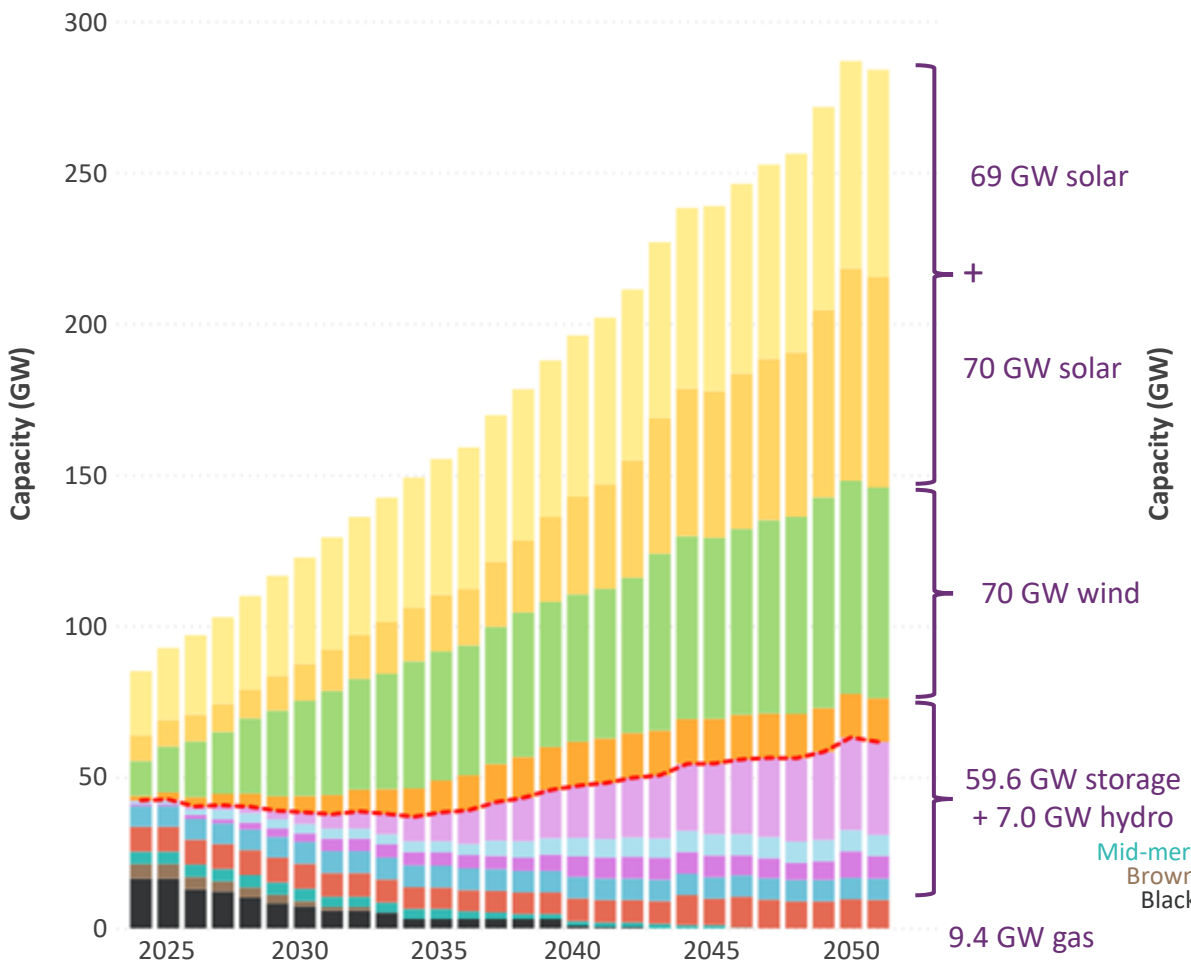


Capacity difference - Step Change

2022 ISP

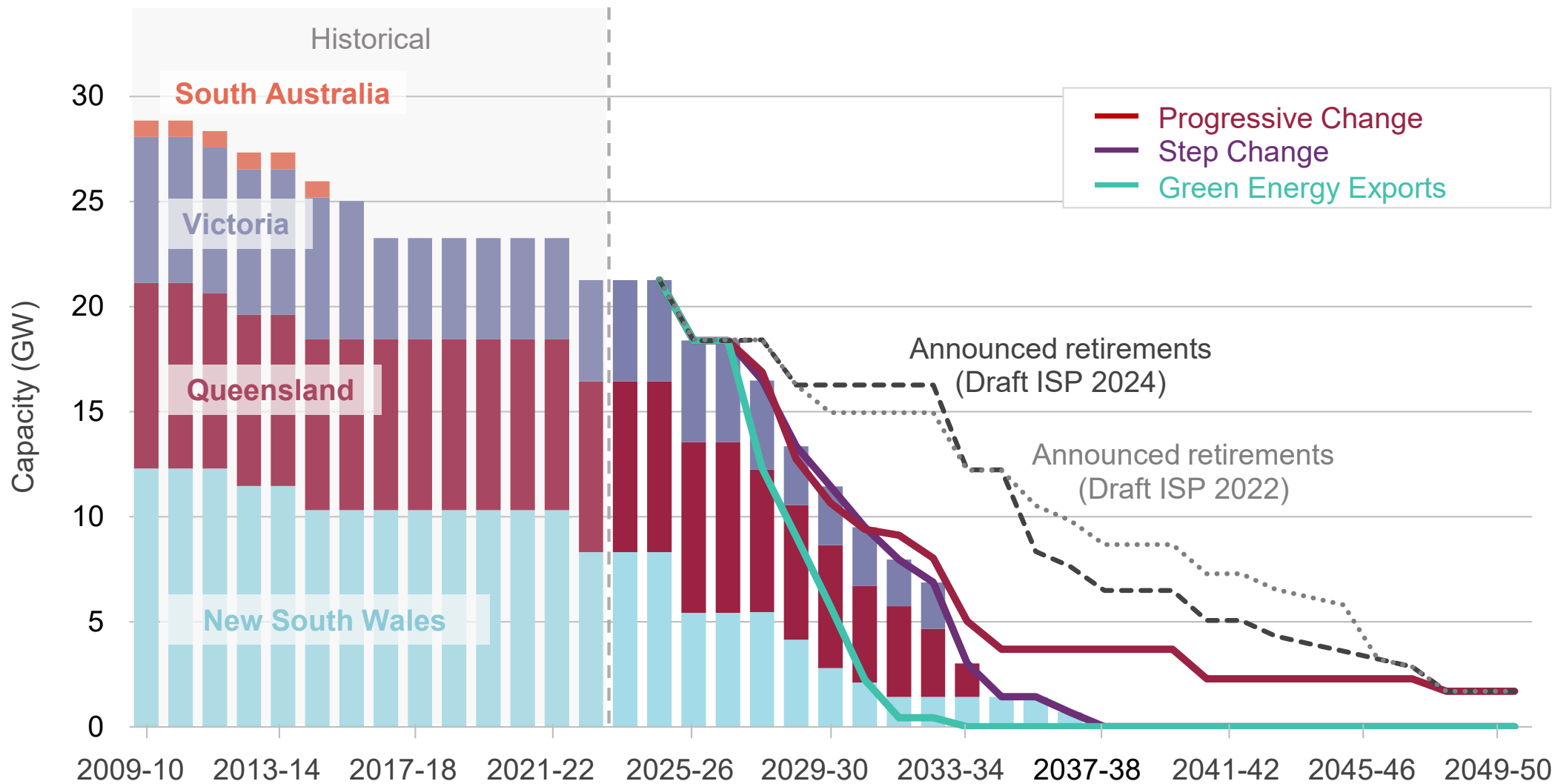


Draft 2024 ISP



Ask your question at www.Sli.do #AEMO

Coal retiring two to three times faster than anticipated





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COMMITTED & ANTICIPATED

Development in progress

ACTIONABLE

Regulatory approval is in progress or should start now

FUTURE ISP PROJECTS

Some investigations required to refine these long-term projects

Shading is used to differentiate projects and staging.

COMMITTED & ANTICIPATED

Development in progress

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Regulatory approval is in progress or should start now

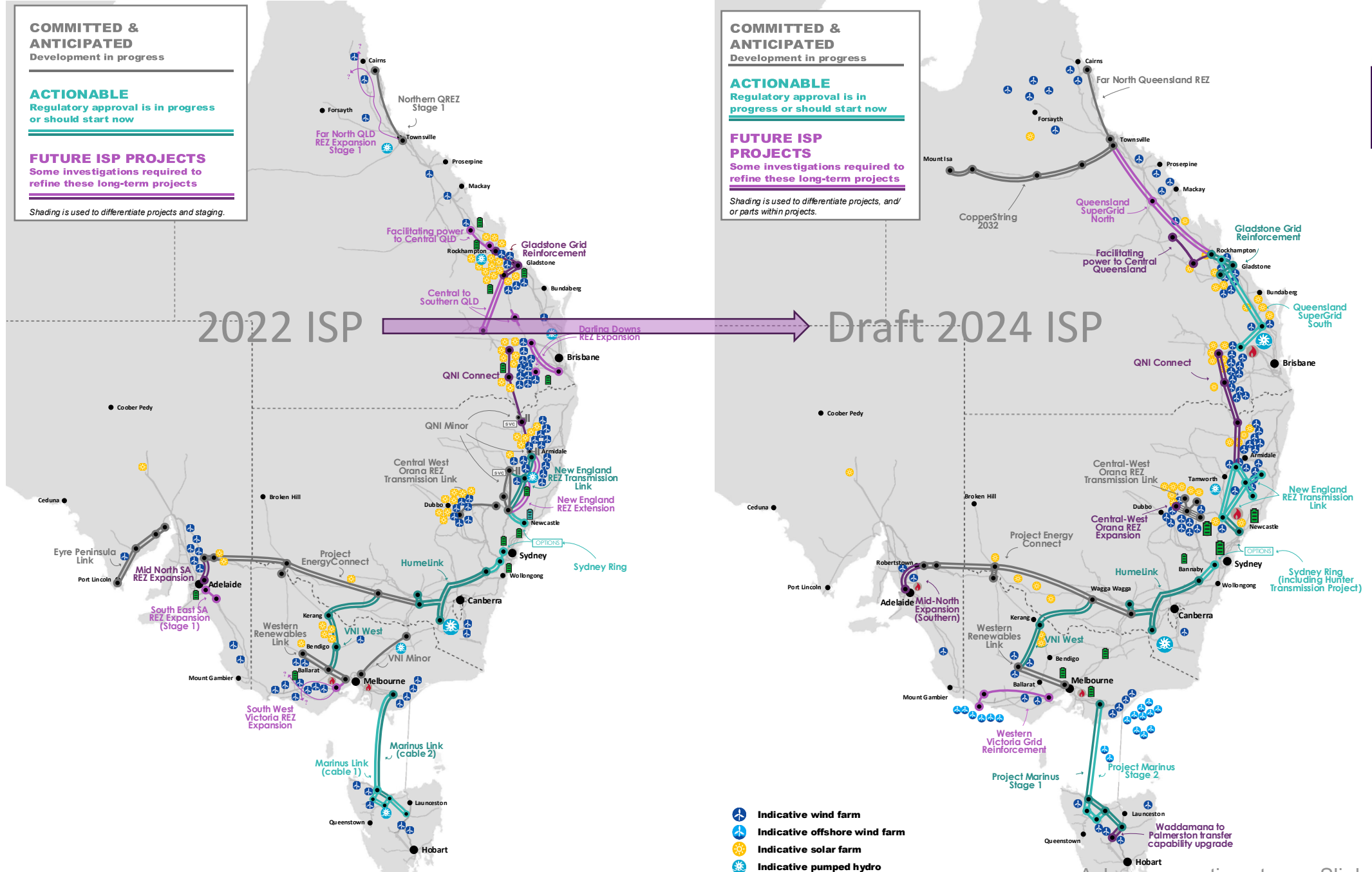
FUTURE ISP PROJECTS

Some investigations required to refine these long-term projects

Shading is used to differentiate projects, and/or parts within projects.

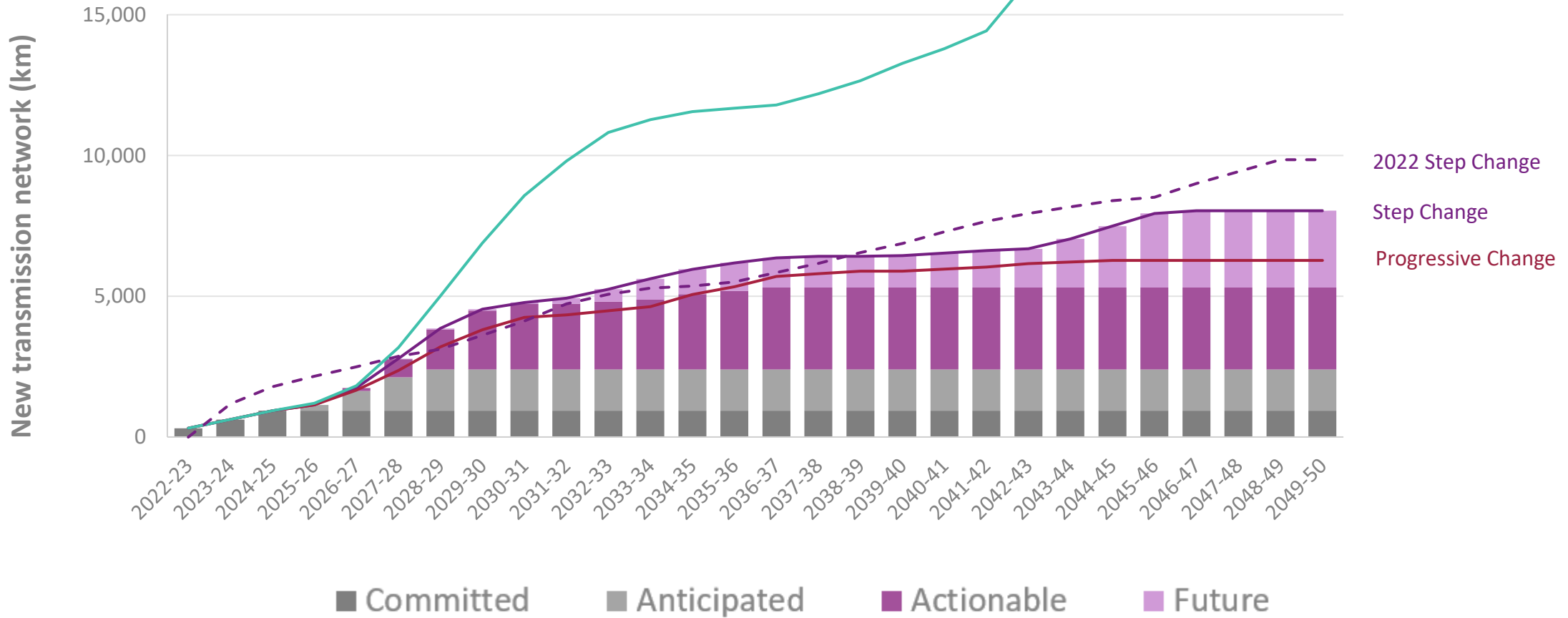
2022 ISP

Draft 2024 ISP



Ask your question at www.Sli.do #AEMO

Towards 10,000 km of transmission investment required in Step Change

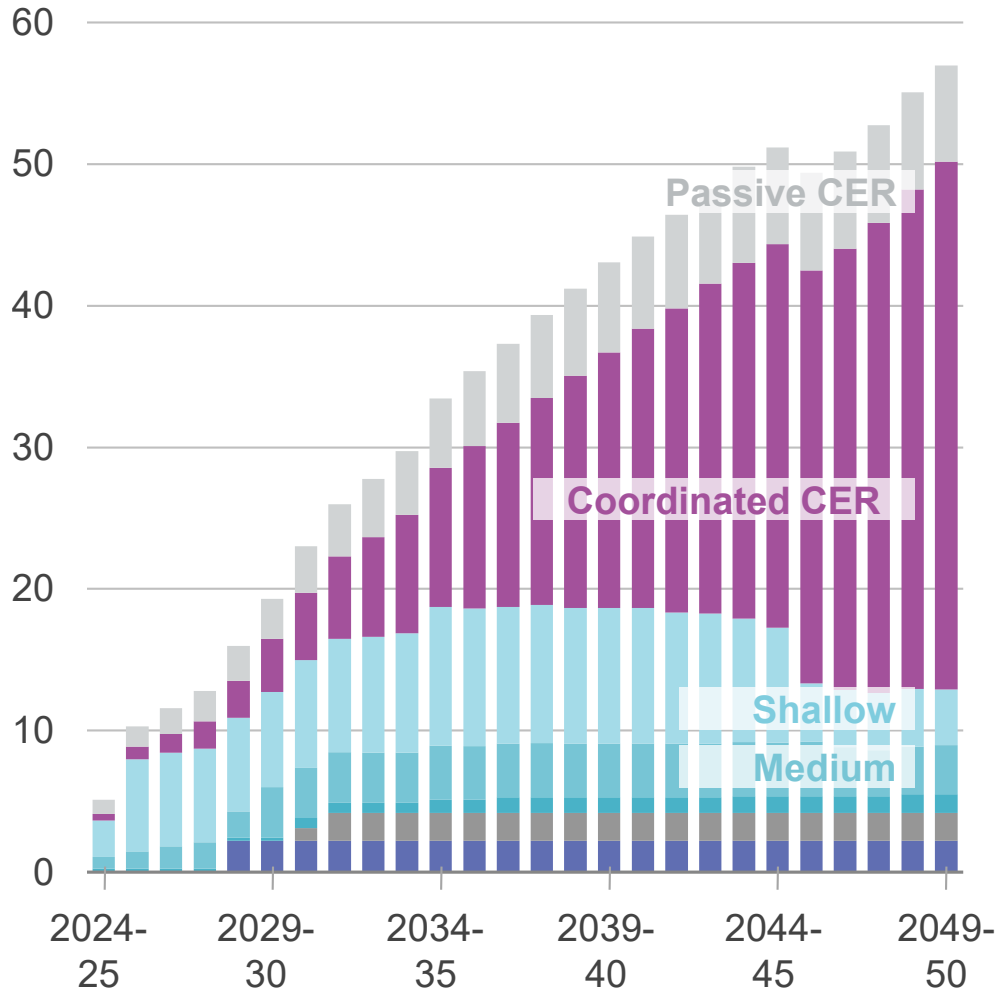




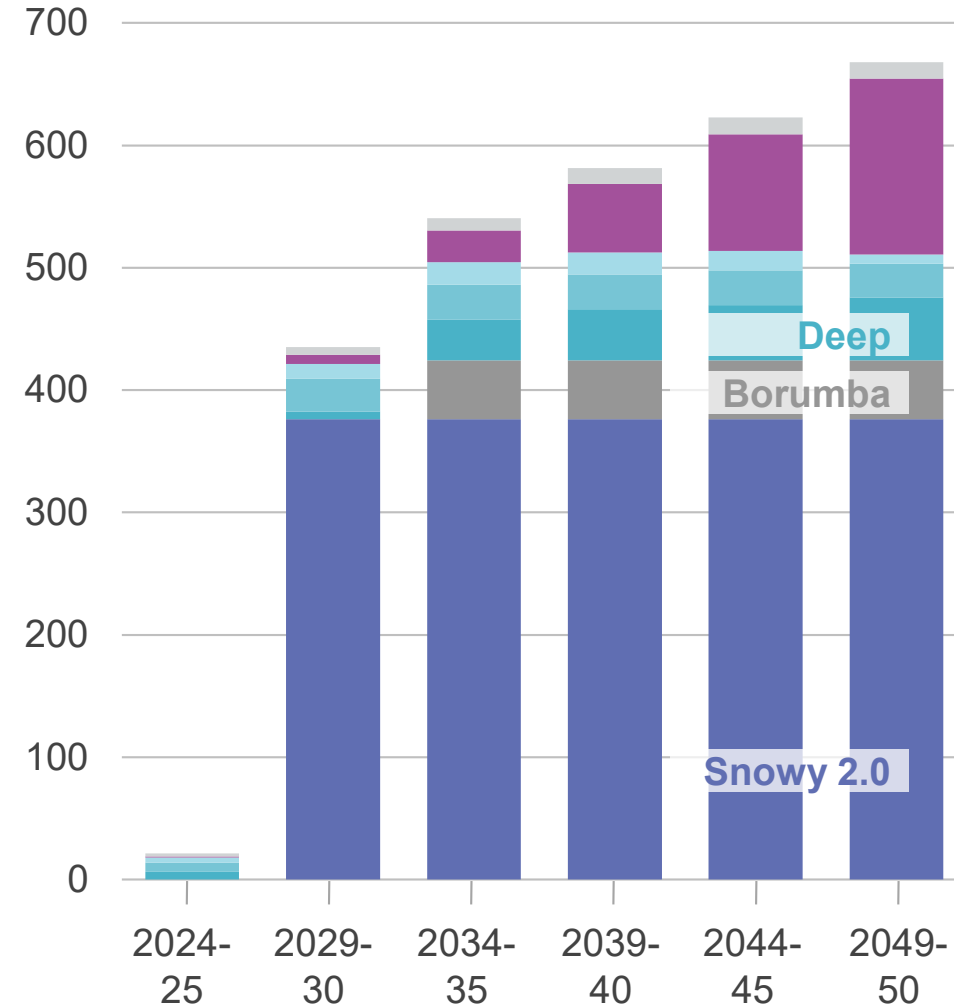
Renewable energy connected with transmission, firmed with storage and backed up by gas-powered generation is the lowest cost way to supply electricity to homes and businesses throughout Australia's transition to a net-zero economy.

Storage of varied depths and technologies

Installed capacity (GW)



Energy capacity (GWh)



Shallow = 2 hours (±2h)

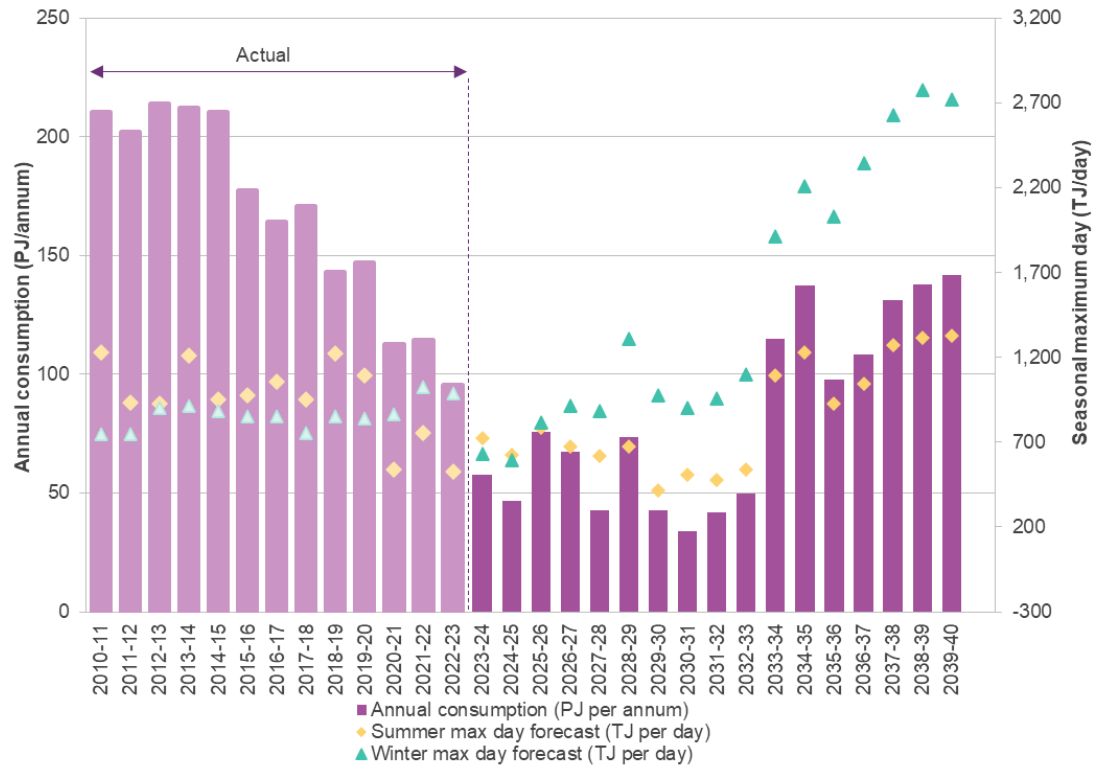
Medium = 8 hours (±4h)

Deep = 30 hours (±18h)

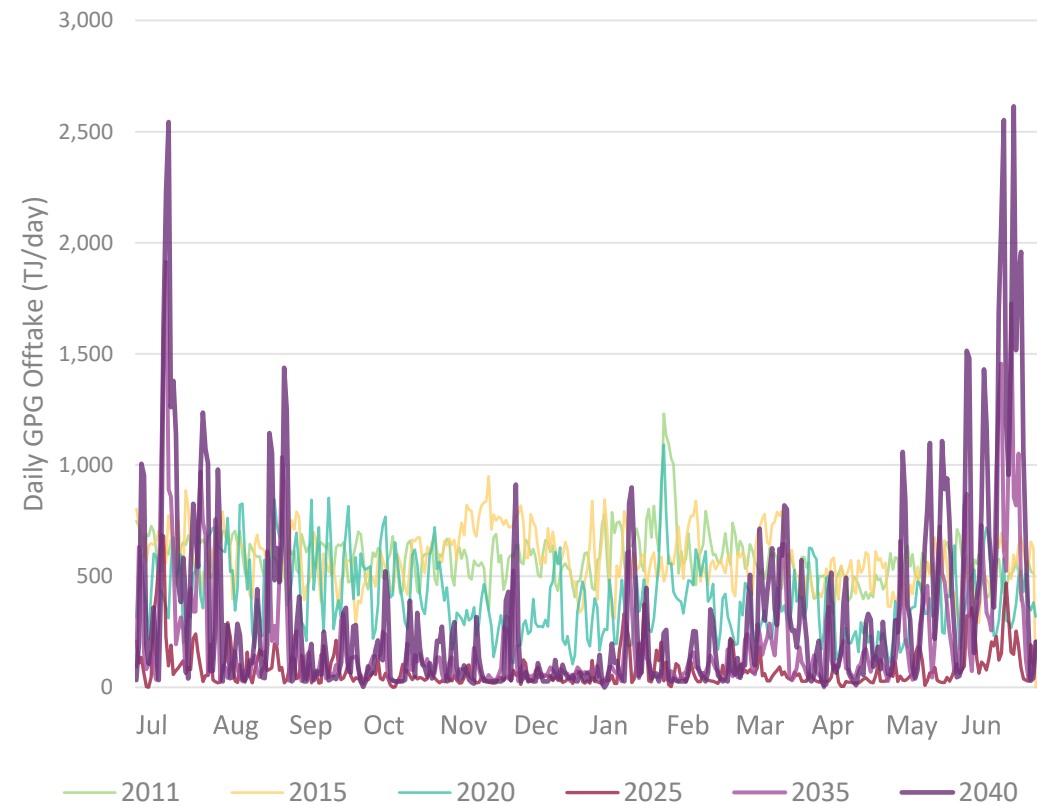
Ask your question at www.Sli.do #AEMO

More gas-fired generation capacity is required but will operate less frequently

Actual and forecast NEM gas-powered generation annual consumption (PJ/y) and seasonal maximum daily demand (TJ/d) in Step Change, 2019-40



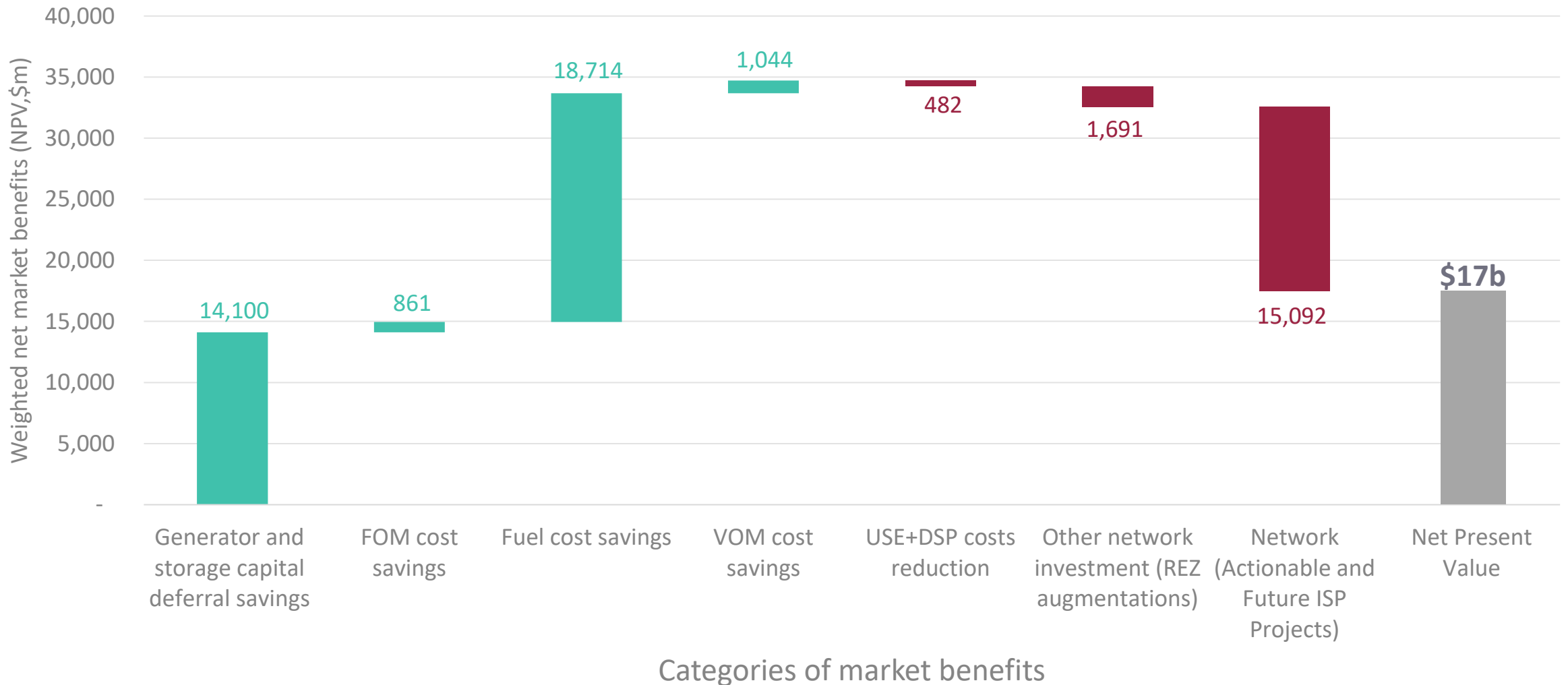
Forecast daily NEM gas-powered generation offtake in 2024-25, 2034-35 and 2039-40, Step Change, (TJ)





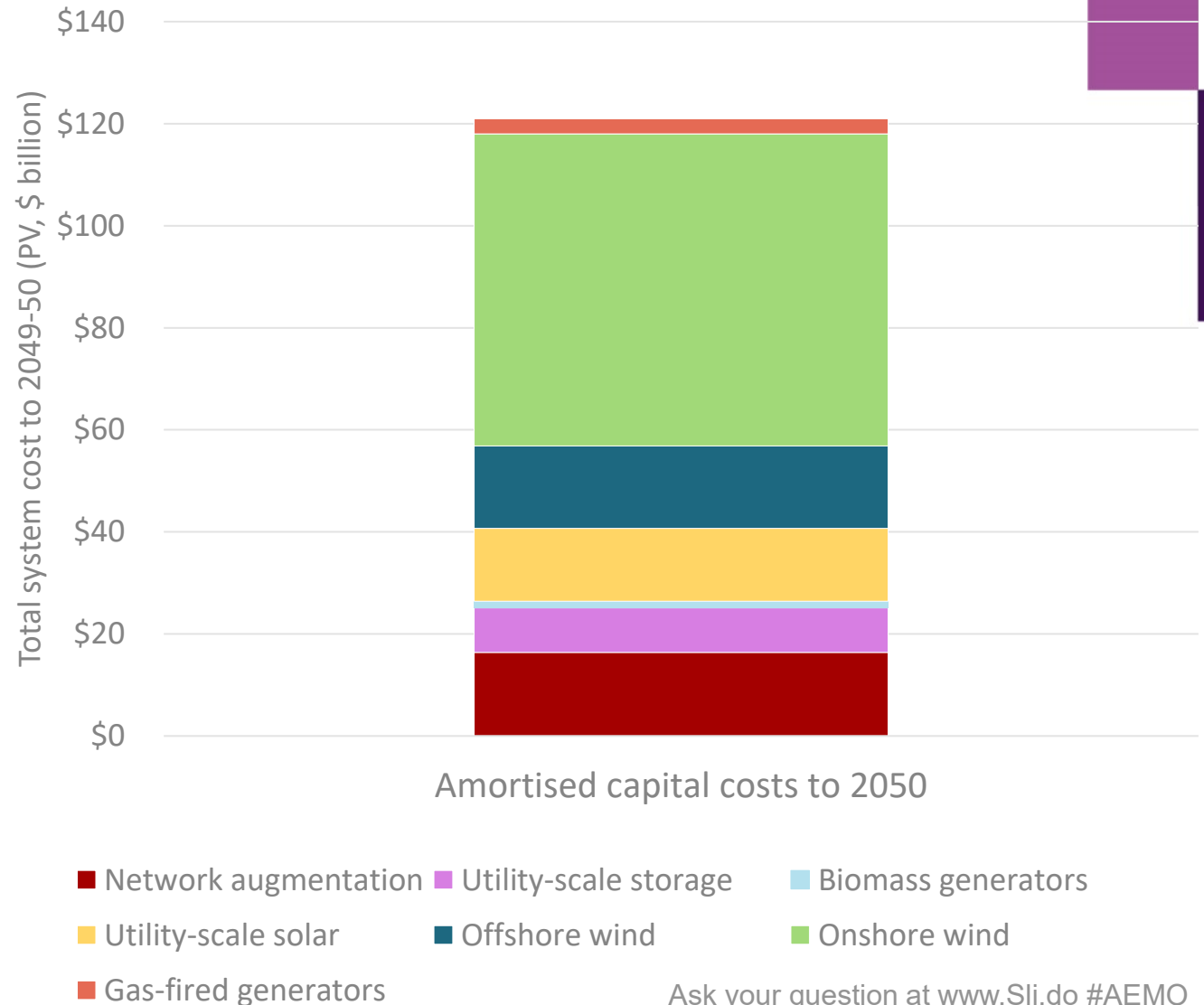
*Renewable energy connected with transmission, firmed with storage and backed up by gas-powered generation is the **lowest cost way to supply electricity** to homes and businesses throughout Australia's transition to a net-zero economy.*

Without transmission the transition would cost consumers \$17 billion more

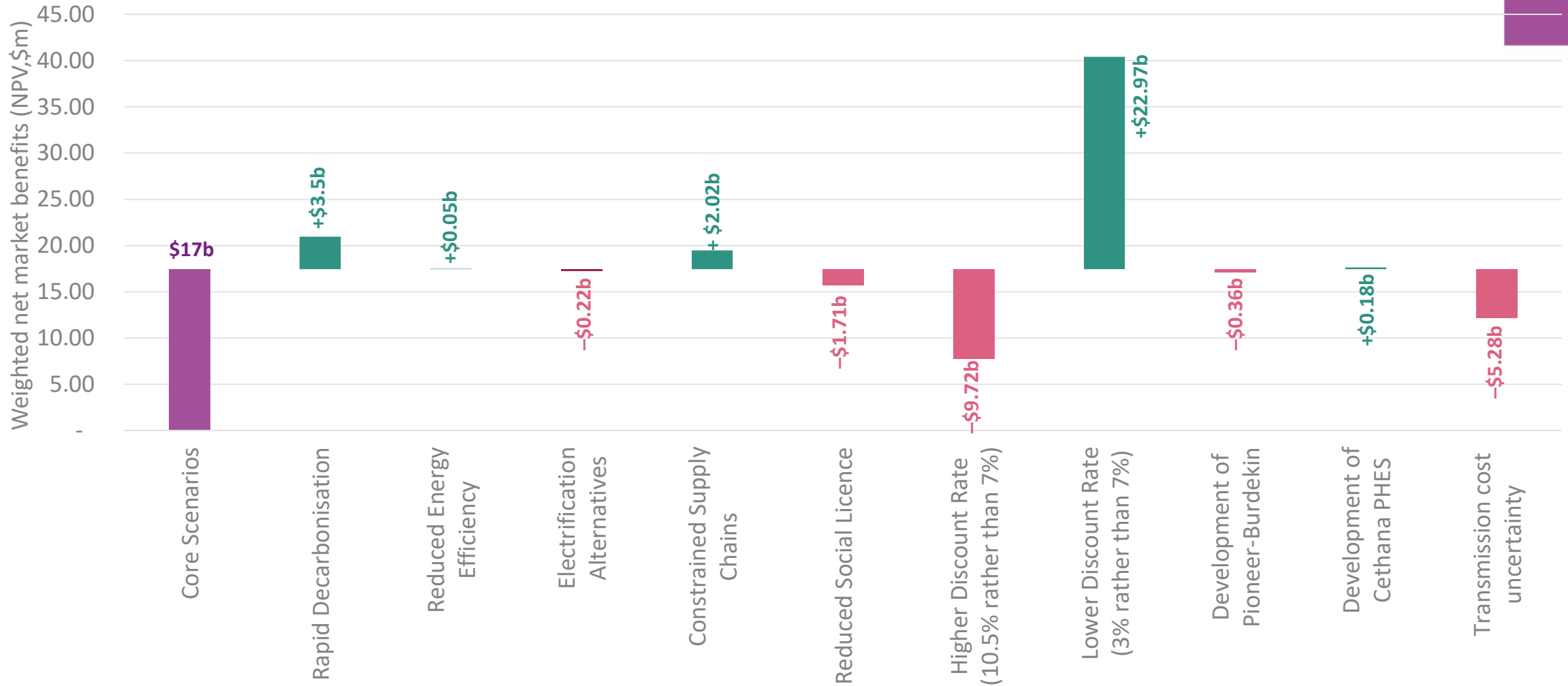


\$121 billion of capital investment

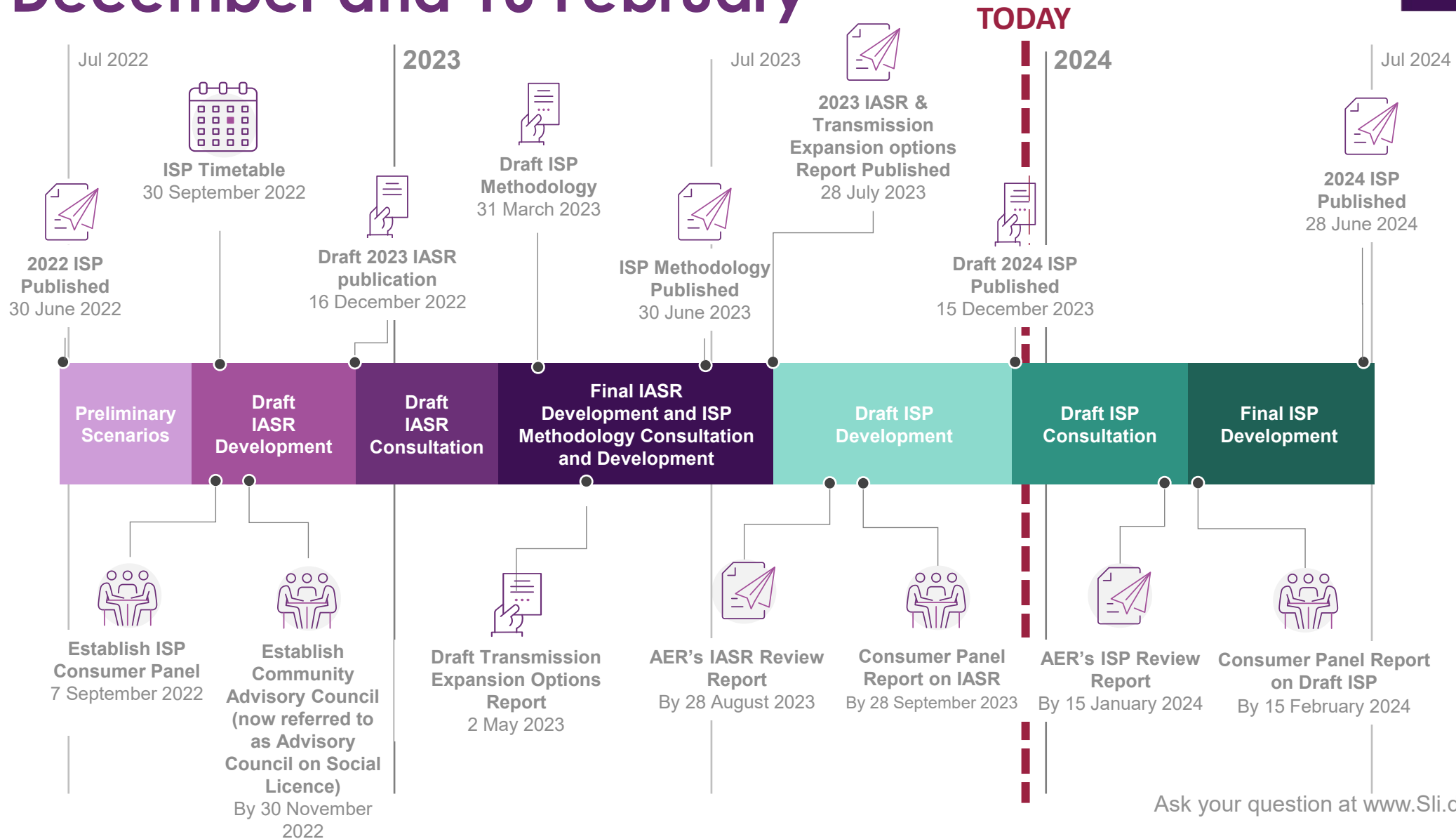
- \$121 billion of amortised capital costs to 2050.
 - Equivalent to \$138 billion in total capital investment to 2050.
 - 7% discount rate is assumed
- Includes transmission augmentation, and utility-scale generation and storage capex.
- Excludes consumer energy resources, distribution network upgrades and an explicit cost of carbon.



The ODP is resilient to a range of known uncertainties around the future



AEMO will consult on the Draft ISP between 15 December and 16 February



Questions and discussion

Ask your question at www.Sli.do #AEMO

Next steps

Share your feedback at <https://forms.office.com/r/wfWV4CKmn2>

The recording and presentation will be published on the [2024 ISP engagement webpage](#)

Stay involved in the [Draft 2024 ISP consultation](#) submissions due 16 February 2024

Have a happy and safe holiday period!



For more information visit

aemo.com.au