SECURITY AND RELIABILITY COUNCIL

MINUTES

Meeting number: 46

Venue: Rūnanga, Electricity Authority, Level 7, AON Centre, 1 Willis Street, Wellington

Time and date: 9.00am until 4.00 pm, Thursday 22 February 2024

Members Present

- Hon Heather Roy (Chair)
- Allan Miller
- Barbara Elliston
- Ben Gerritsen
- Chris Ewers
- Nanette Moreau (via Teams)
- Paula Checketts
- Phil Gibson
- Rebecca Larking (via Teams)

Apologies

- Mike Underhill

In attendance

Name	Title	Agenda item # attended
Electricity Authority (Authority):		
Sarah Gillies	CE, Authority	#1-2, #4-14
Andrew Millar	GM, Policy, Authority	#4-14
Mark Herring	GM, Corporate and Market Services, Authority	#10
Grant Benvenuti	Principal Advisor, Market Policy, Authority	All items excluding #3
James Blake-Palmer	Senior Analyst, Policy (Secretariat)	All items excluding #3
Peter Taylor	Manager Commercial, Authority	#10
Natalie Bartos	Principal Analyst, Policy Operations, Authority	#8a, #8b, #11
Sheila Matthews	Manager, Future Security and Resilience, Electricity Authority	#8a
Elzeth Grant-Fargie	Senior Analyst, Future Security and Resilience, Electricity Authority	#8a
Nasser Usman Faarooqui	Principal Advisor, Authority	#8a
Doug Watt	Manager, Monitoring, Authority	#11
Other:		
Lana Stockman	Chair, Market Operations Committee, Authority	#10

Name	Title	Agenda item # attended
John Clarke	Executive GM, Grid Development, Transpower	#8c
Chantelle Bramley	Executive General Manager Operations, Transpower	#8a (as observer) #8b, #8c
Rebecca Osborne	Head of Market Services, Transpower	#8a (as observer) #8b
Hamish McKinnon	Principal Advisor, Market Services, Transpower	#8a (as observer) #8b
Justan Clark	Programme Director, Net Zero Grid Pathways, Transpower	#8c

The meeting opened at 9.00am, Sarah Gillies, Grant Benvenuti and James Blake-Palmer joined the meeting at 9.00am.

1. Attendance and apologies (agenda item 1)

1.1. The Chair welcomed members to the 46th meeting of the Security and Reliability Council (SRC). A quorum was established.

1.2. The Chair noted an apology from Mike Underhill.

1.3. The Chair noted this is the final meeting for departing members Mike Underhill and Barbara Elliston.

2. Changes to disclosure of interests (agenda item 2)

2.1. The Chair reviewed the interests register.

2.2. There were no changes disclosed. The Chair approved members to act despite those declared interests.

Sarah Gillies, Grant Benvenuti and James Blake-Palmer left the meeting at 9.05am.

3. Members-only session (agenda item 3)

3.1. The members discussed their priorities for the meeting.

Sarah Gillies, Grant Benvenuti and James Blake-Palmer joined the meeting at 9:15am.

4. Minutes of previous meeting (agenda item 4)

4.1. The minutes of the 26 October 2023 SRC meeting were discussed.

4.2. The minutes were accepted as a true and accurate record.

Chris Ewers moved. All members approved.

5. Correspondence (agenda item 5)

5.1. The Chair gave an overview of the correspondence including the letter sent to the Authority and the Authority's reply.

5.2. The Chair noted the detail in the letter of response from the Authority gave the SRC good feedback on its advice.

5.3. Members discussed the proposed independent review of the system operator, noting general support for the review and the need for a high-quality, independent reviewer.

5.4. Members discussed winter initiatives, as set out in the Authority's letter of response, noting the opportunities for demand response and flexibility, with the need to carefully monitor peak capacity and forecast demand.

6. Action list and updates (agenda item 6)

6.1. The Chair introduced this item and noted the actions.

6.2. The Chair noted the purpose of the paper and the opportunity it gave members to receive regular updates and information on aligned themes and topics.

6.3. The Chair received unanimous support from members for the Authority to provide a regular winter update at the SRC's Q4 meeting each year.

6.4. A member enquired about the Authority's Briefing for the Incoming Minister (BIM), noting the links were to MBIE briefings.

6.5. A member noted the timescale for the Authority-published *load duration curves* is not adjustable.

Action 1: The secretariat to share with members, a copy of the Authority's briefing for the incoming Minister for Energy.

Action 2: The secretariat to pass feedback about load duration curves to the Authority's Data Information Management team.

7. Risk radar (note the latest version at the end of these minutes) (agenda item 7)

7.1. The Chair introduced this item and members noted and discussed the following:

a) The radar has an emphasis on supply-side, with the need to consider more demand-side risks, given the potential impact they have on security of supply

b) The industry is being challenged to do more for vulnerable consumers to ensure ongoing access to full supply

c) Failure or confusion in demand-side communications can lead to inadequate demand-response and peaking issues

d) New customer products can affect the quality and reliability of supply through harmonics or large synchronised demand

e) Fires are a significant short-term risk to both transmission and distribution networks

f) Reduced gas supply from underwhelming drilling campaigns not delivering against forecasts and causing as yet unknown cascade effects to peaking and last resort generation

g) Gas not being prioritised for electricity generation and informal gas arbitrage or demand response arrangements (eg with Methanex) at risk if Methanex closes or when not operating at full capacity

h) Insufficient collaboration, especially between the industry and consumers leading to increasing consumer frustration

i) The short-term risk inherent in a single point of failure and whether the industry is actively reducing those risks

j) The longer-term risk if we do not have in place the mechanisms to ensure workforce capability for the duration of the transition to renewables

k) Are the right incentives in the right places to attract investment and action where needed?

l) Where there is significant transmission and network investment proposed, how will this impact vulnerable consumers' ability to afford the power they consume?

m) The lack of a holistic view is causing a fragmented approach and inefficiencies

n) With the greater role for consumers in future power system operation, have consumers got the right technology and information available to make informed decisions?

o) The low-risk approach being taken by industry has potential to be at high cost to consumers, raising the question whether consumers are comfortable with the cost-effectiveness of proposed spending and aware of potential trade-offs?

8. Incentive gaps in the electricity sector (agenda item 7a)

8.1. The Chair introduced Barbara Elliston's paper, noting it as an opportunity to identify areas of focus for the SRC from a long-standing members' perspective.

8.2. The presentation and discussion noted:

a) The move from a centralised system to a market-based system has impacted on the incentives for some participants by requiring them to prioritise what is best for their own organisations, risking losing sight of the consolidated system view

b) There is a need to change the system architecture, as it is predicated on uni-directional power flow, which is no longer fit-for-purpose

c) Many consumer appliances can handle higher voltage ranges but the existing standards are out of date and MBIE lacks the incentives to undertake the work

d) In order to export to the grid, voltage needs to be raised at the consumer connection point relative to the network they are injecting into. This has implications for equipment connected to these higher voltage points and needs to be brought to manufacturers' attention. Because of this the connection standards also need to be amended to allow these higher voltages

e) It is important to clarify the root cause of any electricity environment issue so it can be properly addressed, especially as prosumers are entering this environment. It is important to identify who is incentivised and who is accountable, as incentives may be there but blocked. There may be a role for the Authority to advocate a view, including who is to deliver a solution

f) Consideration needs to be given to advocating for changing our use of the *Multiple Earth Neutral* system[1], if we are to ensure alternative supply resilience for consumers interacting with system assets as part of bi-directional power flow. Hardware changes at individual premises may be required to enable consumer s to operate independently of the grid.

g) Power system design – Which entities are considering design parameters, other than Transpower? How can we ensure we are avoiding issues like wind farm entry to the grid being halted due to frequency limits in the standards? Is this an issue MBIE should be investigating?

8.3. SRC members and Authority staff are comfortable for Barbara Elliston's paper to be shared internally at the Authority to assist the future security and resilience workstreams.

Phil Gibson left the meeting at 10.34am

Sheila Matthews, Elzeth Grant-Fargie, Nasser Usman Faarooqui and Natalie Bartos joined at 10.40am

Chantelle Bramley, Rebecca Osborne, Hamish McKinnon and Duncan Buchanan joined at 10.40am (as observers)

9. The future of power system operation (agenda item 8a)

9.1. The Chair introduced Authority presenters to the meeting.

9.2. The presentation and discussion noted:

a) Reflections on how the power system will change in the medium to long term from a security and resilience point of view

b) The Authority's current consultation and the questions it poses around future power system coordination, network planning and the potential for conflicts of interest for participants in more than one role

c) The future security and resilience (FSR) indicators the Authority is monitoring, including distributed generation capacity and a committed pipeline of new generation of more than 700MW

d) Assumptions are changing with new two-way power flows and reduced ratios of synchronous generation, creating both issues and opportunities

e) The changing nature of how consumers and prosumers use technology and interact with the power system to best suit their needs

f) Lessons from Australia, including rooftop solar adoption, renewable energy zones, standby reserves and demand response. Lessons from the USA, including the Energy Reliability Council of Texas'

[1] The requirement to use the multiple earthed neutral system is administered by Worksafe (Energy Safety Service)

(ERCOT's) use of an out of market solution which cost consumers $8bn over 6 months through artificially inflated security prices

Phil Gibson rejoined the meeting at 10.50am

g) Points of difference with Australia, including high solar penetration, low renewable generation and different market mechanisms – Reliability and Emergency Reserve Trader (RERT), Reliability As A Service (RAAS) mechanisms and a wholesale demand response mechanism (WDRM)

h) The role of artificial intelligence (AI) to speed up and increase the volume of data processing, with self-programming algorithms identifying trends and patterns, resulting, for example, in an increase of 20% in the value of wind generation

i) The trade-offs, including the environmental cost of high data processing (estimated to be approximately 40% of global emissions by 2040), data safety, privacy and ethical concerns around accountability for the consequences of decisions.

Sheila Matthews and Elzeth Grant-Fargie left the meeting at 11.25am

Chantelle Bramley, Rebecca Osborne, Hamish McKinnon and Duncan Buchanan joined the meeting (as meeting participants) at 11.25am

10. System operator's support of industry evolution (agenda item 8b)

10.1. The Chair introduced the presenters from Transpower, as system operator and asked Chantelle Bramley to briefly note the recent role changes and introduce the team.

10.2. The system operator's presentation was taken as read. The presentation and points of discussion included:

a) Acknowledging the Authority's framing of the issues in its presentation (agenda item 8a)

b) Noting the increasing demand growth and the challenges presented by changes in the quality of the electricity on the grid and the need for improved visibility and forecasting

c) The risks and opportunities in distributed energy resources (DER) and the need for a 'social licence to operate' by ensuring a secure and reliable supply of electricity for consumers and enabling consumers to engage as they wish

d) How the system operator's new connections operations are transitioning to account for new entrants, changing workforce and adapting to meet future needs

e) The system operator's approach of enhancing existing security of supply obligations by increasing the frequency of reports and analysis

f) The need to consider the audience, with information about the sector that enables understanding and engagement with new entrants and consumers

g) The system operator is collaborating, for example with groups like the CEO forum, and cognizant of how the system operator and distribution system operators (DSO's) need to work together

h) The need for a platform to drive discussions, and clarity of the roles required to support it. These were noted as issues the Authority's FSO workstream is looking at and could be brought back to SRC again at a future meeting.

Chantelle Bramley, Rebecca Osborne, Hamish McKinnon and Duncan Buchanan left at 12.10pm

10.3. SRC members discussed the Authority and system operator presentations and considered what advice to provide to the Authority.

The meeting broke for lunch at 12.20pm

John Clarke, Chantelle Bramley and Justan Clark joined the meeting at 1.00pm

11. Grid owner perspectives on future power system operation (agenda item 8c)

11.1. The Chair introduced the presenters from the grid owner, whose presentation was taken as read. The presentation and points of discussion included:

a) A summary of the grid owner paper outlining the sharp increase in new connection enquiries and the need for the grid owner to secure resilience funding.

b) The advent of regional growth (for example the far south and Queenstown lakes) and the impact of this on the proposed net zero grid pathways

c) How some changes buy time to enable surfacing of other solutions, including but not limited to staggered investment in lines and grid upgrades

d) Increased funding for the grid owner will result in an increased proportion of transmission costs in average consumer bills from 8-11% over the next 5-year regulatory period (RCP), which will decrease again over time, as other components of consumers' bills increases. This could change if forecast spending occurs early and the rate of growth is slower than predicted

e) There were many learnings from Cyclone Gabrielle that are being factored into the grid owner's future planning and investment

f) The grid owner's consultation paper indicates the impact of benefit-based charging on certain entities

g) There are both incentives and minimum quality requirements driving the grid owner to focus on service outcomes and meet current performance metrics

h) Renewable Energy Zones (REZ) may be needed to support significant growth and make for more efficient connections. REZ, as a concept, is being picked up through regional development plans, rather than through a regulatory construct

i) In Australia they are considering a voluntary congestion management market (essentially a financial transmission right – FTR – product) as they do not have nodal pricing

j) The lead times, especially for deployment of new distribution and high voltage lines is of concern. Australia is trying to address that issue by enabling earlier expenditure on certain items to get them started

k) Workforce needs are being addressed through proposed funding for both the end of RCP3 and into RCP4.

John Clarke, Chantelle Bramley and Justan Clark left the meeting at 1.58pm

12. Wrap up discussion on items #8a-#8c

12.1. The Chair led a wrap up session on the theme for this meeting.

12.2. Members discussed the *Future Power System Operation* theme papers and presentations and considered what advice to provide to the Authority

Lana Stockman, Peter Taylor and Mark Herring joined at 2.15pm

13. Market Operations Committee – presentation from the Chair (agenda item 10)

13.1. The Chair introduced this item and welcomed the Chair of the Authority's Market Operations Committee (MOC – a sub-committee of the Authority Board).

13.2. The presentation and points of discussion included:

a) A summary of the MOC and its role to provide governance of the Authority's service provider contracts

b) How the Authority maintains open channels of communication with the Market Operations Service Providers (MOSPs)

c) The approach the MOC takes using deep dives on certain issues to ensure MOSPs perform as expected and have the frameworks and support in place to do so

d) The need for engagement between the Authority's commercial and policy teams to ensure mechanisms in contracts align with policy

e) The system operator service provider agreement (SOSPA) reset is a year long process, with project team established

f) The Authority's project team will have more information available by the SRC's May meeting, which it can share with the SRC and seek feedback.

Lana Stockman, Peter Taylor and Mark Herring left at 2.30pm

Natalie Bartos and Doug Watt joined at 2.30pm

14. Winter initiatives and update on security of supply (agenda item 11)

14.1. The Chair introduced presenters from the Authority, noting a winter presentation from the Authority will be included in the Q4 agenda for future SRC meetings, to enable timely advice on any issues ahead of the following winter.

14.2. The presentation and discussion noted:

a) The strong position for this time of year, compared to recent years, in terms of energy

b) The increase in peak capacity issues, despite high levels of hydro storage at Taupo and in the southern lakes

c) High sea temperatures are impacting weather patterns, making El Niño weather predictions and accuracy of input assumptions difficult

d) The suite of regulatory enhancements over the next 12 months, including the MDAG recommendations, FSR work and strategic planning with the Gas Industry Co (GIC) and MBIE

e) Winter 2023 was tight but there was no loss of supply due to peak coordination issues. There was less thermal commitment due to high hydro availability but this trend reversed mid-year with good thermal commitment

f) The industry is working well together, with more coordinated outage planning, a successful Distributed Energy Resource (DER) aggregation trial and increased visibility of discretionary demand through market information initiatives. There are also battery energy storage systems in Transpower's connection queue

g) The demand-flex survey is designed to help quantify the levels of distributed resource (DR) available (and communications to support it) and help assess the extent of further encouragement needed

h) The regulatory enhancements proposed for the next 12 months, including ancillary services and the strong need for collaboration to support them

Natalie Bartos and Doug Watt left at 3.15pm

15. Wrap up discussion on item #11

15.1. Members discussed the Authority presentation and considered what advice to provide to the Authority.

16. The purpose and scope of next meeting's substantive papers (agenda item 13)

16.1. The Chair introduced this item and sought member views on proposed papers for the SRC's Q2 2024 meeting.

16.2. Members agreed the Chair would work with the secretariat to refine the scope of the papers for the next meeting.

17. The SRC's Forward Work Programme (agenda item 14)

17.1. The Chair introduced this item and sought member views on proposed themes and papers for the SRC's remaining 2024 meetings.

17.2. Members noted the following ideas (in no particular order) for further refinement:

a) Meeting locational capacity constraints with demand response – lack of signalling of scarcity price at some GXPs

b) Vehicle to grid and the practical realisation of its potential in the next decade Future technology potential – what are manufacturer's doing, comparator technologies, warranty issues

c) Understand security of supply risks from the development and concentration of wind, and solar, generation in certain locations

d) How the sector understands where the single points of failure occur and if there is a sector view of this

e) Gas deep dive, including government settings on gas, information disclosure, Methanex, transition and beyond, biogas, GIC, Clarus, Enerlytica

f) The Minister for Energy, MBIE and the energy strategy

g) A 'state of the nation' presentation from the Consumer Advocacy Council

h) Network reliability and performance, including the Commerce Commission, ENA

i) An update from ENA Chair Tracey Kai on priorities and learnings over the past year

j) Technology and information security, including disruptive events, solar flares

k) Fires and public safety

l) Examples of collaboration (Mercury presentation on BCG report planning and coordination)

m) An update from the pan-industry work – depending on timing may be verbal

n) A paper from Departing long-serving SRC member, Mike Underhill

18. Departing members

18.1. The Chair and members acknowledged the work of departing SRC members, Barbara Ellison and Mike Underhill and thanked them for their service.

The meeting ended at 4.00pm

Please note the latest version of the SRC's risk radar over the page

Risk Radar – Cause and Effect (see key below for guidance)

Priority	Cause	Effect	Horizon	Comments
	Reduced gas supply	Reduced peaking and last resort generation	P	
	Insufficient collaboration	Increased costs, reduces reliability	P	
	Government policy misaligned with industry objectives	Reduced investment and confidence **&** reduced water for hydro output **&** reduced gas	P	
	Increased small scale DG	Network congestion	P	
	Weather events	Increased outages	P	
	Inadequate AUFLS	Blackouts	P	
	Cyber attack	Damages system assets	P	
	Physical attack	Damaged system assets	P	
	Pandemic	Reduced workforce, restricted travel	P	
	Less live work	Increased outages	P	
	Social media	Personnel/asset attacks	P	
	Natural disasters and fires	Damaged system assets	P	A resilience issue
	Delayed tree regulations	Increased outages	S	
	Regulator strategic priorities misaligned with industry objectives	Reduced investment and confidence	S	
	Commerce Commission regulations	Inhibits investment	S	
	Supply chain	Reduced goods/services	S	
	Dry Year	Increased prices and emissions **&** reduced market confidence and investment	S	
	Increased intermittency	Reduced capacity and flexibility at peaks	S	
	Poor extended reserve implementation	Increased blackouts	S	
	Fragmented government approach	Delays	S	
	Lack of thermal	Reduced capacity and flexibility	L	
	Demand increases outpace generation capacity increases	Causing outages	L	
	Inefficient market response	Insufficient generation	L	
	Early thermal exit	Reduced capacity and flexibility	L	
	Poor/unenforced standards	Reduced power quality	L	Through noncompliance
	Insufficient DER uptake	Network instability	L	
	Generation market misaligned with policy changes	Reduced capacity and flexibility	L	
	Ageing assets	Increased failures	L	
	Over-reliance on AI and automation	Reduced emergency human input	L	Inadequate response leading to outages
	Ageing/emigrating workforce	Reduced institutional knowledge and people available to plan, design and build	L	
	EV uptake	Undermined LV network stability	L	
	Stranded asset costs	Reduced network viability	L	
	Simultaneous asset replacement	Reduced asset availability	L	
	Low-risk approach by industry	High-cost and consumer disengagement		*
	Consumer disengagement	Inadequate demand response and peaking issues		*

Key	Symbol/colour	Meaning	Horizon	Meaning
	Red	High priority	P	Persistent risks – could happen any time
	Amber	Medium priority	S	Risks that can manifest anytime in approx. the next year
	Green	Lower priority	L	Risks that can manifest in approx. 1-5 years

*** Proposed new entries - Needs further discussion at May meeting**