

21 August 2017

Dr Brent Layton
Chair
Electricity Authority
PO Box 10041
Wellington 6143

Dear Brent

Advice resulting from 28 July 2017 meeting of the SRC

The Security and Reliability Council (SRC) is tasked with providing the Electricity Authority with independent advice on the performance of the electricity system and the system operator, and reliability of supply issues.

The SRC considered and discussed five different papers at its 28 July 2017 meeting. This letter is the SRC's advice arising from all of those papers.

Advice on the security of supply situation in winter 2017

The SRC received a presentation from the system operator that explained the security of supply situation. At that time, the hydro risk meter for the South Island was in 'Normal' status and the hydro risk meter for New Zealand was in 'Watch' status but on the cusp of returning to 'Normal'.

The SRC's advice to the Authority is:

- that the SRC was confident there was enough storage and system capability to get through to spring inflows, though the situation left little security to cope with a major asset outage
- winter 2017 was the first dry spell since the thermal decommissioning that occurred in 2015, whereas 2012 and 2013 dry periods took place in the context of over-supply of generation
- trading and risk management tools (enabled by a futures market) have been developing since 2010 and are now the most sophisticated they've been
- given the current low levels of hydro storage, there is high value to the system operator's 2017-18 work programme for security of supply concluding around March 2018, well in advance of next winter.

The SRC has directed its secretariat to keep the SRC abreast of security of supply developments being planned for implementation prior to winter 2018.

Advice on the cyber-security posture of, and management of key risks by, New Zealand's two largest metering equipment providers (MEPs)

The SRC received a presentation from one of New Zealand's two largest MEPs. This follows from a presentation by the other MEP at the 28 March 2017 SRC meeting, which in turn followed an earlier presentation by Transpower at the 19 October 2016 SRC meeting. This series of confidential presentations arose because of a concern that was raised about electrical devices in consumers' premises being maliciously controlled to damage or collapse the power system.

The SRC's advice to the Authority is:

- consumers' premises have a large variety of devices, with a growing proportion being connected to the Internet of Things:
 - New Zealand will be a 'technology-taker' for most of these devices and will need to rely on standards-compliant devices having built-in robustness against cyber-intrusion
 - distributed generation inverters and electric vehicles can control many more watts per device than fridges or cellphones, and are rapidly growing albeit from a small base
 - smart meters with remote disconnection and reconnection functionality can control even more watts per device and there are over 1.6 million smart meters (most of which have remote disconnection and reconnection functionality) currently installed
- Transpower advise that the market and physical design of the power system means it can cope with large risks and that this provides for a lot of inherent resilience to maliciously-controlled devices in consumers' premises. There are still far too few distributed generation inverters or electric vehicles to pose a collective threat to the power system.
- the two largest MEPs have over 1.45 million smart meters installed in New Zealand which is why they were asked to present to the SRC. The SRC:
 - is satisfied that the governance and management of both MEPs are aware of the potential risk that maliciously-controlled smart meters pose to the power system
 - considers that the cyber-security posture of both MEPs are suitably professional and proactive, and that neither is a 'soft target' for cyber-attack
 - understands that the worst-case scenario is smart meters being targeted by a determined and hostile state (or state-sponsored) actor as currently, such cyber-threats are persistent, well-resourced and skilful
 - understands the MEPs have very strong controls in place, many of which are hard limitations built in to the hardware or design of their systems (such as the rate at which smart meters can be disconnected or reconnected)
 - takes considerable assurance about the continued reliability of the power system from the MEPs' confidential presentations.

Advice on the reduced use of 'live line' work on high voltage network assets

The SRC received the Authority's paper on the reliability implications of reduced use of 'live line' techniques on high voltage networks assets.

The SRC's advice to the Authority is:

- that there are credible anecdotal reasons to believe network businesses are significantly reducing the amount of 'live line' work they undertake on their high voltage assets in order to improve safety of their workers and the public
- that, all else being constant, it is reasonable to expect there will be an associated adverse impact on consumers' reliability of electricity supply
- that it is not yet possible to quantify what the impact on reliability will be.

The SRC has directed its secretariat to report back to the SRC when reasonable quantitative estimates of the impact on reliability are available from network businesses. The SRC intends to provide further advice once it has considered the secretariat's report.

Advice on the Authority's proposed monitoring of reliability measures

The SRC received the Authority's proposal of useful measures for the SRC to receive in order to understand and monitor electricity reliability experienced by consumers.

The SRC's advice to the Authority is:

- that the relevant reporting should be drawn from existing datasets, thereby imposing no new obligations on industry participants
- it will annually receive the proposed measures and accompanying commentary and interpretation.

Advice on the system operator performance metrics and incentives for 2017-18

The SRC received the Authority's report on the system operator performance metrics and incentives for 2017-18. The agreement between the Authority and the system operator sets out 14 metrics (with associated targets of acceptable performance) that the system operator will report against. The agreement incentivises all of the metrics equally with a maximum payment of \$100,000 being made to or from the system operator depending on its performance.

The SRC's advice to the Authority is:

- the metrics and incentives for system operator performance are a significant improvement on previous arrangements
- the combination of many metrics, each incentivised with an equal share of one small amount of money (relative to the total annual service fee) risks not giving the optimal focus to the system operator.

There is no further advice arising from the matters discussed at the SRC's 28 July 2017 meeting.

Yours sincerely



Mike Underhill

Chair
Security and Reliability Council

cc SRC members, Carl Hansen (Electricity Authority)

8 September 2017

By Email

Mr Mike Underhill
Chair
Security and Reliability Council

Dear Mike

Thank you for your letter dated 21 August 2017 providing the SRC's advice to the Board of the Electricity Authority arising from its meeting on 28 July 2017.

The Board received your letter at its meeting on 30 August and discussed its contents. It had no specific feedback it wished to provide the SRC on this occasion. However, it asked me to write and thank the SRC for its advice.

Yours sincerely



Brent Layton
Chair