AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

2023

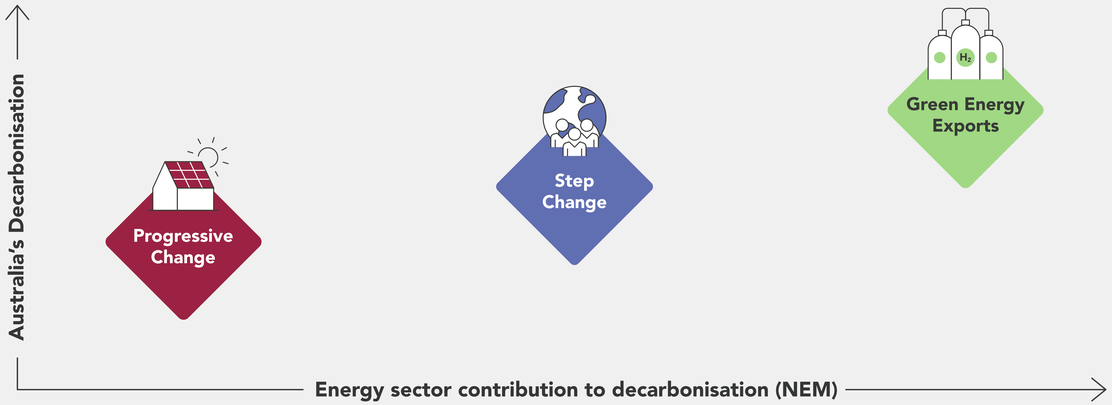
Inputs, Assumptions and Scenarios Report (IASR)

About the IASR

Every two years, AEMO consults with a broad range of stakeholders to develop the energy planning scenarios used in forecasting and planning analysis and publications for the National Electricity Market (NEM), including the Integrated System Plan

Scenarios are used to support planning in an uncertain environment, and assess future risks, opportunities, and development needs to match electricity supply and demand.

Three scenarios, many sensitivities



Progressive Change
Explores the challenges of meeting Australia's current Paris Agreement commitment of 43% emissions reduction by 2030 and net-zero emissions by 2050. In this scenario, transformational energy sector investments continue, but economic and international factors place industrial loads at greater risk. Higher technology costs and supply chain challenges relative to other scenarios slow the pace of change compared to other scenarios.

Step Change
Is centred on strong decarbonisation consistent with the 2022 ISP's most likely scenario. It relies on a strong contribution from orchestrated consumer energy resources (CER), strong transport electrification, and opportunities for Australia's larger industries to electrify to reduce emissions, or to use developing hydrogen production opportunities or other low emissions alternatives to support domestic industrial loads.

Green Energy Exports
Reflects very strong decarbonisation activities domestically and globally, resulting in extremely rapid transformation of Australia's energy sectors, including a very strong use of electrification, green hydrogen and biomethane.

Under a 'step change' future to 2040

Total underlying electricity consumption	Electricity consumption met by CER	Electricity from distributed PV systems	Electric vehicles % of road transport	Small scale batteries installed capacity	Additional electrification (incl EVs)
NOW: 193 TWh	**NOW:** 12%	**NOW:** 19 TWh	**NOW:** <1%	**NOW:** 786 MW	**NOW:** 0 TWh
2040: 335 TWh	**2040:** 23%	**2040:** 77 TWh	**2040:** 60%	**2040:** 21,353 MW	**2040:** 77 TWh

Consultation

- **12** months
- **900** stakeholders
- **6** webinars/workshops
- **69** submissions received
- **20+** report & reference materials

Sensitivities

A range of sensitivities explore how forecasting and planning results differ if a key assumption changes, including:

- **Rapid Decarbonisation** examines the impact of increasing the pace of decarbonisation to an even faster rate than in the Step Change scenario.
- **Electrification Alternatives** examines the role of biomethane if the pace of industrial electrification in Step Change was reduced.
- **Low CER Orchestration** examines reduced coordination of consumer energy resources relative to the strong orchestration assumed in Step Change.
- **Reduced Energy Efficiency** examines the impact of limiting the Step Change's energy efficiency investments to only those targeted by existing and committed policies.
- **Constrained Supply Chains** explores the impacts of limiting the level of infrastructure build due to global demand and workforce availability.
- A **Social Licence sensitivity** to explore risks relating to deliverability challenges and costs.

What's changed since the 2021 IASR?

- Updated scenarios that reflect Australia's commitments to net zero emissions
  - Removal of the previous Slow Change scenario
  - Expanded decarbonisation policies from governments
- Updated generation, transmission and fuel costs
- New candidates for renewable energy zones, including potential offshore wind developments
- Greater consideration of social licence in the upcoming ISP
- Updated consideration of the potential role for hydrogen