

Written record of energy consumer advocates' verbal submissions on the Draft 2023 IASR

Purpose of this document

On 16 December 2022 AEMO published the Draft 2023 Inputs Assumptions and Scenarios Report (IASR)¹ for consultation.

To support the capacity for consumer advocates to provide a formal submission to the Draft 2023 IASR Consultation, AEMO held a session with energy consumer advocates on 9 February 2023, at which those advocates could provide verbal submissions on the Draft 2023 IASR. AEMO staff did respond to these comments in the session.

AEMO produced this written record of the verbal submission provided by consumer advocates, which has been agreed with attendees. AEMO will consider the submissions made in the session, as recorded below, along with all other written submissions to the Draft 2023 IASR.

Comments are recorded below in the order made in the session.

Attendees:

Name	Organisation	Name	Organisation
Audrey Cetois	Energetic Communities	Nathan Hart	Climate Council
Beverley Hughson	Darach Energy Consulting Services	Jo De Silva	Integrated System Plan (ISP) Consumer Panel
Caroline Valente	Energy Consumers Australia (ECA)	Craig Memery	ISP Consumer Panel
Clare Silcock	Queensland Conservation Council	Mark Henley	ISP Consumer Panel
David Prins	Etrog Consulting	Levi Rosenbaum	AEMO
Emma Chessell	Brotherhood of St Lawrence (BSL)	Oliver Derum	AEMO
Jennifer Brownie	Queensland Electricity Users Network (QEUN)	Samantha Christie	AEMO
John Pauley	Council on the Aging (COTA) Tasmania	Daniel Collins	AEMO
Jonathan Struggles	Public Interest Advocacy Centre (PIAC)		

Submission topics

Consumer advocates provided comments on the following topics.

1. Transmission constraints, options and costs
2. Energy efficiency
3. PEM electrolyzers
4. Hydrogen blending
5. Retirement schedule for rooftop solar
6. Affordability, including for vulnerable groups

¹ See <https://aemo.com.au/consultations/current-and-closed-consultations/2023-inputs-assumptions-and-scenarios-consultation>

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| 7. Electrification sensitivity | 10. Renewable Energy Zones (REZ) |
| 8. Social licence and community engagement | 11. Scenarios |
| 9. Decarbonisation and Carbon budgets | 12. Modelling |

1 Transmission constraints and options

- **COTA Tasmania:** New transmission investment benefits new market entrants, including renewable and hydrogen developers, significantly more than consumers. However, consumers ultimately pay for them through power bills. New projects should report on the expected monetary impact on consumer's individual power bills.
- **QEUN:** The Transmission augmentation information webpage² is an appreciated initiative, but it underestimates the total network costs, because connection assets are not included. The page should add all network and connection project costs, including how they are funded, to give consumers, who ultimately pay the full cost, visibility of the total cost of the transmission component of the energy transition.

2 Energy Efficiency (EE)

- **Queensland Conservation Council:** EE assumptions should be more explicit in the Draft 2023 IASR, to allow stakeholders to understand the impacts of future decarbonisation policies more easily. The update of the National Energy Performance strategy³ should also be included in the underlying EE assumptions. Also, more ambitious EE scenarios should be explored as it is a very efficient way to decarbonise.
- **ECA:** The multisector modelling data from 2016 is out of date and needs to be updated. Even Climate Works, who produced the data, publicly accepts its limitations.
- **BSL** endorses the comments from Queensland Conservation Council and ECA.
- **Energetic Communities:** The modelling assumptions should better reflect the way consumers take up technologies, rather than choosing the lowest cost technology.

3 Proton Exchange Membrane (PEM) electrolyzers

- **QEUN:** The Draft 2023 IASR assumes that most hydrogen will come from PEM electrolyzers, but does not consider the costs and constraints in manufacturing them. Scarcity of PEM electrolyzers will increase costs and disincentivise hydrogen production. Additionally, PEM electrolyzers require expensive iridium; New PEM electrolyzers that do not require iridium will not be tested commercially until 2026. The 2023 IASR assumes a steep downward trajectory for PEM electrolyzers which may not be the case and the failure for significant, or any reductions in, PEM electrolyser costs need to be considered in the 2023 IASR.
- **QEUN:** Electrolyzers require significant amounts of raw fresh water, which will require significant new investment in water infrastructure, with long lead times. More research and consideration of water costs and requirements is needed in the 2023 IASR.
- **Queensland Conservation Council:** Water costs must be considered, including the by-products of the desalination process.
- **Energetic Communities:** Hydrogen assumptions seem to ignore the global resources scarcity.

² See <https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/transmission-augmentation-information>

³ See <https://www.energy.gov.au/government-priorities/australias-energy-strategies-and-frameworks/national-energy-performance-strategy>

4 Hydrogen blending

- **QEUN:** AEMO needs to consider issues with hydrogen blending in transmission pipelines. The assumption in the draft 2023 IASR is that it can be up to 10% without issue, but APA in their submission to the AER on the Victorian Transmission System Access Arrangement 2023-27 quoted a study that demonstrated little difference in fracture resistance between a 1% hydrogen blend and 100% hydrogen. Accommodating any hydrogen blend will require significant investment in research and pipeline infrastructure and possibly changes to the operating pressures which will affect delivery times to Gas Powered Generation.
- **BSL:** Victorian gas access arrangements have shown that adding hydrogen blends to the distribution network will impact the safety of the transmission network. It is not currently known whether the safety implications mean that blending will be possible at all. Without a very detailed and costly study, it is not possible to estimate the cost, or timeline, of required works to upgrade the safety of the system to accommodate hydrogen blends.
Besides for transmission safety issues, the Victorian distribution access arrangements show that blends cannot be accommodated in distribution lines until at least 2030, due to required upgrades. These limitations are clearly documented in the distributors' own access arrangement, so should be applied as hard limits to the modelling assumptions.
- **ECA:** Residential use of hydrogen is the lowest priority application for hydrogen, and not cost effective. Thus, it should be considered very carefully in scenarios narratives.

5 Retirement schedule for rooftop solar

- **QEUN:** Distributed PV is the NEM's largest generator; the retirement dates for rooftop solar should be based on a realistic asset life and should be reported in AEMO's Generation Information Page⁴ alongside all other generators. Sensitivity analysis should explore the possibility of rooftop solar systems not being replaced at the end of their asset life due to the absence of state and federal government subsidies and the end of generous solar feed-in tariffs. For example, the Queensland Government's Solar Bonus Scheme, which pays \$440/MWh, ends in 2028.

6 Affordability

- **COTA Tasmania:** Affordability is overlooked in the Draft 2023 IASR. Price impacts on consumer's individual power bills should be transparent and clearly communicated in advance of project commencement. Beneficiaries of new projects, including new technology, renewable and hydrogen players, should pay some of the cost.
- **QEUN:** Small business are the largest energy user group, so their energy affordability must be considered. The impact on the broader economy of small business failing is very damaging.
- **ECA and BSL:** Electricity system should be integrated with broader energy and gas system planning. The lack of consideration of potential consumer cost impacts in the scenarios, specifically in *Green Energy Exports*, is quite reckless. AEMO should model the likely consumer impacts from demand-side related assumptions.

⁴ See <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information>

7 Electrification sensitivity

- **Climate Council:** There needs to be a full electrification sensitivity as this is where state policies are heading. This also provides a cost comparison to other scenarios and sensitivities. AEMO's ISP is a central tool for envisioning the future of the National Electricity Market including for decision makers, investors, and those modelling future outcomes, to name a few. It is vital then to develop scenarios, which look to different possible futures given the current uncertainty about the direction of some technologies and so we can compare the costs and benefits of these different futures against one another.
- **BSL** endorses the comments from Climate Council. The risk of a price-driven collapse of gas demand should be considered. The customers who can't electrify will be left behind.
- **Energetic Communities and COTA Tasmania:** Social licence from consumers to electrify is very important. Appliance switching should not be assumed without social licence. Not all consumers will be able to afford the capital investment required to fully electrify their homes.
- **QEUN:** The Draft 2023 IASR seems to ignore the impact of electrification on asset stranding in the gas industry, and no longer having a gas industry to provide gas powered generation.

8 Social licence and community engagement

- **Energetic Communities:** The treatment of social licence in the Draft 2023 IASR should be clarified. The scope of social licence in the Draft 2023 IASR is also too narrow and should be expanded from generation and transmission to include the entire ISP process. Even the ISP itself needs a social licence for communities to know that they can trust the entire process and have confidence in its findings.
- **Queensland Conservation Council:** A social licence sensitivity should consider the added cost of social licence, including undergrounding transmission lines. The ISP should also indicate how social licence can be achieved throughout the process, to promote community buy in.
- **ECA:** The scope and definition of social licence in the Draft IASR 2023 should be expanded from a transmission-level and land conflict view to the broader concept of building trust and engaging consumers and communities in the transition of the energy system in ways that address their concerns and provide additional value for them. Moreover, there should be special focus on the concept of social licence to control or automate consumer energy resources. Lastly, social license should be explicitly developed as a theme across scenario narratives, due to its importance in the transition and impacts on system costs.
- **Darach Energy Consulting Services:** The ISP should provide a strong narrative that all options were considered in developing the optimal development path, including potential solutions from technologies with vocal proponents, such as nuclear energy.
- **QEUN:** The ISP narrative is very important, especially to conversations about politically sensitive topics. Sensitivities on these topics could be used to promote chosen technologies.
- **QEUN:** The Transmission Augmentation Information webpage should include the cost to buy social licence.
- **COTA Tasmania:** There is push back across Tasmania against certain wind projects and transmission infrastructure. People have perceived rights to their unspoilt vistas of the landscape. Social licence can have specific impacts in different locations, which is an added complexity which is often not fully considered.

- **Etrog Consulting:** Working towards successful social licence requires engaging all stakeholders, including local communities that may be impacted, prior to any decisions being made. Sometimes local communities are only engaged later in the process, after decisions that affect them have been made. At that stage, the engagement has missed the opportunity to include collaboration and co-design, and has shifted instead to focusing on how to get the local community to agree with what has been decided already, with only minor modifications being possible. That is not an appropriate way to handle social licence, and is more likely to result in discord, as better outcomes could be achieved with earlier and better engagement.

9 Decarbonisation and carbon budgets

- **Queensland Conservation Council:** It is disappointing that only one scenario is aligned to the Paris agreement to keep global temperature ‘as close as possible’ to 1.5 degrees Celsius.
- **Queensland Conservation Council:** The less ambitious scenarios inherently assume that there will be more extreme weather. Therefore, these scenarios should include more severe weather impacts on the electricity system.
- **Darach Energy Consulting Services:** Potential feedback loops, including climate impacts on the operation of the system and economic growth more broadly, must all be considered in assumptions.
- **Energetic Communities:** Modelling should build climate change resilience into the energy system.
- **COTA Tasmania:** The scenario names should be clear that the temperature changes used are dependent on collective action by all countries and action by Australia acting alone will not materially impact global temperatures.

10 Renewable Energy Zones (REZs)

- **Queensland Conservation Council:** Land use planning and social licence needs to be built into REZ planning and development.
- **QEUN:** The Generation Information page should designate each generator into a “NEM region/jurisdiction”, an “ISP REZ” and a “jurisdictional REZ”. For example; the Queensland Energy Plan stipulates three REZs, while the 2022 ISP has 9 REZs in Queensland.

11 Scenarios

- **BSL:** A high electrification scenario needs to be aligned with keeping global temperature increases to 1.5 degrees Celsius. Residential electrification is emerging as a reality, and it would be good to understand how this trend might allow Australia to align with 1.5 degrees.
- **QEUN:** The *Green Energy Export* scenario more than doubles peak demand, so it is very important to understand what green hydrogen would remain for domestic gas powered generation, industrial and residential customers. Additionally, a green energy export industry should not be only aligned to a 1.5 degrees scenario. The world is scrambling for a more dispatchable energy fuel, regardless of its cleanliness. For example, Europe wants hydrogen regardless of whether it is certified as produced from renewable energy in real time or not.
- **COTA Tasmania:** The world economy will impact the availability of materials required to implement the alternative scenarios and Australia’s ability of to achieve the outcomes proposed by the scenarios. For many of the materials and products required to achieve the outcomes sought, China has become the

dominant provider and maintains its cost advantage due to lower environmental standards than exist within Australia.

- **QEUN:** There is worry and uncertainty regarding the access to critical minerals required for the renewable energy transition. China is the dominant supplier of most of the relevant ingredients for a 100% renewable energy grid. This means Australia's decarbonised national electricity system will be dependent on new and replacement parts from China. In an era of increasing geopolitical tension, it is not good defence policy for Australia to be dependent on China for our energy supply. Despite the locally made policies being adopted by state governments (and Australian allies such as the United States), Australia's strict environmental legislation will not permit the processing of critical minerals in Australia. This means that even with sizable reserves of some critical minerals e.g., lithium, Australia will still be heavily reliant on China for solar panels, wind turbines and batteries.

12 Modelling

- **COTA Tasmania:** The modelling approach seems deterministic and should perhaps be moving towards a more stochastic approach; from single point estimates to estimates based on the likely distributions of uncertain variables. Doing so would better reflect the likely outcome.