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Christchurch NZ 7692

14 November 2016-11-09

Electricity Authority
Level 7, ASB Bank Tower
2 Hunter Street
PO Box 10041
Wellington, NZ 6143

Attn: Mr Brent Layton
Chairman

**Re: Membership on Security and Reliability Council
Electricity Authority**

Dear Brent:

It is with regret that I wish to tender my resignation as a member of the Security and Reliability Council of the Electricity Authority.

My recent change in employment, combined with relocation to Christchurch and a refocusing of my efforts will limit the time that I will have to make a meaningful contribution to the ongoing work of the Security and Reliability Council.

The Council retains considerable industry experience and knowledge within its current membership, and I am sure that the valuable work of the Council in supporting the Electricity Authority is in good hands.

It has been a great pleasure to work with you, Carl, the Authority executive team and my fellow Members of the Council over the past few years, and I wish you well in the coming years.

Best regards,



Albert Brantley

Cc Mike Underhill
Carl Hansen

20 December 2016

Albert Brantley
Chief Executive
Ōtākaro Limited
62 Worcester Boulevard
Christchurch, 8013
New Zealand

Dear Albert

The Security and Reliability Council appreciates your contribution

Thank you for your letter of 14 November advising of your resignation from the Security and Reliability Council (SRC). That letter will be formally presented to the 28 March 2017 meeting of the SRC, though members have seen an emailed copy of it.

As the SRC members will be unable to thank you in person for your contribution to the group, we have chosen to express our gratitude in this letter. Your colleagues on the SRC appreciated both the content and manner of your contribution to the group. The depth of your experience and knowledge is a loss to the SRC and the electricity industry.

I would like to thank you for finding the time in your busy schedule to commit to the SRC for the past six years.

Yours sincerely



Mike Underhill
Chair
Security and Reliability Council

6 December 2016

Dr Brent Layton
Chair
Electricity Authority
PO Box 10041
Wellington 6143

Dear Brent

Advice resulting from 19 October 2016 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 six different papers at its 19 October 2016 meeting. This letter is the SRC's advice arising from three of those papers.

Advice on reliability-related matters in the GREEN Grid Project

The SRC received a presentation from Dr Allan Miller on behalf of the GREEN Grid Project. Dr Miller explained the GREEN Grid Project, photovoltaics generally and the few reliability-related matters the project has touched upon.

The SRC's advice to the Authority is:

- Localised voltage management arising from increased penetration of distributed generation appeared to be most important reliability issue that was discussed. While this is perceived to be of insignificant impact at this time, this will require suitable planning by distributors.
- The under-frequency performance of inverter-connected distributed generation is believed to be a very low risk to the power system as AS/NZS 4777.2 requires uninterrupted output down to 45 Hz which is far superior to most generation technologies.
- Inverter-connected distributed generation backfeeding into an islanded section of a distributor's network is also seen as very low risk to reliability as AS/NZS 4777.2 requires disconnection when grid-supply is lost.
- The installation of distributed generation without a distributor's knowledge or consent could have reliability impacts if the equipment does not meet power system requirements. The impact is expected to be low risk at this time, though this risk would increase if 'plug and play' equipment becomes popular with consumers. The widespread use of smart meters with 'reverse run' detection enabled will assist with identifying such instances where it produces a net instantaneous export. Once detected, the consumer could be alerted to the likely breach of their contractual terms and conditions, Part 6 of the Electricity Industry Participation Code 2010 (Code) and the possible breach of electrical safety regulations.

Advice on the system operator's operational review of winter 2016

The SRC received a short presentation from the system operator explaining its operational observations arising from winter 2016. While no significant concerns were raised, a key observation was that good generation capacity was evident even though it was not always offered. The system operator considered 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.

The SRC's advice to the Authority is:

- The system operator's characterisation of winter 2016 was not challenged by the SRC.
- Market arrangements for, and the system operator's responses to, the occasional non-availability of generation capacity are pragmatic and sensible.

Advice on the system operator's performance for the year ending 30 June 2016

The SRC received the Authority's two assessments of the system operator's performance for the year ending 30 June 2016: the system operator's self-review and a summary of the Authority's draft annual review.

The SRC's advice to the Authority is:

- The system operator's performance has been positive and its relations with the industry are perhaps the best they have ever been.
- The SRC has asked the system operator to consider including more information in future self-reviews on the topics of risk management and planning to counteract an aging workforce.

There is no further advice arising from the matters discussed at the SRC's 19 October 2016 meeting.

Yours sincerely



Mike Underhill
Chair
Security and Reliability Council

cc SRC members, Carl Hansen (Electricity Authority)

20 March 2017

Mike Underhill
Chair
Security and Reliability Council (SRC)

Dear Mike

Advice resulting from the SRC meeting on 19 October 2016

Thank you for your letter of 6 December 2016 providing the SRC's advice for the Authority resulting from the SRC's meeting on 19 October 2016. In that letter, the SRC provided advice on three matters. The Authority notes all of the advice provided and notes below subsequent actions we are taking in relation to two of these matters.

Advice on reliability-related matters in the GREEN Grid Project

The SRC advised that it was important for distributors to plan ahead to maintain network voltages within acceptable ranges, despite increasing penetration of distributed generation.

The Authority has since received a Code amendment proposal from the Electricity Engineers' Association aimed at assisting distributors to determine reasonable settings for AS/NZS 4777-compliant inverters. The Authority considers that the proposal has merit and has approved it as a topic for inclusion in future Code development.

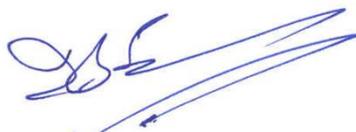
Advice on the system operator's performance for the year ending 30 June 2016

The SRC advised that it made two recommendations for future self-reviews of performance by the system operator. The SRC asked the system operator to consider including more information in future self-reviews on the topics of risk management and planning to counteract an aging workforce.

The Authority has adopted these as recommendations for the system operator in the Authority's annual review of the system operator's performance.

On behalf of the Authority Board, thank you for the SRC's ongoing advice.

Yours faithfully



Brent Layton
Chair

Cc: SRC secretariat