Security and Reliability Council ::: Meeting Number 18
Venue ::: Level 7, ASB Bank tower, 2 Hunter Street, Wellington
Time and date ::: 9.30 am ::: 19 October 2016

Minutes

Members present

::: Mike Underhill (Chair)
::: Anne Herrington
::: Barbara Elliston
::: Bruce Turner
::: Erik Westergaard (by telephone)
::: Guy Waipara
::: Vince Hawksworth (by telephone from 10.05 am)

Apologies

::: Albert Brantley
::: Nigel Barbour

In Attendance

Electricity Authority (Authority):

::: Carl Hansen, Chief Executive
::: Fraser Clark, General Manager Market Services
::: Grant Benvenuti, Manager Market Operations
::: Callum McLean, Adviser System Operations
::: Rory Blundell, General Manager Market Performance (from 11.10 am until 11.52 am)
::: Doug Watt, Manager Market Monitoring (from 11.10 am until 11.52 am)

Transpower (system operator):

::: John Clarke, System Operations General Manager (from 11.55 am until 12.25 pm)
::: Erich Livengood, System Operations Markets Manager (from 11.55 am until 12.01 pm)
::: Kevin Duckworth, System Operations Business Manager (from 12.01 pm until 12.08 pm)
::: Mike Phethean, System Operations Engineering – Power System Tools Team Leader (from 12.08 pm until 12.25 pm)

Other guests:

::: Allan Miller, GREEN Grid Project (from 9.44 am until 10.50 am)
::: Bill Heaps, Strata Energy Consulting Limited (from 10.50 am until 11.52 am)
::: Richard Heaps, Strata Energy Consulting Limited (from 10.50 am until 11.52 am)

1 Welcome and apologies

The meeting opened at 9.30 am.

1. The Chair welcomed members to the eighteenth meeting of the Security and Reliability Council (SRC). Introductions were made and the group welcomed Anne Herrington.
2. The Chair noted the apologies received from Albert Brantley and Nigel Barbour.

Administration

2 Changes to disclosure of interests

3. The Chair reviewed the latest interests register, including new interests for Vince Hawksworth, and approved members to act despite those declared interests.

3 Previous minutes

4. The minutes of the 21 June 2016 meeting were accepted as a true and accurate record.

Mike Underhill moved, Barbara Elliston seconded.

4 Action list

5. The SRC reviewed the current action list. The secretariat gave an update on actions in progress. Action nine was closed as the secretariat advised it had reviewed the concerns and found that there was no strong link to the activities of the SRC.

5 Correspondence

6. There were no questions in relation to the correspondence tabled.
7. The secretariat noted that Transpower has taken the opportunity to prepare a report that helps the Authority Board understand Transpower's management of HVDC risks.

Reliability of supply

6 GREEN Grid Project

Allan Miller joined the meeting at 9.44 am

8. Dr Miller spoke to the slides. In response to questions raised by members, Dr Miller also noted that:
    a. "Wp" denotes the maximum output of photovoltaics under standardised light intensity
    b. the life of a photovoltaic panel is in excess of 20 years, so replacement of panels is not yet a significant portion of global sales

Vince Hawksworth joined the meeting at 10.05 am

    c. each distributor would need to make a decision about how to allocate their distributed

generation (DG) hosting capacity and this could be done on a 'first in, first served' or a 'fair share' basis

d. there is some anecdotal evidence of consumers splitting their systems into separate DC and AC. A member noted this has a positive effect on system security

e. GREEN Grid's DGHost model could be used to publish congestion and hosting capacity limits

f. there is valid concern with 'plug and play' connection of DG as an emerging risk as the performance of such equipment may not meet power system reliability standards

g. some Australian states have expressed regret about their +10% over-voltage limit (cf +6% in New Zealand)

h. voltage issues arising from photovoltaics should not be a problem for the whole power system as this tends to be an issue for low voltage networks only.

9. A member noted it was a disruptive phase of development of the power system and that uptake will largely depend on price. Dr Miller considered that New Zealand has taken the right approach by not subsidising DG as this is manifesting in innovation of in-home devices to optimise the utilisation of photovoltaic outputs.

10. A member noted that technology for consumers' premises is getting increasingly smart. If the supply-side of the electricity industry can define the environment for competition, the demand side can react effectively. The member's only security concern was whether there is a longer-term power system risk of under-frequency events becoming more likely and/or more severe (due to new causes such as cloud cover). A member asked about the under-frequency performance of photovoltaics. Dr Miller responded that the AS4777 standard requires inverters to stay connected as low as 45 Hz.

11. An Authority staff member noted the Authority and GREEN Grid should work together to ensure consistency between the EEA's distributed generation guidelines and those published by the Authority.

12. An Authority staff member noted that models of wind penetration and their impact on inertia are highly sensitive to assumptions about the technology used. A member agreed, noting that the technology in use is improving markedly in terms of providing power system inertia.

13. An Authority staff member advised the system operator is doing further analysis on the impacts of renewable technologies on the power system (solar photovoltaics being an initial focus) and this is expected to result in a report which will be presented to the SRC.

14. The Chair asked members to respond to the questions in the secretariat's cover paper. The responses included:

a. The SRC was satisfied with the GREEN Grid's presentation, but noted that it focussed on photovoltaics in general rather than security or reliability implications of growing penetration of photovoltaics.

b. Localised voltage management appeared to be most important reliability issue that was discussed. While this is perceived to be insignificant at this time, this will require suitable planning by distributors.

c. The under-frequency of inverter-connected distributed generation is believed to be very low risk as AS/NZS 4777.2 requires uninterrupted output down to 45 Hz which is far

superior to most generation technologies.

d. The risk of distributed generation backfeeding into an islanded section of a distributor's network is also not seen as a problem due to AS/NZS 4777.2 requirements..

e. The SRC did not request any further information from the secretariat.

Allan Miller left the meeting and Bill Heaps and Richard Heaps joined the meeting at 10.50 am

7 Risk management framework

15. An Authority representative introduced the paper and explained the key challenges faced.

16. Bill Heaps noted that both Meercat (the provider of the RiskView software procured by the Authority) and Transpower emphasised the need to get the structure right. The secretariat has focussed on this and has delivered one master bowtie. The secretariat's current focus is on minimising the complexity and broadening the coverage.

17. The Chair noted the danger of an overly complex model and queried if the SRC is losing sight of its desired outcomes. A member noted that establishing a risk framework does take time, but that the planned structure looks good and could result in a meaningful dashboard for the SRC.

18. A member queried at what point in time the SRC will be able to start to rely on its risk management framework (RMF). For example, would the RMF demonstrate sufficient or excellent forethought for an event like that experienced recently in South Australia? Getting to that point seems to be the extent of the SRC's role in this regard.

19. Bill Heaps noted that South Australia does not appear to have a similar approach in place.

20. Members discussed the SRC's role, noting the importance of:

    a. identifying the existence of gaps or overlaps in risk owner responsibilities

    b. ensuring risk owners retain clear responsibility and accountability

    c. being satisfied with the incentives and checks and balances on risk owners to pursue their interests in a way that also promotes security and reliability

    d. being able to use the RMF to generate insights and high-quality advice to the Authority.

21. Members and attendees discussed examples of situations where there were risk owners with overlapping responsibilities. The RMF can serve to map out the key accountabilities within the electricity industry.

22. The Chair summarised the discussion. As the development targets of the RMF were explained in the paper, the SRC did not request any further information from the secretariat.

8 Monitoring the reliability of distribution networks

Rory Blundell and Doug Watt joined the meeting at 11.10 am.

23. An Authority representative introduced the paper. Key points were that:

    a. under the Electricity Industry Act, the Authority has a monitoring role that it is obliged to fulfil

    b. in that capacity, the Authority is seeking to improve its monitoring of reliability

c. an initial focus area is the distribution sector, where the Authority aims to rely on information that is already publically available to produce meaningful reporting

d. with that scope in mind, the Authority engaged Strata Energy Consulting to advise on what monitoring is possible

e. the Authority is interested in better understanding how this possible monitoring can assist the SRC in its role.

24. Bill Heaps spoke to the slides tabled on the day. The SRC had a wide-ranging and robust discussion that:

a. expressed significant concern about ensuring that reporting provides insights that are at the right level and have sufficient oversight of the full range of distribution system to be relevant to the SRC's role without being overly detailed. The detail level should only be presented when the overarching review has identified potential issues

b. at least one member considered that the example given of the age profile of wood poles across distribution networks was not useful or relevant to the scope of the SRC's interest, and was concerned that the SRC could exceed its jurisdiction and replicate the functions of the Commerce Commission

c. questioned whether the SRC should provide a set of principles and/or parameters that can give guidance to the Authority

d. noted that reporting can, by its very existence, create positive pressure on the parties being reported on

e. the SRC is interested in retrospectively understanding reliability trends (including aggregates, distribution of results and outliers) and examining some leading indicators of future reliability

f. noted that voltage datasets are massive and costly to manipulate and that they didn't want to impose material costs on the industry to establish new data sources

g. noted there is significant sensitivity introduced when the value of lost load (VOLL) is included in analytical models and this sensitivity makes drawing conclusions much harder

h. questioned whether timely insight could be taken from publically available information because it is quite old by the time it has been collected, validated, audited and published.

25. The Chair wrapped up the discussion and created an action for a future SRC paper to enunciate the SRC's role with respect to monitoring of reliability.

ACTION

1. The secretariat is to ensure that the next paper the SRC receives on reliability monitoring includes an explanation of the SRC's role.

Rory Blundell, Doug Watt, Bill Heaps and Richard Heaps departed the meeting at 11.52 am

Security of supply

9 Industry arrangements for information security

This item was discussed after item 11. Mike Phethean joined the meeting at 12.08 pm.

26. An Authority representative introduced the Authority's cover paper. Members had no questions on the content of the Authority's report.

27. John Clarke introduced the system operator's paper and Mike Phethean gave a shortened presentation of the slides tabled confidentially at the meeting.

John Clarke and Mike Phethean departed at 12.25 pm

28. SRC members agreed that an information security exercise is desirable and would like to be satisfied that the coordination of such an exercise is progressing adequately.

ACTION

2. The secretariat is to seek assurance from two major metering equipment providers about their cybersecurity posture and management of key risks.

3. The secretariat is to present a proposal on potential ways that the industry can be encouraged to run an information security exercise.

10 Operational review of winter 2016

John Clarke and Erich Livengood joined the meeting at 11.55 am

29. John Clarke introduced the paper and Erich Livengood spoke to the slides provided.

30. The SRC had no objections to the system operator's characterisation of winter 2016.

31. In response to a question from a member, a Transpower representative noted that generation capacity not being offered on occasions is consistent with a competitive market in which thermal generators have to commit to decisions about when to run or not run. SRC members agreed the market arrangements and the system operator's responses are pragmatic and sensible.

Performance of the system operator

11 Performance of the system operator for the period ending 30 June 2016

Erich Livengood departed the meeting, and Kevin Duckworth joined the meeting, at 12.01 pm

32. An Authority representative noted that the Authority's draft assessment of system operator performance is very positive.

33. John Clarke noted that the system operator is pleased with its self-review and the Authority's draft review.

34. Members agreed the system operator's performance has been positive and its relations with the industry are perhaps the best ever. Members made two suggestions for future reporting: more focus on risk management and planning to counteract an aging workforce.

Kevin Duckworth departed the meeting at 12.08 pm

12 System operator performance measures

Due to time constraints, the SRC deferred this paper until a future meeting.

General Business

13 *This discussion occurred after item 11 and before item 9.*

35. A member queried Transpower representatives on whether they have any preliminary observations on what lessons New Zealand might take from the South Australia incident. Transpower staff explained their current understanding of the key aspects of the incident:

    a. South Australia experienced unexpected reduction in output of windfarms following multiple faults on transmission network. The New Zealand system operator procures additional instantaneous reserves when required to guard against this risk coinciding with the loss of both poles of the HVDC (a bipole trip).

    b. At the time of the event in South Australia the loss of interconnection assets was not being managed as a credible risk. The New Zealand system operator treats the loss of a single HVDC pole as a contingent risk and a bipole trip as an extended contingent risk.

    c. The loss of South Australia's interconnection assets led to a rate of frequency decay that appears to have been faster than their automatic under-frequency load shedding (AUFLS) system was designed to cope with. The modelled rate of frequency decay in New Zealand is much less. Following studies in 2012 the North Island two-block AUFLS regime is being improved with a change to four blocks under the Extended Reserve project.

ACTION

4. The SRC asked the secretariat to arrange for the SRC to receive a paper (likely from Transpower) on any security or reliability lessons for New Zealand from the South Australia incident.

14 Administration

36. The Chair noted that Fraser Clark is leaving the Authority and thanked him for his contribution to the SRC.

15 Meeting close

37. The meeting was closed at 12.35 pm.