



**ENERGETIC COMMUNITIES**  
SOWING A COMMON THREAD

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## Submission: Draft 2022 Integrated System Plan

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*Energetic Communities Association* is a state-wide association that aims to represent the interests of households, communities, and not for profit organisations working in the social, environment and community sectors, and to promote and develop community owned renewable energy. We aim to be a leading force in building social change and economic wellbeing for all household and not-for-profit energy consumers. We bring experience of engaging with complex regulatory processes, and we have excellent connections with other Queensland based consumer advocates.

Energetic Communities Association supports a fast, fair and inclusive transition, a 100% Renewable Energy Target by 2030, and a net zero emissions economy by 2040 at the latest.

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We congratulate the Australian Energy Market Operator (AEMO) for their work to date on the *Draft 2022 Integrated System Plan* (ISP), especially their broad engagement with a range of stakeholders, and for the opportunity to make a submission.

We are very excited to see the change in direction and planning for the inevitable transition to a decarbonised energy system.

We have attached an issues register elaborating on our concerns and potential solutions (indicating relevant consultation questions where appropriate), but wish to raise a few key areas here.

### *Coal Closure*

Coal closures are occurring faster than anticipated. Coal is likely to be completely gone from Victoria's electricity system by 2032 for example, with most other parts of Australia not far behind. While this is a good thing in terms of emission reductions, keeping coal going is likely to add costs due to uncertainty and maintenance. The speed and scale of the closure and transition means we need a more urgent response including community planning, supply chains, re-training.

This faster closure demands urgency in working with coal affected communities in planning for a just transition, as well as planning for a resilient power system. This includes coal fired power station owners and managers being more realistic around forecast closer dates to ensure AEMO, decision makers, and communities can effectively plan for their closures.

There is scope for establishing a federal or state-based Just Transition Authority or similar body, or a coordinated process and plan, similar to that of the Next Economy Energy Futures Summit<sup>1</sup>, which elaborated on the who, what, when, where, and how of economic diversification.

### **Scenarios**

Regarding the communication of scenarios, it is essential to emphasise that scenarios are not forecasts, they are meant to include a range of possibilities and be consistent within themselves. They cannot be used as is for planning or forecasting. This was not clear for consumer advocates and may not be clear for many other stakeholders, including the public.

The ISP is to *inform policy makers, investors, consumers, researchers and other energy stakeholders*. The Delphi panel process demonstrated the Step Change Scenario is considered by energy industry stakeholders to be the most likely scenario to play out. This is often framed as where we're heading, but it only suggests that energy industry stakeholders have little faith that current and near future jurisdictional policy will get us where we need to go according to international climate agreements. Amongst the scenarios only the Hydrogen Superpower Scenario is in line with global efforts to cap average global warming at 1.5°C. It is also the scenario that delivers the cheapest power prices for customers over the medium to long term. Future ISP's need to also ask stakeholders which scenarios we need to get to.

The Hydrogen Superpower Scenario is the only scenario we should be aiming for. All policies and programs from all jurisdictions need to be co-ordinated and resourced to ensure Australia contributes equitably to global warming below 1.5°C.

We also understand that energy efficiency is considered to be a major contributor to the Step Change Scenario "*energy efficiency is as important as electrification*". We have major concerns that energy efficiency in reality may not be a big contributor without significant improvements in jurisdiction energy efficiency programs.

The daunting task that the two more ambitious scenarios present the need for significant support mechanisms from all levels of government to ensure vulnerable households and renters are not excluded (rentals alone are more than a third of all households). The significant changes that will occur in transport, heating, cooking, hot water for example, will remain out of reach of many households without support. Low income and vulnerable households usually live in the poorest quality in energy inefficient homes, have the least efficient appliances, and often can't access solar or demand response opportunities. Recent evidence has shown that landlords who owned low-cost properties had lower incomes themselves and had greater financial constraints on retrofitting<sup>2</sup>. We are not confident that the current jurisdictional energy efficiency, solar or demand response policies and programs will contribute to reaching the scenario emission reductions, and that jurisdictional energy efficiency, solar and demand response subsidies are needed to address equity concerns by directing subsidies to landlords with low incomes, low-income tenants, or low-cost properties. We acknowledge this is out of scope of the ISP, but is nonetheless a consideration for a future scenario to reflect lower household adoption of PV, electric car, ect., but where ambitious emission targets are met nonetheless. This could show the part that household play and may highlight the need for subsidies.

### **Delphi Panel**

The Delphi panel technique was used to:

- allow anonymity of panel of experts
- rate the scenarios
- offer written reasons for those ratings
- consider the responses of others to revise their ratings if appropriate, and
- has some consumer representation

However, while anonymity is valued as part of the process, there could be some clarity regarding the organisations, experience or sub sector being represented that goes beyond listing them as government, generator, network, consumer or other. It would be helpful and more transparent to know

<sup>1</sup> [https://nexteconomy.com.au/wp-content/uploads/TNE-CQ-Energy-Futures-Report-02\\_0601.pdf](https://nexteconomy.com.au/wp-content/uploads/TNE-CQ-Energy-Futures-Report-02_0601.pdf)

<sup>2</sup> <https://www.sciencedirect.com/science/article/abs/pii/S2214629622000408>

if the panel specifically included representation by generation type, such as gas, coal or renewables, as well as transport, commercial or industrial energy users, or residential consumer advocates?

### ***Social Licence***

Social licence is discussed throughout the ISP, along with the significant need for improvement in engagement to ensure social license is achieved. However, it cannot be assumed that all of the Actionable and future projects will go ahead. Best practice engagement will be needed by project developers. Our reservation is that while appropriate engagement and the need for social licence is acknowledged, we are not confident all of the industry is up to the task.

We run the risk of transmission and other projects being stopped or significantly delayed through significant community-driven campaigns when project proponents do not have social license. We are for example seeing significant delays in Germany, even with the much lauded “Energiewende”, where public opposition to transmission lines slowed construction and eventually forced costlier underground construction of interconnectors. Delays to grid expansion have generated significant congestion management costs<sup>3</sup>. Some delays were up to 6 years – “the most contested projects is (sic) behind schedule: some of them should have even been in operation since 2010”<sup>4</sup>. Closer to home and regarding the NSW REZ’s, “*the great risk of REZs is, if locals start pushing back and coalescing their grievances, is if they coalesce into a basic rejection of the REZ premise. That’s where we’ll start to see some real issues come up*”<sup>5</sup>.

Without best practice and authentic community engagement, ISP projects face backlash and expensive delays. Once community confidence in a project is lost, it is virtually impossible to gain it back. Rapid expansion of renewable energy and transmission must engage with and support the communities in which they operate, including coordinating with other land uses, ensuring local community benefit sharing, guaranteeing protection of environmental and cultural heritage, and developing strong social license to operate from the start. That requires transparency from day 1. We also recommend Indigenous and Traditional Owners participation throughout projects to recognise and protect sacred sites in the development process, and ensure better outcomes for Indigenous communities through benefit sharing.

We are also concerned that a working group consisting of representatives from DNSPs, Energy Networks Australia (ENA), and AEMO has been established, with the vision of the group being to “*collaborate to better understand how developments in the distribution network interact with the transmission network and ultimately support incorporating DNSP planning inputs into the ISP in a way that **optimises benefits for consumers***”. While we are generally happy to see the extensive and proactive engagement by AEMO throughout the ISP process, best practice would demand a consumer representative be on this panel.

### ***Consumer Advocacy***

Resourcing consumer advocates is an ongoing issue across the energy sector. Energy Consumers Australia provide some funds, as do some state departments, but few consumer advocates from Queensland are actively involved in the ISP, and those that are, do not necessarily have the ongoing capacity to remain engaged throughout this important process.

We acknowledge the role of the ISP Consumer Panel, but their process also requires significant contribution from the advocate community who need to maintain currency with ISP related publications and processes.

We would encourage AEMO to establish jurisdictional level resources for consumer advocates to participate throughout the ISP process. The AEMO Consumer Forum is a good resource, but often clashes with other consumer events, which is again an ongoing issue between regulators. Many advocates are not resourced to attend, meaning we often have to prioritise other commitments. The forum could be recorded and made accessible to registered participants. Consumer engagement could also be improved with deep dives on particular topics for AEMO consumer forum members. This

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<sup>3</sup> <https://www.iea.org/reports/germany-2020>

<sup>4</sup> <https://energysustainsoc.biomedcentral.com/articles/10.1186/s13705-016-0069-9>

<sup>5</sup> <https://reneweconomy.com.au/social-licence-emerges-as-critical-issue-for-renewable-energy-zones-nsw-says/>

could include sessions on, for example, DER Integration, Social Licence and Engagement, Optimal Development Path etc.

### *Community Energy*

Community energy in the form of community generation, islandable or stand-alone microgrids are not mentioned in the scenarios. Stand-alone microgrids present a risk of desertion from the NEM, which could become increasingly likely as no significant climate adaptation or resilience is taking place, and climate mitigation remains slow. Fringe of grid desertion might be seen by some as a suitable option. However, in most other locations, it could have significant impacts. Islandable microgrids could be a great opportunity for the broader network as controllable DER, grid service providers, reduced need for transmission, and overall grid resilience.

We would like to see AEMO integrate microgrids in future scenarios, particularly when addressing resilience issues.

### *Cost Recovery*

We understand that cost recovery is out of scope, such as suggestions around tariff reform for recovering transmission costs. Most network companies have customer councils and are undertaking tariff reform work to understand how best to recover network costs while keeping costs down and equitable for consumers as the energy system evolves. This was discussed at about 41minutes in the ISP launch webinar<sup>6</sup>. AEMO mentioned while out of scope, you have learnt a lot through the ISP modelling and should be part of the cost recovery discussion. Perhaps there is the opportunity to present those learnings to the various customer councils.

### *Resilience and Climate Change*

We understand that the AER's Cost Benefit Analysis Guidelines make it clear that consumers should not have to pay for broader public benefits including the full societal value of emission reductions, and resilience and adaptation to more extreme climate events. Nonetheless, while there are clear costs to upgrading the energy system, and building more transmission, this should also be viewed in the context of climate impacts on communities. Over the last few years Queenslanders in particular have already had to cope with the natural disasters of drought, floods and bushfires, while residents in poorer quality housing have suffered heat impacts. In terms of climate and economic risk, Queensland is recognised as the state most vulnerable to climate change in Australia<sup>7</sup> (see page 12 in footnote link), and this can only be expected to get worse. It is often the most vulnerable who suffer the most, live in non-resilient houses, sometimes in neighbourhoods or flood zones and poorer infrastructure such as public transport. Excluding these costs could be a transfer of risk to those least able to adapt if the energy system is less resilient adjacent those households. As such, we support such costs being applied to determine the ODP to take account of these broader considerations. Consideration could extend to things such as improved social policy around Guaranteed Service Levels to support at-risk communities, such as remote Indigenous communities, or projects to improve resilience in areas of known risk, such as flood or fire zones. We do nonetheless acknowledge the proposed case studies of compound extreme events for the Final 2022 ISP, but don't see how these will address the need for increased resilience on their own.

A second area of concern is resilience risk due to decreasing system services from decreased coal and gas generators, and therefore synchronous plant. While addressed in the ISP through options such as supporting grid forming inverters, Queensland's recent experience of unplanned maintenance (1st-2nd Feb 2022) demonstrates the risk. Consumers were asked to reduce their demand to support the system. Does the combination of increased and earlier closures of coal, extreme weather events, and consumers getting off gas and electrifying, present a risk that system resilience is reduced in terms of security of supply?

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<sup>6</sup> <https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp/-/media/fb58855f1e744bfc9386e8efcea62c17.ashx?la=en>

Climate resilience was not within the scope of this ISP, but it will come at a cost. Investment decisions taken without considering the impact of climate change run the risk of the energy system being vulnerable to expected impacts. Failure to plan for climate change impacts makes for increased cost in recovery rather than a fraction of the cost in preparedness. We suggest AEMO integrates resilience and climate adaptation throughout the ISP, including providing forecasts of cost of preparedness to climate change and contrast it with recovery cost, and to include ranges of climate change impact costs on the system within scenarios.

### ***Emission Reduction Targets***

The Commonwealth and all state NEM jurisdictions have now confirmed the objective of a net zero emission economy by 2050. However, without real action, especially at the Federal level, these targets are just kicking the can down the road. Inaction at the federal level leaves it with states, industry, community sector and households - all who rely on the electricity sector. The ISP can greatly facilitate states taking action.

While each scenario gets to net zero by 2050, the various scenarios take significantly different paths:

- Progressive Change - just in time and is likely to be more expensive
- Step Change and Hydrogen Superpower move faster to approach or reach net zero by 2035
- Slow Change sees reductions in emissions early due to assumed load closures, but abatement then slows considerably in the second and third decade

It is also unclear if these scenarios include the cost of climate inaction. Only the Hydrogen Superpower scenario gets us to where we need to be by 2050, i.e. to less than 1.5°C.

### ***Other points***

In terms of supply chains, some actionable ISP projects have already experienced schedule delays, and such slippages are likely to continue.

### ***Energy Efficiency***

While arguably outside the remit of the ISP, energy efficiency policy and programs are worth a mention, with a clear need for stronger jurisdictional programs and support mechanisms. While the ISP includes energy efficiency in its electricity demand forecast methodology, it is unclear how it is included in the modelling (acknowledging we haven't been able to look at the full range of documentation). Our concern is that the ISP states that jurisdictional programs are driving energy efficiency, but Queensland has no energy efficiency support mechanisms for residential customers.

Energy Efficiency needs to be prioritised to improve housing, health and climate resilience. It is also an equity issue. While the ISP demonstrates energy efficiency reduces peak demand, it remains that poor quality housing, usually lived in by low-income households, whether renting or owned, means that use of active heating and cooling during summer and winter peaks is more expensive as conditioned air is lost through the building fabric.

Poorer quality housing with active heating and cooling leads to poor health outcomes. The ISP states that "Energy consumption behaviours will continue to change, driven by continued DER uptake, improving energy efficiency and increasing electrification". However, it is the more vulnerable households that miss out on both DER and energy efficiency, especially in Queensland which currently lacks any supportive programs for low income and other households such as rentals, that are made vulnerable from such poor policy, i.e. this is a systemic failure of government policy in the energy and housing systems to address the needs of these without the means or ability to make changes to their homes.

We would like future ISPs to include or demonstrate more clearly how jurisdictional energy efficiency programs are included in the modelling, including comparisons between current and best practice.

### ***Energetic Communities Association***

**AEMO Draft 2022 ISP  
Issues Register 2022  
(Energetic Communities Association Incorporated (ECAI))**

	Issue/Question	Comments and Considerations	Recommendation or options
<b>Purpose</b>			
		<ul style="list-style-type: none"> <li>● <i>Double Whole-of-system plan</i></li> <li>● <i>Informs policy makers, investors, consumers, researchers and other energy stakeholders</i></li> <li>● <i>Serves regulatory purpose of justifying actionable and future new transmission</i></li> <li>● <i>Maximises value to end consumers</i></li> <li>● <i>Optimal development plan/roadmap</i></li> </ul>	
		<ul style="list-style-type: none"> <li>● What's the problem statement? Where are climate change impacts, resilience, adaptation?</li> </ul>	
<b>Targets</b>			
	Federal net zero target	<ul style="list-style-type: none"> <li>● Commonwealth and all state NEM jurisdictions have now confirmed the objective of a net zero emission economy by 2050</li> <li>● Without real policy - only kicks can down the road</li> <li>● Inaction at the federal level leaves it with states, industry, community sector and households - all who rely on the electricity sector</li> </ul>	
	Zero Carbon by 2050 - each scenario gets to net zero by 2050	<ul style="list-style-type: none"> <li>● Progressive Change - just in time - likely more expensive.</li> <li>● Step Change and Hydrogen Superpower move faster to approach or reach net zero by 2035</li> <li>● Slow Change sees reductions in emissions early due to assumed load closures, but abatement then slows considerably in the second and third decade</li> </ul>	
	QLD insufficient and unclear how it will be met	<ul style="list-style-type: none"> <li>● Target not legislated, while it is in some other states.</li> <li>● It is difficult to model without security of knowing Queensland is reaching its target.</li> </ul>	
<b>Coal Closure</b>			
	Coal is likely to be completely gone from Victoria's	<ul style="list-style-type: none"> <li>● Coal closure happening faster than expected - ISP is forecasting that huge volumes of coal will be retired in the next ten years.</li> </ul>	

	Issue/Question	Comments and Considerations	Recommendation or options
	electricity system by 2032 with most other parts of Australia not far behind	<ul style="list-style-type: none"> <li>○ Current announcements by thermal plant owners suggest that about 5 gigawatts (GW) of the current 23 GW of coal capacity will withdraw by 2030</li> <li>○ However, modelling suggests that 14 GW may do so</li> <li>○ All brown coal generation and over two-thirds of black coal (mostly in QLD) generation could withdraw by 2032</li> <li>● Continuing to deny the impending end of coal-fired generation will adversely affect coal workers and their communities.</li> <li>● Significant investments in new renewables and “firming technologies” (such as batteries, gas, and pumped hydro) will take its place.</li> </ul>	
	Financial Impacts of coal closure	<ul style="list-style-type: none"> <li>● Keeping coal going is likely to add costs due to uncertainty and maintenance</li> <li>● ISP suggests gas will be used to replace coal/maintain system resilience.</li> <li>● Is gas/hydrogen a genuinely viable option financially for investors and consumers?</li> </ul>	
	Satisfying the critical operational needs for the power system with increasingly scarce system services	<ul style="list-style-type: none"> <li>● Unplanned maintenance (e.g. QLD 1st-2nd Feb 2022) - demonstrates the risk? <ul style="list-style-type: none"> <li>○ Will this be more frequent as we transition, plants get older, grid not ready etc?</li> <li>○ Plant not being maintained because closure date uncertain and ineluctably moved forward.</li> </ul> </li> </ul>	
	Transition Planning	<ul style="list-style-type: none"> <li>● Needs proper transition planning - see work of The Next Economy<sup>1</sup>.</li> <li>● Speed and scale of the closure and transition means we need a more urgent response including community planning, supply chains, re-training</li> <li>● W.r.t. Supply chains, some actionable ISP projects have already experienced schedule delays, and such slippages are likely to continue</li> <li>● Increases the importance of social licence, especially for transmission projects</li> </ul>	<ul style="list-style-type: none"> <li>● Establish a Transition Authority or similar to ensure workers and communities are adequately cared for.</li> </ul>
<b>Climate Change</b>			
	Climate Targets	<ul style="list-style-type: none"> <li>● ISP must help meet regional and national climate targets</li> <li>● Scenarios do not appear include the cost of climate inaction</li> </ul>	

<sup>1</sup> <https://nexteconomy.com.au/>

	Issue/Question	Comments and Considerations	Recommendation or options
	Energy Efficiency	<ul style="list-style-type: none"> <li>● While arguably outside the remit of the ISP, energy efficiency needs to be prioritised to improve housing health and climate resilience, and is also an equity issue.</li> <li>● Energy Efficiency also reduces peak demand – poor quality housing (usually lived in by low-income households, whether renting or owned), means that use of active cooling during summer peaks is more intensive as coolth is lost through the building fabric. <ul style="list-style-type: none"> <li>○ Poorer quality housing with active heating and cooling leads to poor health outcomes</li> </ul> </li> <li>● While outside of scope, we are unsure the scenarios take into consideration inadequate jurisdictional policy and programs for energy efficiency (especially Queensland)</li> </ul>	Include or demonstrate how jurisdictional energy efficiency programs are included in the model, including comparisons between current and best practice.
	Climate change impact resilience and adaptation	<ul style="list-style-type: none"> <li>● Climate resilience was not within the scope of this ISP, but it will come at a cost.</li> <li>● Investment decisions taken without considering the impact of climate change run the risk of being vulnerable to it.</li> <li>● In the same way that not planning for climate mitigation makes for a disorderly transition with consequences for all power system stakeholders, not planning for climate change impacts makes for increased cost in recovery rather than a fraction of the cost in preparedness.</li> </ul>	<ul style="list-style-type: none"> <li>● Integrate resilience and climate adaptation throughout the ISP.</li> <li>● Provide forecast of cost of preparedness to climate change and contrast it with recovery cost.</li> <li>● Include within scenarios ranges of climate change impact on the system.</li> </ul>
		<ul style="list-style-type: none"> <li>● Over the last few years Queenslanders in particular have already had to cope with the natural disasters of drought, floods and bushfires, while residents in poorer quality housing have suffered heat impacts.</li> <li>● In terms of climate and economic risk, Queensland is recognised as the state most vulnerable to climate change in Australia, including the economic costs of social impacts of climate change<sup>2</sup> (see page 12 in footnote link).</li> </ul>	
<b>Scenarios</b>			

<sup>2</sup> <http://australianbusinessroundtable.com.au/assets/documents/Report%20-%20Social%20costs/Report%20-%20The%20economic%20cost%20of%20the%20social%20impact%20of%20natural%20disasters.pdf>

	Issue/Question	Comments and Considerations	Recommendation or options
		<ul style="list-style-type: none"> <li>● Good representation of possible pathways, considering a range of potential outcomes</li> </ul>	
	Delphi Panel	<ul style="list-style-type: none"> <li>● Used Delphi panel technique, which allowed               <ul style="list-style-type: none"> <li>○ anonymity of panel of experts</li> <li>○ rating the scenarios</li> <li>○ offering written reasons for those ratings, and</li> <li>○ considered the responses of others to revise their ratings if appropriate.</li> <li>○ some consumer representation</li> </ul> </li> <li>● While anonymity is valued as part of the process, there could be some clarity regarding the organisations, experience or sub sector being represented - more resolution than government, generator, network, consumer or other.</li> <li>● Considered changed federal government policy of zero net emissions by 2050 (and consequently dropped the <i>Steady Progress</i> scenario - but does it consider that in terms of kicking the can down the road or up-front need for action?</li> </ul>	<ul style="list-style-type: none"> <li>● Provide high level information on who's represented on the Delphi panel - gas, coal, renewables, transport, commercial/industrial energy users, residential consumer advocates?</li> </ul>
		<ul style="list-style-type: none"> <li>● A strong consensus of stakeholder representatives sees the Step Change scenario as being the most likely.               <ul style="list-style-type: none"> <li>○ Step Change and Progressive Change each earned over one-third of participant votes.</li> <li>○ Another 30% of votes was split between Hydrogen Superpower and Steady Progress, with very few votes expecting Slow Change to play out</li> <li>○ Scenarios often seen as what's most likely - but their value is in clarifying what's needed to get where we need to go!</li> <li>○ considered by energy industry stakeholders to be the most likely scenario to play out - only suggesting energy industry stakeholders have little faith that current and near future jurisdictional policy will get us where we need to go.</li> <li>○ Pathway can depend on how other sector electrify/decarbonise</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Be clearer regarding the role of scenarios in planning for the future we want and need to go - or more precisely how much further we need to go!</li> </ul>
	Scenario boundaries	<ul style="list-style-type: none"> <li>● The scenario's boundaries are too narrow. One aspect that is missing is the consequences for slower climate action compared to or expected from international climate agreement. If Australia remains too slow on transitioning to green manufacturing, when a carbon price is imposed at the border of the</li> </ul>	<ul style="list-style-type: none"> <li>● Build scenarios which take into account a range of possibilities beyond Australia's border, that would affect energy</li> </ul>

	Issue/Question	Comments and Considerations	Recommendation or options
		EU, the USA, or China, Australia's exports could become uncompetitive. What consequences could this have on local energy demand?	demand, such as a carbon price imposed on borders of the EU or other countries.
<b>Step Change</b>			
	Characteristics	<ul style="list-style-type: none"> <li>Relies on energy efficiency - where QLD is significantly lacking</li> </ul>	
	"Step change" has now become the "central scenario"	<ul style="list-style-type: none"> <li>Central scenario is consistent with Australia's commitment under the Paris Agreement and limiting global temperature rise to under 1.8-2°C - needs to be 1.5°C</li> <li>Considered most likely</li> </ul>	
	Energy Efficiency	<ul style="list-style-type: none"> <li>Considered a big part to achieve it - "energy efficiency is as important as electrification"</li> <li>We need significantly more well thought out and planned jurisdictional programs for energy efficiency!</li> </ul>	<ul style="list-style-type: none"> <li>Include a scenario where energy efficiency does not eventuate, as it is likely that the best case will not occur.</li> </ul>
<b>Progressive Change (previously Net Zero 2050)</b>			
		<ul style="list-style-type: none"> <li>energy efficiency is as important as electrification <ul style="list-style-type: none"> <li>Puts QLD households at risk as there is little support for energy efficiency by the QLD government</li> </ul> </li> </ul>	
<b>Hydrogen Superpower</b>			
	Limiting to 1.5 degrees	<ul style="list-style-type: none"> <li>only scenario that is considered to be in with global efforts to cap average global warming at 1.5°C</li> <li>Needs to become most likely in near future</li> </ul>	<ul style="list-style-type: none"> <li>This is the only scenario we should be aiming for. All policies and programs from all jurisdictions need to be co-ordinated and resourced to ensure Australia contributes equitably to global warming below 1.5°C.</li> </ul>
	Hydrogen	<ul style="list-style-type: none"> <li>We strongly support the development of the hydrogen industry, but for industry and heavy transport, not households. There are more sustainable and affordable options.</li> <li>It is expected that "households with gas connections progressively switch to a hydrogen-gas blend, before appliance upgrades achieve 100% hydrogen use"</li> </ul>	

	Issue/Question	Comments and Considerations	Recommendation or options
		<ul style="list-style-type: none"> <li>• There are problems with using hydrogen gas, even if green, as a substitute - such as the risk of ongoing gas use.</li> <li>• It seems highly improbable that hydrogen will replace gas in households considering the cost of the fuel itself and the cost of the infrastructure to transport it. Scenarios are for probable futures, household hydrogen for cooking or heating is not one of them.</li> <li>• Hydrogen (and fossil gas) requires households to duplicate service charges when electrification would necessitate only one service charge, as well as purchase new hydrogen friendly appliances.</li> <li>• Renters in particular have limited agency and choice as it's up to the landlord and their maintenance decisions.</li> </ul>	
	Cost impacts on consumers	<ul style="list-style-type: none"> <li>• The Hydrogen Superpower Scenario delivers the cheapest power prices for customers over the medium to long term.</li> </ul>	
<b>Technologies</b>			
<b>EV's</b>			
		<ul style="list-style-type: none"> <li>• demand profile that would ideally provide a sponge for solar supply, but may exacerbate peaks if not planned for appropriately</li> <li>• most charging will be low power AC, but potentially significant peaks due to high power DC charging</li> <li>• Evening charging will only increase peaks and therefore system costs</li> <li>• Needs charging infrastructure and effective tariff design</li> </ul>	
	Equitable access to EV's	<ul style="list-style-type: none"> <li>• EV's are cheaper over on a life-time of use basis, but inaccessible to buy up front.</li> <li>• There still does not appear to be any policies that improve access to low-income households. The Good Car Co.<sup>3</sup> are trying to do this, but support based on equity is needed.</li> <li>• A risk is that as households electrify, ICE vehicles are sold, ICE manufacturing is decreased, lower income households may be the dumping ground for old ICEs with higher maintenance costs.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate policy options to increase EV access for low-income households, such as through the No Interest Loans Scheme (NILS) run by Good Shepherd Microfinance and include in the IASR.</li> </ul>

<sup>3</sup> <https://www.goodcar.co/>

	Issue/Question	Comments and Considerations	Recommendation or options
		<ul style="list-style-type: none"> <li>• There may be some options around interest free loans where the difference in maintenance costs could be used to service the loan.</li> <li>• International, subsidies are seen as being more equitable<sup>4</sup>.</li> </ul>	
<b>Demand Response</b>			
		<ul style="list-style-type: none"> <li>• Need to improve opportunities for households, especially renters</li> </ul>	
<b>Gas</b>			
		<ul style="list-style-type: none"> <li>• Climate change necessitates getting off all fossil fuels, including gas.</li> <li>• The ambitious scenarios don't need it – except for some emergency peaking plants?</li> </ul>	
<b>Electrification</b>			
	Central and Hydrogen Superpowers mean electrification	<ul style="list-style-type: none"> <li>• Transport, heating, cooking, hot water and almost all transport and industrial processes are able to be electrified</li> <li>• What financial models or support is there for low-income households and renters – will likely need jurisdictions support.</li> </ul>	
<b>Risks</b>			
	Securing social license for VRE	<ul style="list-style-type: none"> <li>• the land needed for major VRE, storage and transmission projects to realise these goals is unprecedented.</li> <li>• community engagement will be needed to ensure investments have an appropriate social licence</li> <li>• Best Practice community engagement will be needed to ensure ISP projects will in fact happen, or appropriate alternatives are developed.</li> </ul>	
	Supply Chain	<ul style="list-style-type: none"> <li>• A role for Renewable Energy Industrial Precincts (REIPs)</li> </ul>	
	Who carries risk?	<ul style="list-style-type: none"> <li>• Who has the greater capacity to carry risk? Does it sit with state governments? Impact on consumers?</li> </ul>	
<b>Communities</b>			
<b>Social License</b>			
	Lack of Social Licence may be a	<ul style="list-style-type: none"> <li>• A working group consisting of representatives from DNSPs, Energy Networks Australia (ENA), and AEMO has been established to investigate social license - but no community representation.</li> </ul>	<ul style="list-style-type: none"> <li>• Invite consumer and community advocates or</li> </ul>

<sup>4</sup> [http://rapson.ucdavis.edu/uploads/8/4/7/1/84716372/mr\\_mass\\_ev\\_adoption.pdf](http://rapson.ucdavis.edu/uploads/8/4/7/1/84716372/mr_mass_ev_adoption.pdf)

	Issue/Question	Comments and Considerations	Recommendation or options
	game stopper for some projects	<ul style="list-style-type: none"> <li>○ Group is meant to look at how DER integration affects consumers - no consumer representation</li> <li>● This was also a big issue with the recent QREZ Benefit Sharing<sup>5</sup> and Technical Paper<sup>6</sup> processes, including regarding cultural heritage, land use planning and environmental impacts. It may be worth AEMO reviewing submissions to those processes.</li> </ul>	representatives to this working group.
	REZ	<ul style="list-style-type: none"> <li>● The REZ's within the ISP are vague locations, however, or because of this vagueness, there is a potential that local communities would start worrying and organising prior to any consultation or engagement with them. Communities have seen processes where, by the time, they saw the actual plans, they only were invited to perfunctory consultations. History is not much on the side of big infrastructure projects in terms of social licence.</li> </ul>	<ul style="list-style-type: none"> <li>● When communicating about the ISP REZs' locations and the infrastructure attached to them, it is important to take into account how it may be perceived by the affected communities.</li> </ul>
<b>Consumers</b>			
	Consumer engagement	<ul style="list-style-type: none"> <li>● Few consumer advocates from Queensland are actively involved in the ISP, and those that are, do not necessarily have the ongoing capacity to remain engaged throughout this important process.</li> <li>● Jurisdictions need to be supported in different ways – some states have greater consumer advocacy resources (but all are limited).</li> <li>● Resourcing consumer advocates is an ongoing issue. Energy Consumers Australia provide some funds, as do some state departments.</li> <li>● We acknowledge the role of the ISP Consumer Panel, but their process also requires significant contribution from the advocate community who need to maintain currency with ISP related publications and processes.</li> </ul>	<ul style="list-style-type: none"> <li>● Establish jurisdictional level resources for consumer advocates to participate throughout the ISP process, perhaps along the lines of network customer councils, with sitting fees etc.</li> </ul>
	AEMO Consumer Forum	<ul style="list-style-type: none"> <li>● AEMO Consumer Forum is a good resource, but often clashes with other consumer events. <ul style="list-style-type: none"> <li>○ Many advocates are also not resourced to attend, meaning we sometimes have to prioritise other commitments</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Record AEMO Consumer Forums.</li> <li>● Have Deep Dives on particular topics</li> </ul>

<sup>5</sup> <https://yoursayhpw.engagementhq.com/about-grez-consultation>

<sup>6</sup> <https://yoursayhpw.engagementhq.com/grez-technical-paper>

	Issue/Question	Comments and Considerations	Recommendation or options
		<ul style="list-style-type: none"> <li>● It could be recorded and accessible to registered participants?</li> <li>● Consumer engagement could also be improved with deep dives on particular topics for AEMO consumer forum members. <ul style="list-style-type: none"> <li>○ This could include sessions on, for example, DER Integration, Social License and Engagement, Optimal Development Path etc.</li> <li>○ Times set by members using tools such as Doodle Poll</li> </ul> </li> </ul>	
	Community energy	<ul style="list-style-type: none"> <li>● In the form of community generation, islandable or stand-alone microgrids are not mentioned in the scenarios.</li> <li>● Stand-alone microgrids present a risk of desertion from the NEM, this could become increasingly likely as no significant climate adaptation or resilience is taking place, or climate mitigation remains slow. Fringe of grid desertion might be a suitable option. However, in most other locations, it could have significant impacts.</li> <li>● Islandable microgrids could be a great opportunity for the broader network as controllable DER, grid service providers, reduced need for transmission, and overall grid resilience.</li> </ul>	<ul style="list-style-type: none"> <li>● Integrate microgrid in future scenarios, particularly when addressing resilience issues</li> </ul>