

MINUTES

Meeting number: 30

Venue: Electricity Authority Board meeting

Time and date: 9.31 am until 2.53 pm, Thursday, 12 March 2020

Members Present

- Hon Heather Roy (Chair)
- Barbara Elliston
- Anne Herrington
- Tracey Hickman
- Greg Skelton
- Nathan Strong
- Bruce Turner

Apologies

- Guy Waipara

Members not present

- Vince Hawksworth

In attendance

Name	Title	Agenda item # attended
<u>Electricity Authority (Authority):</u>		
James Stevenson-Wallace	Chief Executive	#4-11 (from 9.52 am-12.04 pm)
Grant Benvenuti	General Manager Market Performance (Acting)	#4-16 (from 9.52 am-2.53pm)
Michelle Heise	Manager Market Operations (Acting)	#1-2, #4-17 (9.31-9.44 am, 9.52 am-2.26 pm)
Callum McLean	Senior Adviser Market Operations	#1-2, #4-16 (9.31-9.44 am, 9.52 am-2.53 pm)
Bobby Stringer	Market Operations Coordinator	#1-2, #4-16 (9.31-9.44 am, 9.52 am-2.53 pm)
Joey Au	Principal Advisor	#8 (10.15-10.40 am)
Chris Otton	Adviser Wholesale Markets	#16 (2.26-2.37 pm)
<u>Other:</u>		
John Clarke	General Manager Operations, Transpower	#9-11, #14-16 (10.45-11.44 am, 1.20-1.44 pm, 2.26-2.37 pm)
Angela Houston	Planning and Project Support Manager, Transpower	#9 (10.45-11.11 am)
Matt Copland	SO Power Systems Group Manager, Operations, Transpower	#11, #15 (11.11-11.44 am, 2.26-2.37 pm)
Anna Li	Senior Power Systems Engineer, Transpower	#11 (11.11-11.44 am)

Name	Title	Agenda item # attended
Stephen Jay	General Manager Grid Development, Transpower	#12-14 (12.28-1.44 pm)
Stephen Jones	Strategic Asset Manager, Transpower	#12 (12.28-12.51 pm)
Raewyn Moss	GM External Relations, Transpower	#13-14 (12.51-1.44 pm)

The meeting opened at 9.31 am

1. Attendance and apologies

- 1.1. The Chair welcomed members to the thirtieth meeting of the Security and Reliability Council (SRC).
- 1.2. Apologies were received from Guy Waipara. Vince Hawksworth was not present. A quorum was established.

2. Changes to disclosure of interests

- 2.1. The Chair reviewed the interests register and approved members to act despite those declared interests.

Grant Benvenuti, Callum McLean, Michelle Heise and Bobby Stringer left the meeting

3. Meeting planning

- 3.1. The members discussed their priorities for the 12 March 2020 meeting.
- 3.2. The SRC noted that the level of detail in meeting minutes is about right, based on the 24 October 2019 meeting. Members noted brief recording of discussions alongside decisions is appropriate.

James Stevenson-Wallace, Grant Benvenuti, Callum McLean, Michelle Heise and Bobby Stringer joined the meeting

- 3.3. Members concluded a discussion about the then-current power outage in the Hutt Valley.

4. Previous minutes

- 4.1. The minutes of the 24 October 2019 meeting were accepted as a true and accurate record.

Barbara Elliston moved, Greg Skelton seconded

5. Correspondence

- 5.1. The Chair gave an overview of the correspondence.

6. Register of top security and reliability risks

- 6.1. The Chair introduced the second iteration of this now regular agenda item and invited comments from the members.
- 6.2. Members commented that:
 - a) There was unanimous agreement that Covid-19 is a genuine concern in the short term. There was concern about industry readiness throughout the supply chain (such as impact on contractor availability and shipping of imports and exports) and unreliable social media

commentary. Members had access to the then-latest announcements from the World Health Organisation and New Zealand's Ministry of Health. Members directed the secretariat to prepare a paper on the topic for the next meeting. Potentially several risks could come together while the country is dealing with COVID-19 situation and there is concern about the level of preparedness for multiple risks being realised.

- b) The Authority's review of system operator performance in 2018/19 noted shortcomings in assessing risk. A member considered that this is not where it needs to be and exacerbates wholesale market risks.
- c) Today's outage, as with other recent outages, highlights the need for joined up thinking amongst industry participants.
- d) Networks are under-investing in natural disaster resilience, due to Part 4 of the Commerce Act.
- e) The growth of renewables will increase the uncertainty of back up supply availability. This highlights the need for climate policy to be well thought through.
- f) The impact of new technologies and mass consumer participation needs to be balanced correctly with the right regulation and investment.
- g) Standards need to be set in advance of the internet-of-things revolution.
- h) It is hard to have confidence that there is not another example of serious network under-investment (as with Aurora Energy).
- i) Cyber security remains a significant risk to and the SRC does not have enough information on cyber security from individual energy providers.
- j) There is uncertainty around the gas supply with regards to exploration.

6.3. Attendees commented that:

- a) Covid-19 was a key short-term concern for all. An Authority representative highlighted some of the measures being taken at the time. The system operator is doing weekly reporting and the safety of control room staff is paramount.
- b) New Zealand tends to lag behind on cyber security preparedness.
- c) There is uncertainty around the Electricity Price Review.
- d) There is a need for transparent information about gas supply.
- e) That the Authority's changes in strategic priorities may give some parties increased uncertainty about investing in asset replacements for the long term.

1. Action: Secretariat to prepare a paper on the industry's readiness throughout the supply chain to manage a COVID-19 emergency.

7. Action list and updates

- 7.1. The Chair summarised the action list.

Joey Au joined the meeting

8. Electricity Price Review: A review of security and resilience

- 8.1. James Stevenson-Wallace:
- a) introduced Joey Au as the lead liaison with the SRC on the review of security and resilience
 - b) described the Authority's engagement with the Minister of Energy and Resources and the expectation set to start the review of security and resilience in July, and expect it will take 18 months (as it was of relatively lower importance than the Minister's concerns with performance of the wholesale market)
 - c) noted that the Authority wants to prepare this review in a tight, targeted and more consultative manner, and will be initially testing the terms of reference with the SRC
 - d) noted that the review output should be apolitical, insightful, relevant for ~10 years and provoke valuable industry conversations
 - e) noted that there is investment in place to ensure it is done to a high standard.
- 8.2. The SRC discussion concluded that:
- a) the next SRC meeting would discuss the scope of the review, and the process (specifically, the secretariat should investigate establishing a sub-committee of the SRC to engage on the review)
 - b) the review report should be accompanied by a reporting framework to prevent the report being a snapshot in time.

- 2. Action:** Secretariat to include an agenda item for the next meeting to present the scope of the 'G2' review and process (including the viability of an SRC sub-committee)

Joey Au left the meeting. John Clarke and Angela Houston joined the meeting

9. Review of March 2020 New Zealand Generation Balance report

- 9.1. Transpower representatives introduced the topic.
- 9.2. Members asked the representatives various questions which included the probability of a big generator not being available, whether they need to be worried about shortfalls and clarifying the relationship between grid owner and system operator.
- 9.3. Transpower representatives advised board members should be reassured and the process was working. They also advised that they are prepared to analyse Covid-19 influenced shortages.
- 9.4. The secretariat proposed going forward a summary of the NZGB report would be provided to the SRC, with a link to the full report attached. The SRC agreed.

Angela Houston left the meeting.

10. System operator performance for 2018/19

- 10.1. The Chair noted the financial performance aspect of the report was new. The Transpower representative confirmed this was for transparency purposes.
- 10.2. The SRC agreed to provide advice to the Authority that:
 - a) The system operator has made significant improvements to the way they communicate system risks to the industry. The effectiveness and durability of their communication processes should be monitored
 - b) The review noted the system operator has made improvements to its outage planning and real time outage management processes (see section 4.2 of the 2019 Annual Review). The next Annual Review should comment on the effectiveness of these improvements

3. Action: Review and monitor the effectiveness of the system operator's processes for communicating risks to the industry and assess the system operator on outcomes in the next Annual Review.

4. Action: Report on the effectiveness of the system operator's improvements to its outage planning and real time management process in the next Annual Review

Anna Li and Matt Copland joined the meeting

11. Overview of the 19 August 2019 power blackout in England and Wales

- 11.1. Transpower representatives gave an overview of the event, using prepared slides (Annexure 1).
- 11.2. Members asked system operator representatives various questions about the event including whether it could have been predicted and the impact of trains being non-compliant with the relevant standards. This led to a general discussion about equipment/appliance standards in New Zealand and whether current compliance measures for breaching those standards are suitable.
- 11.3. It was noted that the main media focus was on the train failure at rush hour on a Friday night and there was much less commentary around the deeper issues that led to the event itself.

John Clarke, Anna Li and Matt Copland left the meeting.

- 11.4. The SRC agreed to provide advice to the Authority that:
 - a) The SRC is concerned that equipment and appliance standards do not adequately protect the power system. This is especially true of standards for fault ride through for voltage and frequency.
 - b) The process for assessing compliance and the actual compliance levels against Standards is opaque.

The meeting broke for lunch at 12.04 pm and reconvened at 12.25 pm

12. Understanding the value of electricity to consumers

Stephen Jay and Stephen Jones joined the meeting

- 12.1. Transpower representatives gave an overview of their value of lost load (VoLL) study.
- 12.2. Members asked various questions about the composition and representativeness of the survey respondents. In some cases, Transpower representatives did not have detailed answers, offered to source them if required, and assured the SRC that representativeness was a key objective of the sampling methodology.

Stephen Jones left the meeting

- 12.3. The SRC agreed to provide advice to the Authority that:
 - a) the SRC is pleased to see the work that has been done and that the study has utility
 - b) the VoLL number contained in the Code, calculated in 2004, needs review. At the very least, an adjustment for CPI will increase it to ~\$25,000, which is a similar level to the average assessed by Transpower in its study. However, there may be more fundamental issues for review, such as prescribing a single average number to represent reality which varies across locations and times
 - c) the Authority should include a regular review and update of VoLL in its work programme.

13. Review of circumstances of March 2019 Wellington n-security

Raewyn Moss joined the meeting.

- 13.1. The Chair noted:
 - a) an updated and corrected paper was provided to members yesterday. Changes were made to account for the most recent correspondence on the matter and to correct a mischaracterisation of Transpower's view
 - b) that SRC member Greg Skelton has an interest in this matter in his capacity as Chief Executive of Wellington Electricity
 - c) that this matter has been discussed before and that it was previously put to the Authority Board, who asked the SRC to review the situation and report back to the Authority.
- 13.2. Transpower representatives presented an overview of the report and then invited questions.
- 13.3. Members asked a variety of questions including whether Transpower are satisfied with the current communication plan, and what rights customers have in these types of projects.
- 13.4. The secretariat asked a Transpower representative to reconcile their oral statement that Transpower had encountered asymmetric line swing before with section 4.3 of Transpower's report that states the opposite. The

Transpower representative undertook to investigate and advise the SRC's secretariat.

- 13.5. The secretariat asked whether Transpower identified any other tacit assumptions in other parts of its grid development planning. A Transpower representative responded that many lessons have been learned and Transpower is confident asymmetric line swing would be assessed appropriately in future grid works.
- 13.6. While not in scope of Transpower's or the secretariat's paper, several members considered it likely that the grid owner's outage planning was not in accordance with good electricity industry practice. The secretariat noted that any participant that reasonably believed the grid owner had breached Part 8 of the Electricity Industry Participation Code could allege a breach to the Authority's compliance team.
- 13.7. The SRC agreed to provide interim advice to the Authority that it will seek additional information before it can provide substantive advice on this agenda item.
- 13.8. The SRC directed its secretariat to:
 - a) investigate an incident that occurred after the new communications plan was developed (see paragraph 14.6 below for examples)
 - b) circulate a list of questions amongst the SRC and when confirmed send to Transpower to answer
 - c) prepare to have this matter concluded at the next SRC meeting.

5. Action: Secretariat to investigate an incident that occurred under Transpower's new External Communications Plan and develop a list of questions to pose to Transpower.

John Clarke joined the meeting

14. Transpower and Authority communication plans and practices for reduced security, outages & security of supply emergencies

- 14.1. Transpower representatives provided an overview of the paper they produced then welcomed questions from the members.
- 14.2. Members asked various questions about Transpower's outage protocol and external communications plan, and where customers can find outage information.
- 14.3. The secretariat asked about security reporting to the Commerce Commission.
- 14.4. Transpower representatives expressed concern about potential misinterpretation of data: that consumers might overestimate probability of failure during N security, that the distributor might be able to reconfigure their network such that an outage at a nearby GXP doesn't necessarily mean a given customer will lose power.

Raewyn Moss, Stephen Jay and John Clarke left the meeting

- 14.5. Due to the linkages with agenda item #13, the SRC agreed to provide interim advice to the Authority it will seek additional information before it can provide substantive advice on this situation.
- 14.6. The SRC directed the secretariat to provide a paper to the following meeting that assesses how Transpower performed relative to its new communications plan in a recent incident (possible examples are Rangitata River Floods December 2019, Auckland CBD January 2020, Northland November 2019). This is recorded in action #5 above.

15. Automatic under-frequency load shedding (and extended reserve) arrangements

John Clarke, Matt Copland and Chris Otton joined the meeting

- 15.1. The Transpower and Authority representatives gave an overview of the system and the move to the four block scheme.
- 15.2. A member questioned the impact of AUFLS on medically dependant and vulnerable customers. The Transpower representatives noted that AUFLS events happen roughly every 5 years, and customers are usually up and running within 2 hours. SRC members understood that distributors cannot arm AUFLS to account for medically dependent customers, as they are dispersed and mobile, and doing so would make it almost impossible to comply with the requirement for at least 32% of load.

Chris Otton, John Clarke, Michelle Heise and Matt Copland left the meeting

- 15.3. The SRC agreed to provide advice to the Authority that:
 - a) The SRC is comfortable with the revised focus of the project, supportive that it continue to be a priority for implementation, and is unlikely to review this topic in the next three years.

16. The SRC's work programme for 2020-23

- 16.1. The Chair noted that the work programme proposed has items grouped together where possible so themes are considered for each meeting. This should make topics easier to examine and provide comprehensive and meaningful advice to the Authority.
- 16.2. The SRC directed the secretariat to:
 - a) organise a cyber-security survey (to be sent to participants) for review in meeting 31
 - b) revise meeting 31 finish time to 4pm to reflect a fuller schedule.

6. Action: Secretariat to organise a cyber-security survey to be sent to participants for review in meeting 31

7. Action: Secretariat to revise meeting 31 finish time to 4pm to reflect a fuller schedule

17. General business

- 17.1. The Chair thanked Bruce Turner for his long and valuable service to the SRC, as this was his last meeting.

The meeting ended at 2.53 pm



UNITED KINGDOM LOSS OF SUPPLY EVENT

FRIDAY 9 AUGUST 2019

ELECTRICITY AUTHORITY – SECURITY AND RELIABILITY COUNCIL



TRANSPower

MARCH 2020

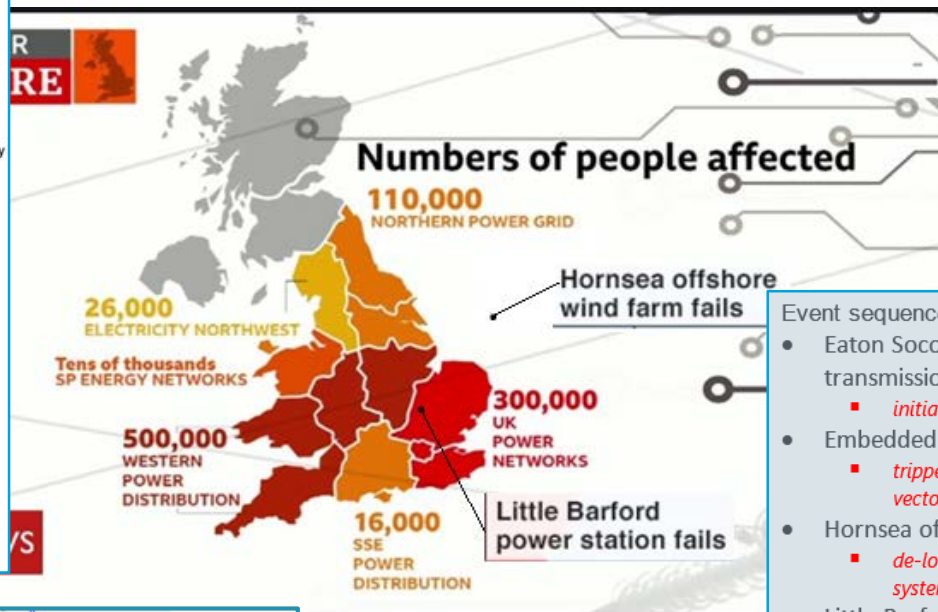
POWERING NEW ZEALAND TODAY + TOMORROW

SEQUENCE OF EVENTS

Power cut timeline

Friday 9 August

-  **16:52** Lightning storm strikes pylons and overhead lines north of London
-  **16:52** Two large generators reduce supply
-  **16:53** Frequency falls triggering back-up systems
-  **16:53** 5% of supply turned off to protect the other 95%
-  **16:53** Power cuts across Midlands, South East, South West, North West, East of England and Wales
-  **17:06** System stabilised
-  **17:37** Supply returned to normal



Event sequence:

- Eaton Socon-Wymondley Main 400 kV AC transmission circuit
 - initially tripped by lightning
- Embedded generation (-150 MW)
 - tripped on loss of mains protection triggered by vector-shift protection
- Hornsea offshore windfarm (-737 MW)
 - de-loaded due to unexpected windfarm control system response
- Little Barford power station (-641 MW)
 - steam turbine tripped – speed sensor discrepancy
 - 2x gas turbine tripped due to high-pressure excursion protection
- Embedded generation (-350~500 MW)
 - tripped on loss of mains protection triggered by rate of change of frequency protection
- Activation of LFDD scheme (+931 MW)
 - disconnection of electricity supply



LESSONS FOR NEW ZEALAND

Lessons identified considering National Grid's recommendations:

- **Continue to identify and manage credible events/risks**
 - National Grid ESO identified the risk posed by distributed generation, but were not covering it
- **Continue to push for appropriate technical standards**
 - The UK is working to correct distributed generation performance, but it's a challenging process
- **Highlight the need for critical services and infrastructure to ride-through system events**
 - The impact on UK consumers was compounded due to under-performance of rail and other infrastructure
- **Continue to improve situational awareness communications during events**
 - The event reinforces increasing community and stakeholder expectations around timely communications



LESSONS FOR NEW ZEALAND

Other lessons arising from our review of the event:

- **Continue to monitor AUFLS performance**
 - The response from the UK LFDD scheme was less than expected
 - Some critical load was disconnected
- **Continue to monitor frequency reserve performance**
 - The response from UK reserve providers was less than expected
- **Review the process for reconnecting tripped generation**
 - OFGEM noted that generation was allowed to reconnect without having identified their root cause of failure
- **Keep the system operator informed of asset capability**
 - OFGEM noted that one asset owner was aware of a potential performance issue but did not raise it with National Grid



NATIONAL GRID RECOMMENDATIONS

- **System Resilience Standards:**

Review the security standards (SQSS) to determine whether it would be appropriate to provide for higher levels of resilience in the electricity system. This should be done in a structured way to ensure a proper balancing risks and costs.

- **Rail Services and Critical Infrastructure:**

Assess whether it would be appropriate to establish standards for critical infrastructure and services setting out the range of events and conditions on the electricity system that their internal systems should be designed to cater for.

- **Embedded Generation:**

Review the timescales for delivery of the Accelerated Loss of Mains Change Programme to reduce the risk of inadvertent tripping and disconnection of embedded generation, as GB moves to ever increasing levels of embedded generation.

- **Communications:**

In addition to the changes in its first-hour communications processes that the ESO has initiated, there should also be a wider industry review, including BEIS, Ofgem, the ENA and other stakeholders to establish new and enduring communication arrangements for similar events.

