

# 2024 Integrated System Plan Consumer Advocate capacity building webinar

30 January 2024



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

**We pay respect to their Elders  
Past and present.**

# Today's agenda

1. Introduction and objectives
2. Draft 2024 ISP overview
3. Opportunities for engagement
4. Questions and comments
5. Next steps

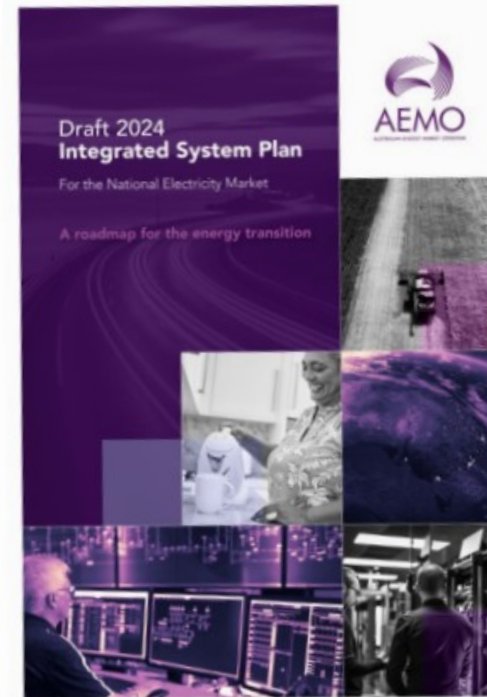
# Today's objectives



Enable better participation in the Draft 2024 ISP consultation process.

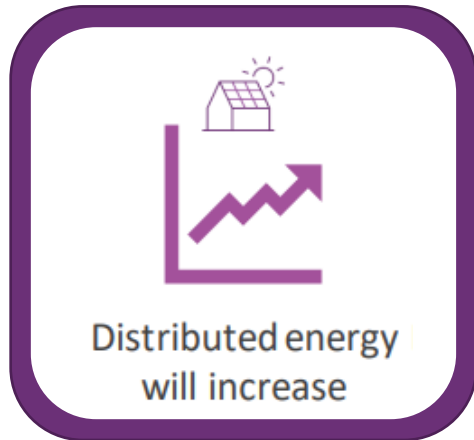


After the presentation, there will be an opportunity to ask AEMO questions. Please raise your hand on Teams.



The report and its appendices are available [here](#)

# The energy transition is well underway

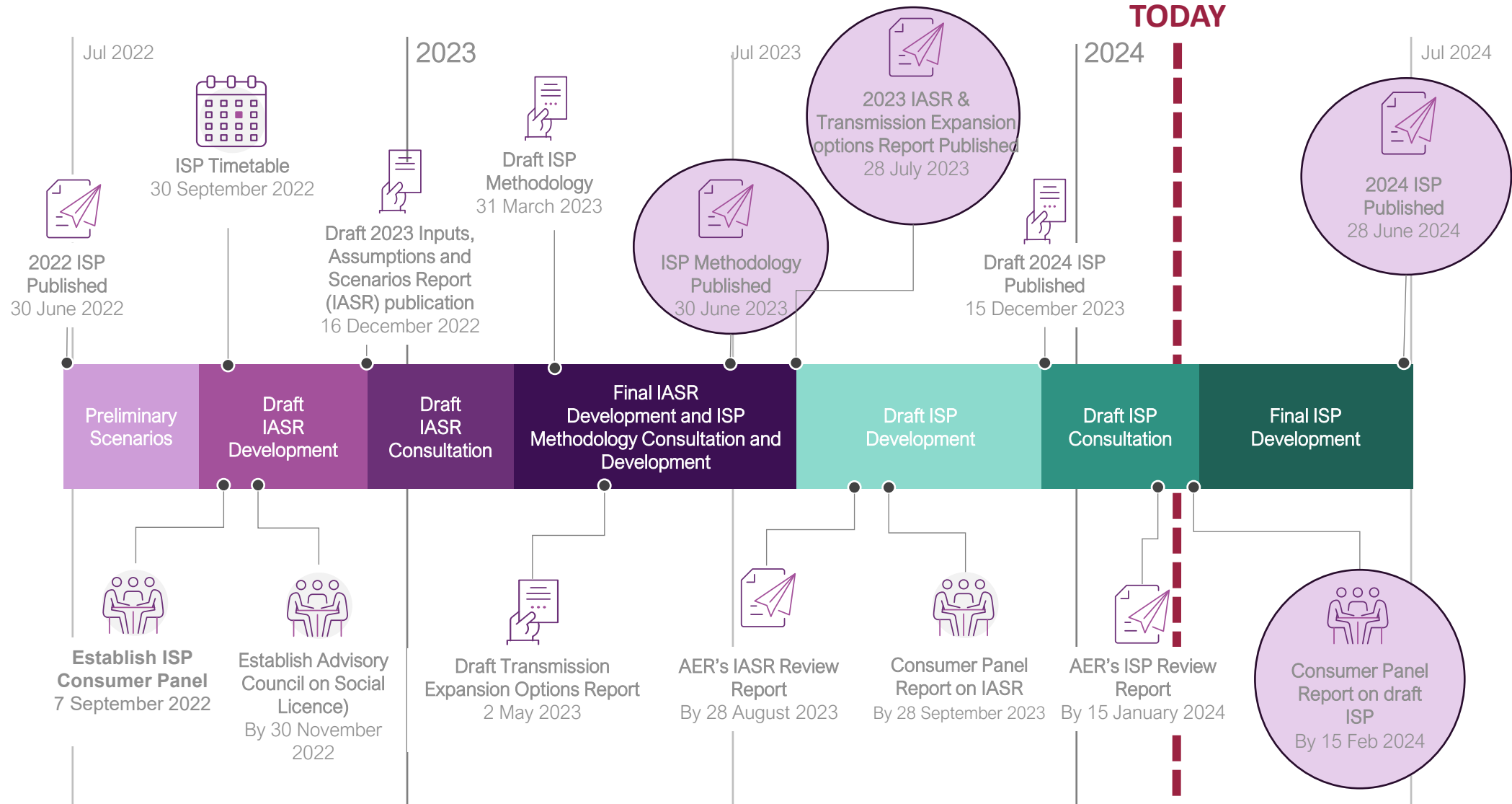


# The Draft 2024 Integrated System Plan



- A roadmap for the National Electricity Market (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
- **AEMO's Draft 2024 ISP was released on 15 December 2023, and written submissions are open until 16 February 2024.**

# AEMO's activities to develop the ISP



# Stakeholder collaboration so far

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

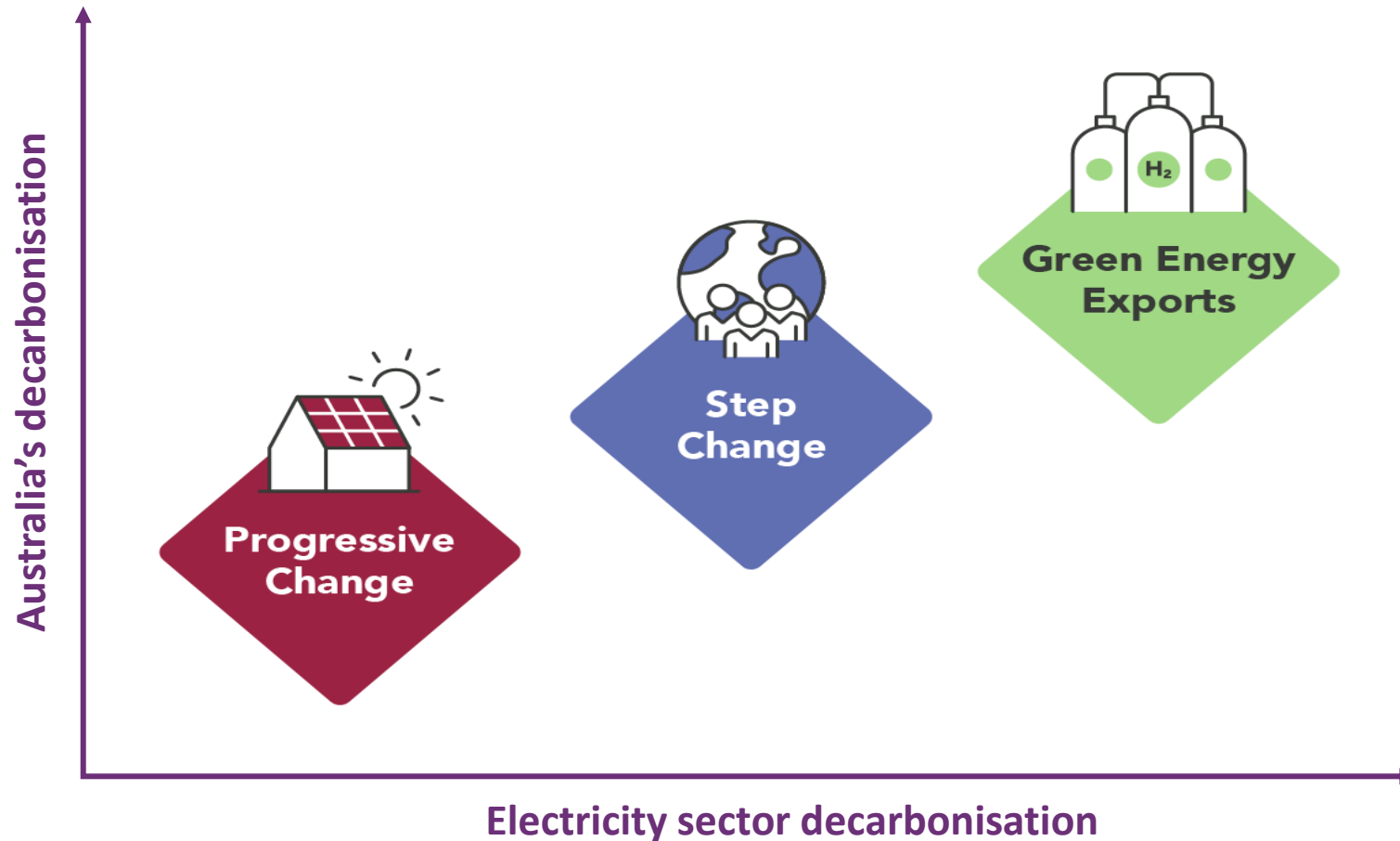
## Consumer and community voices in the Draft 2024 ISP:

- **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.









# Determining the path for the future

The ISP integrates four models to find the optimal mix of generation, storage and transmission. AEMO confirmed Step Change as 'most likely' following stakeholder consultation.

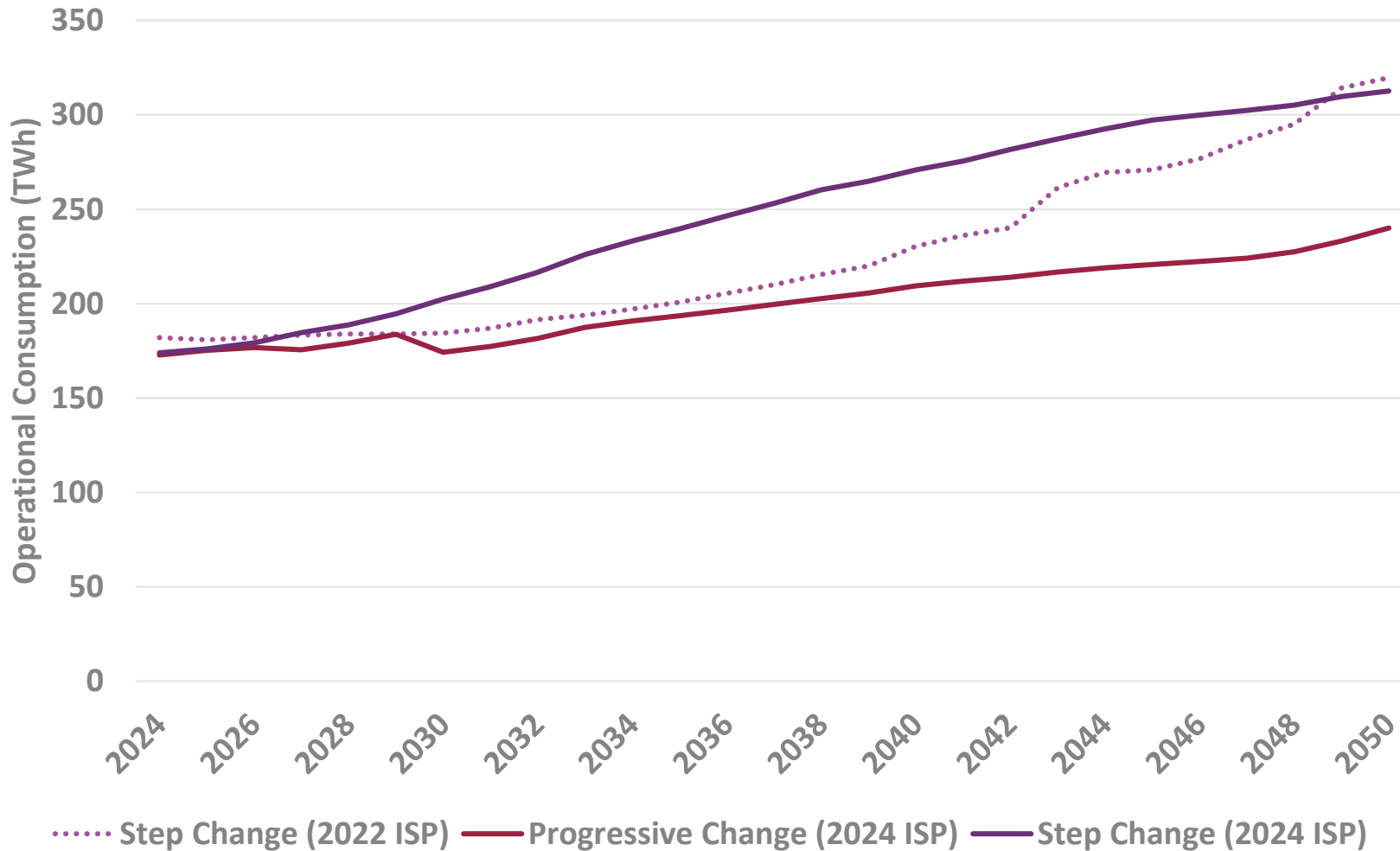


# Scenarios include committed policies



- 
**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.

# Demand forecasts are higher



- Slower investments in commercial energy efficiency
- Stronger business consumption, including domestic hydrogen
- Higher electric vehicle charging
- Increased large industrial load activity



*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.*

# Draft 2024 ISP: key facts and figures



Storage capacity  
**to increase significantly**

Batteries, virtual power plants, pumped hydro



Grid-scale wind and solar  
**to increase 7-fold**



Distributed solar PV  
**to increase 4-fold**

Rooftop solar, other distributed solar



Electricity consumption from the grid  
**to nearly double**



Gas-powered generation  
**to increase**

While current mid-merit plants will all retire within that period



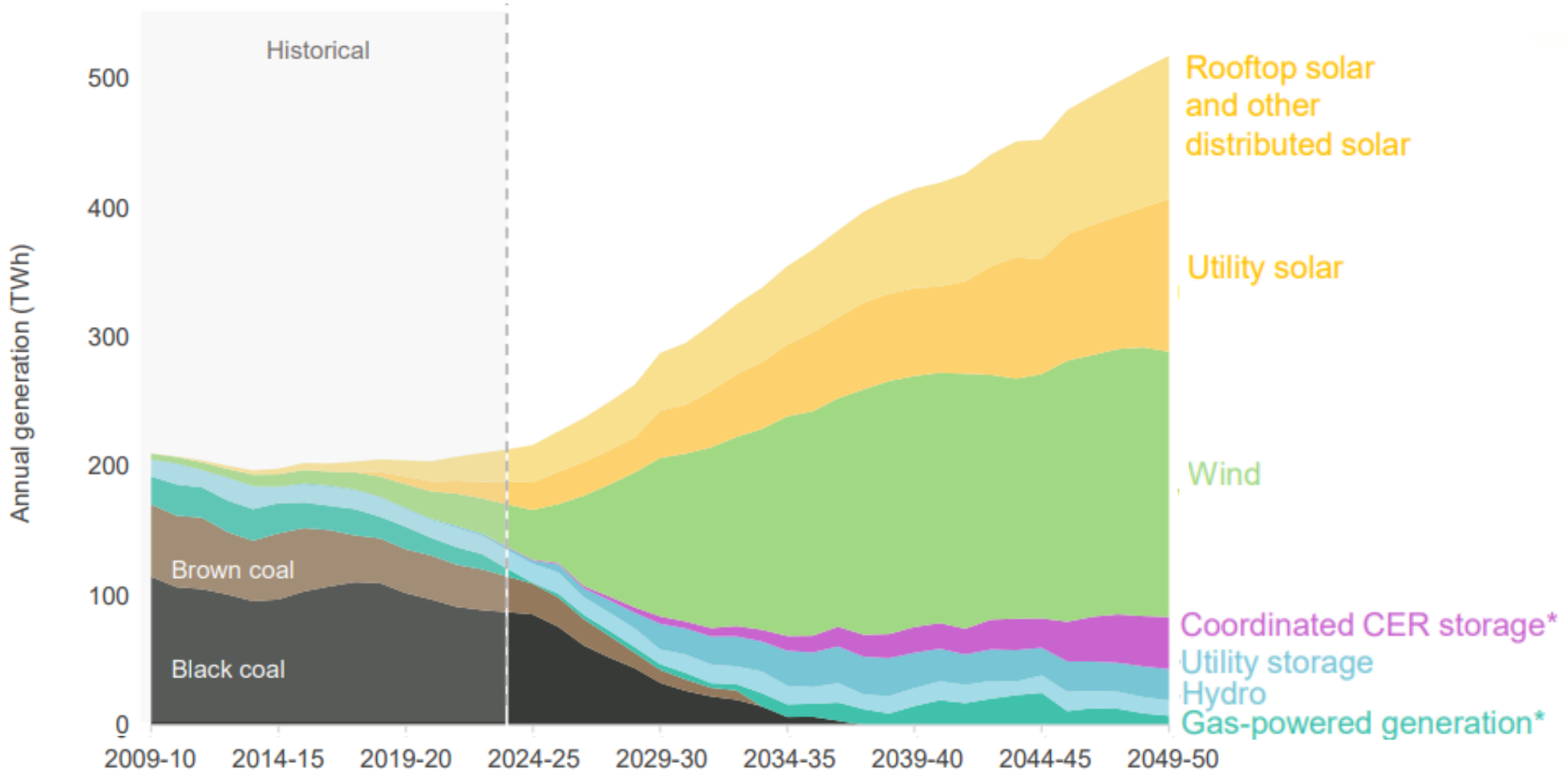
Coal generation  
**to be withdrawn**

Capacity to be retired by:

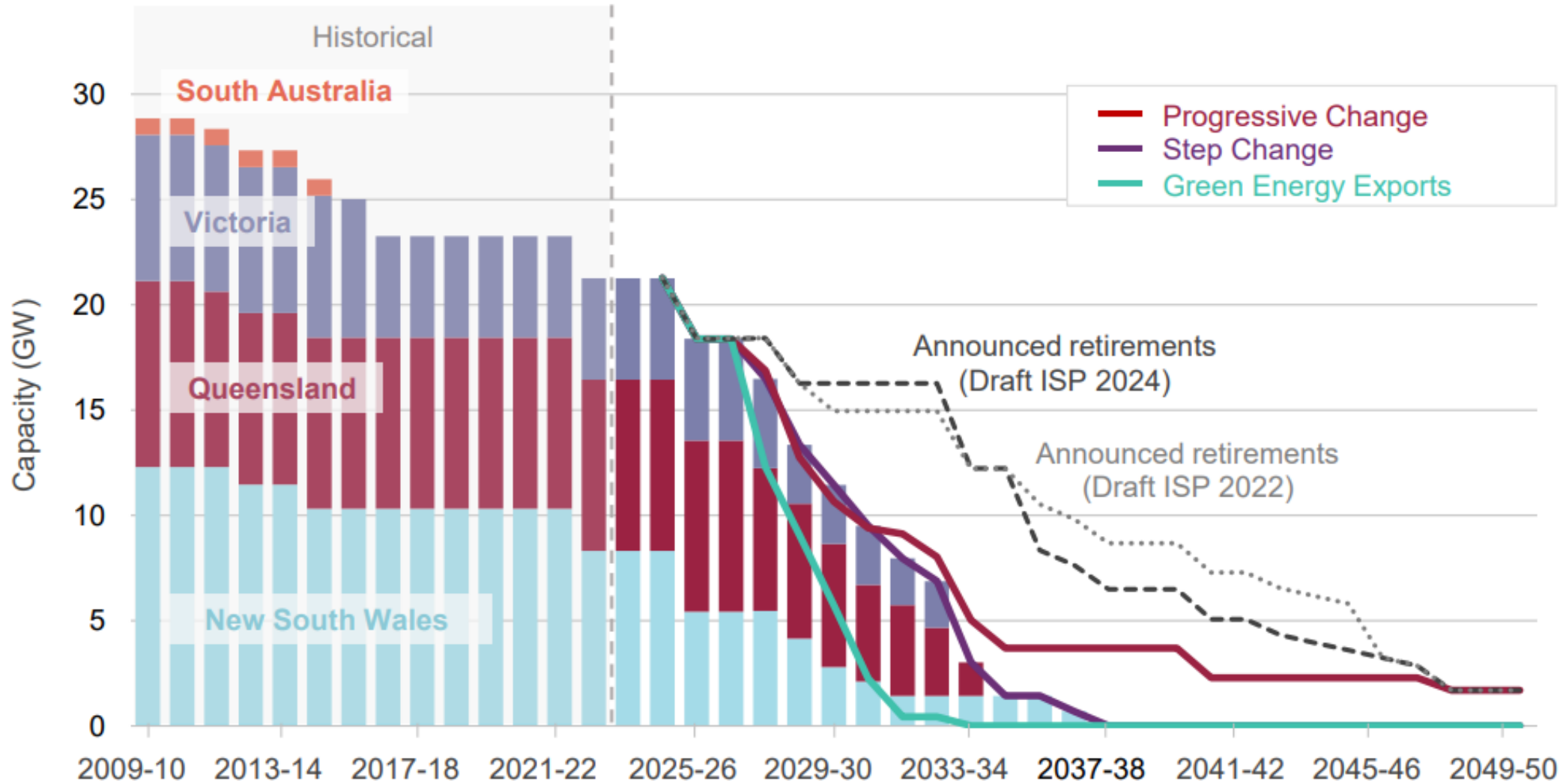


# Past and forecast generation mix

National Electricity Market (NEM), 2009-2050 (GWh)



# Coal retiring faster than anticipated



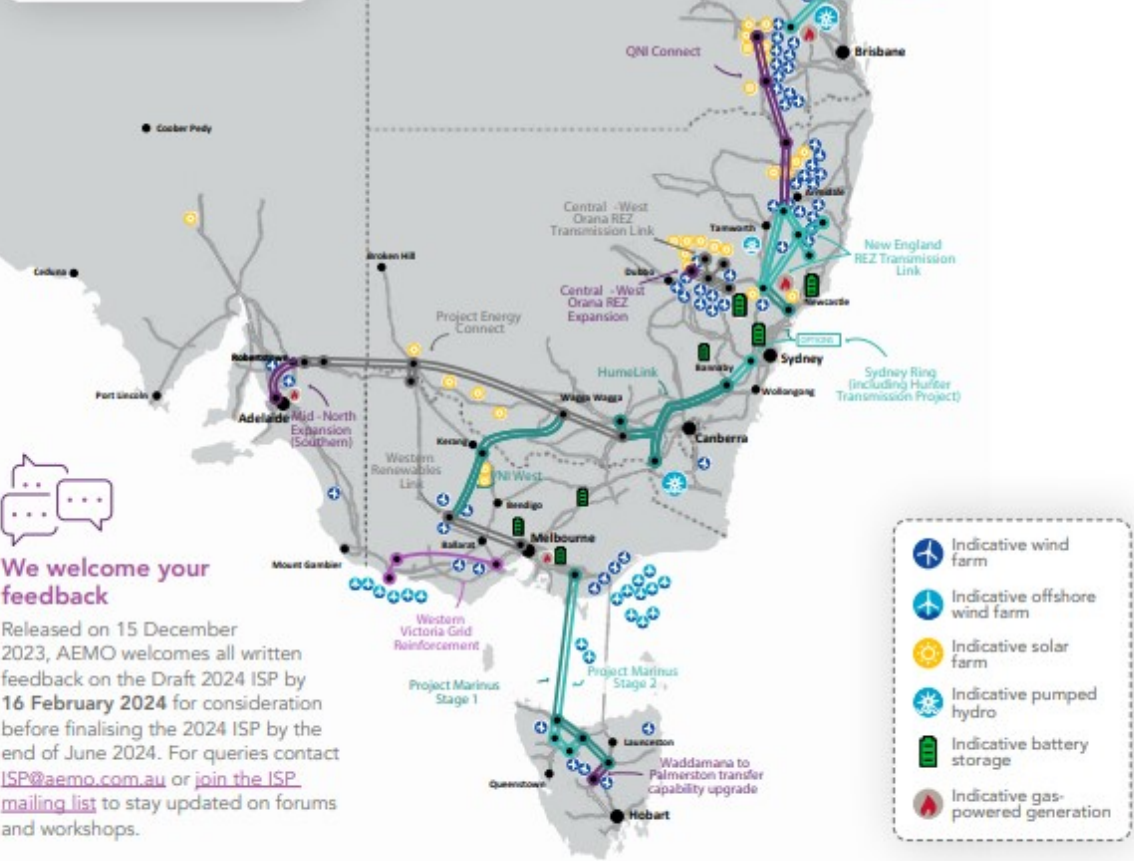
**Committed and anticipated**  
Development in progress

**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/or parts within projects.

Western Australia and the Northern Territory are not part of the NEM, and have their own independent power systems.



# Towards 10,000 km of transmission investment required

Towards 10,000 km of new transmission lines and upgrades required to existing networks by 2050 to connect new generation across the power system.

[draft-2024-isp---overview.pdf \(aemo.com.au\)](https://www.aemo.com.au/draft-2024-isp---overview.pdf)

**We welcome your feedback**

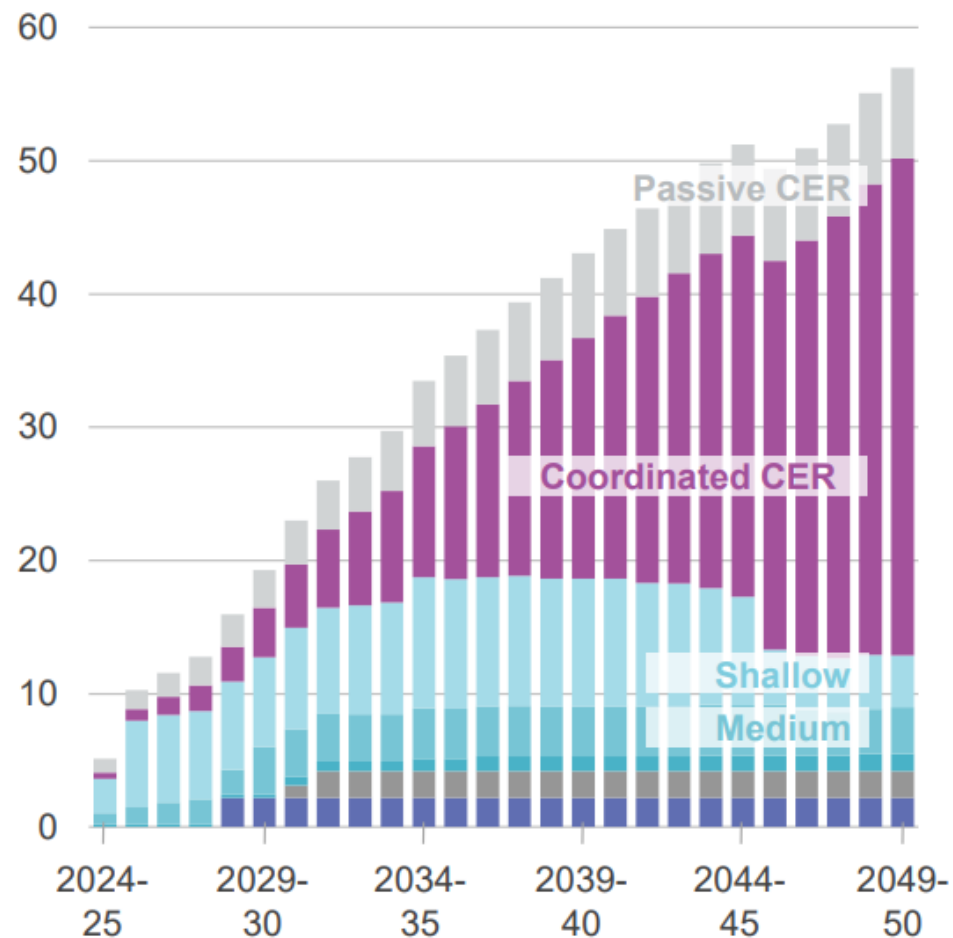
Released on 15 December 2023, AEMO welcomes all written feedback on the Draft 2024 ISP by **16 February 2024** for consideration before finalising the 2024 ISP by the end of June 2024. For queries contact [ISP@aemo.com.au](mailto:ISP@aemo.com.au) or [join the ISP mailing list](#) to stay updated on forums and workshops.

- Indicative wind farm
- Indicative offshore wind farm
- Indicative solar farm
- Indicative pumped hydro
- Indicative battery storage
- Indicative gas-powered generation

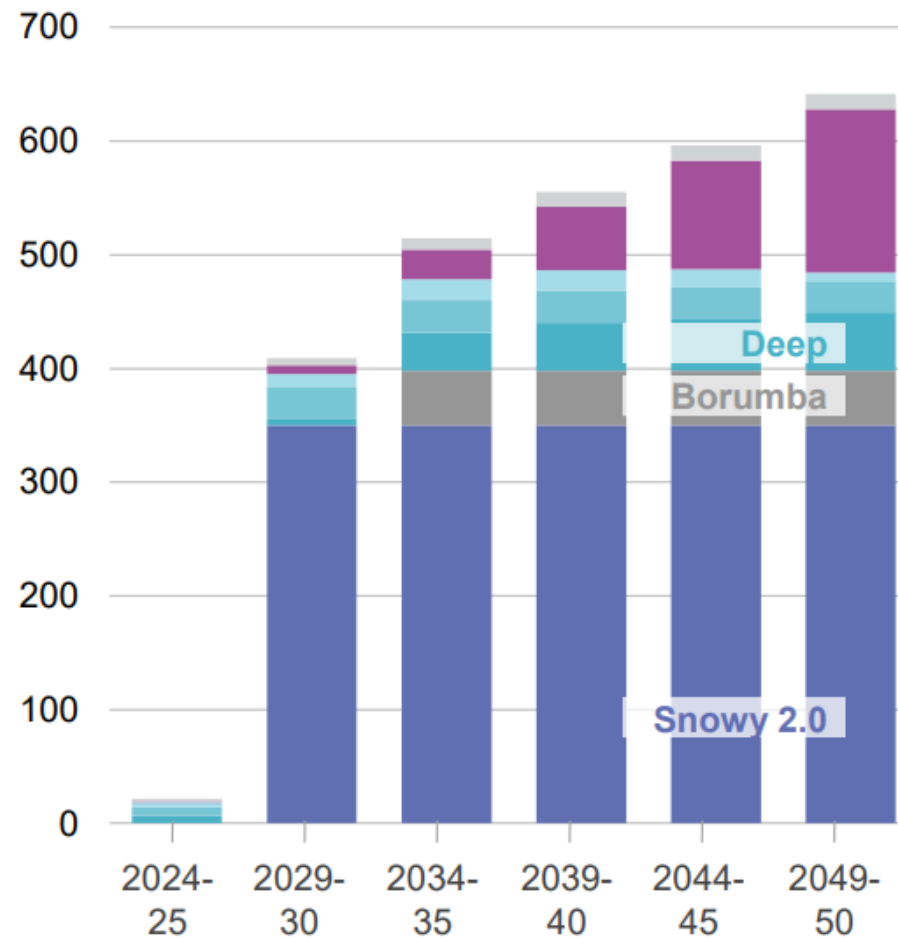


# Variety of storage depths and technologies

Installed capacity (GW)



Energy capacity (GWh)



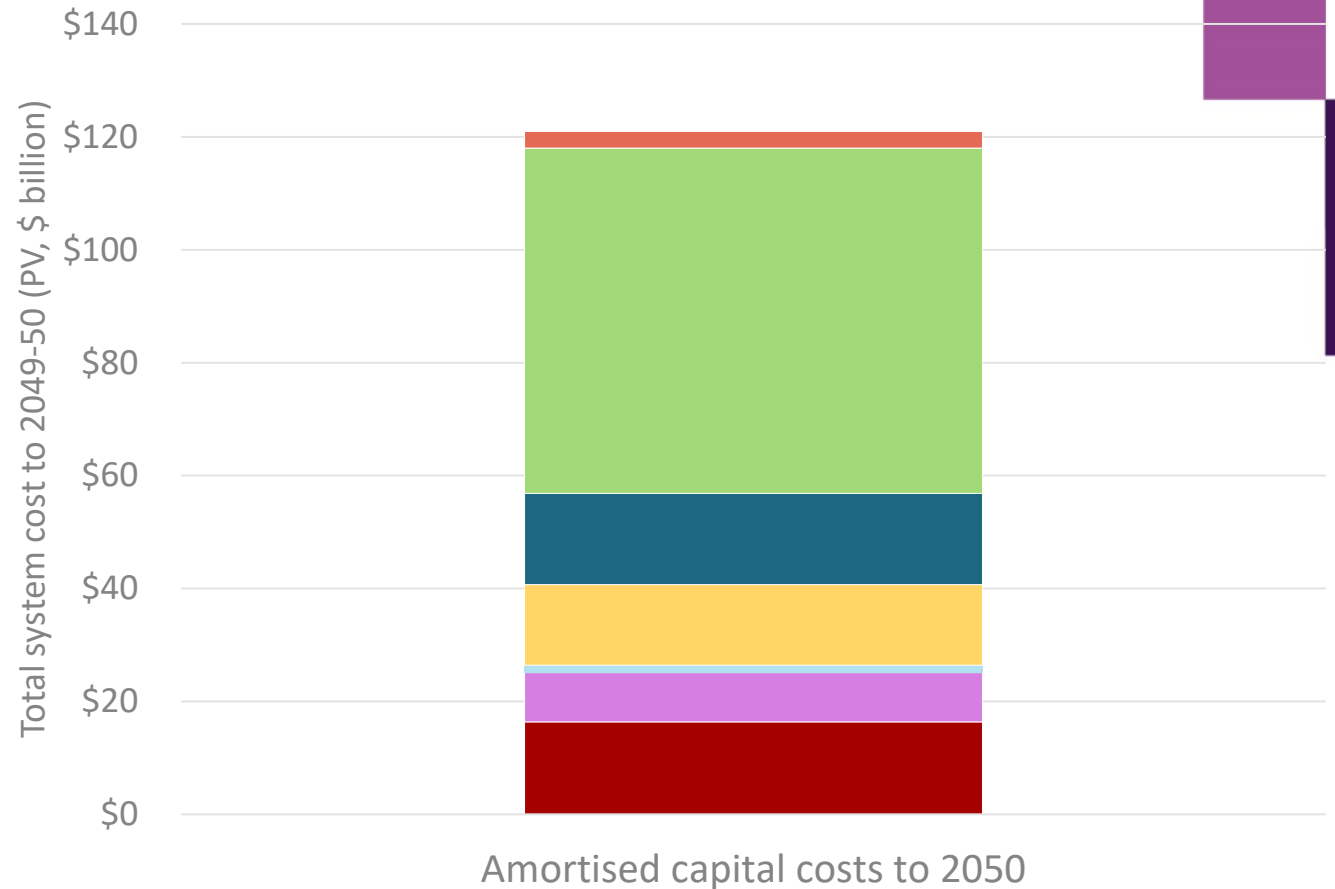
Shallow = 2 hours ( $\pm 2h$ )

Medium = 8 hours ( $\pm 4h$ )

Deep = 30 hours ( $\pm 18h$ )

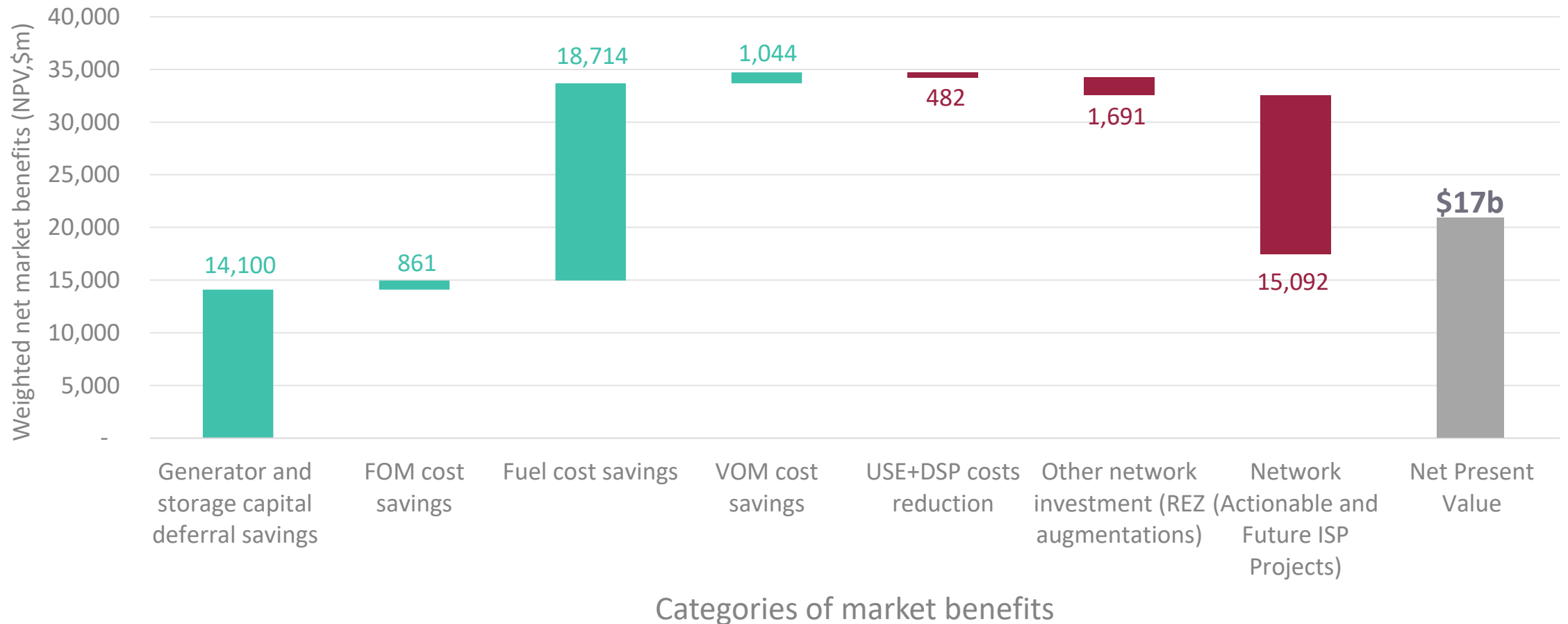
# \$121 billion of capital investment

- Includes transmission augmentation, and utility-scale generation and storage capex.
- Excludes consumer energy resources, distribution network upgrades and an explicit cost of carbon.



- Network augmentation
- Utility-scale storage
- Biomass generators
- Utility-scale solar
- Offshore wind
- Onshore wind
- Gas-fired generators

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



# Social licence in the ISP

## Already considered in the ISP

Scenarios including economic conditions

Joint planning with networks

Renewable Energy Zone selection and locations

Renewable Energy Zone resource and land use limits

## Social licence appendix and sensitivity

- New social licence appendix introduced.
- Social licence explored related to new infrastructure hosting, consumer energy resources mobilisation and the energy transition more broadly.
- Quantifying social licence for modelling was challenging, given its complex nature.
- Social licence sensitivity largely looked at potential project delays and costs due to low social licence.
- All industry has a role to play in ensuring people's experiences and voices are heard in the energy transition.

# Consumer consultation questions

1. Does the Draft 2024 ISP accurately reflect consumers' risk preferences? If yes, how so? If not, how else could consumers' risk preferences be included and what risks do you think are important to consider?
2. Do you have advice about how social licence can be further considered in the ISP, or advice on how to quantify the potential impact of social licence through social licence sensitivity analysis?



# For more information

## Energy Explained

<https://aemo.com.au/en/learn/energy-explained>

- Energy 101 series: complex topics in simple language
- Fact sheets

## Initiatives

<https://www.aemo.com.au/initiatives>

- Current major programs, and trials and initiatives, as well as our strategic partnerships and key industry submissions

## AEMO Resources

## Major Publications

<https://www.aemo.com.au/energy-systems/major-publications>

- Integrated System Plan (ISP)
- Quarterly Energy Dynamics (QED)
- Renewable Integration Study (RIS)

## Subscribe

<https://www.aemo.com.au/subscribe>

- Newsletters & Initiative updates
- Market and system notices



# 2024 ISP Consumer Panel

The independent ISP Consumer Panel bring a **consumer-focused perspective** to the ISP development process. The panel provide ongoing advice on the ISP having input on affordability and matters in the long-term interests of consumers.

To discuss any aspect of the draft 2024 ISP email the Panel on: [ISP@aemo.com.au](mailto:ISP@aemo.com.au)



Craig Memery



Mark Grenning



Mark Henley



Bev Hughson

# Next steps



- Please [provide feedback](#) on today's webinar.
- Submissions to the draft 2024 ISP are due by 5pm (AEDT) 16 February 2024 via email [ISP@AEMO.com.au](mailto:ISP@AEMO.com.au).
- A [verbal submission session](#) will be held on Thursday, Feb 15, 10:30 AM - 12:00 PM (AEDT).





For more information visit

[aemo.com.au](http://aemo.com.au)