



## **AMP Review of EDB Risk Preparedness**

A report for the Commerce Commission

May 2019



## Preface

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## 1. Introduction

This report sets out the findings from our review of Electricity Distribution Businesses' (EDBs) risk preparedness, as disclosed within the published 2018 and 2019 Asset Management Plans (AMPs).

### **Purpose and scope of review**

The purpose of the review was to assess, from an "interested persons" perspective, disclosures made under Clause 14 of Attachment A of the EDB Information Disclosure Determination 2012 (ID Determination), with a focus on network resilience and HILP risks.

In November 2017, the Commission issued an open letter which set out its priorities for the electricity distribution sector for 2017/18 and beyond. In the letter, the Commission noted its priorities included a "greater understanding about performance of infrastructure industries" and for the electricity distribution sector this was about, among other things, "sharing that knowledge with our stakeholders, particularly those who would benefit from knowing more about network condition and resilience."

The Commission also noted that as EDBs asset management practices continue to mature, the expectation is for an increasing focus on, among other things, "appropriate levels of network resilience – the ability to maintain and restore electricity supply to consumers, particularly following high-impact, low-probability (HILP) events, such as earthquakes."

This review provides a step towards these priorities by reviewing the disclosure of EDB's risk management practices, contingency and HILP planning, and to a lesser extent investment associated with resilience, as published within EDBs' 2018 and 2019 AMPs. The scope of the review was limited to a desk top review of the disclosed AMPs, excluding the treatment of risk within asset class investment or network development. As such, this review is primarily focused on the risk management sections of the disclosed AMPs. Reviewing the published AMPs in their entirety was outside of our scope, as was testing compliance with the ID Determination. We also note that while many AMPs include a commentary on safety management systems, the assessment of these sections were also outside the scope of this review.

The intent of our review and the recommendations included in this report is to provide feedback on where, in our view, the AMPs might be developed to be more informative from an "interested person" or independent stakeholder's perspective. Our review findings and recommendations should not be taken to mean that we consider that an EDB does or does not undertake the function(s). Our findings and recommendations are based purely on the disclosed information within the AMP. Within this report we reference a range of examples within EDBs AMPs. While the examples may differ in "style", we consider the examples provide a good reference point for those EDBs looking to further develop their AMPs.



## 2. Review context and methodology

Mandatory disclosure requirements for EDB AMPs are outlined in the ID Determination. Among other things, the ID Determination is designed to produce AMPs that<sup>1</sup>:

- are based on, but are not limited to, the core elements of asset management.
- contain sufficient information to allow interested persons to make an informed judgement about the extent to which the EDB's asset management processes meet best practice criteria and that outcomes are consistent with outcomes produced in competitive markets.
- emphasise knowledge of the performance and risks of assets and identify opportunities to improve performance and provide a sound basis for ongoing risk assessment.
- promote continual improvements to asset management practices.

Accordingly, an EDB's AMP is to provide a window into its asset management processes and practices.

Along with setting out the mandatory disclosure requirements, the ID Determination provides guidance on the expected content of AMPs. In its guidance on risk management the ID Determination states that an EDB's AMP *"should demonstrate how the EDB identifies and assesses asset related risks and describe the main risks within the network. The focus should be on credible low-probability, high-impact risks. Risk evaluation may highlight the need for specific development projects or maintenance programmes. Where this is the case, the resulting projects or actions should be discussed, linking back to the development plan or maintenance programme."*

For risk management this means there should be a focus on asset, network and HILP risks "sufficient" for interested persons to observe the application of those processes. At a practical level, each EDB needs to ensure its AMP remains readable while relaying the necessary content. This balance between comprehensive disclosure, readability and "style" has been kept forefront in this review. Therefore, our approach for this review is to provide recommendations where, from an "interested persons" perspective, the AMP content could be further developed to demonstrate both the approach taken and the systematic and ongoing practical application within the business. Our review findings should not be taken to mean that we consider that an EDB does or does not undertake the function noted in the recommendation, it is purely based on the disclosure of the information within the AMP.

The second important contextual aspect of the review is that resilience is, by definition, a whole of business function. Figure 1 illustrates this, where resilience results from a combination of physical

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<sup>1</sup> Clause 2, Appendix A of the ID Determination



assets, organisational process, information and control, underpinned with organisational leadership and governance. Together these all sit within the context of the wider environment (physical, legal, economic, social etc.) within which the EDB exists.

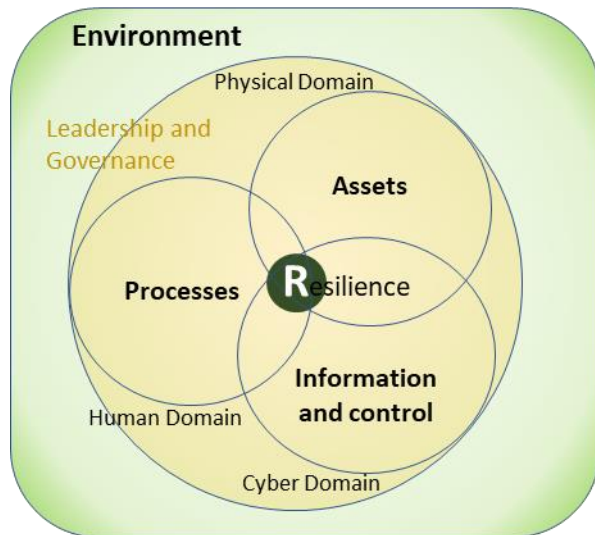


Figure 1: Elements within the resilience domain

A complete review of these elements, as disclosed with an EDB's AMP, was outside our scope for the review. As such, for the purposes of this review we have primarily considered the process aspects of resilience that an EDB would be expected to have in place pre-event. Namely, we have considered resilience within the scope of the ID Determination by considering:

- whether emergency response and contingency plans have been established and whether evidence has been presented as to their application and ongoing testing and refinement.
- whether HILP risks have been identified and evidence has been presented that these risks have been considered within the planning process.

The approach applied in this review, being based on a limited desk top study only, makes no assumption about the effectiveness or completeness of the emergency response and contingency plans, nor how current the plan(s) are, nor the level of understanding of the plan(s) within an EDB. The currency of the plans can only be assessed by the disclosure of an active testing regime and continuous improvement. Therefore, in our view from an interested persons perspective, while it is important to describe the process, it is equally important that evidence of active testing and refinement of the processes are disclosed.

To a limited extent we have also considered the asset (physical) and information (cyber) domains by reviewing whether systematic and analytical processes to determine HILP risks are disclosed and whether specific ongoing investments are being, or have been, undertaken to strengthen the





resilience of each network. However, we have not reviewed the disclosed AMPs in total, but rather only where resilience processes and/or investments have been specifically highlighted within the AMP. Where resilience is part of the ongoing asset class, security, or growth investment, but has not been specifically referred to as relating to resilience, it has not considered within this review. Therefore, while we have attempted to capture, within the scope of the review, the extent to which resilience investments have been disclosed, it is likely that not all resilience investment will have been considered.

### Review methodology

Within the context and scope of our review, we have utilised an evidence-based approach aimed at identifying the core elements within the review scope. To the extent possible, we have sought not to blur the boundaries of the review with an evaluation of the overall investment or asset management planning disclosed within AMPs. By necessity, this results in a top down review commencing with consideration of the disclosure of business risk management practices in the first instance, then to contingency and HILP planning progressing towards a more limited review of specific resilience investments. Figure 2 shows a simplified representation of the layers of network risk management to illustrate our approach, transiting from a holistic organisation wide view, down towards asset investment and then short-term operational processes.

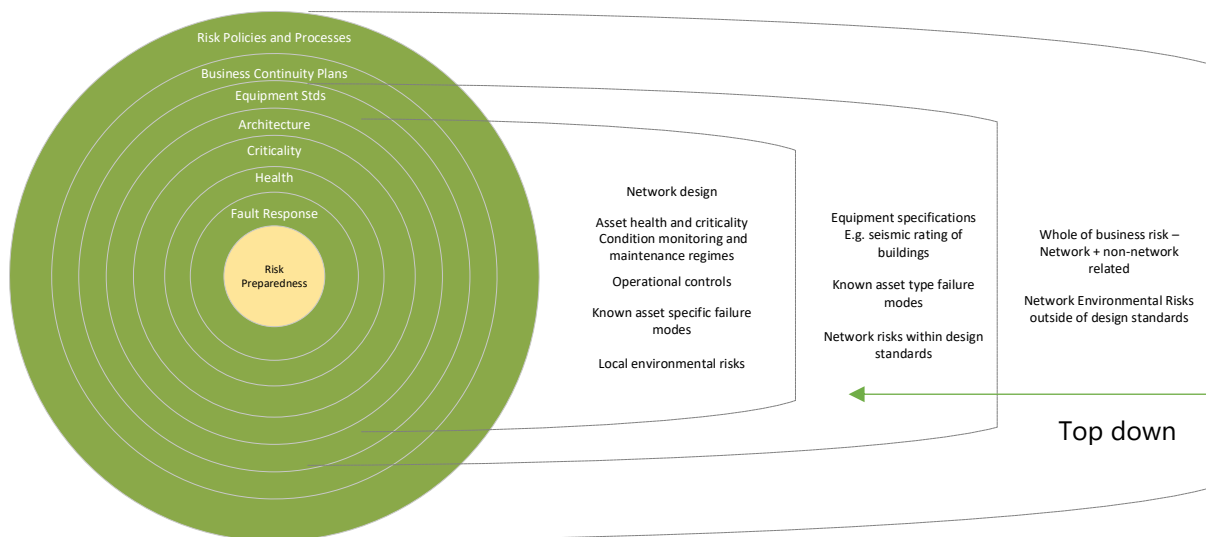


Figure 2: Simplified representation of network risk management layers and our review approach

Typically, risk management, contingency planning, and to a lesser extent resilience specific investment, are discussed within the risk and resilience sections of an AMP. Accordingly, these sections were the primary focus of the review.



In reviewing EDBs AMPs we also considered the relevant international standards and sought to determine whether the disclosures demonstrated the general principles contained within those standards.

Within the review the Commission sought an assessment of the AMPs against the following questions. The questions were derived from Clause 14 of the ID Determination:

1. Is there evidence that risk policies, risk assessments and specific mitigations exist?
2. Are the methods and conclusions of the risk analysis provided and demonstrate a reasonable consideration of risks?
3. Are there strategies and processes in place to identify specific network areas, or key individual assets, that are vulnerable to HILP events?
4. Are there specific network areas, or key individual assets, vulnerable to HILP events?
5. Are the steps to improve the network or asset resilience described?
6. Are there details of emergency response plans and contingency plans and a major event spares strategy if a HILP event did occur?
7. Does the asset spares strategy take into account HILP event exposures and in order that spares may be used to minimise HILP event return to service durations?

An assessment against these questions was undertaken utilising traffic light indicators as shown in Appendix A.

In addition to the Commission's questions, we sought to determine whether evidence existed within the AMPs to demonstrate application within the EDB. This included a review of the AMMAT self-assessment found in the AMMAT questions 33, 69 and 79. The content (either statements or discussion) which we sought were grouped under three categories:

#### **Application of risk policies and frameworks**

We sought to determine if AMPs disclosed and demonstrated:

- the risk standard or framework applied
- accountabilities, roles and responsibilities within the EDB
- the scope of the policy
- the policy objectives
- processes used to establish the context, and the identification, analysis, evaluation, and treatment of risks
- regular monitoring and review of risks, along with continual improvement of processes





- evidence of the systematic application within the EDB through presentation of analysis and results. This includes, for example, discussion of risk categories, risk matrices, reporting on the largest residual top risks, or some discussion about organisational and/or network risks faced, examples of risk analysis undertaken, and examples of mitigations utilised.

### **Contingency and HILP planning**

For contingency and HILP planning we sought to determine if AMPs demonstrated:

- the purpose and scope of each plan
- alignment with international standards
- accountabilities, roles and responsibilities within the plans
- objectives of the plan(s)
- the integration of asset management and emergency response planning, including the treatment of spares
- regular testing and improvements being made as gaps are found
- evidence of the application of HILP analysis within the discussion and through identification of specific locations, at risk assets, and a description or graphic showing the results from analysis of the region

### **Investment in resilience**

For investment in resilience we sought to determine if AMPs demonstrated:

- description of specific investments
- timeframes in which they are being undertaken
- quality standards against which investment is being undertaken
- systematic themes to investment
- evidence of the application and where possible evidence of integration with asset planning

As noted previously, during the process of the review we have also highlighted instances where we consider there are good examples of disclosures that are worth referencing when an EDB develops their next AMP. The intent of our review and the recommendations included in this report is to provide feedback on where, in our view, the disclosures might be developed to be more informative from an "interested person" or independent stakeholder's perspective without overly lengthening what are already extensive documents.



### 3. Findings from the review

The findings from our review are described below and our recommendations are set out in Section 4. The findings are based on areas where we consider the further development of AMPs would be valuable for an “interested person” or independent stakeholder perspective to order for the person to make an “*informed judgement about the extent to which the EDBs asset management practices meet best practice and outcomes consistent with outcomes produced in competitive markets*”<sup>2</sup>. The recommendations have been derived from the common themes we observe across the AMPs. As such each EDB should consider the applicability of each recommendation to their individual AMP. We have also highlighted instances where we consider there are good examples of disclosures that are worth referencing when an EDB develops their next AMP.

Our findings are summarised below under three subject categories:

- the application of risk policies and frameworks
- contingency and HILP planning
- investment in resilience

The detailed output from the assessment is shown in Appendix A.

#### **Application of risk policies and frameworks**

We found that all EDBs appear to have implemented a form of risk management policy and framework. The international standard to which they align varies by EDB, with the majority utilising ISO 31000. The level of detail disclosed in the AMPs vary significantly between EDBs. This ranges from those who disclose a clear summary of policy objectives, methods, roles and responsibilities, risk assessments, and conclusions including examples of specific mitigations through to a few EDBs that provide very little detail. There are a small number of EDBs where the AMP would significantly benefit from some additional material to provide “*sufficient information to allow interested persons to make an informed judgement...*”. We also note that in some cases the reported AMMAT scores appear to be inconsistent with the evidence provided in the AMP commentary. In this regard we would encourage EDBs to ensure the evidence presented in the main body of the AMP supports the AMMAT self-assessment results.

There are what we would consider, from an interested persons perspective, some good examples of disclosures. These examples tend to step through the key elements of risk management, including a discussion and demonstration of the application within the EDB. The examples include Alpine’s 2018

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<sup>2</sup> Clause 2.3, Appendix A of the ID Determination



and 2019 AMP, Northpower's 2018 AMP<sup>3</sup>, Orion's 2018 and 2019 AMP, WEL Network's 2018 AMP, and Wellington Electricity's 2018 and 2019 AMP.

As a result of this review we would recommend that EDBs review their disclosure of risk management frameworks and processes to ensure they provide evidence of the systematic application of risk management across the EDB. Figure 3 in Appendix A shows our detailed assessment of the application of risk policies and frameworks for each EDB AMP.

### **Contingency and HILP planning**

While the terminology used for contingency planning varies between EDBs<sup>4</sup>, the review has shown that a majority of EDBs appear to have a form of an emergency response or contingency planning in place. All are members of Civil Defence and Emergency Management (CDEM) Lifelines groups.

However, the level of disclosure varies significantly across EDBs. From an interested persons perspective, we consider a more consistent disclosure of the plans would be appropriate, given the general awareness of HILP events is now significantly greater than was previously the case. In particular, we consider disclosure of some of the key elements of the planning would strengthen the disclosures to provide better context and assist in framing the expectations of customers on the network. Our recommendations are set out in Section 4 below. We also note that many EDBs record that spares are held for emergencies. However, not all EDBs disclose this, nor do many provide a line of sight between the holding of spares and the contingency plan objectives.

As noted above, in our view, the demonstration of an up to date and systematic analysis of HILP risks faced within each supply area, is important. In addition to the strategies and processes used to assess HILP, the disclosure of where the key risks are, including implications for restoration, how these risks are accounted for in emergency response and contingency plans, and when the HILP risk was last assessed are important considerations for an interested person to make an informed judgement. There are several AMPs that provide good examples demonstrating the application of strategies and processes used to determine HILP risks, including the identification of specific network areas or key individual assets. These include Wellington Electricity's 2018 and 2019 AMP, Marlborough Lines 2018 AMP<sup>5</sup>, and Horizon Network's 2018 and 2019 AMP.

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<sup>3</sup> Northpower and WEL Networks only published updates in 2019.

<sup>4</sup> For the purpose of this report we have adopted the terminology of "emergency response plans and contingency plans" (as used by the Commission) to cover all equivalent plans irrespective of the terminology used by individual EDBs.

<sup>5</sup> Marlborough Lines only published an update in 2019.



Figure 4 in Appendix A shows our detailed assessment of contingency and HILP planning for each EDB AMP.

### **Investment in resilience**

A majority of EDBs refer to either general investment principles, such as network architecture standards and/or provide site-specific examples of investments that lead to an improvement in network resilience. From an interested person perspective, we consider that within the risk related sections of an AMP reference to specific resilience investment is more informative than generalized principles such as network architecture standards. We note that where resilience investment has been specifically referred to, there are some common themes evident in the disclosures. These include seismic strengthening, replacing larger pole mounted substations with ground mounted units, replacement of oil filled cables, works to enable network reconfiguration and meshing, and the deployment of mobile substations

Overall there appears to be less disclosure of the basis and the priority of resilience investments. In consideration of the level of interest in resilience we would recommend that disclosure is more systematic. By way of example, this would include clear statements regarding:

- the timeframes for the resilience investment. It is generally not clear from the disclosures when an interested person might expect the investments to be completed and the network or assets within the network are to be brought up to the standard sought by the EDB
- the rationale for the investment level chosen is more clearly described. For example, the disclosed investment in buildings being upgraded varies across the industry, with little explanation as to the drivers behind the decision to upgrade to the chosen National Building Standard (NBS) rating. As such, a risk-based approach to the investment in seismic strengthening of buildings is not always obvious from the AMPs generally. Therefore, we would recommend that where an investment standard is utilised, the rationale for the chosen investment level be clearly articulated.

Figure 5 in Appendix A shows our detailed assessment of resilience investment for each EDB AMP.



## 4. Recommendations

Our recommendations are set out below under each of the three subject categories.

### **The application of risk policies and frameworks**

We recommend that EDBs review their disclosure of risk management policies, frameworks, and processes to ensure they provide evidence of the systematic application of risk management across the EDB. By way of example, we recommend the disclosure of:

- the risk management standard or framework utilised
- policy objectives
- a description of the risk processes followed to establish the context, identify, analyse, evaluate, and treat risks
- roles and responsibilities within the framework
- risk categories, the definitions of likelihood, consequence, and response utilised
- a description, or matrix, showing the largest 6 to 10 residual risks faced by the EDB, along with a general description of the mitigations employed
- a description of the network risks faced, with reference to specific areas, locations or assets (this is discussed further below)
- the timeframe within which the risks were last reviewed and assessed

As previously noted, there are, what we would consider, some good examples of the application of risk policies and frameworks which should be referenced. These include Alpine's 2018 and 2019 AMP Nothpower's 2018 AMP, Orion's 2018 and 2019 AMP, WEL Network's 2018 AMP, and Wellington Electricity's 2018 and 2019 AMP.

We also make the general observation that the relationship between corporate wide risk management and the treatment of network and network related risks is often not clearly described in the AMPs, if included at all. In this regard, we would recommend that disclosures map out or describe the cascade from organisational wide risk management to network and asset risk management, so as to demonstrate alignment of objectives and the treatment of risk within the investment decision making processes.

### **Contingency and HILP Planning**

While a majority of EDBs provide a general description of their emergency event plans, contingency plans, and/ or business continuity plans, in our view there are some aspects of the disclosures that should be improved. In particular, we consider disclosure of some of the core elements of the planning would strengthen the AMP to provide better context and assist in framing the expectations of stakeholders and customers on the network. We recommend the disclosure of:



- emergency response and contingency plan objectives, including realistic timeframes and scope for supply restoration. A clear understanding of what is trying to be achieved by the implementation of each plan is essential to establishing effective plans and necessary for an interested person to make an informed judgement. In many cases the specific objectives and scope of the plans are not disclosed.
- the extent to which stakeholder views have been sought when establishing the objectives and details of the plans.
- a summary of the roles and responsibilities within the plan(s).
- the extent that the contingency plan and processes are monitored, tested, and improved. Regular monitoring, review, and testing of plans ensures they are up to date and allows for continuous improvement when gaps are found. Demonstration that an EDB can effectively respond when required, rather than reliance on an outdated plan that sits in an office cabinet is of particular interest for a stakeholder wishing to make an informed judgement. We therefore recommend that the date and scope of the most recent testing and a general description of improvement actions is included in the AMP.
- a commentary on the strategy for the management of emergency spares. We recommend that the description of the spares' strategy is linked with the objectives of the emergency response and/or contingency plan.

Where contingency plans are yet to be established, we highly recommend that these are completed and tested as soon as possible.

The description of strategies and processes used to identify HILP risks, along with the EDB's exposure to HILP risks varies considerably across AMPs. While most EDBs state they are members of CDEM Lifelines groups, and many document that they consider HILP risks, including citing examples of assets exposed to HILP risks, only a few demonstrate evidence within the AMPs of a systematic approach to understanding the local area and the potential HILP risks. Considering the heightened awareness and interest in HILP risks faced by communities around the country, we would recommend improved disclosure related to planning for HILP risks. As an observation, we note that there also appears to be a difference in what constitutes a HILP risk, varying from reasonably localised environmental risks, such as flooding or snow through to area wide risks such as earthquake and tsunami risks. While it is likely that the threshold for what might be classed as a HILP event will vary from region to region, we would suggest that to make an informed judgement, an interested person would need to see a demonstration of the systematic analysis of both local and area wide risks within the disclosures. We would therefore recommend the AMPs include, by way of example:



- a description of how HILP risks are identified, and at a general level, how the specific risks have been accounted for in the contingency planning discussed above.
- when the risks were last reviewed, and what review period the EDB considers appropriate.
- a description of the risks faced in the area including specific instances that impact EDB assets. A heat map showing the area and the risks is often a helpful communication tool to demonstrate this.

In our view, some good examples of disclosures of HILP planning that should be referenced include Wellington Electricity's 2018 and 2019 AMP, Marlborough Lines 2018 AMP and Horizon Network's 2018 and 2019 AMPs.

### **Investment in resilience**

Resilience is, by definition, a whole of business function. As such there is considerable overlap between what might be classified as investment in resilience and what might be classified as "business as usual" asset class and network development investment. As such, in accordance with the scope of this review, we have only considered investment that has been specifically disclosed as relating to improving network or asset resilience. Within this context, resilience investment is relatively small and is typically not separated in the expenditure disclosures. Nonetheless, as expected, there are some common themes to resilience investments across AMPs. Regarding the disclosure of resilience related investment our recommendations are:

- the timeframes for the resilience investment are made explicit. It is generally not clear from the disclosures when an interested person might expect the investments to be completed and the network or assets within the network are to be brought up to the standard sought by the EDB.
- the rationale for the investment level chosen is more clearly described. For example, the drivers behind the decision to upgrade a building to a chosen NBS rating should be described in accordance with criticality and health of the building. Therefore, we would recommend that where an investment standard is utilised, the rationale for the chosen investment level be clearly articulate.

In our view a more consistent and transparent disclosure of resilience investments would be useful from an "interested persons" perspective within the risk or resilience sections of the AMP. We note that, if needed, specific investments should also be referenced if they are described in more detail within other sections of the AMP.



## 5. Appendix A – Detailed review outcomes

Figures 3, 4, and 5 below provide the detailed output from the review. Traffic lights have been utilised to subjectively assess the AMP content against the questions asked by the Commission. In addition, we have indicated where we found evidence presented in each AMP in support of each category.

Traffic light key:

- disclosed and evidence presented. Please note that a ● should not be read as meaning there is no scope for improvement in the disclosure. Within the body of this report we have highlighted instances where we consider there are good examples of disclosures that are worth referencing when an EDB develops their next AMP, so they can be more informative from an “interested person” perspective.
- disclosed without evidence or implied by evidence presented
- not disclosed
- disclosed non completion

Subject Area	Risk management policy and processes					AMP content													
						Disclosed Std applied			Accountabilities and process described?		Application			Evidence of results					
	Risk policies exist and are fit for purpose?	Risk assessments exist and are fit for purpose?	Specific risk mitigations exist and are fit for purpose?	The methods of the risk analysis are provided and demonstrate reasonable consideration of risks	The conclusions of the risk analysis are provided and demonstrate reasonable consideration of risks	ISO 31000	AS/NZ 4630:1999	COSO Enterprise Risk Management (ERM) – Integrated Framework	Risk management – Principles and 3LoD	Risk roles and responsibilities disclosed	Process or framework describe or mapped in a diagram	Risk Matrix disclosed	Risk types / categories disclosed	Consequence scale disclosed	Likelihood matrix disclosed	Example corporate level risks disclosed	Example network / asset risks disclosed	Examples of specific mitigations disclosed	
Question																			
Alpine Energy	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓		✓	✓	
Aurora Energy	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓		✓	✓	
Buller Electricity	✓	●	●	●	●	Not Disclosed				✓			✓				✓	✓	
Centralines	✓	●	●	●	●	✓				✓	✓							✓	✓
Counties Power	✓	●	●	●	●	✓				✓	✓		✓	✓					✓
Eastland Network	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Electra	✓	✓	✓	●	●	✓				✓	✓		✓					✓	✓
EA Networks	●	●	●	●	●	✓	✓				✓		✓					✓	✓
Electricity Invercargill	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Horizon Networks	✓	●	●	●	●	✓				✓	✓		✓	✓	✓				✓
Mainpower	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓			✓	✓
Marlborough Lines	✓	●	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nelson Electricity	✓	✓	✓	✓	✓	✓					✓		✓					✓	
Network Waitaki	✓	●	●	✓	●	✓				✓	✓		✓			✓			
Northpower	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓		✓	✓	✓	✓	✓
Network Tasman	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OJV	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Orion	✓	✓	✓	✓	✓	✓				✓	✓	✓				✓	✓	✓	✓
Powerco	✓	✓	✓	✓	✓				✓	✓	✓					✓	✓	✓	✓
Scanpower	✓	✓	✓	✓	✓	✓					✓		✓			✓	✓	✓	✓
The Lines Company	●	●	●	●	●	✓				✓			✓	✓					✓
The Power Company	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓
Top Energy Ltd	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unison	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓				✓	✓
Vector Electricity	✓	●	●	✓	●	✓					✓							✓	✓
Waipa Networks	●	●	●	●	●	Not Disclosed											✓	✓	
WEL Networks	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wellington Electricity	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓			✓			
Westpower	✓	●	✓	✓	✓	✓					✓			✓					✓

Figure 3: Application of risk policies and frameworks



Subject Area	Contingency and HILP Planning				Plans Established				Impleme nted	Testing and Improvements	
	Are there strategies and processes in place to identify specific network areas, or key individual assets, that are vulnerable to HILP events?	Are the specific network areas, or key individual assets, vulnerable to HILP events, explicitly identified?	Are there details of emergency response plans and contingency plans and a major event spares strategy if a HILP event did occur?	Does the asset spares strategy take into account HILP event exposures and in order that spares may be used to minimise HILP event return to service durations?	Contingency / Major event / Response plan established	Plan objectives been disclosed	General description of roles and responsibilities disclosed	Communications methods / processes discussed?		Spares or required resources in place for emergency response	Plans are monitored and regularly tested
Alpine Energy	●	●	●	●	✓		✓	✓	✓		✓
Aurora Energy	●	●	●	●	✓		✓	✓	✓		✓
Buller Electricity	●	●	●	●	✓						
Centralines	●	●	●	●	✓		✓				
Counties Power	●	●	●	●	✓		✓	✓	✓		✓
Eastland Network	●	●	●	●	✓		✓	✓	✓	✓	
Electra	●	●	●	●	✓	✓	✓	✓	✓		
EA Networks	●	●	●	●							
Electricity Invercargill	●	●	●	●	✓			✓	✓		✓
Horizon Networks	●	●	●	●	✓			✓	✓	✓	✓
Mainpower	●	●	●	●	✓		✓	✓	✓		
Marlborough Lines	●	●	●	●	✓			✓	✓		✓
Nelson Electricity	●	●	●	●	✓	✓		✓	✓		
Network Waitaki	●	●	●	●	✓						
Northpower	●	●	●	●	✓		✓	✓	✓		
Network Tasman	●	●	●	●	✓		✓	✓	✓		
OJV	●	●	●	●	✓				✓		✓
Orion	●	●	●	●	✓	✓		✓	✓		✓
Powerco	●	●	●	●	✓	✓	✓		✓	✓	
Scanpower	●	●	●	●	✓	✓					
The Lines Company	●	●	●	●	✓				✓		
The Power Company	●	●	●	●	✓						
Top Energy Ltd	●	●	●	●	✓	✓	✓		✓		✓
Unison	●	●	●	●	✓		✓		✓	✓	
Vector Electricity	●	●	●	●	✓		✓			✓	
Waipa Networks	●	●	●	●	✓			✓	✓		
WEL Networks	●	●	●	●	✓		✓	✓	✓	✓	✓
Wellington Electricity	●	●	●	●	✓			✓	✓	✓	✓
Westpower	●	●	●	●	✓		✓		✓	✓	

Figure 4: Contingency and HILP planning



Subject Area	Investment		Investment Examples	
	Are the specific network areas, or key individual assets, vulnerable to HILP events, explicitly identified?	Are the steps to improve the network or asset resilience, described?	Examples of network areas assessed and disclosed which are subject to natural hazards or HILP impacts	Examples (specific or general) of assets being updated to improve resilience
Question				
Alpine Energy	●	●		✓
Aurora Energy	●	●		✓
Buller Electricity	●	●		
Centralines	●	●		✓
Counties Power	●	●		✓
Eastland Network	●	●		✓
Electra	●	●		
EA Networks	●	●		✓
Electricity Invercargill	●	●		✓
Mainpower	●	●		
Horizon Networks	●	●		✓
Marlborough Lines	●	●	✓	✓
Nelson Electricity	●	●		✓
Network Waitaki	●	●		✓
Northpower	●	●		✓
Network Tasman	●	●	✓	✓
OJV	●	●		✓
Orion	●	●	✓	✓
Powerco	●	●		✓
Scanpower	●	●		
The Lines Company	●	●		✓
The Power Company	●	●		✓
Top Energy Ltd	●	●		✓
Unison	●	●		✓
Vector Electricity	●	●		✓
Waipa Networks	●	●		✓
WEL Networks	●	●		✓
Wellington Electricity	●	●	✓	✓
Westpower	●	●		✓

Figure 5: Investment in Resilience