

# Submission to ESB Post-2025 Market Design Options Paper

Energy Security Board

11 June 2021

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## About ACROSS

The Australian Council of Social Service (ACOSS) is a national voice in support of people affected by poverty, disadvantage and inequality and the peak body for the community services and civil society sector.

ACOSS consists of a network of approximately 4000 organisations and individuals across Australia in metro, regional and remote areas.

Our vision is an end to poverty in all its forms; economies that are fair, sustainable and resilient; and communities that are just, peaceful and inclusive.

This includes reducing economy wide greenhouse gas emissions to net zero emissions before 2050 and a zero emissions electricity sector earlier. Based on the available evidence, delaying action now will require faster, more expensive and more disruptive change in the future, while heightening risks of more dangerous climate change.

Our vision for the energy system is for an inclusive, sustainable, zero carbon energy system that actively improves outcomes for people, the community and the environment.

ACOSS views energy as an essential service, and believe everyone has the right to access clean, affordable, dependable energy. It is critical to the health, wellbeing, economic participation and social inclusion of all people in Australia.

## Submission supported by



## Summary

The Energy Security Board (ESB) has been tasked by the Energy National Cabinet Reform Committee (ENCRC), formerly COAG Energy Council, to advise on a long-term, fit-for-purpose market design for the National Energy Market (NEM).

They have been asked to do this because Australia's electricity system is undergoing transformational change driven by the need to decarbonise, technology change and consumer preferences. It is transitioning from a highly centralised, fossil fuel dominated system, to an increasingly decentralised and decarbonized future.

The changes are creating opportunities and benefits, however, if we do not get the transition right, there are also risks and costs. Including delaying decarbonisation of the energy system and increasing inequality and disadvantage. The risks and costs are greatest for people experiencing financial and other forms of disadvantage and who pay disproportionately more for energy and lack the choice and control.

We acknowledge that developing Post-2025 market reforms for the NEM is a daunting task given the context of fast technological change, variation in stakeholder opinions, and lack of a nationally consistent climate and energy policy. We acknowledge the hard work by ESB chairs and staff, and appreciate the ongoing engagement with consumer groups through the ESB consumer reference group.

It's important that final recommendations are not made for political expediency and are consistent with the long term interest of people and communities, including those experiencing disadvantage or at risk of being disadvantaged.

In making final recommendations to the ENCRC we encourage the ESB to ensure that the recommendations are consistent with the vision, values and principles outlined in the New Energy Compact (see summary in figure 1). These views are informed by public sentiment research and consultation. This means recommendations where relevant are forward looking, support decarbonisation, meet the needs of people, reduce inequity, and provide affordable and dependable energy for everyone.

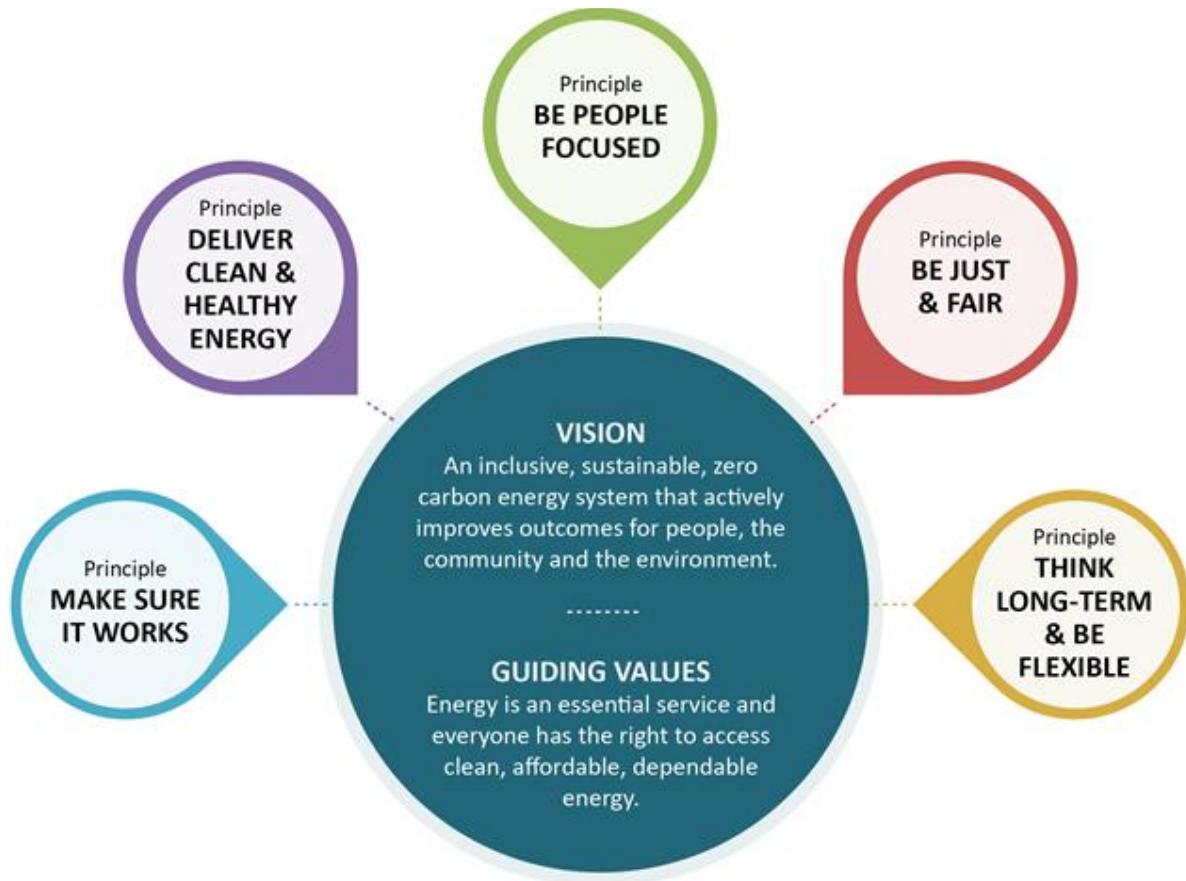
The Options paper notes that there will be a pathway for reform that includes immediate reforms, initial reforms (to be developed and implemented in the near term) and longer term reforms. It will be important that the development and implementation of the ongoing reforms is (a) governed by a structure that includes consumer representation at decision making level, (b) considers the vision, values and principles of the New Energy Compact, and (c) is co-design with consumers.

Much of the post-2025 market design has focused on the technical and market challenges, which we agree are necessary to the transition. However, there has not been enough focus on designing a market, energy regulation and policies that ensures energy continues to be valued as an essential service, improves outcomes for people, and ensures that no-one is left behind in the transition. We urge the

ESB to include a recommendation to the ENCRC that a process be established to identify market and non-market solutions to address the above.

Finally, we note one of the greatest barriers to a smooth, affordable and equitable transition is the lack of a mechanism and plan designed to integrate energy and emissions policy. This responsibility lies squarely on the shoulders of the Federal Government, and we urge progress to be made on this front.

**Figure 1. New Energy Compact Vision, Values and Principles<sup>1</sup>**



## Recommendations

### **Overarching considerations**

Recommendation 1: The ESB recommends to the ENCRC that a process is established to identify market and non-market solutions to ensure energy as an

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<sup>1</sup> The current draft of the compact can be found at <https://www.acoss.org.au/new-energy-compact/> and final version will be launched in second half of 2021.

essential service remains, improves outcomes for people, and ensures that no-one is left behind in the transition.

Recommendation 2: The ongoing development and implementation of the reforms are governed by a structure that includes consumer representation at decision making level; considers the vision, values and principles of the New Energy Compact, and are co-designed with consumers.

Recommendation 3: The ESB recommends to the ENCRC the NEO be expanded to include social equity and decarbonisation.

Recommendation 4: The reform-wide assessment principles to be used in the evaluation of options, should also be applied at the workstream level.

Recommendation 5: The ESB recommends to the ENCRC that regular independent reviews be put in place to review whether the recommended legislative and rule changes are still appropriate.

### ***Resource Adequacy and Ageing Thermal Generator Retirement***

Recommendation 6: The ESB recommend the ENCRC investigate the design of a coal power exit plan combined with an incentive scheme to provide greater certainty and ensure coal retirement is consistent with what's required to limit global warming to 1.5 degrees.

Recommendation 7: In the absence of an ambitious coal exit plan, we support ESB proposals to increase information and notice of closure around mothballing, and implement an integrated risk assessment tool to identify risks and improve decision making. Orderly exit management contracts should be used as an absolute last resort and time limited.

Recommendation 8: The ESB recommends the establishment of a statutory authority to manage the effects of the energy transition on workers and communities.

Recommendation 9: The ESB does not proceed with the proposal to modify the existing Retail Reliability Obligation (RRO), especially the proposal for a physical RRO. Current mechanisms including existing RRO, Reliability and Emergency Reserve Trader (RERT), 5-minute settlement, state Government incentive schemes, Demand mechanism, Renewable Energy Zones (REZ) and Integrated Systems Plans (ISP) should be given an opportunity to operationalise.

Recommendation 10: The ESB reinforce to ENCRC the need for a national electricity sector emissions reduction targets and a national mechanism designed to integrate energy and emissions policy, to drive investment at low cost to consumers.

Recommendation 11: In the absence of a national mechanism to integrate energy and emissions policy, we support ESB proposals to improve effectiveness of state

incentive and underwriting schemes through scenario planning and NEM-wide principles.

Recommendation 12: If States remain concerned about resource adequacy in the event that there are multiple coal closures in succession, a market lever could be developed, like the national RERT, which state governments can pull to support procurement in new capacity and demand response if that scenario arises, with costs covered by government budgets.

### ***Essential Systems Services, Scheduling and Ahead Mechanisms workstream***

Recommendation 13: The ESB recommends a process be established to design an ESS that suits the long-term design of the electricity system and incentivises inverter based resources, DER and storage to meet the long-term essential systems services.

Recommendation 14: Proceed with AEMO implementing the Unit Commitment for Security (UCS) systems analysis and optimisation tool.

Recommendation 15: Review the need for a voluntary day ahead market after further work is done on grid architecture.

### ***Integration of Distributed Energy resources and Demand Side Participation***

Recommendation 16: the ESB recommends building on the New Energy Compact and ECA consumer insights research, to implement a process to directly engage with people and consumer groups to, better understand what people want and how they want to engage in a higher DER energy system, and to set a clear people-centred vision for the ongoing DER work.

Recommendation 17: the ESB endorses and recommends a process (see appendix) is put in place to co-design a new user-centred grid architecture suitable for a high DER system that informs and guides further reforms to support DER integration, and supports inclusive, clean, affordable and dependable energy for all consumers.

Recommendation 18: the ESB endorses and recommends a process to bring together existing DER work processes (Maturity Plan, DER Roadmap, DEIP program) to (a) develop and agree on a DER Blueprint, and (b) agree the the roles and responsibilities for progressing elements of the DER Blueprint under a collaborative co-design umbrella are agreed.

Recommendation 19: the ESB endorses and recommends a governance structure to progress the DER Blueprint (formerly Maturity Plan) that includes a paid consumer representation at decision making level. Potential models in order of preference:

- Independent body with a consumer co-chair, drawing on staff from ARENA, AEMC, AEMO, AER, consumer organisations and energy companies.

- DEIP with a coordinating body that includes representatives from ARENA, AEMC, AEMO, AER, consumers organisation and relevant energy companies, and drawing on staff from the same category of organisations.
- AEMC with a DER coordinating body that includes a representative from ARENA, AEMC, AEMO, AER, consumers organisations and energy companies, and drawing on staff from the same category of organisations.

Recommendation 20: ESB organise a workshop with consumer groups to review the two schedule lite models against principles and evaluation criteria to inform final decision.

Recommendation 21: the ESB delays making a final recommendation on a flexible trading arrangements model until work has progressed on recommendations 16 and 17.

Recommendation 22: ESB recommends further work is undertaken to assess the role of DER in building a system that is more resilient to climate change and other emerging risks and how to incentivise DER to support resilience.

Recommendation 23: ESB recommends further work is undertaken to analyse optimal combinations of large scale and accompanying transmission investment, and DER and network investment that could deliver least-cost pathways to a clean, affordable, dependable energy system.

Recommendation 24: ESB recommends a review of the National Energy Consumer Framework (NECF) within the next two years.

### ***Transmission and Access***

Recommendation 25: The ESB recommends the PIAC approach to cost and risk sharing of Renewable Energy Zones (REZ) shared infrastructure be implemented, so the costs can be recovered from beneficiaries and the risks be taken on by those best-placed to manage them.

Recommendation 26: Support ESBs proposal to develop an interim REZ framework which includes arrangements and principles for REZ planning and implementation. The principles should prioritise fair allocation of costs and risks and the need to decarbonise rapidly.

Recommendation 27: The ESB does not progress with the proposal for financial access rights for connecting generators. We support REZs being built to provide access with an efficient amount of curtailment. See also recommendation 25.

Recommendation 28: The ESB broaden its option assessment criteria for transmission access options, to include fair and equitable cost allocation and decarbonisation.

# Discussion

## 1. Introduction

### 1.1 Purpose and structure of Post-2025 Market Review

In recognition of the rapidly changing energy market, the ESB was tasked by the former Council of Australia Government (COAG) Energy Council (The Energy Council) to advise on a long-term, fit-for-purpose market design for the NEM to meet the needs of the transition and beyond.

In its final Options Paper, the ESB has narrowed down the key work areas as follows:

**Resource adequacy mechanisms and ageing thermal retirement:** to provide the right signals which will drive investment in an efficient mix of new resources which will minimise costs and maintain reliability;

**Essential system services and ahead scheduling:** to ensure that the essential services required (frequency, control, operating reserves, inertia and system strength) are available to maintain system security;

**Integration of distributed energy resources and flexible demand:** to deliver benefits to customers through the integration of rooftop solar, battery storage, smart appliances and other resources into the system in an efficient way; and

**Transmission and access:** to reconfigure the transmission system so that new renewable generation and large-scale storage can connect and be dispatched to meet customers' demand.

The Options paper is also structured to consider reform pathways: immediate reforms to be done now, initial reforms to be developed and implemented in the near term, and next reforms which are longer term and depend on developments in the industry including technical changes

### 1.2 This submission

We welcome the opportunity to provide feedback on the ESB's final options paper on the post-2025 energy market design program.

The submission will first discuss and provide recommendations on a number of overarching matters and then consider the four individual workstreams.

This submission has not attempted to answer all the consultation questions, but rather provides high level responses. We would be happy to provide more in depth views on relevant questions as part of further verbal consultation.



## 2. Overarching considerations

### 2.1 Process to ensure new market design leaves no-one behind

Australia's electricity system is undergoing transformational change driven by the need to decarbonise, technology change and consumer preferences. It is transitioning from a highly centralised, fossil fuel dominated system, to an increasingly decentralised and decarbonized future.

It is moving from a one-way system (energy produced elsewhere sent to premises and consumed) to a two-way system, where people with control and access to resources can increasingly store, export, trade and self-consume energy they produce through DER and modify energy consumption to provide demand management services to the energy market.

These changes, along with greater DER integration provides opportunities and benefits, but creates challenges and risks.

What remains unchanged is the essential nature of energy. For business it is critical to economic outcomes. For people, it is critical to health, social, and economic outcomes.

Energy is particularly fraught for the millions of people experiencing financial and other forms of disadvantage.<sup>2</sup> People experiencing financial disadvantage pay disproportionately more of their income on energy<sup>3</sup> and contribute disproportionately to subsidies when recovered from electricity bills<sup>4</sup> and system costs when allocated to energy bills.<sup>5</sup>

Some people deprive themselves of energy and go without heating, cooling, hot water, and cooking to the detriment of their health, to afford their energy bills. Other people cope by forgoing other essentials like food, medicine, and dental or don't send their kids on school excursions, just to pay the energy bills.

More and more emphasis is being put on a competitive energy market to provide affordable energy, which increasingly requires higher levels of specific forms of ongoing engagement in the market to find the best electricity price and increasingly to participate in new DER services. This requirement for ongoing and active engagement does not align with the preferences of many people, and many face barriers to dealing with a market that requires high levels of engagement. The barriers to active engagement vary but include homeownership/renting, embedded

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<sup>2</sup> Davidson, P., Bradbury, B., Hill, T. and Wong, M. (2020), Poverty in Australia 2020: Part 1, Overview. ACOSS/UNSW Poverty and Inequality Partnership Report No. 3, Sydney: ACOSS. <http://povertyandinequality.acoss.org.au/wp-content/uploads/2020/02/Poverty-in-Australia-2020-Part-1-Overview-1.pdf>

<sup>3</sup> ACOSS and BSL (2018) Energy Stressed in Australia. <https://www.acoss.org.au/wp-content/uploads/2018/10/Energy-Stressed-in-Australia.pdf>

<sup>4</sup> Nelson, T., Simshauser, P. and Nelson, J. (2012) [Queensland Solar Feed-in-Tariffs and the Merit order Effect: Economic Benefit, or Regressive Taxation and Wealth Transfers?](#)

<sup>5</sup> <https://www.acoss.org.au/wp-content/uploads/2021/06/ACOSS-COSS-submission-AEMC-energy-export-Rule-change-Final-27052021-1.pdf>

network, home efficiency, geography, affordability, language, literacy, health, stress, complexity, lack of business models, network restrictions, amongst others.

Further, there is evidence that reliance on competitive markets has failed to deliver fair outcomes and has added additional costs to the market which have not been offset by benefits, instead market practices have resulted in confusing contracts and pricing that even knowledgeable consumers find hard to navigate.<sup>6 7</sup>

With people experiencing financial disadvantage already being seriously left behind, it is likely to get worse with the acceleration DER. The barriers to access DER technologies and services are substantial including lack of control over premises (renting or suitability of premises), lack of resources to access technologies, challenges with engagement (as noted above), and inadequate consumer protections.

Market design, rules and regulations must aim to improve efficiencies, reduce inequity, meet people's needs, improve transparency and engagement and provide protections.

Non-market policies and measures are also needed to support greater access to DER and more efficient homes, support engagement, and improve capacity to pay bills through better energy concessions and raising incomes.

While some of these issues are being considered in the workstream on *Integration of distributed energy resources and flexible demand*, there is no systematic process identifying market and non-market solutions to ensure energy remains an essential service, improves outcomes for people and no-one is left behind in the transition.

**Recommendation 1: The ESB recommends to the ENCRC that a process is established to identify market and non-market solutions to ensure energy as an essential service remains, improves outcomes for people, and ensures that no-one is left behind in the transition.**

## 2.2 Transition period, evaluation and the need for reviews

The Options paper notes that there will be a pathway for reform that includes immediate reforms, initial reforms (to be developed and implemented in the near term) and longer term reforms.

Our understanding is the ESB will be dismantled after the delivery of the final recommendations report to the ENCRC. There has been no indication who will be responsible for overseeing the next phases of reform design and implementation. It will be important that the ongoing development and implementation of the reforms are:

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<sup>6</sup> Independent Review of Electricity and Gas Retail Markets in Victoria (Thwaites Review), Final Report, August 2017, available at: <https://engage.vic.gov.au/review-electricity-and-gas-retail-markets-victoria>.

<sup>7</sup> ACCC (2018) Restoring electricity affordability and Australia's competitive advantage <https://www.accc.gov.au/publications/restoring-electricity-affordability-australias-competitive-advantage>

- governed by a structure that includes consumer representation at decision making level;
- considers the vision, values and principles of the New Energy Compact; and
- is co-design with consumers.

**Recommendation 2: The ongoing development and implementation of the reforms are governed by a structure that includes consumer representation at decision making level; considers the vision, values and principles of the New Energy Compact, and are co-design with consumers.**

The Options paper re-confirmed it would evaluate final recommendations utilising an evaluation approach set out in its September 2020 Consultation Paper. This includes ensuring the existing design or recommendations are consistent with the National Energy Objectives (NEO).<sup>8</sup> In addition it would use a two phase approach that includes workstream level criteria and reform-wide assessment principles.<sup>9</sup>

As outlined in our response to the September consultation, given the rapid and far reaching changes and transformation of the energy system, we believe like the energy market design, the NEO is no longer fit-for-purpose and not in the long term interests of consumers. In particular we believe the NEO should be amended to include social equity and decarbonisation as objectives.<sup>10</sup> We are concerned that development and implementation of a post-2025 market design without amendments to the NEO would create inefficiencies, inequities and delay decarbonisation of electricity.

**Recommendation 3: The ESB recommends to the ENCRC the NEO be expanded to include social equity and decarbonisation.**

We also think the reform-wide assessment principles<sup>11</sup> should also be considered at a workstream assessment level.

**Recommendation 4: The reform-wide assessment principles to be used in the evaluation of options, should also be applied at the workstream level.**

We also recommended regular independent reviews are put in place to:

- review whether policies are achieving outcomes or are not having unintended consequences, especially as they interact with each other;
- meet changing needs of consumers;
- take into account changes to government policy; and
- take into account other changing variables.

**Recommendation 5: The ESB recommends the ENCRC that regular independent reviews be put in place to review whether the recommended legislative and rule changes are still appropriate.**

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<sup>8</sup> The NEO is set out in section 7 of the National Electricity Law

<sup>9</sup> See pages 122 to 124 of

[https://energyministers.gov.au/sites/prod.energycouncil/files/publications/documents/P2025%20Market%20Design%20Consultation%20paper.Final\\_.pdf](https://energyministers.gov.au/sites/prod.energycouncil/files/publications/documents/P2025%20Market%20Design%20Consultation%20paper.Final_.pdf)

<sup>10</sup> See joint ACOSS submission to ESBs September Consultation Paper for more detailed outlines as to why including social equity and decarbonisation is important. <https://www.acoss.org.au/wp-content/uploads/2020/11/Joint-ACOSS-submission-to-ESB-post-2025-market-design-Final-26102020.pdf>

<sup>11</sup> Proportionate, credible, affordable and equitable, community support, viable and coherent, resilient and flexible, supports lower emissions.

### 3. Resource Adequacy and Ageing Thermal Generator Retirement

The objective of the resource adequacy mechanisms and ageing thermal retirement workstream is to encourage the orderly exit of aging thermal generation and timely entry of required generation and storage to replace anticipated plant closure.

ACOSS notes that to limit global warming to 1.5 degrees, Australia will need to rapidly reduce its emissions in line with the principle of common but differentiated responsibilities and respective capabilities. Our energy system has the greatest capacity to reduce emissions rapidly using current technology, and must be prioritised for fast, early emissions reductions. This will require the early retirement of coal-fired power stations.

In addition to international and moral obligations to retire coal-fired power plants early, the growth of renewable energy in Australia's electricity sector is making coal generators increasingly unprofitable. As a result coal generators exits are likely to occur sooner than their life span and sooner than AEMO has planned in its Integrated Systems Planning (ISP).

These sudden and unplanned closures can lead to significant spikes in electricity wholesale prices, like the spike in wholesale prices for approximately 2 years (\$59/MWh to \$89/MWh) as a result of the sudden closures of Hazelwood coal plant in Victoria (5 months' notice) and of Northern Coal plant in South Australia (18 months' notice) and the inability of the market to meet generation gaps in such a short period of time. The other concern is the impact of reliability of supply, especially if a short succession of coal-fired plants retire, at short notice, and not enough new generation capacity is available.

However, since the experience of the early and sudden retirement of Hazelwood and Northern, a range of market and regulatory rules have been put in place or will commence soon, that will provide more notice of the exit of coal generation and support resource adequacy, including:

- Three and half year notice of coal generator closure rule, which Victoria increased to 5 years;
- The Retail Reliability Obligation (RRO), which requires retailers to demonstrate they are sufficiently contracted to meet their share of expected system peak demand, in the event the RRO is triggered. This is a long-term solution that will provide a clear signal to businesses and market participants to invest in generation and demand response to support reliability in the NEM
- the Reliability and Emergency Reserve Trader (RERT), which is managed by AEMO and is a resource of energy users who are willing to reduce their demand in return for payment.
- Change to settlement period (dispatch and financial settlement) of the energy spot market from 30-minutes to 5-minute settlement (due to commence in October 2021) **which** provides a better price signal for

investment in fast response technologies, such as batteries, new generation gas peaker plants and demand response.

In addition to existing measures

- Real-time spot market,
- Financial contracts market,
- Reliability settings

And other measures and incentives underway to incentivise replacement generation:

- Renewable Energy Zones (REZ) and the Integrated Systems Plan (ISP) will work together to coordinate the transmission and generation investments
- Investment in and scoping of large scale storage projects such as Marinus Link and Snowy 2.0<sup>12</sup>
- Demand Management mechanism
- Growth of DER markets
- State/Territory based investment and underwriting schemes

### 3.1 Providing greater certainty around coal closure

As noted above, after the sudden exit of Hazelwood and Northern, jurisdictions implemented a three and a half year notice of coal generator closure rule, which Victoria increased to 5 years. However, as also noted above it is highly likely that coal-fired power stations will retire earlier than predicted and the retirement could be lumpy.

In an ideal world there would be a planned and orderly transition of coal closures consistent with the goal of limiting global warming to 1.5 degrees. The plan could involve a progressive plant exit managed with a staggered unit level retirement, which would give the private sector time to invest and build replacement plant in advance of closure, along with adequate grid planning and investment. There is a risk the plan could lock in coal for longer, this could be mitigated via an incentive scheme that could bring forward retirement in a planned manner.

**Recommendation 6: The ESB recommend the ENCRC investigate the design of a coal power exit plan combined with an incentive scheme to provide greater certainty and ensure coal retirement is consistent with what's required to limit global warming to 1.5 degrees.**

However in the absence of an ambitious coal exit plan, we would support ESB proposals to:

- Increase information around mothballing and seasonal shutdowns
- Expanding the notice of closure requirements to include mothballing
- Integrated process to manage early closure (see figure 2), which would seek to replace the current ad-hoc response with an integrated risk assessment that is understood by retiring generators, governments and industry. The purpose of the process is to gather information as early as possible so that a

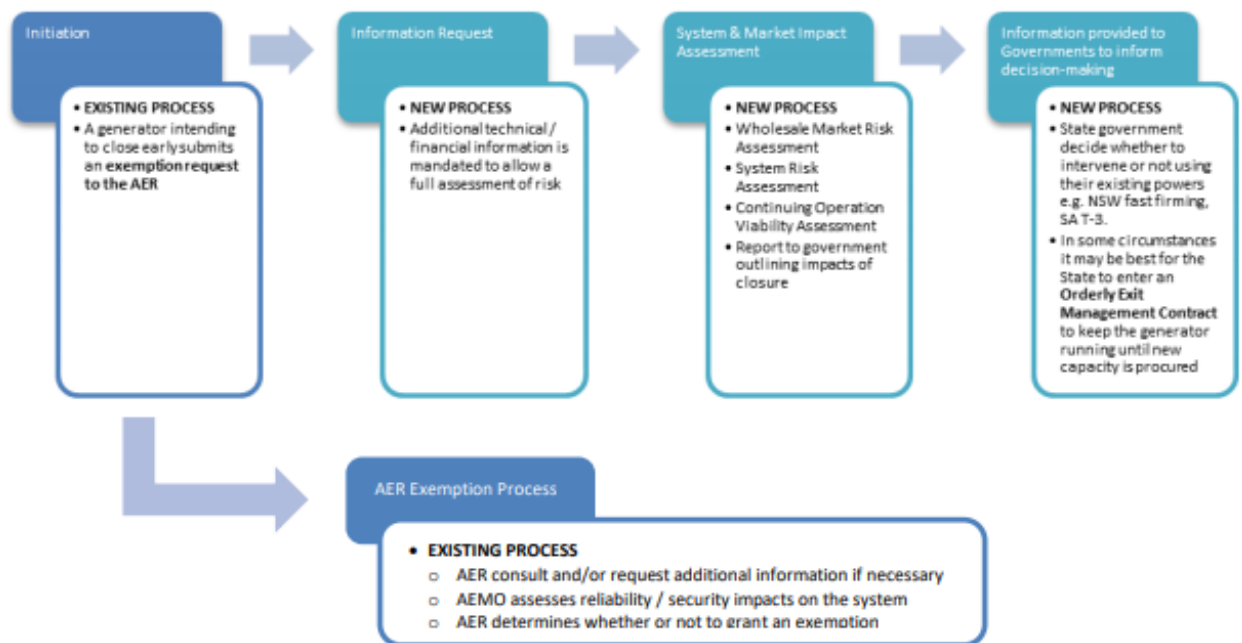
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<sup>12</sup> Noting we do not necessarily support the development of Snowy 2.0 as it has not yet clearly demonstrated its benefits and may actually lead to higher energy bills due to significant construction and transmission costs and slow decarbonisation of the grid due to likely reliance on coal-fired generators to charge.

timely risk assessment can be conducted that allows a state government to act if they consider the risks are too great. We note that the proposal for state governments to enter into an “an orderly exit management contract (OEMC)” with the retiring generator to keep it running until the risks of exit reduce to an acceptable level should be used as an absolute last resort and time limited

**Recommendation 7:** In the absence of an ambitious coal exit plan, we support ESB proposals to increase information and notice of closure around mothballing, and implement an integrated risk assessment tool to identify risks and improve decision making. Orderly exit management contracts (OEMC) should be used as an absolute last resort and time limited.

**Figure 2. Integrated Process to Manage Coal Closure**



We are however concerned that a major gap exists with respect to a national strategy to manage the just transition of workers and communities, resulting from coal, gas or diesel closure.

Unless there are just transition plans put in place for workers and communities, support for new regulations, market structures and most importantly an orderly transition will be met with opposition.

Just transition plans must be place-based, and include developing new economic opportunities, skills and supports. ACROSS has previously advocated for the creation of:

- a statutory authority responsible for managing the effects of the energy transition including managing coal closures, overseeing worker support, and coordinating plans for regional economic diversity; and
- an industry-wide multi-employer pooling and redeployment scheme which provides retrenched workers with the opportunity to transfer to roles with

renewable or low emission generators as well as remaining fossil fuel generators.

**Recommendation 8: The ESB recommends the establishment of a statutory authority to manage the effects of the energy transition on workers and communities.**

### 3.2 Resource adequacy

The Options paper continues to prosecute the need for a stronger mechanism to ensure the reliability of power as a result of coal closure and the energy transition.

The Options paper proposes modifying the existing RRO in one of two ways:

Option 1: Modifying the current RRO by removing the T-3 trigger (3 yr. 3 month notification of a reliability gap) and maintaining the use of financial contracts, thereby increasing the duration of the price signal for investment and promoting a higher level of enduring contracting by retailers. This may also help to simplify the current RRO, but could increase costs on retailers and consumers because retailers will have to invest earlier and for longer when it may not be necessary.

Option 2: An enhanced RRO that changes the definition of qualifying contracts to newly created physical certificates (PRRO). Depending on the design of this option, it could reduce or remove the need for governments to underwrite dispatchable investment. However, it could encourage contracting with coal-fired power stations and therefore extend their financial life.

We have concerns with both options, especially the physical RRO, as neither will deliver any improved ability to forecast unexpected generator exits or speed up the procurement of new capacity to enable the gap to be filled.

They both put increased responsibility for filling the generation gap on retailers, particularly smaller retailers that are not vertically integrated.

The ESB has itself acknowledged that a physical RRO would be costly to implement, complex to administer, anti-competitive and risks “overcompensating” coal-fired power stations.

The physical RRO will also do nothing to improve the capacity factor or engineering integrity of ageing generators. Ageing thermal generation is increasingly unreliable; any policy that leans in on these resources as a long-term fix will increase risks to consumers. We do not believe that the physical RRO complements jurisdictional plans, and in some cases will drive up their costs. More importantly, we do not believe that a physical RRO will provide the backstop the state governments desire to address the potential early retirement of thermal generators

We believe the range of market and regulatory rules listed at the beginning of this section that have recently been put in place or will commence soon should be enough to address required resource adequacy issues and be given time to operationalise.

**Recommendation 9: The ESB does not proceed with the proposal to modify the existing RRO, especially the proposal for a physical RRO. Current mechanisms**

including existing RRO, RERT, 5-minute settlement, state Government incentive schemes, Demand mechanism, REZ and ISP should be given an opportunity to operationalise.

As noted in our submission to the ESBs Consultation Paper in 2020, the absence of an emissions reduction target and mechanism designed to integrate energy and emissions policy, is a major barrier to delivering equitable outcomes for all from the new energy market, hindering investment, impacting on reliability and driving up costs. What we have seen instead is an increase in federal and state/territory government intervention. While understandable and welcome with respect to progressing decarbonisation of the energy system, it is hindering private investment, creating inefficiencies and in some cases increasing costs to consumers.

**Recommendation 10:** The ESB reinforce to the ENCRC the need for a national electricity sector emissions reduction targets and a national mechanism designed to integrate energy and emissions policy, to drive investment at low cost to consumers.

In the absence of a national mechanism to integrate energy and emissions policy, we do support ESB proposals to improve effectiveness of state incentive and underwriting schemes, by:

- Market bodies providing additional scenario planning to enhance information provision on resources to be underwritten by States.
- Consistent NEM-wide approach to jurisdictional underwriting to support increase policy certainty and transparency and minimise cost to consumers.

**Recommendation 11:** In the absence of a national mechanism to integrate energy and emissions policy, we support ESB proposals to improve effectiveness of state incentive and underwriting schemes through scenario planning and NEM-wide principles.

If jurisdictions remain concerned about resource adequacy, a market lever could be developed, like the national RERT, which state governments can pull to support procurement in new capacity and demand response if that scenario arises, and to enable that gap to be filled as quickly as possible. The costs of the RERT should come from state Government budgets to limit impact on consumers. This approach gives governments more control over the costs of ensuring reliability, and over who and what technologies fill the gap. Importantly, these approaches preserve the existing energy-only market design and the price signals upon which significant new investments are being made.<sup>13</sup>

**Recommendation 12:** If States remain concerned about resource adequacy in the event that there are multiple coal closures in succession, The ESB could recommend a market lever be developed, like the national RERT, which state

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<sup>13</sup> See PIAC submission to ESB Options Paper for more information.



governments can pull to support procurement in new capacity and demand response if that scenario arises, with costs covered by government budgets.

## 4. Essential Systems Services, Scheduling and Ahead Mechanisms workstream

### 4.1 Essential Systems Services

The shift from large scale base load synchronous generation to more variable forms of large scale generation and distributed generation is impacting on systems security. The ESB has identified four essential system services - frequency, operating reserve, inertia and system strength. According to the ESB Options paper, "current market arrangements do not appropriately value all services that are necessary to maintain essential system capabilities and systems security, which means the Australian Energy Market Operator (AEMO) is intervening in the market to procure these essential capabilities."

The Options Paper notes that "New technologies (both demand and supply based) can provide services that meet some of these essential capabilities. This includes large-scale batteries and flexible demand. Large customers, through demand response, may be able to provide services such as ramping products (or operating reserve services) where they are able to build flexibility into their commercial processes."

However, as noted by others, the range of market mechanisms and design features put forward in the ESB Options Paper are primarily focussed on maintaining the functionality of the large scale synchronous generators like coal power plants. We are concerned that such an approach will only incentivise baseload coal plants to stay in the market to provide operating reserves, which will delay decarbonisation.

We note that once coal leaves the electricity system, the need for synchronous generation no longer exists. Any new markets established now for Essential Systems Services (ESS) based on traditional synchronous generation, will quickly become inefficient and sub-optimal.

So while we understand and are not opposed to the ESB approach to deal with urgent systems security issues, including a move towards a spot market for unbundled services, we think it would be cheaper and more efficient in the long-term if the ESB considered what is needed in the long-term and design a near term mechanisms to incentivise Inverter-Based Resources (IBRs), DER and storage, and to move as efficiently as possible towards a new operational model, while still including coal and allowing plants to exit as and when market forces or exit plan dictate.

**Recommendation 13:** The ESB recommends a process be established to design ESS mechanism(s) that suits the long-term design of the electricity system and

incentivises inverter based resources, DER and storage to meet the long-term essential systems services.

## 4.2 Scheduling mechanisms

While we support the need for greater visibility of the resources available in the system the benefits have to outweigh the costs. In our previous submission to the ESB Consultation Paper we supported the introduction of a unit commitment for security (UCS) model. The UCS is a mechanism where AEMO can schedule resources contracted through structured procurement ahead of time to keep the system secure when dispatch and real-time price signals do not, by themselves, support such operation – such as for the provision of system strength. We note that while the UCS model proposed is minimalist in its approach, it still provides some benefits at close to zero cost.<sup>14</sup>

We would welcome further consultation on the proposal for Systems Security Mechanism (SSM), noting it would be unlikely you would need both the UCS and the SSM.

**Recommendation 14: Proceed with AEMO implementing the Unit Commitment for Security (UCS) systems analysis and optimisation tool.**

## 4.3 Ahead Mechanisms

Our position remains the same as our submission to the ESB Consultation paper regarding establishment of an ahead market, which is, while they are used extensively in Europe and the USA, they may result in significant implementation costs,<sup>15</sup> and the market signals for slower-start generation may not be needed if the proportion of fast-start generation increases, or if volatility is minimal.

As we noted in our previous submission, a distribution level market (which should be considered as part of a process to consider future grid architecture, see section 5.2) combined with the wholesale market may be more responsive and reduce volatility.

**Recommendation 15: Review the need for a voluntary day ahead market after further work is done on grid architecture.**

# 5. Integration of Distributed Energy Resources and Demand Side Participation

As outlined in section 2.1 moving from a one-way system to a two-way system, where people with control and access to resources can increasingly store, export,

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<sup>14</sup> Creative Energy Consultants (2020) Scheduling and Ahead Markets - Design options for post-2025 NEM. <https://www.energycouncil.com.au/media/18717/20200630-cec-final-report.pdf>

<sup>15</sup> <https://www.energycouncil.com.au/analysis/day-ahead-markets-a-new-hope-or-a-phantom-menace/#:~:text=The%20benefits%20of%20a%20day,for%20plants%20to%20be%20scheduled%3B&text=Allows%20market%2Dbased%20redistribution%20of%20risk>

trade and self-consume energy they produce through DER and modify energy consumption to provide demand management services to the energy market, provides opportunities and benefits, but creates challenges and risks.

For those who are able to and want to actively engage in the new energy system, typically people with control and access to resources, how do we ensure their agency is maximised, that they are adequately rewarded for the benefits they provide the energy system, and that they appropriately pay for the costs they impose on the energy system and other energy participants?

For those who don't want to actively engage in the way the market requires and for who energy is simply a functional concern, how do we ensure their decision is respected and supported and they are not penalized and disadvantaged in a new energy market?

The risks are greatest for people experiencing financial disadvantage who pay disproportionately more of their income on energy and are increasingly paying more for the costs of delivering energy and the transition. They often lack the choice and control to access DER and the additional individual financial benefits DER can provide.

And importantly, for those who face barriers to actively engage and/or access DER, how do we ensure that they are not placed at further risk? How do we accelerate their access to and engagement with DER in an appropriate way? How do we ensure people most at risk are not penalized or further disadvantaged in the new energy market?

If we get the design right we can reduce energy prices and ensure costs are allocated more equitably so that energy becomes more affordable for everyone.

## 5.1 People-centred vision for future DER system

What we think is missing from the current working program is a well understood vision for the future DER system, informed directly by people. To date much of the DER reform work is based on an assumed level of engagement in DER and energy markets. There's a risk that complex and costly markets are created that do not meet the needs and desires of people, in particular people experiencing disadvantage.

Some work has already been done as part of the development of the New Energy Compact and through ECAs consumer insights research, however we think it's imperative that the people are directly consulted to inform the future DER work program, including the development of a people-centred vision for DER.

We believe it would be prudent, before further work is done on the Maturity Plan/DER Blueprint (see 5.3 below), roles and responsibilities (see 5.2) and progressing 'schedule lite' and 'flexible trader' models (see section 5.5), a process is undertaken to engage directly with people, to better understand what people want and how they want to engage in a future energy system and set a clear vision for the ongoing DER integration work.

**Recommendation 16: the ESB recommends building on the New Energy Compact and ECA consumer insights research, to implement a process to directly engage**

with people and consumer groups to, better understand what people want and how they want to engage in a higher DER energy system, and to set a clear people-centred vision for the ongoing DER work.

## 5.2 Grid Architecture and roles and responsibilities

The ESB Options paper argues that further clarity and direction is needed on the roles and responsibilities for various actors in the system and how they may evolve, arguing that “while core activities are likely to remain, roles need to evolve to meet more dynamic needs of both the customer and the distribution network.”

While we agree with the sentiment, we believe the discussion cannot progress without first considering the appropriate grid architecture (which includes market arrangements, market coordination, operational structures, and roles and responsibilities of key actors), to achieve DER integration that supports inclusive, clean, affordable and dependable energy for all consumers.

In the NEM, the current grid architecture is based on the one-way transmission of power from central power stations through distribution level networks to users: a top-down approach. However, this design is not fit for purpose as we move to a more decentralised and localised energy system.

Fundamentally, a high DER system is unlikely to maximise its potential benefits to users without more detailed consideration of how users and their representatives (e.g. new energy services traders) can exercise greater control and autonomy in a more decentralised energy system. Indeed, some recent and mooted market body interventions in the DER space could be interpreted as reinforcing top-down, centralised control.

This problem is most obvious around clarifying distribution system operator (DSO), distribution market operator (DMO) and distribution trading platform (DTP) roles and responsibilities.

In addition, there are proposals in the ESB options paper such as the trader-services model which would arguably be difficult to finalise without some clarification of the higher level grid architecture.

Experts argue that when grid architecture is considered early in the transition process it can help to address system complexity and minimise unwanted consequences.

Further, there are opportunities to design a market architecture that can lead to more inclusive, clean, affordable and dependable energy for all users – e.g., by supporting local energy markets or peer-to-peer trading.

However, the work for the maturity plan detailed in the ESB’s April 2021 Options paper does not address these fundamental and overarching issues related to the future place of DER in the whole energy system or the roles and responsibilities of market bodies and other parties therein.

We are proposing that the ESB endorses and recommends a process is put in place to co-design a new user-centred grid architecture suitable for a high DER system that (a) informs and guides further reforms to support DER integration, and (b) supports inclusive, clean, affordable and dependable energy for all consumers. We

are proposing the co-design process is undertaken in the second half of 2021, and its outcomes will be used to inform and guide further work on the DER Blueprint (formerly Maturity Plan) (see section 5.3 below). An indicative process can be found in the appendix.

**Recommendation 17:** the ESB endorses and recommends a process (see appendix) is put in place to co-design a new user-centred grid architecture suitable for a high DER system that informs and guides further reforms to support DER integration, and supports inclusive, clean, affordable and dependable energy for all consumers.

### 5.3 Next steps Maturity Plan (rename DER Blueprint)

The ESB is proposing a Maturity Plan approach to progress key issues with respect to DER integration, defined as:

A maturity plan approach is proposed to identify priority issues for DER integration and deliver and inform the detailed design consistent with directions on future roles and responsibilities. The maturity plan is an iterative process through which six monthly 'releases' will identify priority issues for reform, deliver detailed analysis of, or solutions to address, needed regulatory change or capability development. Its governance will allow it to function as a vehicle for collaborative co-design and coordination of several significant DER related reforms, drawing on insights from adjacent processes such as industry or ARENA trials. Outcomes and findings from the maturity plan approach will be relevant to immediate and initial reforms and enable the next reforms to emerge, including regarding the future activities required from distribution networks to securely operate their networks.

While we support the idea of a collaborative and co-design three year work plan, we would recommend taking a step back, before it proceeds on the current proposed path.

We are conscious there are a number of process looking at DER integration including:

- ESBs proposed Maturity Plan
- The ESBs DER integration roadmap<sup>16</sup>
- The Distributed Energy Integration Program (DEIP)<sup>17</sup>

We are also concerned that there is contention around some of the issues identified as priority issues in the Maturity Plan. Further the maturity plan lacks clear objectives and outcomes, like for example the DER Integration Roadmap has considered. We believe it would be important to bring these three processes together to agree on a DER Blueprint, that outlines vision, objectives, outcomes, principles and critical path activities and priority issues. Once a DER Blueprint is agreed, the roles and responsibilities for progressing elements of the DER Blueprint under a collaborative co-design umbrella should also be agreed. The DER Blueprint

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<sup>16</sup> <https://prod-energycouncil.energy.slicedtech.com.au/sites/prod.energycouncil/files/DER%20Integration%20Roadmap%20and%20Workplan.pdf>

<sup>17</sup> <https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/>

should aim to identify areas for action that can be progressed quickly and areas that need further consideration and co-design processes.

The DER Blueprint should be informed by the work undertaken to develop a people-centred DER vision (recommendation 16) and the preferred grid architecture model (recommendation 17)

**Recommendation 18: the ESB endorses and recommends a process (see appendix) to bring together existing DER work processes (Maturity Plan, DER Roadmap, DEIP program) to (a) develop and agree on a DER Blueprint, and (b) agree the the roles and responsibilities for progressing elements of the DER Blueprint under a collaborative co-design umbrella are agreed.**

Critical to the progress of a three year work plan to develop and progress the DER Blueprint is ongoing governance structure. As identified in recommendation 2 ongoing development and implementation of the reforms should be governed by a structure that includes consumer representation at decision making level; considers the vision, values and principles of the New Energy Compact, and co-design with consumers. This would apply to the Governance of the maturity plan/DER Blueprint.

Potential models in order of preference:

- Independent body with a consumer co-chair, drawing on staff from ARENA, AEMC, AEMO, AER, consumer organisations and energy companies.
- DEIP with a coordinating body that includes representatives from ARENA, AEMC, AEMO, AER, consumer organisation and relevant energy companies, and drawing on staff from the same category of organisations.
- AEMC with a DER coordinating body that includes a representative from ARENA, AEMC, AEMO, AER, consumer organisations and energy companies, and drawing on staff from the same category of organisations.

**Recommendation 19: the ESB endorses and recommends a governance structure to progress the DER Blueprint (formerly Maturity Plan) that includes a paid consumer representation at decision making level. Potential models in order of preference:**

- Independent body with a consumer co-chair, drawing on staff from ARENA, AEMC, AEMO, AER, consumer organisations and energy companies.
- DEIP with a coordinating body that includes representatives from ARENA, AEMC, AEMO, AER, consumer organisation and relevant energy companies, and drawing on staff from the same category of organisations.
- AEMC with a DER coordinating body that includes a representative from ARENA, AEMC, AEMO, AER, consumer organisations and energy companies, and drawing on staff from the same category of organisations.

We have welcomed the incorporation of consumer design principles and process in the workshops ESB has hosted around addressing “minimum demand”. We recommend consumer design principles and process continues to be a feature in the development and implementation of the DER Blueprint.

## 5.4 Risk assessment tool

We welcome the development of a draft risk assessment tool that seeks to identify aspects of new energy markets that could expose consumers to harm requiring protections. We welcome the engagement to date in reviewing and testing the draft risk tool with consumer groups, and the proposal for ongoing engagement and testing before finalising.

We have identified to date that it would be beneficial to:

- Establish a benefits assessment tool that has a set of criteria to assess benefits
- That the risk tool includes risk to other consumers and to the system.

## 5.5 Progressing schedule lite and flexible trader model

The ESB Options paper proposes two models to implement “scheduled lite”, which is a proposal to enable small to medium sized resources (including demand and generation) to actively participate in market processes or dispatch as the current scheduling processes can be complex and onerous to interact with. Scheduled lite aims to facilitate the further penetration and active participation of DER, flexible demand and renewable energy by opening up opportunities to engage in market services, while giving greater visibility and certainty to the system operator to assist in the efficient and secure operation of the system. Any obligations from participating in scheduled lite would apply to market participants and would not require consumers to directly interact with the market.

We welcome that the proposal for schedule lite is voluntary and not mandatory. We also welcome the development of principles in consultation with consumer groups. We have yet to form a view on which of the two models are preferred, although the “visibility” model appears less onerous, complex and costly than the “dispatchability” model. We would welcome more time, perhaps through a dedicated workshop to consider the two options and assess against principles and evaluation criteria.

**Recommendation 20: ESB organise a workshop with consumer groups to review the two schedule lite models against principles and evaluation criteria to inform final decision.**

The ESB Options Paper proposes two models for “flexible trading arrangements”. The aim is to provide more flexibility in energy market trading arrangements that provide customers with an interface and access to improved choice, revenue streams and cost savings via greater access to the spot and service markets. The Options paper notes there are pro’s and con’s of each of the models.

We believe more work needs to be done on identifying grid architecture and accompanying roles and responsibilities (recommendation 17) and better understanding of how consumers want to engage (recommendation 16) to inform the choice of flexible trading arrangement models. Applying the risk assessment tool and an evaluation criteria would also be beneficial in finalising appropriate model.

Recommendation 21: the ESB delays making a final recommendation on a flexible trading arrangements model until work has progressed on recommendations 16 and 17.

## 5.6 Consideration of Resilience

Given the impacts increasing extreme weather events including bushfires, storms, floods and heatwaves are having on Australia's electricity system and consumers, we urge greater consideration be given to energy system resilience. Resilience is broader than reliability and refers to the capacity for electricity systems to prepare, absorb and recover from natural hazards events.<sup>18</sup>

DER has an important role to play in supporting greater system resilience, including by providing backup generation, storage, flexible demand and local energy sharing networks. Greater consideration of resilience as part of post-2025 market design will influence investment decisions and potentially add to the DER value stack, especially if resilience services are recognised in the rules.

We have made this point to the ESB previously, and are disappointed that this critical issue continues to be neglected.

Recommendation 22: ESB recommends further work is undertaken to assess the role of DER in building a system that is more resilient to climate change and other emerging risks and how to incentivise DER to support resilience.

## 5.7 Optimising large scale and DER investments for a least-cost energy system

AEMO is forecasting the need for some 26 to 50 GB of additional generation capacity in the NEM by 2040, at a cost (in the optimum development path) of \$27 billion of additional transmission level infrastructure. AEMO's 2021 Draft IASR projects that rooftop PV capacity could increase from ~13GW at present to 30GW by 2030, 40GW by 2035 and 50GW by 2040 under the sustainable growth (formerly step change) scenario (i.e., about 50% of total system capacity). For the Post 2025 market design process the ESB is assuming that DER are "likely to achieve 40 GW (~50%) of capacity by 2030." At their current rate of spending, the 13 DNSPs in the NEM would be likely to spend around \$2 billion on DER-related capex by 2040.

In other words, DER may contribute at least half of the additional generation capacity required at a small fraction of the cost of transmission investments (noting some obvious limitations to this comparison, including the fact that most rooftop solar capacity is not available during winter evening peaks, and current network investments may not be a good guide to the future).

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<sup>18</sup> Bushfire and Natural Hazards CRC, The Australian Natural Disaster Resilience Index: A system for assessing the resilience of Australian communities to natural hazards, Chapter 1, July 2020



It would be prudent to do an analysis of the optimal combination of large scale and accompanying transmission investment, and DER and distribution investment, to deliver least-cost pathways to a clean, affordable, dependable energy system.

The objective of the analysis would be to influence future strategic planning, regulatory reform and investment planning processes – in particular the 2024 ISP, but potentially also the development of the DER Blueprint.

Without such an analysis, we are concerned that consumers may be forced to pay for investments in transmission infrastructure that are more expensive than utilising and, where necessary and prudent, upgrading existing distribution networks.

**Recommendation 23:** ESB recommends further work is undertaken to analyse optimal combinations of large scale and accompanying transmission investment, and DER and distribution investment, that could deliver least-cost pathways to a clean, affordable, dependable energy system.

## 5.8 Update the National Energy Consumer Framework (NECF)

Finally, we believe that with the rapid and comprehensive level of reforms to the way consumers engage with energy, the National Energy Consumer Framework will need to be reviewed and updated.

**Recommendations 24:** ESB recommends a review of the National Energy Consumer Framework (NECF) within the next two years.

## 6. Transmission and Access

The ESB Options paper notes that “substantial transmission investment is needed to accommodate the forecast 26-50 GW of new large-scale variable renewable energy expected by 2040. These relatively smaller and geographically dispersed renewable generators need to connect in windy or sunny parts of the grid. Historically the transmission network was built to transport energy from coal fuelled and hydro generation to load centres. The current networks have not required large amounts of transmission capacity in the areas where this new generation needs it.”

However, the current arrangements for transmission access and coordination of generation and transmission are preventing the efficient, fair and timely decarbonisation of the energy system.

A key reason is the current rules and regulations don’t facilitate the building of transmission infrastructure ahead of new generation and don’t require generators to cover some of the cost of the transmission infrastructure they need. As noted by PIAC’s submission to the ESB Options Paper, this “result is inefficient transmission investment that lumps consumers with unnecessary and unfair costs and risks and slows the deployment of renewables.”

We support The Public Interest Advocacy Centre (PIAC) view in their submission to the ESB's Option Paper that "the ESB should seek comprehensive reform to the transmission cost and risk sharing for Renewable Energy Zones (REZs) to ensure arrangements are fit for the purpose of delivering a zero-emissions, reliable and affordable energy system."

## 6.1 Cost and risk sharing top priority

As noted in the PIAC submission "the fair and efficient allocation of costs and risks of new transmission investment should be the key priority of the ESB in its transmission access reform pathway. Under the current arrangements, all the costs and risks of regulated transmission investments – all ISP projects – are recovered from consumers."

We are pleased that the ESB has acknowledged that the actionable Integrated Systems Plans (ISP) projects often have benefits for more than just energy consumers (including local economies and employment) and the ESB has suggested the ISPs should be subject to a broader cost-benefit test.

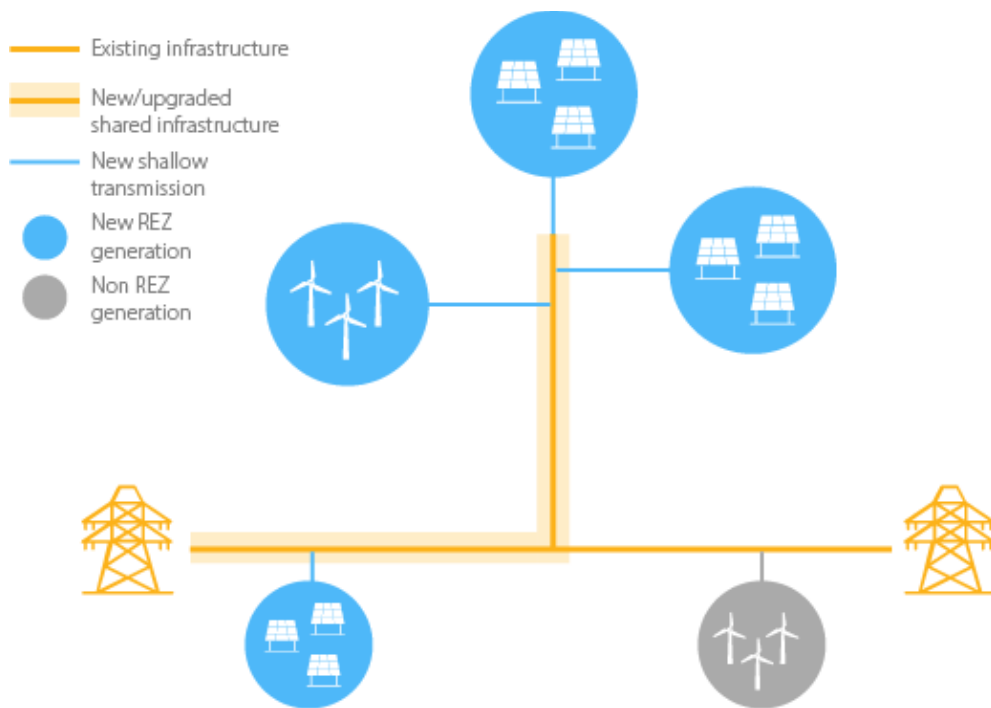
We would argue that the benefits to generators should also be considered. As PIAC notes in their submission "as the energy system transitions, new transmission is largely built not to serve new consumers but to connect new renewable generators, making connecting generators, not consumers, the primary beneficiaries of this new investment. Despite this, the costs of regulated transmission investment are recovered entirely from consumers."

PIAC correctly identifies that "this mismatch between who benefits and who pays for new transmission is causing delays in new projects as projects must pass a high consumer benefit threshold in order for their costs to be recovered from consumers. Altering the rules around how costs for transmission assets are shared so they can be recovered from connecting generators and other benefiting parties is necessary to overcome this regulatory hurdle."

As the ESB are aware, PIAC has developed an approach to cost and risk sharing of REZs which seeks to allocate costs more fairly and efficiently, while providing a means for REZ infrastructure to progress through the regulatory process more quickly, which we support.

The model, as described in the PIAC submission, "aims to ensure the costs of shared REZ infrastructure are recovered from the beneficiaries – primarily connecting generators – and the risks are not borne entirely by consumers. The approach allows the capital costs of shared infrastructure, including augmentations to the existing network, to be recovered from connecting generators, rather than just consumers, and for shared infrastructure to be financed by a contestable investor, such as government, the Transmission Network Service Provider (TNSP) or some other entity, rather than just through a TNSP" (see Figure 3).

### **Figure 3. PIAC cost sharing model for new energy transmission**



As noted in PIACs submission, “a fundamental aspect of the PIAC approach is that REZ transmission capex is recovered from both generators and consumers, rather than just consumers. This is achieved by separating transmission investment into two portions: one, consistent with current cost recovery, is rolled into the RAB of the incumbent TNSP and is recovered through regulated revenue; and a contestable portion, funded by a contestable investor or government, and is recovered through generator access charges. The connection charge would be pre-determined at a fixed rate (such as \$/MVA) that increases with time commensurate to the underutilisation risk the speculative investor bears –this is both transparent to all parties and incentivises early connection.

We urge the ESB to support the PIAC approach and recommend its implementation.

**Recommendation 25:** The ESB recommends the PIAC approach to cost and risk sharing of Renewable Energy Zones (REZ) shared infrastructure be implemented, so the costs can be recovered from beneficiaries and the risks be taken on by those best-placed to manage them.

## 6.2 REZ framework

We support the ESB’s intention to develop an interim REZ framework which includes arrangements and principles for REZ planning and implementation. We believe a uniform set of principles and approaches will be helpful in ensuring consumers across the NEM can all access the benefits of REZs. We welcome the opportunity to inform those principles.

However, as noted above we urge the ESB to prioritise fair allocation of costs and risks and the need to decarbonise rapidly in the principles for REZ implementation. As already stated we favour an approach that allocates some of the capital cost of

shared infrastructure to generators, recovered through access charges, and encourages governments to take on some of the risk of shared network infrastructure. This could mean governments investing in or underwriting the contestable portion of shared REZ infrastructure, as per the PIAC cost sharing model.

Like PIAC, we do not support financial access rights for connecting generators and support REZs being built to provide access with an efficient amount of curtailment.

**Recommendation 26:** Support ESBs proposal to develop an interim REZ framework which includes arrangements and principles for REZ planning and implementation. The principles should prioritise fair allocation of costs and risks and the need to decarbonise rapidly.

**Recommendation 27:** The ESB does not progress with the proposal for financial access rights for connecting generators. We support REZs being built to provide access with an efficient amount of curtailment. See also recommendation 25.

## 6.3 Access reform options

The ESB Options paper argues that REZs are only a partial solution to the broader challenges that transmission access reforms seek to address. The paper puts forward a number of proposals for medium-term models for consideration. Our overall view is we should be prioritising models that make the needed changes as quickly as possible and not create interim measures which may or may not have utility long-term.

In assessing the appropriateness of the models, we urge the ESB to broaden its option assessment criteria to include fair and equitable cost allocation and decarbonisation. Options should be assessed by how they allocate costs according to who benefits and according to who is best-placed to manage risks, and how they contribute to the decarbonisation of the energy system.

**Recommendation 28:** The ESB broaden its option assessment criteria for transmission access options, to include fair and efficient cost and risk allocation, and decarbonisation.

## Acknowledgements

This submission was prepared in consultation with the ACOSS Climate and Energy Policy Network. We'd like to also acknowledge the contributions of PIAC, TEC, IEEFA and ECA.

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# Appendix – Process for developing new grid architecture, roles and responsibilities

## Introduction

This document<sup>19</sup> outlines a proposal for a co-design a process to provide guidance on a vital but missing piece of the DER puzzle: the appropriate grid architecture<sup>20</sup> to achieve DER integration that supports inclusive, clean, affordable and dependable energy for all users.

It is intended to feed into the post-ESB maturity plan for the DER workstream. We are proposing a co-design process to be undertaken in the second half of 2021, which should inform and guide further work on the maturity plan.

We would welcome the ESB's formal endorsement of this or a similar process by including it in its final mid-year report to energy ministers.

We would also caution the market bodies against implementing solutions to address perceived immediate issues in the first phase of the maturity plan which may conflict with long-term, more strategic or holistic solutions.

This process broadly follows the co-design methodology outlined in the New Energy Compact and can incorporate user-centred design approaches.

### Problem and opportunity

In the NEM, the current grid architecture is based on the one-way transmission of power from central power stations through distribution level networks to users: a top-down approach. However, this design is not fit for purpose as we move to a more decentralised and localised energy system.

Fundamentally, a high DER system is unlikely to maximise its potential benefits to users without more detailed consideration of how users and their representatives (eg new energy services traders) can exercise greater control and autonomy in a more decentralised energy system. Indeed, some recent and mooted market body interventions in the DER space could be interpreted as reinforcing top-down, centralised control.

This problem is most obvious around clarifying distribution system operator (DSO), distribution market operator (DMO) and distribution trading platform (DTP) roles and responsibilities.

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<sup>19</sup> The proposal has been drafted by consumer groups TEC, ECA and ACROSS, but the intent would be to include a range of energy stakeholders as part of the final co-design process.

<sup>20</sup> Grid architecture here refers primarily to distribution-level system operator and market operator (including trading platform coordination) roles and responsibilities.

Conversely, there are workstreams in the DER maturity plan (eg, the trader-services model) which would arguably be difficult to finalise without some clarification of the higher level grid architecture.

Experts argue that when grid architecture is considered early in the transition process it can help to address system complexity and minimise unwanted consequences.

Further, there are opportunities to design a market architecture that can lead to more inclusive, clean, affordable and dependable energy for all users – eg, by supporting local energy markets or peer-to-peer trading.

However, the work for the maturity plan detailed in the ESB’s April 2021 Options paper does not address these fundamental and overarching issues related to the future place of DER in the whole energy system or the roles and responsibilities of market bodies and other parties therein.

## **Objective**

Co-design a new user-centred grid architecture suitable for a high DER system that (a) informs and guides further reforms to support DER integration, and (b) supports inclusive, clean, affordable and dependable energy for all consumers.

## **Intended outcome**

Ideally, gain agreement around one user-centred grid architecture model or framework (or at least the core elements), for more detailed design work and implementation into the maturity plan from early 2022. This outcome should create an overarching strategic framework for the entire maturity plan.

## **Governance**

Noting that a governance mechanism for the maturity plan has not yet been finalised, this process could be administered and sponsored by:

- the AEMC and ARENA under the DEIP;
- ECA; or
- another mechanism.

As with the highly successful DEIP access and pricing process, it should be overseen by a multi-stakeholder working group, including user representation, which would be responsible for developing the co-design process in more detail.

## **Participants**

- User advocates
- Market bodies
- Industry
- Academics/researchers

## **Consultant**

We recommend the engagement of a consultant to prepare an analysis of the models that come out of workshop 3 to be presented in workshop 5 to assist stakeholders narrow down the grid architecture options. The analysis would include:

- Pros and cons of the options from a user perspective, market and system perspective.
- A basic cost benefit analysis of model options.
- Evaluation against assessment criteria.
- Recommendations to modify, delete or pursue options.

## Process

We propose that in the second half of 2021 there should be a series of workshops to co-design user-centered solutions to ensure appropriate grid architecture/roles and responsibilities are in place to maximise the user benefits of a high DER system.

### **Workshop 1: "The vision thing" (half day)**

#### *Objective/outcome*

- Agreement on the vision for a high DER system and the objective of a new user-centered grid architecture.
- Agreement on the process or methodology for implementing this vision.

#### *Process<sup>21</sup>*

- Develop user-centred *vision* for high DER system.
- Explore the energy aspirations of a range of users (those with DER and those without).
- Clarify DER integration *problems and opportunities* (problem and opportunity statements) with respect to grid architecture.
- Develop *objectives, principles and evaluation criteria* for a new grid architecture consistent with this vision.

### **Workshop 2: "Blue sky" (half day)**

#### *Objective/outcome*

- Identify novel approaches to the problem/opportunity consistent with the vision.

#### *Process*

- If we were starting from scratch, how would we design market architecture for a high DER system to support the approaches identified above? What would be key elements or considerations?<sup>22</sup>
- Taking into account the use-centred vision for high DER, explore a variety of approaches to how this could be delivered, such as community or local energy markets, peer to peer trading, local batteries, portable batteries. Could use scenarios to explore opportunities.
- Filter responses through the evaluation criteria agreed in Workshop 1.<sup>23</sup>
- Agree whether there are any new models or approaches which should be taken to Workshop 3, alongside existing grid architecture models.

### **Workshop 3: "A thousand flowers" (full day)**

#### *Objective/outcome*

- Scope and refine potential grid architecture models

#### *Process*

- Explore potential models including:

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<sup>21</sup> This process should be relatively straightforward, given that it builds on earlier work on this theme.

<sup>22</sup> For instance, the documentary *2040* explores how communities in Bangladesh which were previously offgrid have been able to create local PV-based microgrids because they have leapfrogged a centralised grid.

<sup>23</sup> This could potentially lead to some modification of the original assessment criteria.

1. Status quo or the ESB's No Platform model
  2. Centralised/top-down/TSO model
  3. Bottom up, decentralised "democratic grid" model
  4. Possible counterfactual: flight from the grid (mass disconnections)
- Any other plausible options that come out of Workshop 2
- Assess against criteria and suggest possible modifications or deletion of the above models

#### **Workshop 4: "Reality check" (half day)**

##### *Objectives/outcomes*

- Inform consultant analysis of the pros and cons of each of the grid architecture model options from a user perspective.
- Refine the grid architecture model options.

##### *Process*

- Group work to test grid architecture models against an agreed set of use cases, which could include:
  - PV.
  - Batteries/EVs.
  - Flexible demand – eg, hot water.
- Plenary to agree on any changes to the outcomes of Workshop 3 (ie, modifications or deletion of models).

Note: Because the focus of Workshop 4 is behavioural, it should be designed and facilitated by a design professional or behavioural expert.

#### **Workshop 5: "The numbers" (half day?)**

##### *Objective/outcome*

- Enable workshop participants to further refine the grid architecture model options informed by the consultant's report.

##### *Process*

- Presentation by consultant.
- Group work to discuss the recommendations proposed by the consultant in the context of the outcomes of Workshop 4.
- Plenary to identify (a) whether any options should be modified and/or no longer be taken forward for consideration, and (b) any further whether any additional analysis is required.

#### **Workshop 6: "WTF (Ways Through and Forward)" (full day)**

##### *Objective/outcome*

- Develop a preferred or shortlist of user centred grid architecture model/s and pathways to 2030 to guide the maturity plan

##### *Process*



- Participants review and assess options (against previously agreed criteria)
- Shortlist options (ideally to recommend a preferred model)
- Consider pathways to achieving options:
  - New rules and regulations
  - Complementary measures
  - Timeframes
  - No/least regrets short term reforms
  - Further work required
  - Integrating outcomes into the broader maturity plan from early 2022, including recommending a governance framework