ACTION LIST

The following are the current SRC actions for completion.

Action	Date for completion	Status
The secretariat to consider how elements of the strategy session can be incorporated into the SRC's strategic themes and forward work programme.	Oct-22	**In progress.** The secretariat has included an updated strategic themes document and proposed forward work programme for discussion at this meeting
Secretariat to review the SRC risk register and whether COVID should remain at the top.	Oct-22	**In progress.** The secretariat has included a revised 'risk radar' for discussion at this meeting.
The secretariat to complete a stocktake of what reporting is done by the grid owner when transmission to a GXP is reduced to n-security	Oct-22	**In progress.** The theme for this meeting is Transmission, and the grid owner will cover this in their presentation (item #8).
The secretariat to provide regular updates to the SRC regarding the status of the Hazards from Trees Regulations	Ongoing	**In progress.** The secretariat to invite MBIE to update at Q1 or Q2 meeting, where is it proposed the ENA will give its view, as part of a broader topic of industry associations.
Members commented there may be benefit in the SRC receiving information about recent events in the Australian energy industry and energy markets. This could include lessons learned, potential vulnerabilities and points of difference between the respective industries.	Ongoing	**In progress.** The secretariat has included information and links in this paper (see 1.5 below). Members may consider the format and frequency of further information, including relevant themes or topics for future meetings

1. Updates

This section provides information on matters that do not warrant a dedicated agenda item, such as articles relevant to the meeting's theme, updates on recent matters relevant to security and reliability that have previously been discussed by the SRC or published by the Authority.

For some of the articles, the secretariat has noted some key points members may wish to focus on.

1.1 System operator security of supply updates

1.1.1 Please use this link to access the latest weekly update report from the system operator: Recent SOS Updates | Transpower

1.1.2 If members have concerns, or require further information, about the system operator security of supply updates, they can raise these with the secretariat.

1.2 New Zealand Generation Balance - NZGB

1.2.1 To review the latest NZGB, please use the following link: https://nzgb.redspider.co.nz/

1.2.2 At members' request, the secretariat is no longer preparing a paper on this topic but will provide a link to the latest review in this section in the papers for each SRC meeting. The information presented here is to provide members with the latest published version.

1.2.3 If members have questions or need further information, they are welcome to raise this with the secretariat. If members have security and reliability concerns it would be appropriate to raise these during item #7 (the risk radar).

1.3 Electricity Amendment Act 2021

1.3.1 The below information about the Electricity Amendment Act 2021 was previously circulated to members and has been included here for reference.

1.3.2 On 31 August 2022, the Electricity Industry Amendment Act 2021 (Amendment Act) received Royal Assent. The Amendment Act amends the Electricity Industry Act 2010 and implements a number of recommendations from the 2019 Electricity Price Review to improve the electricity regulatory system.

1.3.3 The Electricity Industry Amendment Act 2021 implements a number of recommendations from the 2019 Electricity Price Review to improve the electricity regulatory system.

1.3.4 The changes to the legislation include an additional statutory objective for the Authority to protect the interests of domestic consumers and small business consumers in relation to their electricity supply. This additional objective is specifically aimed at the direct dealings of industry participants with domestic consumers and small business consumers.

1.3.5 The amendment also transfers the Part 3 Arms-Length rules from the Act into the Electricity Industry Participation Code (a new Part 6A) to give the Authority the ability to respond quickly to technological changes and promote competition and innovation in emerging distributed energy markets. It also strengthens the Authority's enforcement regime through increased penalties and gives it the ability to set information and quality requirements for distributors.

1.3.6 If the SRC would like Authority staff to provide a verbal update of the changes made by the Amendment Act, please advise the secretariat.

1.3.7 For those interested in reviewing the full Act, it is available here.

1.4 Standards

1.4.1 At the August SRC meeting, members expressed concern over the need to update and implement standards. To gain a better picture of which standards were of concern, the Chair asked a member to outline their concerns in a brief paper, which has been provided and will passed on to the relevant administering agency, in accordance with the Authority's response.

1.4.2 The Authority's response to the SRC's advice is item #5 – *Correspondence*.

1.5 Australian Energy industry and markets

1.5.1 At the August meeting, members commented there may be benefit in the SRC receiving information about recent events in the Australian energy industry and energy markets. This could include lessons learned, potential vulnerabilities and points of difference between the respective industries.

1.5.2 To assist members, the secretariat includes information below, including links to a range of articles. Neither the secretariat nor Authority endorses the information in the articles linked. However, it offers useful context for the SRC's discussions.

1.5.3 If members have further suggestions about how they could most usefully receive this information in future (for example, future papers or presentations) they can advise the secretariat.

Background on Australia's energy sector

1.5.4 Australia's national energy governance is overseen by three market bodies, each of these bodies is an independent decision maker.

(a) The Australian Energy Market Commission (AEMC) – its role is rule maker, market developer and expert advisor to government;

(b) The Australian Energy Regulator (AER) – its role is economic regulator and rule compliance;

(c) The Australian Energy Market Operator (AEMO) – its role is electricity and gas system and market operator.

1.5.5 The Australian energy sector has seen significant shifts towards renewables this decade, with Australia's energy transition continuing to accelerate towards becoming more decarbonised, decentralised, digitalised and democratised.

1.5.6 The AEMO Corporate Plan,[1] details some of these key changes:

(a) This decade saw some of Australia's oldest and significant coal-fired power stations stop operating. Four of Australia's remaining 16 coal-fired plants are set to retire this decade and five more in 2030.

(b) More than 93% of investment in capacity since 2012/3 has been in wind and solar.

(c) The instantaneous penetration of renewable energy has been increasing year on year (from 38 per cent in 2018 to 57 per cent in 2022 in the National Electricity Market, and from 39 to 65 per cent in the Wholesale Electricity Market over the same period).

(d) On a per capita basis, Australian businesses and households lead the world in the adoption of distributed energy resources, such as rooftop solar systems – roughly 2.5 million systems in 2020.

[1] AEMO, Corporate Plan FY2022 – see here for report: fy22-aemo-interactive-corporate-plan.pdf

(e) Solar systems installed at record rate – approximately 3GW from 2021 and 50% up from 2020. On per-capita basis, Australia's installation is double Germany's (nearest rival) and 10 times the world average.

Challenges and opportunities of increased intermittent generation

1.5.7 1.5.7 The increase in solar has seen Australian households become generators. At the rate the uptake of solar energy is progressing, AEMO estimates that rooftop solar PV installations could generate 30% of total National Electricity Market renewable energy and 14.7% of the total National Electricity Market generation by FY2031.

1.5.8 This also presents challenges for the energy sector, as the locations where solar and wind projects are planned, are often locations with electrically weak fringes on existing transmission networks. This underlines the need for the alignment of new generation and transmission capacity.

How is the Australian energy sector different to New Zealand's?

1.5.9 There are some key differences in Australia's generation mix to New Zealand.

1.5.10 Australia's electricity is mainly supplied via thermal (gas and coal) generation, with significant amounts of solar, wind and hydro in some states.

1.5.11 Their renewable generation is also heavily subsidised, and their thermal generation does not pay for emissions - New Zealand's thermal generators pay for theirs.

1.5.12 Australia went through a period of high prices following the closure of major thermal generating plant in 2017 but this reversed following installation of large amounts of subsidised wind and solar.

Australian Energy Market suspension and reinstatement

1.5.13 On 15 June 2022, AEMO suspended the wholesale electricity spot market across all five participating states. This was the first time in the 24-year history of the National Electricity Market that the Australian market had been suspended in this way.

1.5.14 This suspension followed the administration of price caps in Queensland, New South Wales, Victoria, and South Australia due to surging wholesale electricity prices in the weeks prior 15 June - reaching $1,000/MWh for four consecutive hours. Under the Australian National Electricity Law and the National Electricity Rules, a $300/MWh price cap is administered once wholesale electricity prices reached a specified cumulative price threshold, this being $1,359,100 over a seven-day period [refer to National Electricity Rules Clause 3.14.3(s)(3)].

1.5.15 Following the imposition of this price cap, Australian thermal generators chose to cease offering generation as they would be operating at a loss at the mandated price. Despite AEMO ordering thermal generators to generate at a loss and seek compensation after the fact, AEMO was unable to achieve a reliable supply of electricity. This prompted AEMO to suspend spot trading altogether and direct generation at set prices.

1.5.16 The suspension was lifted on 23 June 2022 after market conditions improved, including 4GW of generation returning from maintenance and unplanned outages,

as well as the return of market participants who had withdrawn at the $300/MWh price caps AEMO had set.

1.5.17 The issue of a pre-determined price cap within Australian legislation has prompted Authority staff to examine the Code to ascertain if there are any dollar values within it that might cause a similar issue. To date no values have been found that could cause a similar issue in New Zealand.

Work supporting the transition

1.5.18 The saturation of renewable resources in Australia is dramatically changing the conditions in which AEMO manages power system security. The National Electricity Market is expected to reach up to 100% instantaneous renewable penetration by 2025 if current trends continue, and with it, new operational conditions will emerge.

1.5.19 The Engineering Framework is a toolkit developed by AEMO and the energy industry to help assist the transition of the National Electricity Market to a more secure and efficient future system.

1.5.20 It is intended this will be achieved through defining the full range of operational, technical and engineering requirements needed to deliver the futures envisaged by the Integrated System Plan (ISP).

1.5.21 ISP is a whole-of-system plan that provides an integrated roadmap for the efficient development of the National Electricity Market over the next 20 years and beyond. Its primary objective is to maximise value to end consumers by designing the lowest cost, secure and reliable energy system capable of meeting any emissions trajectory determined by policy makers at an acceptable level of risk.

1.5.22 As part of the framework, AEMO released the Operational Conditions Summary in July 2021. Operational conditions are generation mix and loading combinations projected to occur five to 10 years in the future that will necessitate changes to current operational levels.

1.5.23 The Engineering Framework informs the preparation of the National Electricity Market for operation under six identified operational conditions, including operation with 100% instantaneous penetration of renewable energy by 2025. The six operational conditions are:

(a) Fewer synchronous generators online

(b) Ubiquitous rooftop solar

(c) Extensive grid-scale VRE

(d) Structural demand shifts

(e) Responsive demand

(f) Widespread energy storage

1.5.24 AEMO recently engaged in extensive stakeholder and industry consultation to understand potential gaps and actions required to bridge the gaps between the current operational conditions to the desire future conditions.

1.5.25 Links to relevant articles:

- Australia's energy crisis: a guide for businesses - Energy Action
- Australia's energy crisis makes winners out of fossil fuel exporters and losers of everyone else, expert says - ABC News
- Australia's Energy Crisis and Electricity Breakdown Explained - Bloomberg
- Australian energy crisis: AEMO warns on electricity reliability as projects delayed (afr.com)

1.6 Boston Consulting Group (BCG) Study – Roadmap for a low carbon energy future

1.6.1 As outlined in emails from the secretariat, a member has noted BCG is releasing for consultation, an independent commissioned report and roadmap of paths to net zero carbon by 2050.

1.6.2 SRC members have been offered the opportunity to attend the event on 25 October (the night before the SRC meeting). Members that attend the release event may wish to raise relevant issues at the SRC meeting the following day, either with attendees during presentations or in discussion on the SRC's risk radar (previously called the 'register of top security and reliability risks').

1.6.3 If the SRC identifies areas of concern impacting security and reliability, it can raise these in its advice to the Authority.

Commerce Commission

Commerce Act amendment a 'game-changer' – report | Energy News

System operator

Polar blast - will the electricity system cope? | Stuff.co.nz

New large-scale connections

Decarbonisation drives 'unprecedented' interest in new connections – Unison | Energy News

EV Charger mandates?

ENA backs smart EV charger mandate | Energy News

Questions for the SRC to consider

The SRC may wish to consider the following questions.

Q1. What further information, if any, does the SRC wish to have provided to it by the secretariat in the updates section?

Q2. **Does the SRC have a preference for how information in this paper is presented?**

Q3. **What advice, if any, does the SRC wish to provide to the Authority?**