

Scenarios for the 2023 IASR – webinar 2

AEMO's wrap up of feedback from the first 2023 IASR webinar on scenarios, and next steps



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, present and emerging.

Today's webinar

Purpose: inform stakeholders of AEMO's scenario updates following the 13th July webinar.

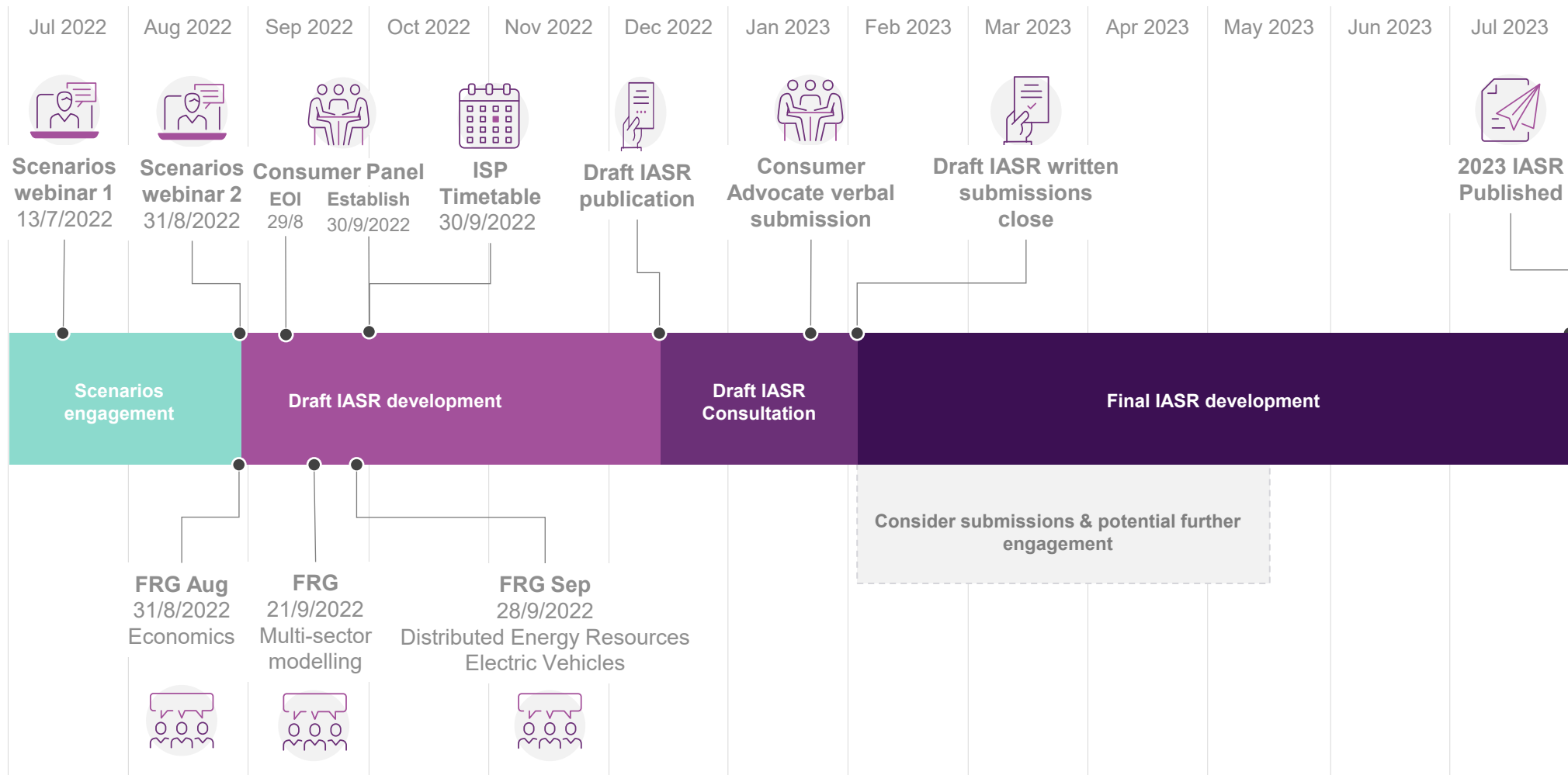
Agenda

- Timeline recap
- What AEMO heard
- Updated scenario narratives
- Next steps
 - Development of the draft IASR
 - Draft IASR Consultation



Please note that this forum will be recorded for the purposes of capturing feedback.

2023 IASR development timeline



What AEMO heard (1/2)

- Scenario breadth:
 - Needed for sufficient wide bookends
 - Downside risk exists – economic drivers (inflation) and supply chain risks
- Need more clarity on scenario settings:
 - What is meant by 43% emissions reduction by 2030?
 - Why is Hydrogen Export not resulting in net zero emissions before 2050?
 - Isn't green gas already part of Hydrogen Export?
- DER:
 - Use scenarios and sensitivities to explore different DER levels
 - Increased need to understand impacts on the distribution system, such as costs and constraints
- Hydrogen export:
 - Grid connected or not?
 - Do not use any other hydrogen than green
- Social licence:
 - A constraint that needs to be considered across all scenarios
 - Is it meaningful to differentiate?

Topic	Mention
Scenario naming	5
Slow change	3
Carbon / Emissions	12
Social licence	4
Supply chain	1
Demand	1
Recession	1
DER	9
DSM/DSP	3
Hydrogen	5
Green gas	7
Generation costs	3
Other	40

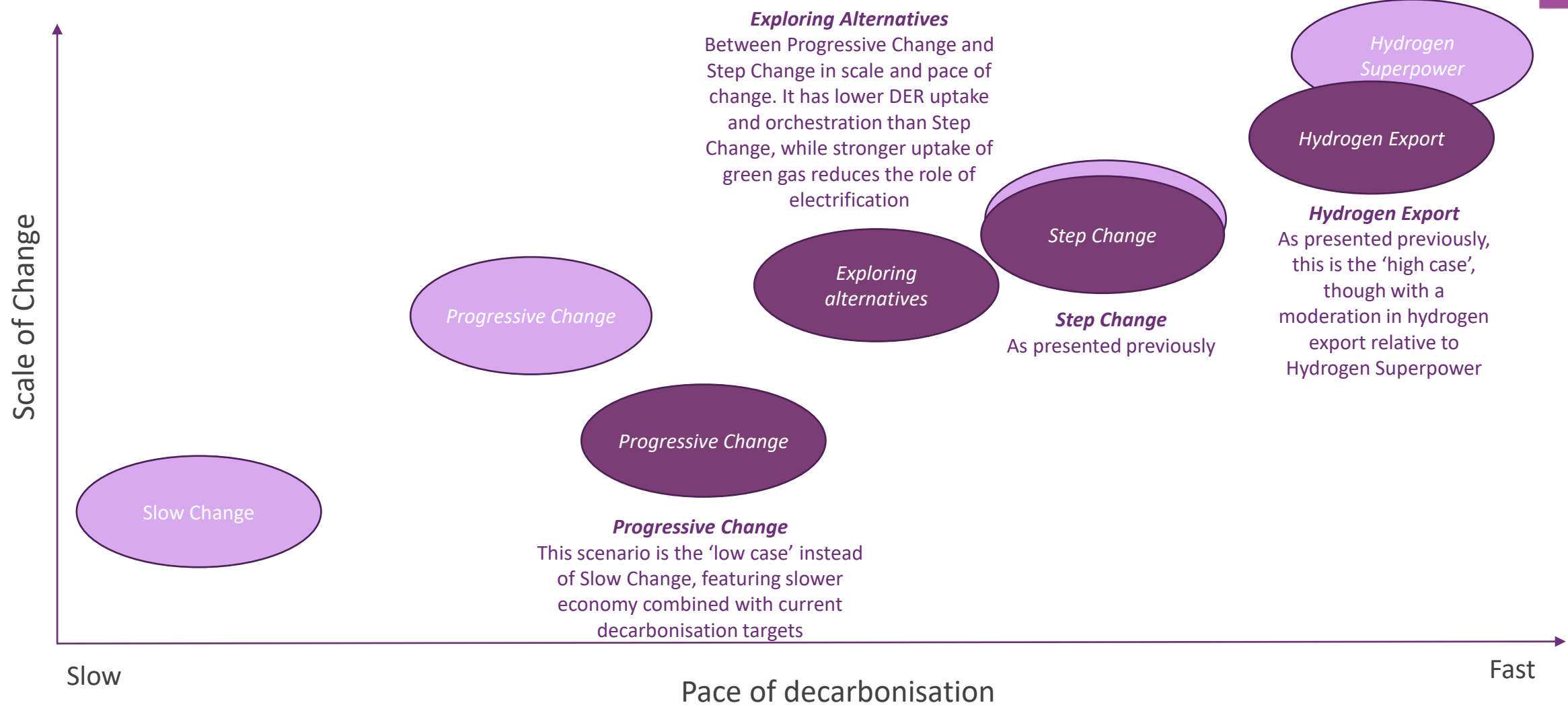
Question, answer or comment made in first scenario webinar

Updated draft scenarios

The Draft IASR will seek consult on:

Legend:

- 2021 scenario
- 2023 scenario



Draft Scenario: Progressive Change



- Assumes lower economic growth and ongoing disruptions affecting international energy markets and supply chains. Includes the greatest relative risk of industrial load closures.



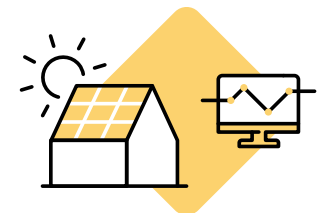
- DER uptake is dampened due to supply chain issues. Renewable energy development continues to be driven by current market and policy settings, and coal capacity is relatively more likely to remain operational until announced closure timings.



- Global decarbonisation progresses in line with currently announced policies and ambitions, including Australia's updated commitment to a 43% reduction of economy-wide emissions by 2030 and net zero emissions by 2050.



- Technology cost reductions are slower than in the other scenarios.



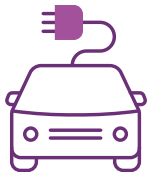
Draft Scenario: Exploring Alternatives



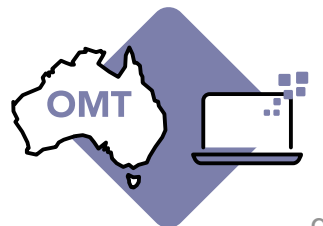
- This scenario reflects a strong commitment by state and federal governments to deliver not only net zero emissions by 2050, but also to limit global temperature rise to well below 2°C compared to pre-industrial levels (i.e. the Paris Agreement). Similar strong commitments are seen globally, but not all countries delivers on promises in the end.



- Population and economic growth adopt best estimate forecasts.
- Technology cost reductions reflects best estimates meeting net zero emissions globally post 2050, though with a faster cost reduction assumed for green gasses (e.g. biomethane), which uptake is limiting the scale and pace of electrification relative to Step Change.



- Overall, this scenario has a higher proportion of utility-scale investments relative to the decentralised focussed Step Change, using moderate forecasts of DER, electric vehicles and energy efficiency.



Draft Scenario: Step Change



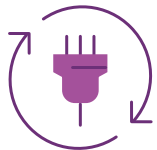
- This scenario reflects a strong commitment by state and federal governments to deliver not only net zero emissions by 2050, but also to limit global temperature rise to well below 2°C compared to pre-industrial levels (ie. the Paris Agreement). Similar strong commitments and actions to deliver are seen globally.



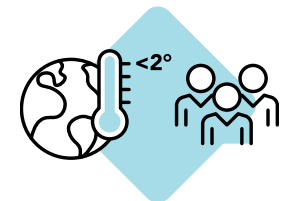
- Population and economic growth adopt best estimate forecasts.
- Technology cost reductions reflects best estimates meeting net zero emissions globally post 2050, though with a faster cost reduction assumed for distributed energy resources (DER), such as rooftop PV and battery storage. Digital technologies expedite consumers' ability to use their DER assets efficiently and a large proportion is actively participating in the energy system.



- The transport sector rapidly transforms via zero emissions technology cost reductions, and withdrawal of internal combustion engine vehicles from production lines.



- Technology breakthroughs in energy efficiency and fuel switching increase energy productivity, and high electrification occurs.



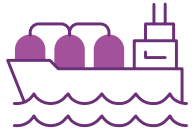
Draft Scenario: Hydrogen Export



- Very strong international decarbonisation objectives limit global temperature rises to 1.5°C by 2100. Domestically, economy-wide net zero emissions is achieved before 2050.



- Australia’s economic growth is higher than the other scenarios, supported by exports of “green commodities” to global consumers at scale, including hydrogen and other energy-intensive products such as green steel. This stronger economy also drives a larger net migration.



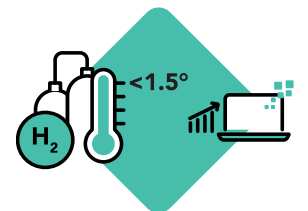
- The strong decarbonisation targets drive significant electrification and hydrogen production (for both export and domestic consumption).



- Technology cost reductions reflects best estimates meeting net zero emissions globally by 2050 and with rapid technology cost improvements for the hydrogen supply chain. Cheap local hydrogen drives competition between hydrogen fuel-cell vehicles and EV’s.



- High electrification and energy efficiency investments occur across many sectors.



Next steps

- The scenarios will be subject to formal consultation as part of the consultation on the draft 2023 Inputs, Assumptions and Scenarios Report, due for publication in December 2022.
- For more details, and to stay involved in the 2023 IASR and 2024 ISP processes, visit <https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2024-integrated-system-plan-isp>

