

Meeting Date: 8 August 2019

WORK PROGRAMME PLANNING

SECURITY AND RELIABILITY COUNCIL

Building on earlier papers at the 20 June 2019 SRC meeting, the secretariat has developed a draft work programme for the SRC. This paper sets out the results and process of that development and solicits SRC feedback on the proposals.

Note: This paper has been prepared for the purpose of the Security and Reliability Council (SRC). Content should not be interpreted as representing the views or policy of the Electricity Authority.

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Work Programme Planning

1. Purpose and background

- 1.1.1 At its 20 June 2019 meeting, the SRC considered two papers:
- a) a risk management framework paper that included a prioritised dashboard of topics for SRC attention¹
 - b) a risk and strategy session, where SRC members workshopped risks of strategic importance.
- 1.1.2 Those papers are the primary inputs to this paper. A more complete list is included in paragraph 1.1.5 below.
- 1.1.3 The purpose of this paper is to elicit SRC feedback on the development of a multi-year work programme for the SRC. The objective of that work programme is to:
- a) triage SRC attention in a risk-based way
 - b) smooth the SRC's workload
 - c) improve planning and budgeting for the secretariat to fulfil the SRC's workload.
- 1.1.4 The survey of the SRC members revealed a desire for more ability to set the agenda for the SRC. That opportunity exists at all times, but this paper is the prime opportunity to influence the SRC's agendas for years to come. The content of this paper is essentially a suggestion from the secretariat. The SRC gets to decide what its work programme should be.
- 1.1.5 There are multiple sources of information that the secretariat used as inputs to this paper:
- a) the dashboard referred to in paragraph 1.1.1(a) above (which is itself an output of the bowties developed for the risk management framework)
 - b) any requests for a review of security and resilience arising from the Electricity Price Review (EPR)
 - c) existing, regular reporting to the SRC that was not captured by the risk management framework
 - d) conclusions from the 'Risk and Strategy' discussion at the 20 June 2019 SRC meeting²
 - e) action item #7, which requires the "Secretariat to compare the outputs of the SRC's 20 June 2019 environment scan with the risk management framework"

¹ That [paper](https://www.ea.govt.nz/development/advisory-technical-groups/src/meeting-papers/2019/src-meeting-20-june-2019/) is available from <https://www.ea.govt.nz/development/advisory-technical-groups/src/meeting-papers/2019/src-meeting-20-june-2019/>

² The paper that guided that discussion is available [here](#), though the SRC's 30 July 2019 letter (see correspondence for this 8 August 2019 meeting) summarises the conclusions.

- f) whether the minority view of SRC members that “Commerce Act regulation is an undue barrier to appropriate reliability/resilience” warrants further investigation
- g) the risk register that the secretariat has been charged with preparing for the 24 October 2019 meeting of the SRC (action item #6).

1.1.6 The results of the secretariat’s work programme development are included in the section two as Tables 1 and 2. The process that the secretariat followed is set out in section four.

2. Draft work programme information

Table 1: Dashboard of work programme items

Row ID	Area of interest	Information provider	Information to be provided	Control criticality	Control effectiveness	Risk rating	Relates to system operator performance	Review cycle	Last provided to SRC	Next due
1	System operations	Electricity Authority and system operator	Automatic under-frequency load shedding (and extended reserve) arrangements.	5	4	20	Yes	Triennial	Never or >5 years ago	TBD
2	System failure	Commerce Commission	Whether regulation and compliance monitoring of Transpower is adequate, is keeping up with technology and is fit for purpose.	5	3	15	No	Biennial	In last 5 years	TBD
3	System operations	System operator	Emergency preparedness and business continuity planning.	4	3	12	Yes	Quadrennial	Never or >5 years ago	TBD
4	System operations	System operator	Ancillary services (frequency keeping, instantaneous reserves, over-frequency reserve, voltage support, but excluding black start).	4	3	12	Yes	Quadrennial	Never or >5 years ago	TBD
5	Capacity and energy security	System operator	Preparedness for rolling outages	3	4	12	Yes	Quadrennial	Never or >5 years ago	TBD
6	System failure	Distributors	Cyber-security management	3	4	12	No	Quadrennial	Never or >5 years ago	TBD

7	System operations	System operator	Power system restoration arrangements including black start	4	3	12	Yes	Quadrennial	In last 5 years	TBD
8	System failure and social impact	National Cyber Security Centre	Overall cyber-security management of the electricity industry	3	4	12	No	Triennial	In last 5 years	TBD
9	Capacity and energy security	Gas sector representatives	Reliability and resilience of the gas industry (with implications for electricity generation capacity and energy security).	4	3	12	No	Triennial	20/06/2019	Q2 2022
10	System failure	Commerce Commission	Whether regulation and compliance monitoring of distributors is adequate, is keeping up with technology and is fit for purpose.	4	3	12	No	Annual	In last 5 years	TBD
11	System operations	System operator	Credible Event Reviews (that determine whether, and how, power system risks managed).	5	2	10	Yes	Triennial	Never or >5 years ago	TBD
12	Various	Electricity Authority	Various measures of reliability	2	5	10	No	Annual	22/06/2018	Q2 2020
13	Social impact	Transpower and the Electricity Authority	The communications plans and preparedness strategies of key agencies for supply emergencies.	3	3	9	Yes	Quintennial	Never or >5 years ago	TBD
14	Social impact	Ministry of Civil Defence & Emergency Mgmt	Emergency preparedness of the electricity industry	3	3	9	No	Quintennial	20/06/2019	Q2 2024
15	System failure	Distributors	Risk and asset management (e.g. planning, reporting, documentation, emergency management etc.).	3	3	9	No	Quadrennial	Never or >5 years ago	TBD

16	System failure	Electricity Authority	Whether regulation and compliance monitoring relating to the failure of generation equipment is adequate, is keeping up with technology and is fit for purpose (such as the under-frequency event regime, asset owner performance obligations, dispatch requirements).	3	3	9	No	Quadrennial	Never or >5 years ago	TBD
17	System failure	Generators	Cyber-security management	3	3	9	No	Quadrennial	In last 5 years	TBD
18	System failure	Metering provider	Cyber-security management	4	2	8	No	Quadrennial	In last 5 years	TBD
19	System failure	Grid owner	Risk and asset management (planning, reporting, documentation, emergency management etc.).	4	2	8	No	Triennial	In last 5 years	TBD
20	System failure	Transpower	Cyber-security management	4	2	8	No	Triennial	In last 5 years	TBD
21	Capacity security	System operator	Generation capacity security (NZ Generation Balance and the Annual Assessment of Security of Supply).	4	2	8	Yes	Annual	28/03/2019	Q1 2020
22	Energy security	System operator	Generation energy security (Security of supply updates and the Annual Assessment of Security of Supply).	4	2	8	Yes	Annual	28/03/2019	Q1 2020
23	Social impact	Generators	Emergency preparedness, including fuel supply availability in a post-emergency situation	2	3	6	No	Quadrennial	Never or >5 years ago	TBD
24	System failure	Generators	Risk and asset management (e.g. planning, reporting, documentation, emergency management etc.).	2	3	6	No	Quadrennial	Never or >5 years ago	TBD
25	System failure	Electricity Authority	Whether regulation and compliance monitoring of consumer-premise equipment is adequate, is keeping up with technology and is fit for purpose (hosting capacity of low voltage networks, frequency and voltage response, standards development, awareness of existence of equipment).	1	5	5	No	Triennial	In last 5 years	TBD
26	Social impact	Electricity Authority	Business continuity and disaster recovery of market operation service providers other than the system operator	2	2	4	No	Quintennial	Never or >5 years	TBD

									ago	
27	Energy security	Electricity Authority and system operator	Regulatory arrangements for official conservation campaign and security of supply forecasting and information policy (SOSFIP) regulatory development.	2	2	4	Yes	Quintennial	In last 5 years	TBD
28	Capacity security	Grid owner	Transmission outage management (scheduling, reduced security)	2	2	4	No	Quadrennial	Never or >5 years ago	TBD
29	Capacity security	Grid owner	Transmission capacity planning (Transmission tomorrow, asset management documentation, demand forecasting, transmission alternatives, demand response etc.).	3	1	3	No	Quadrennial	Never or >5 years ago	TBD
30	Capacity security	Commerce Commission and Electricity Authority	Regulatory arrangements for transmission investment (grid reliability standards, estimating value of lost load, investment analysis and approval).	3	1	3	No	Quadrennial	Never or >5 years ago	TBD
31	Various	Electricity Networks Association (Quality of supply working group)	Improving reporting of 'Various measures of reliability'	1	N/A	N/A	No	Once	In last 5 years	TBD
32	Various	Electricity Authority	Security/resilience papers arising from Electricity Price Review request	2	N/A	N/A	Yes	One-off series of papers	Never or >5 years ago	TBD
33	Various	System operator	Annual self-review of performance	1	N/A	N/A	Yes	Annual	24/10/2018	Q3 2019

34	Various	Electricity Authority	Annual review of system operator performance	1	N/A	N/A	Yes	Annual	24/10/2018	Q4 2019
35	Various	Secretariat	Risk and strategy environment scan	1	N/A	N/A	No	Annual	20/06/2019	Q2 2020

2.1.1 A mock-up of what the multi-year work programme would look like is shown in Table 2 below. A mix of different reporting cycles are shown to illustrate how the complete list would work.

Table 2: Mock-up of multi-year work programme

R o w ID	Information provider	Information to be provided	2020				2021				2022				2023			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
20	Transpower	Cyber-security management		DUE												DUE		
	Vector			DUE														
	Powerco						DUE											
6	Orion										DUE							
	Wellington Electricity															DUE		
	Unison																	
	Contact Energy					DUE												
	Genesis Energy																	
17	Mercury Energy							DUE										
	Meridian Energy										DUE							DUE

Count of papers per meeting

3. Questions for the SRC to consider

3.1.1 The SRC may wish to consider the following questions.

- Q1. Are there assessments (such as criticality, effectiveness, review cycle) in Table 1 that seem inappropriate?
- Q2. Do the processes proposed (in section four) for the secretariat to maintain the work programme seem appropriate?
- Q3. Is this work programme likely to receive support from the industry stakeholders that would be needed to provide meeting content?
- Q4. Is there information that would provide assurance for the SRC that consumers' behaviour and expectations are understood by decision-makers?
- Q5. What further information, if any, does the SRC wish to have provided to it by the secretariat?
- Q6. What advice, if any, does the SRC wish to provide to the Authority?

4. The work programme development process

4.1 Assessment of whether new rows were needed

- 4.1.1 The secretariat took the 20 June 2019 dashboard as a starting point. However, the desired output is a work programme for the SRC which is inclusive of, but broader than, the risk management framework that initiated the dashboard.
- 4.1.2 Accordingly, three new rows were added to account for regular SRC papers not captured in the dashboard:
 - a) the system operator's annual self-review of its performance
 - b) the Authority's annual review of system operator performance
 - c) the SRC's annual risk and strategy environment scan.
- 4.1.3 As the Electricity Price Review seems likely to lead to additional papers being considered by the SRC, a new row was added to account for that series of papers.
- 4.1.4 At the 20 June 2019 meeting, a minority view of the SRC was that "the Commerce Act is an undue barrier to reliability/resilience investments." The secretariat considered whether a new row was needed to investigate that view. The secretariat has not added a new row and notes that:
 - a) The SRC should have an opportunity to discuss the matter further and decide what information or analysis could shed light on the merits of that view.
 - b) The Electricity Price Review may yet produce recommendations relevant to the way that the Commerce Act obligates the Commerce Commission and incentivises distributors.
 - c) There is already a row that creates an annual opportunity for the SRC to engage with the Commerce Commission on this matter.

4.2 Changes to the assessment process

- 4.2.1 As with the 20 June 2019 dashboard, each row has its criticality assessed. The assessments are virtually identical to those used in the 20 June 2019 dashboard.
- 4.2.2 As before, a score of 1 indicates that the control is not critical, while a score of 5 indicates the highest level of criticality.
- 4.2.3 The secretariat has formalised the factors that it has been using to assess criticality. These are set out in Table 3 below. There is no formula for weighting between factors – the secretariat has applied its judgement.

Table 3: Factors for assessing criticality

Factor	1	2	3	4	5
Area of impact	Localised			Regional City-wide	Nationwide Island-wide
Impact type	Little impact	Request to reduce demand No hot water		Brownout Appliance damage	Blackout
Length	Short Intermittent				Days or more
Customer notice	A week or more				No notice Unplanned

4.2.4 The 20 June 2019 dashboard assessed (in)effectiveness as '5' if the control effectiveness had never been presented to the SRC. That skewed the prioritisation of that list, even though the secretariat had some knowledge of likely effectiveness. The secretariat now uses its judgement to assess effectiveness.

4.2.5 The secretariat has formalised the factors that it has been using to assess (in)effectiveness. These are set out in Table 4 below. There is no formula for weighting between factors – the secretariat has applied its judgement.

4.2.6 A score of 1 indicates that the control is highly effective. A score of 5 indicates the control is highly ineffective.

Table 4: Factors for assessing (in)effectiveness

Factor	1	2	3	4	5
Regulatory incentives	Strong	Well-aligned	Weak	None	Perverse
Commercial incentives	Strong	Well-aligned	Weak	None	Perverse Few externalities
Control type	Eliminates risk (eg physical separation)	Automated		Reliant on personnel	Non-existent
Change process	Done publicly Consultation		Entity decision		Non-existent
Responsibilities	Clear		Clear		Unclear

	Diversified		Rests with one party		
Complexity	Simple				Complex
Certainty	Well understood			Known unknowns	Poorly understood

- 4.2.7 The process for determining the risk rating is unchanged since 20 June 2019. It is determined by multiplying the criticality score by the effectiveness score. This also sets the ranking of rows on the list in Table 1.
- 4.2.8 As noted in paragraph 4.1.1, the scope of the work programme is broader than the dashboard. Accordingly, the secretariat now assesses whether the information referred to by each row relates to the system operator's performance. Providing advice on the performance of the system operator is part of the SRC's mandate. This is an input into the next step to determining a review cycle.
- 4.2.9 To transform the dashboard into a work programme, it is essential to define some date-related information:
- review cycle
 - last provided to SRC
 - next due date.
- 4.2.10 The secretariat has defined the factors it used to determine the review cycle. These are set out in Table 5 below. There is no formula for weighting between factors – the secretariat has applied its judgement.

Table 5: Factors for determining review cycle

Factor	Annual	Biennial	Triennial	Quadrennial	Quintennial
Criticality	5	4	3	2	1
Effectiveness	5	4	3	2	1
Number of parties to provide information	One or two			Four or more	
Speed of change	Highly dynamic				Stable environment
Availability of new information	Annual				Quintennial
Relates to system operator performance	Yes				

- 4.2.11 The 'Last provided to SRC' column has been populated based on:
- a) actual date, where known based on recent papers
 - b) an analysis for the 20 June 2019 meeting that identified whether topics had been presented to the SRC in the previous five years. Accordingly, many rows are listed as either:
 - i. 'In last 5 years' (the secretariat will populate exact dates)
 - ii. 'Never or >5 years ago'.
- 4.2.12 For this paper, the secretariat has determined the 'next due' date by taking the 'Last provided to SRC' date (where known) plus the review cycle. As most rows do not have a specific 'Last provided to SRC' date, most rows have a 'next due' date that is to be decided ('TBD' in Table 1).
- 4.2.13 Once the secretariat populates exact dates (per paragraph 4.2.11(b)(i)), the 'next due' dates will help inform the multi-year work programme (Table 2). Note that if there are several papers would fall due about the same time, these will be spread to ensure even workloads for the SRC meetings. This may result in some papers being scheduled later than the due date.
- 4.2.14 In time, the 'next due' will be drawn from the multi-year work programme (which will be guided by this initial assessment of 'next due' date). If 'next due' shows a date in the past, it will be formatted in orange/red depending on how overdue it is. If more than one entity is providing information on that matter over several meetings, the earliest due date will be shown.

4.3 Assessment of prioritisation against risk/strategy priorities

- 4.3.1 At the 20 June 2019 meeting, the SRC created an action for the secretariat to "...compare the outputs of the SRC's 20 June 2019 environment scan with the risk management framework."
- 4.3.2 As the bowties developed under the risk management framework have been shelved and will get progressively out of date, the secretariat has not assessed against the bowties.
- 4.3.3 As that dashboard was the key input to the list in Table 1, the secretariat has assessed the outputs of the environment scan against that list.
- 4.3.4 There was a lengthy list of matters identified in the SRC's environment scan. The secretariat has considered all of those matters, but only documented the consideration (in Table 6 below) of the key points identified in the SRC's 30 July 2019 letter of advice to the Authority.

Table 6: Assessment of SRC advice arising from its environment scan against the dashboard in Table 1

30 July 2019 SRC advice	Secretariat's assessment
New Zealand's power system has performed well in terms of security and reliability over the last decade – but that environment was relatively benign due to high supply margins and low demand growth	This advice is largely a warning against over-confidence. Demand predictions will arise as part of items 21, 22 and 29.
New Zealand's power system now faces a transition driven by decarbonisation, technology and wider social and market changes – these provide new opportunities and challenges	Testing whether regulation remains fit-for-purpose is captured in items 2, 10, 16, 25, 27 and 30.
It will be important for decision makers to keep up to date with changing consumer behaviour and expectations (such as attitudes to renewables versus fossil-fuelled generation, attitudes to and uptake of new technology, growth of peak demand and aggregate consumption) throughout the transition – or else decisions will be made without consumers' interests represented	There are no items with a strong link to this advice. There will be opportunities to ask regulators about these matters, but little to provide assurance that consumer behaviour and expectations are understood.
Energy security (i.e. generation/fuel adequacy) is likely to be the biggest challenge as demand grows and thermal plant face increasing pressure to retire	Annual information via item 22 provides good oversight of whether an efficient level of reliability is being achieved.
Network reliability (especially on low-voltage networks) may be a challenging issue, though the rate of technology uptake and the level of control available will be critical factors as to when or if this issue arises	Monitoring the uptake of technology (included in item 12) and suitability of regulation of consumer-premise equipment (item 25) provides assurance on this emerging risk.
It will be more important than ever to ensure decision-makers (regulators, asset owners and operators) have suitable information and incentives to make sound trade-offs between security/reliability and other objectives	Items 12, 21 and 22 all assist with the suitable security/reliability information. To some extent, <u>all</u> SRC advice helps to inform regulators. Further improvements to reliability measures in item 12 would help.

4.4 Converting the dashboard to a multi-year work programme

4.4.1 The secretariat will schedule the matters listed in Table 1 by giving consideration to:

- the risk rating of the matter as identified in Table 1
- creating a steady/smooth pipeline of matters for SRC consideration
- the logistical convenience of third parties who will be invited to present information to the SRC.

- 4.4.2 There are rows in Table 1 that relate to a class/type of organisation (such as 'generators'). It will be impracticable and be a poor use of SRC attention to attempt to hear from every organisation in that class/type. As such, the secretariat has used the following processes to determine which organisations would be invited to present to the SRC.
- 4.4.3 For generators, the secretariat proposes prioritising on the basis of operating capacity of generation plant. The four largest are Meridian Energy, Contact Energy, Genesis Energy and Mercury Energy. Collectively they have over 80% of national generation operating capacity and represent all the major fuel sources.
- 4.4.4 For distributors, the secretariat proposes prioritising on the basis of percentage of customer connections. The five largest are Vector, Powerco, Orion, Wellington Electricity and Unison. Collectively they have over 60% of national customer connections. While predominantly urban, Powerco and Unison have experience with remote/rural networks. These five also have a mix of ownership models.
- 4.4.5 For metering providers, the secretariat proposes prioritising on the basis of percentage of customer connections. The two largest are Advanced Metering Services (Vector) and Intellihub. Collectively they have nearly 80% of national customer connections.
- 4.4.6 For 'gas industry representatives', the secretariat proposes prioritising on the basis of criticality to the gas sector. The four most appropriate seem to be the Gas Industry Company, OMV, Todd Group and First Gas. These cover upstream, transmission and downstream activities.
- 4.4.7 A consequence of considering the logistical convenience of third parties (as described in paragraph 4.4.1(c)) is that it will take a long time to rotate through topics/areas. This may limit the SRC's ability to give useful advice to the Authority Board but is more convenient for third parties and smooths out the SRC's workload. A viable alternative would be for the SRC to have each meeting focussed on a particular topic/area and request third parties to travel and attend accordingly.