

SECURITY AND RELIABILITY COUNCIL

MINUTES

Meeting number: 53

Venue: Electricity Authority, 9.00am until 4.00pm, 23 October 2025

Members Present

- Hon Heather Roy (Chair)
- Ben Gerritsen
- Chris Ewers
- Karen Frew (via Teams)
- Allan Miller
- David Binnie
- Steve Duggan
- Andre Botha (via Teams)

Apologies: Nanette Moreau

In attendance

Name	Title	Agenda item(s) attended
<u>Electricity Authority (Authority):</u>		
Sarah Gillies	Chief Executive	Items 8, 12
Hayden Glass	GM, Wholesale and Supply	Items 8, 12
Sam Edens	Quantitative Analyst	Item 8
Doug Watt	Manager, Market Intelligence	Item 8
Allen Davison	Principal Analyst, Network Policy	Item 10
Natalie Bartos	Principal Analyst, Wholesale & Supply	Items 8, 12
<u>Other attendees:</u>		
Rebecca Osborne	Head of Market Services, Transpower	Item 8, 12
Ramu Naidoo	Market Operations Manager, Transpower	Item 8
Tracey Kai	Chief Executive, Electricity Networks Aotearoa	Item 10
Gareth Wilson	MBIE, Principal Strategy Adviser, Energy	Item 10
Brian Fitzgerald	EECA, Demand/Distributed flexibility Lead	Item 10
Chirs Forsman	Standards NZ, Principal Standards Programme Manager	Item 10
Stuart Johnstone	Lead Adviser, Engineering and Technical	Item 10
Buddhika Rajapakse	Concept Consulting	Item 11

The meeting opened at 9.00am, Jeremy Cain joined the meeting at 9.00am.

1. Attendance and apologies

- 1.1. The Chair welcomed members to the 53rd meeting of the Security and Reliability Council (SRC). A quorum was established.
- 1.2. The Chair noted Nanette Moreau as an apology, and Andre Botha and Karen Frew attended remotely.

2. Changes to disclosure of interests

The Chair reviewed the interests register.

- 2.1. The secretariat noted a change to Allan Miller's interests and Chris Ewers' job title.
 - 2.2. There were no further changes disclosed. The Chair approved members to act despite those declared interests.
- a) Members-only session
- 2.3. The members discussed their priorities for the meeting.

Jeremy Cain left the meeting at 9:15am, rejoined the meeting at 9:20am.

3. Minutes of previous meeting

- 3.1. Members discussed the minutes of the 26 August 2025 SRC meeting.
- 3.2. The minutes were accepted as a true and accurate record.

The Chair moved. All members approved.

4. Correspondence

- 4.1. The Chair noted the SRC's letter of 12 September sent to the Authority, the Authority's letter of reply dated 17 October and the SRC's letter of 8 October on cyber security regulation to the Department of Prime Minister and Cabinet.
- 4.2. Member comments included:
 - a) Recognising lateral thinking by the Authority, MBIE and the System Operator, as demonstrated by the System Operator through its latest consultation on the SOSFIP review, noting process still in train.
 - b) Acknowledge invitation from the Authority for SRC input on additional changes the Authority could make to help reduce system risk as intermittent generation increases.

Action 1: Secretary to add table tracking recommendations and actions to advice from this meeting onwards.

5. (Agenda item #6) Action list and updates

- 5.1. The Chair noted the ongoing and completed actions in the table, which were taken as read.
- 5.2. Members:
 - a) Discussed loss of supply on the system that day and the ongoing cost / risk to electricity consumers by tree contacting power lines.
 - b) Noted LNG import terminal procurement process currently underway

- c) Noted hydro, gas storage levels, the 1.1MT physical coal stockpile and draft Commerce Commission to approve the Huntly agreement (to preserve a 3rd Rankine unit, hold fuel reserves).

6. Agenda item #7) Risk radar / risk playback

- 6.1. The Secretary introduced analysis of how SRC could assess and present system performance and security risk.
- 6.2. Members provided feedback to that the Secretary will address ahead of the next SRC meeting.

Action 2: Secretary to reformat presentation of system performance and security risks.

Sarah Gillies, Hayden Glass, Natalie Bartos, Sam Edens, Doug Watt, Rebecca Osborne and Ramu Naidoo joined the meeting at 10:04am.

7. (Agenda item #8) Joint Security of Supply update

- 7.1. The respective Authority and System Operator staff presented the security of supply update.
- 7.2. The August briefing covered the current market situation, forecast supply / demand balance and security of supply outlook for 2026, historical and futures prices, fuel availability (hydro, gas, coal), generation plant availability, the 'generation pipeline', the BESS roadmap and planned regulatory and reporting changes.
- 7.3. In discussion with presenters the SRC:
 - a) Queried whether release of gas by Genesis affected medium term energy risk, noted that hydro spill meant no ability to store current strong inflows but need to watch closely with potentially low summer inflows if predicted La Niña event materialises.
 - b) Noted the persistent / recurring disconnect between increasing forecast and almost flat actual demand, and the potential causes. Noted grid connection one of top three constraints and questioned whether the Grid Owner is giving sufficient priority to connecting required generation.
 - c) Expressed concern with the growing trend of over forecasting of new generation commissioning¹ and again relying to 'get through winter' on:
 - i. extraordinary measures by generators
 - ii. availability and heavy utilisation of a shrinking, aging and less diverse thermal fleet
 - iii. explicit or de facto rationing by consumers, noting total demand remains flat (and lower than 2010) in defiance of forecasts.

¹ Presenters advised that actual generation commissioning over the past 12 months was 200MW less than expected.

This discussion was summed up with the statement “hope is not a good strategy”. This does not diminish the sector efforts to balance supply and demand, rather highlights persistently elevated risk that New Zealand consumers are exposed to – but mostly unaware of – and the economic consequences of having to curtail electricity demand or missing opportunities for growth.

- d) Noted the need for a clearer picture (i.e. reliable) of expected generation commissioning as the outlook tightens and actual commissioning lags the various forecasts from the Authority and System Operator.
- e) Continued to question whether investment and regulatory initiatives will be sufficient to address elevated capacity and energy risk to ~2028.
- f) Discussed need to align on how solar should be accounted for in the energy and capacity forecasts given seasonality. Concern was expressed, as it has been at previous meetings, that the graphical presentation of solar capacity alongside other generation capacity gives no indication of energy production. It was suggested that presentation of expected energy generation by season, especially winter, would be more informative for security of supply. Further noted the need to assess capacity for (and limits on) inter-seasonal storage – for example, it is likely oversimplistic to assume that 1GWh of solar in summer = 1GWh additional winter hydro storage.

Hayden Glass, Natalie Bartos, Sam Edens, Julie Hall, Rebecca Osborne and Ramu Naidoo left the meeting at 10:50am.

8. (Agenda item #9) Wrap-up discussion on Security of Supply update

- 8.1. The Chair led a Wrap-up discussion with members on item, #8, including areas of concern and points to note in the letter of advice.

Gareth Wilson (MBIE), Allen Davison (Authority), Brian Fitzgerald (EECA), Chris Forsman (Standards NZ), Stuart Johnstone (EEA), Tracey Kai (ENA) joined the meeting at 11:10am

9. (Agenda item #10) Inverter standards

- 9.1. The chair introduced the item and welcomed presenters from MBIE, the Authority, EECA, Standards NZ, the Electricity Engineers Association (EEA), and Electricity Networks Aotearoa (ENA).
- 9.2. SRC members, providing additional context for this item, invited presenters to share with SRC:
 - a) who is responsible for setting, developing, enforcing, electrical standards
 - b) how competency of EDBs, installers and inspectors is ensured
 - c) what is (and should be) mandatory vs discretionary
 - d) opportunities to improve, so this important part of the system performs for New Zealand
 - e) how, through its advice, the SRC can assist:
- 9.3. MBIE outlined the New Zealand standards ‘system’, its purpose, who it applies to and what is covered.

- 9.4. The Authority outlined the role of the electricity industry participation Code (the Code), changes currently under consultation and its intent to bring the Code into alignment with Electricity Safety Regulations (ESRs).
- 9.5. EECA explained imminent statutory changes that will bring it regulatory powers in relation to consumer and other equipment. For example, minimum interoperability and communications requirements. EECA introduced its 'FlexTalk' partnership with the EEA that implements common communication protocols.
- 9.6. Standards NZ explained its role setting standards and the use of Publicly Available Specifications (PAS) resources, noting the recent introduction of PAS 6014:2025.
- 9.7. The EEA summarised how it works to draw relevant standards, PAS resources and regulatory requirements into guidance for operators such as electricity distributors and installers.
- 9.8. The ENA represents electricity network businesses who are 'customers' of the standards 'system' administered by the entities above. The ENA expressed concern with the level of complexity and highlighted an opportunity for better cohesion and coordination in the formulation, regulation, application and update of technical standards (an inclusive term).
- 9.9. In discussion with presenters the SRC:
 - a) Outlined its concerns that:
 - Outdated inverter standards present a growing risk to system stability, that failure to learn from other jurisdictions would unnecessarily expose New Zealand to serious risk.
 - There appears little (or no) technical consideration of the impact large numbers of small-scale inverters on other parts of the network, such as transmission. An example is the use of reactive power voltage control and the effect this might have on reactive and active power flows at grid exit points.
 - Considering DER more generally, the disjointed standards framework and confusion this creates, may not support suitable integration and interoperation of DER. In turn, New Zealand will miss the tremendous opportunity DERs can provide for things such as limiting peak demand; and instead may even increase peak demand. As a result, New Zealand may incur significant unnecessary network and generation costs and security of supply risk.
 - b) Was encouraged by presenter views that recent and pending changes would bring inverter standards for small DER up to currently recognised best practice for New Zealand / Australia for. Those changes included:
 - introduction of PAS 6014:2025
 - expected Code changes (installation and performance)

- expected update of ESRs
- existing and new initiatives by EECA (interoperability and connectivity)
- c) Expressed surprise and concern at the complexity of the NZ standards 'system', the apparent lack of cohesion and coordination and risk/impact this creates for standards development, application and maintenance.
- d) Expressed concern that there appears to be a lack of consideration of how the issues noted above create confusion and additional costs to consumers who want to install solar. Consequently, uptake of solar at a reasonable cost is hindered.
- e) That current standards approval process delays indicate an opportunity for improvement, including whether changes to organisational accountabilities are necessary.
- f) Discussed the need for / value of:
 - Expediting progression of the EECA Bill, currently before Parliament.
 - A steward to coordinate, bring cohesion to the fragmented 'system'.
 - Clear objectives for the 'system' that the different entities align to and develop plans around to ensure security of supply, electricity system performance and the energy transition is **enabled not impeded by** electrical standards and regulation
 - A reference / working group to coordinate current / future standards development and maintenance at a practical level
 - Public resources to aid stakeholder understanding of this complicated system, for example, Plain English explanations and supporting diagrams / flow charts describing:
 1. what each entity does
 2. how the different instruments interact (ESRs, the Code, PASs, guidelines etc)
 3. how and by whom these instruments are developed, maintained, enforced, updated, retired.

There was strong alignment between presenters and the SRC that these opportunities should be progressed.

Gareth Wilson (MBIE), Allen Davison (Authority), Brian Fitzgerald (EECA), Chris Forsman (Standards NZ), Stuart Johnstone (EEA), Tracey Kai (ENA) left the meeting at 1:05pm

10. Wrap-up discussion on inverter standards

- 10.1. The Chair led a Wrap-up discussion with members on item, #9, including areas of concern and points to note in the letter of advice.

The SRC broke for lunch at 1.15pm

Buddhika Rajapakse joined the meeting at 1.40pm

11.(Agenda item #11) Vehicle to grid

- 11.1. The Chair introduced the item and welcomed the presenter from Concept Consulting.
- 11.2. The presentation and points of discussion noted:
 - i. The significant opportunity presented by V2G to support security or supply and system efficiency by:
 - offsetting peak demand (capacity) and providing short duration energy storage
 - providing a 'solar sink' to absorb excess solar generation, reducing energy spill
 - avoiding or reducing the scale of distribution and transmission network build
 - ii. Recognition that there are technical / practical / commercial issues to work through, though these are all solvable with concerted effort
 - iii. The dependence on standard setters, regulators and sector participants to enable and realise this opportunity
- b) the extraordinary costs and security of supply risk of not capitalising on the V2G opportunity.

Buddhika Rajapakse left the meeting at 2:15pm, Sarah Gillies, Hayden Glass, Natalie Bartos and Rebecca Osborne joined the meeting at 2:15PM

12.(Agenda item #12) System Operator performance self-assessment

- 12.1. The Chair introduced the item, noted the SRC's support for the System Operator's SOSFIP review.
- 12.2. The presentation and points of discussion noted:
 - a) the increasing pace of change and intermittency and challenges this presents to the System Operator.
 - b) achievements and lessons learned by the System Operator in the 2025 financial year.
 - c) approach to setting System Operator strategy, which will be aligned to the SOSPA period.
 - d) how the System Operator can support connection / commissioning of new generation through its own processes and managing the performance of the Grid Owner (in respect of grid connection) and distributors.
 - e) the System Operator's organisational readiness to cope with increasing pace of change.

- f) concern that there appear to be unexplained differences in supply demand forecasts between the System Operator and Authority.

Rebecca Osborne left the meeting at 2:55pm

13. Wrap-up discussion on item 12

- 13.1. The Chair led a Wrap-up discussion with members on item 12 including areas of concern and points to note in the letter of advice.

14. Market review outcomes

- 14.1. The SRC briefly discussed market review outcomes.

15. Impact of declining gas production on security and reliability

- 15.1. SRC had a short scoping discussion for a future session on the first and second order implications of declining gas production for the electricity system.

16. Purpose and scope of next meeting and 2026 plan

- 16.1. The Chair led a discussion on the purpose and scope of the Q1 2026 meeting (February) and the outlook for the remainder of 2026.

The meeting ended at 3:55pm

SECURITY AND RELIABILITY COUNCIL

10 November 2025

Anna Kominik
Electricity Authority Chair
Electricity Authority
PO Box 10041
Wellington 6143

Dear Anna,

Advice from 23 October 2025 SRC Meeting

The Security and Reliability Council (SRC) provides the Electricity Authority Te Mana Hiko (Authority) with independent advice on the performance of the electricity system, the system operator, and reliability of supply issues.

Thank you for the Authority's response to the SRC's 12 September advice. The SRC is encouraged by your continued focus on near term security of supply at a time of elevated 'tightness' in the system, and commitment to improving the generation pipeline. If complete and reliable the pipeline can be valuable; if not, it provides a false sense of security.

The System Operator's security of supply forecasting and information policy (SOSFIP) consultation demonstrates careful deliberations, including on contingent hydro storage. The SRC will continue to engage on this topic alongside its focus on capacity and energy risk arising from increased intermittency.

The October SRC meeting

The October SRC meeting coincided with spring storms and the widespread loss of supply to electricity users. As you know, the single largest cause of outages historically – and in October – is from trees contacting and damaging power lines.

Tree regulations are something the SRC has repeatedly recommended action on. The SRC again asks the Authority to press the Government to change tree regulations and thereby improve security of supply.

The focus of the October SRC meeting was an in-depth session on inverter standards and the System Operator's annual performance self-assessment. In addition, SRC received:

- a joint security of supply briefing from the Authority and System Operator:
- a briefing of vehicle to grid opportunities from Concept Consulting.

The SRC acknowledges and thanks all the presenters to its October meeting.

Advice

This letter summarises the SRC's October meeting and its recommendations to the Authority, these are to:

1. **continue efforts** to understand generation build critical paths, understand impediments and act to address potential bottlenecks, for example, network connections.
2. **improve / mature the generation pipeline** so this lives up to its potential. If the pipeline simply re-presents a long list of projects, it gives a false sense of security of what will realistically be built (and risks deterring credible new projects).
3. **recognise the outsized role** certain electrical standards will have on the electricity system and act now to realise the clear opportunities for improvement.
4. **closely monitor integration of EV charging**, and progress enabling the V2G opportunities summarised above (detailed in the report) – potentially through the power of innovation pathway.
5. **note the SRC's observations** in its review of the System Operator's performance self-assessment including the value of an independent review of System Operator performance each contract period.

The recommendations above are primarily to the Authority. However, the SRC intends to convey its recommendations directly to the organisations involved in electrical standards setting.

1. Security of supply outlook

The October briefing covered the current market situation, forecast supply / demand balance and security of supply outlook for 2026, historical and futures prices, fuel availability (hydro, gas, coal), generation plant availability, the 'generation pipeline', the BESS roadmap and planned regulatory and reporting changes.

In discussion with presenters, SRC noted:

- the positive spring energy situation, with strong spring inflows, large coal stockpiles, moderate gas stores and indications the regulatory approvals will be forthcoming for the agreement to preserve a 3rd Huntly Rankine unit and coal stocks.
- growing reliance on generation plant availability and commissioning assumptions, even as the thermal fleet shrinks and remaining plant ages, and an apparent optimism bias on generation build quantities and commissioning timeframes.
- that the inclusion of speculative projects in the 'generation pipeline' risks a false sense of security and may indicate that additional projects are not needed / economic or may be at the end of a long queue for grid connection.
- the urgent need for the Authority and System Operator to improve understanding of near- and medium-term generation build and commissioning plans (and the risk of not doing so) and ensuring robustness / credibility of published pipelines.

The SRC notes positive developments and the reduced risk of contingent arrangements being called on in 2026, but this risk remains – especially if La Niña conditions persist. ¹

¹ [Seasonal Climate Outlook November - January 2025 | Earth Sciences New Zealand | NIWA](#)

Moreover, the SRC is concerned that New Zealand's electricity supply is increasingly reliant on extraordinary measures by generators, maintenance of a shrinking, aging and less diverse thermal fleet, and explicit or de facto rationing by consumers.²

In general, the SRC remains less optimistic than Authority and System Operator that new generation will arrive 'in time' to mitigate growing capacity and energy risk. There appears to be consistently less generation being commissioned in the timeframes assumed by forecasters within each organisation. This may be methodological, developer optimism bias flowing into pipeline forecasts, or a combination of issues.

The SRC recommends the Authority continue efforts to:

1. **To understand generation build** critical paths, understand impediments and act to address potential bottlenecks, for example, network connections
2. **Improve / mature the generation pipeline** so this is factual, robust and lives up to its potential. If the pipeline merely re-presents a long list of projects, it gives a false sense of security and risks deterring credible new projects.

2. The role of technical standards in realising the DER potential

The SRC has previously discussed concerns that standards³ for small scale inverters, principally solar and EV chargers, are outdated and this exposes New Zealand electricity system and consumers to unnecessary risk and cost.

For this discussion the SRC was joined by the principal parties involved in the standard setting and related regulatory 'system'. The SRC is grateful to MBIE, the Authority, EECA, Standards NZ, the Electricity Engineers Association (EEA) and Electricity Networks Aotearoa (ENA) for their time.

The session involved presentations from each party and a workshop discussion. After these presentations and discussions, it was evident to the SRC that:

- significant effort has been made across the named entities to bring the technical standards system up to date; recent and expected changes, if progressed, have the potential bring New Zealand up to date with regional good practice.
- the NZ standards system is very complex, appears to lack cohesion and coordination; this is a source of confusion and frustration to the parties and stakeholders, resulting in unnecessary delay, cost and risk. The uptake of small-scale solar PV, EVs and other DERs including battery energy systems, is growing fast. At this pace, the myriad impact of small devices will soon, if not already, combine to be seen at a system level, not just at local levels.
- there are clear opportunities to improve the performance of the standards system - to reduce friction, improve clarity, cohesion and coordination and, in doing so, allow New Zealand to benefit from the potential DER offers.
- if these opportunities are not acted on, we can expect to see unnecessarily high electricity system cost and system risk, adversely impacting electrification.

The discussion with presenters highlighted the need for and value of:

² Contrary to forecasts for strong demand growth, electricity consumption (GWh) remains flat (lower in 2025 than 2010).

³ The term "standards" to describe the set of standards, regulations, rules, guidelines that collectively specify / regulate equipment, installation and operation of the relevant DERs.

- completing planned changes to the EECA Bill.
- a clear policy owner or steward to coordinate, bring cohesion to the fragmented 'system'.
- clear objectives for the 'system' that the different entities align to, and develop plans around, to ensure security of supply, electricity system performance (and the energy transition is enabled not impeded by electrical standards and regulation).
- a reference / working group to coordinate current / future standards development and maintenance at a practical level and to produce public resources to aid stakeholder understanding.

SRC's recommends the Authority, government and associated bodies:

3. **Recognise the outsized role** that certain electrical standards will have on the electricity system and act now to realise the clear opportunities for improvement.

3. Opportunities and risks presented by 'vehicle to grid'

Buddhika Rajapakse briefed the SRC on analysis by Concept Consulting (as part of a multi-client report⁴) on the implications and opportunities presented by increasing EV adoption.

The Authority has recently cited this analysis so is aware of the very significant opportunity that optimising EV charging and even moderate utilisation of vehicle to grid (V2G) offers in terms of:

- offsetting peak demand (capacity) and providing short duration energy storage
- providing a 'solar sink' to absorb excess solar generation, reducing energy spill
- avoiding or reducing the scale of distribution and transmission network and peaking generation build.

Realisation of these opportunities is contingent on introduction and application of the technical standards discussed in section 2 of this letter, and various other commercial, technological and regulatory enablers.

SRC's recommends the Authority:

4. **Closely monitor integration of** EV charging, and progress enabling the V2G opportunities summarised above (detailed in the report) – potentially through the power of innovation pathway.

4. Annual System Operator performance self-assessment

The SRC received a presentation of the System Operator's annual performance self-assessment.

The SRC noted the accelerating pace of change described by the System Operator and evidenced by events on the system such as increasing voltage and frequency management challenges and grid maintenance and development increasing outages.

The SRC recognised growing demands on the System Operator – in its day-to-day system operations functions and change / enhancement activities such as the SOSFIP and other

⁴ [Concept Consulting V2G report](#)

policy centric reviews. The SRC considers the System Operator has performed admirably to balance these demands to date.

The SRC has the following observations and advice to the Authority in relation to the System Operator's performance self-assessment:

- System Operator engagement efforts are commendable - improving and publishing market information more frequently and responding to stakeholder feedback.
- the pace of change is unlikely to ease; it will be increasingly important for the System Operator to right-size effort to the task at hand.
- the reduction in short-notice grid outages is encouraging; the System Operator will need to enforce planning and operational discipline on the Grid Owner to contain/optimise maintenance and development driven outages.
- support approach of aligning the strategy window to the contract period and encouraged to see signs of self-reflection and efforts to improve performance.
- Consider an independent performance assessment during each contract period would complement / enhance the System Operator's self-assessment.

The SRC recommends the Authority:

5. **Take account of the observations above** in its review of the System Operator's performance self-assessment including the value of an independent review of System Operator performance each contract period.

5. The SRC's next meeting

The SRC's Q1 (February 2026) agenda is still being finalised. The following themes are being considered:

- Implications of falling gas production on the electricity system: fuel for generation (capacity/energy), impacts of accelerated gas to electricity conversion (generation / network capacity, energy)
- Clarifying near-term generation commissioning.
- Presentation from MBIE on progress with tree regulation reforms.

Yours sincerely,



Hon Heather Roy
Chair of the SRC

cc: SRC members, Natalie Bartos, Hayden Glass (Authority)

**Jeremy Cain**



To: Chris Forsman <Chris.Forsman@mbie.govt.nz>; SRC Secretariat; Stuart Johnston; Stephen Tat <Stephen.Tat4@mbie.govt.nz>; Tracey Kai <tracey@electricity.org.nz>; Gareth Wilson <gareth.wilson@mbie.govt.nz>; Allen Davison; Brian Fitzgerald (EECA) <brian.fitzgerald@eeeca.govt.nz>

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Good afternoon all,

A belated thank you for your participation in a very useful discussion at the October SRC. SRC found the session valuable and my sense is that it was useful for you all too. Attached are minutes from the meeting and the SRC's advice to the Electricity Authority. This is also available on the SRC page of the Authority's website here: [Security and Reliability Council | Electricity Authority](#)

As noted in the attached advice, SRC also wishes to convey its recommendations directly to your organisations. This is partly to ensure you are informed but mainly to reinforce the need for and case for progressing the matters discussed at the meeting. You can find these on page 2 and 3 of the advice.

Please let me know if you have any observations or feedback you wish to share with the SRC or see areas where the SRC can assist. It was clear that the SRC values your efforts to modernise NZ's 'standards' ecosystem to enable and improve the power system and has a strong interest in your success.

Kind regards
Jeremy

Secretary, Security and Reliability Council
0272996805



19 December 2025

Hon Heather Roy
Chair
Security and Reliability Council (SRC)

By email: heatherjroy@gmail.com

Dear Heather,

Re: SRC advice from its 23 October meeting

Thank you for your letter of 10 November 2025. The Electricity Authority Te Mana Hiko (Authority) Board considered the SRC's advice at its 18 December 2025 meeting. This response reflects that consideration.

Apply scrutiny to generation build critical paths and continue to mature generation pipeline information

We note the SRC's continued encouragement to improve generation pipeline information. Improvements to the pipeline, such as understanding build critical paths, are important and will take some time to develop to ensure the information is reliable.

In the meantime, we continue to collect other insights to enhance generation pipeline information. This includes information about the status of both generation and load projects. Earlier this year, we conducted a survey on barriers to investment. We intend to repeat this survey annually. Insights from the survey can be found on our [barriers to developing new electricity generation dashboard](#).

We have [recently consulted](#) on proposals to improve visibility of distributed generation (DG) and load in the pipeline. We are also collecting more information on application processes through our [network connections work](#). The Code amendments covered by the decision paper will, amongst other things, require distributors to publish a network connections pipeline for large distribution generation ($\geq 300\text{kW}$ export) and large load ($\geq 500\text{kVA}$) applications.

Recognising the role of electrical standards

The Authority has proposed the [latest inverter standards become mandatory for low voltage DG connections](#). This proposal, if adopted, will align New Zealand with Australia and ensure DG connections meet best practice requirements. DG installations will operate more predictably, consistently and safely, thereby reducing system risk. Additionally, the Authority has recommended distributors and the solar industry work together to update the settings in existing inverters, further reducing risk. We intend to make decisions on the proposal in March 2026.

The inverter standards above are the only technical DG standards cited in the Code, and they apply only for certain applications. The Code enables each distributor to set its own technical standards for DG. However, a recent [review](#) of these standards found these could be improved. The Authority is involved with, and supports, the current work by industry (led by the EEA) to raise the quality of these standards.

The Authority supports an extension of EECA's powers to regulate standards for product smartness. Smart products that can respond to price, congestion, power quality and other

signals, are beneficial for an efficient and reliable electricity system. Without a population of smart products, distributors will need to spend more money on maintaining and extending their distribution networks, locking in long term cost increases for consumers.

The Authority intends to start a dialogue with the sector on 'flexible export limits' in 2026. Flexible export limits would support more efficient, secure and resilient networks, but require the installation of smarter inverters. We will work with EECA on this, seeking feedback on how our agencies could support the sector to implement this approach.

Closely monitor the integration of EV charging and V2G opportunities

The [Electricity Registry](#) keeps a record of distributed generation in New Zealand, which includes V2G installations. However, it doesn't capture consumer loads 'behind the meter', such as EV charging. The Authority has no current plans to review the scope of the Registry, although we may undertake this work at a future time.

As V2G is distributed generation, it must meet Code requirements to be installed. V2G can be installed under the current Code. However, adopting the latest technical inverter standards, as mentioned above, would further support V2G installations.

With regard to monitoring V2G progress via the Power Innovation Pathway (PIP), we note that the pathway does not monitor specific innovations. We only monitor innovators who have engaged with us. However, two of our enhanced regulatory support projects – the [Counties DSO trial](#) and the [Queenstown Electrification Accelerator](#) are trialling V2G. We are working closely alongside these projects and will update the [case studies on our website](#) with insights from these trials.

System Operator performance

The SRC's recommendations for System Operator performance were considered by the Authority's [Market Operations Committee](#) at its 24 November meeting. Like the SRC, the Committee recognises the System Operator's high performance with day-to-day system operations. The Committee also supports the SRC's recommendation for an independent assessment of the System Operator's performance each contract period and considers an independent overseas consultant would be well suited to perform such a review.

The Committee would like to see the System Operator focus on the strategic nature of its service to meet growing demands and challenges. The Committee is also concerned to ensure that the System Operator operates impartially, particularly when making decisions that affect the grid owner, of which it forms a part.

The SRC's recommendations have been incorporated into the annual review of the System Operator's performance for 2024/25.

Thanks again for the SRC's advice. And, finally, I would like to thank you personally for your service over the period that I have been chair. It has been an absolute privilege and a pleasure working with you and I wish you and all the SRC all the best for the future. The Board highly values the important role SRC plays in contributing to the Authority's work.

Yours sincerely,



Anna Kominik
Chair
Electricity Authority Te Mana Hiko

SECURITY AND RELIABILITY COUNCIL

ACTION LIST

The following are the current SRC actions for completion.

	Action	Date for completion	Status
1	Secretary to add table tracking recommendations and actions to advice from this meeting onwards.	February	Completed
2	Secretary to reformat presentation of system performance and security risks.	February	Partially completed

1. Updates

This section provides information on matters that do not warrant a dedicated agenda item but are relevant to security and reliability and/or discussed by SRC.

The appendix is a snip of the recommendations tracker covering 2025 recommendations. This is still a 'work in progress' that will mature further with each meeting.

1.1 From the Authority

1.1.1 Several changes to the Authority's Board have occurred since the last SRC:

- **Left the Board:** Chair, Anna Kominik and members, Christiano Morantes and Lana Stockman
- **Joined the Board:** Tony Baldwin, Murray Parrish and Ben Bolot
- **Existing member:** Erik Westergard becomes Deputy (and acting) Chair

1.1.2 Board member profiles available on the [Authority's website](#).

1.1.3 The Authority [announced](#) SRC appointments including reappointment of Alan Miller and appointment of new members, Mary Ollivier and Tim Boyce.

1.1.4 The Authority [announced](#) its decision to implement an emergency reserve scheme to provide an additional level of protection in times of capacity shortage. The scheme allows industrial users to be compensated for short term curtailment of demand.

Authority News and Projects

1.1.5 Here are links is to the Authority's [news](#) and [projects](#) page, announcements and current projects can be found.

1.1.6 Members should already receive the EA's newsletter (Market Brief) notices and have access to Energy News articles. For those who do not, please use [this link](#) to sign up to receive Market Brief via email.

1.2 In the news, interesting publications

1.2.1 On 9 February the Government announced plans to progress with LNG importation after rejecting other options that could provide equivalent dry year cover. Electricity

users will pay for the infrastructure costs, estimated as \$2-\$4 per MW/hr. Commentary has been mixed, as can be seen in energy new articles below.

1.2.2 [LNG fact sheet](#) and [Cabinet paper](#) and a series of Energy New articles

- [New electricity levy to pay for LNG Importation](#)
- [Alternatives to LNG cheaper but less reliable](#)
- [LNG welcome but no silver bullet](#)
- [MEUG cautious over merits of LNG imports](#)

1.2.3 Gas working group [report](#) (previously circulated) discusses the precipitous decline in gas production, the pervasive impacts for gas users and the need for urgent action across the gas and electricity sectors and by Government.

1.3 Looking to winter 2026

1.3.1 The joint EA-SO security of supply update outlines the situation for winter 2025 and looks ahead to next year.

1.4 SOSFIP review

1.4.1 The SO has published its final amendment proposal. SOSFIP review papers including its proposal are available [here](#). The SO will update SRC on its proposals at the 23 February meeting.

1.4.2 The Authority is considering the SO's proposals and may provide an update at the 23 February meeting.

1.5 System operator security of supply updates

1.5.1 Please use this link to access the system operator's quarterly [Security of Supply Outlook](#). They note "*this document brings together a range of information that we provide on a regular basis to industry into one document to help more clearly articulate security of supply risks into 2025 for industry and other stakeholders.*"

1.5.2 The outlook draws from the Electricity Risk Curves (ERCs), New Zealand Generation Balance (NZGB) and the annual Security of Supply Assessment (SOSA), which members are familiar with.

1.5.3 Please use this link to access the latest security of supply information from the system operator. [Security of supply | Transpower](#)

1.5.4 If members have concerns, or require further information, about the system operator security of supply updates, they can raise these with the secretariat.

1.5.5 This link is to the NIWA's seasonal climate outlook and associated commentary. A new edition is issued each month for the three months ahead. Scroll down and click on the latest issue: <https://niwa.co.nz/climate/seasonal-climate-outlook>

1.6 System operator weekly market movements

1.6.1 Link to Transpower's [Market Operations Weekly Report | Transpower](#).

1.6.2 The report provides an overview and update on security of supply (energy and capacity), generation breakdown and risk curves, amongst other information.

- 1.6.3 The secretariat recommends members sign up to receive these regularly via email and note any security or reliability risk patterns or trends, for further discussion.

1.7 New Zealand Generation Balance - NZGB

- 1.7.1 At members' request, a link to the latest review for each meeting. To review the latest NZGB, please use the following link: [Customer Portal - NZGB \(transpower.co.nz\)](https://transpower.co.nz/customer-portal/nzgb).
- 1.7.2 Reminder: change in NZGB monitoring that came into effect on 1 August, including improved load forecasting and better modelling of peak demand periods to aid in outage coordination. For further information, please use this link to access [Transpower's NZGB information session video](#) (click on the 2024 down-arrow link for the dropdown to access the video and slide pack).

1.8 Scheduled generation outages

- 1.8.1 As part of its work monitoring scheduled outages, the Authority publishes a report via its Electricity Management Information (EMI) portal – [Scheduled Generation Outages](#).

1.9 Load Duration Curves

- 1.9.1 At the SRC's request these are available via the Authority's Electricity Market Information (EMI) portal:
https://www.emi.ea.govt.nz/Wholesale/Reports/KPGKJ1?_si=v|3,s|mdo
- 1.9.2 If members have further feedback or suggestions about the data and how it is presented, they can raise these through the secretariat.

The SRC may wish to consider the following questions:

Q1. Does the SRC have a preference for how information in this paper is presented?

Appendix: SRC recommendations tracker

[illegible]

Security of supply update

SRC 23 February 2026

Agenda

- Current situation update
- SoS outlook
- EA regulatory action underway

ELECTRICITY AUTHORITY UPDATE

Current situation

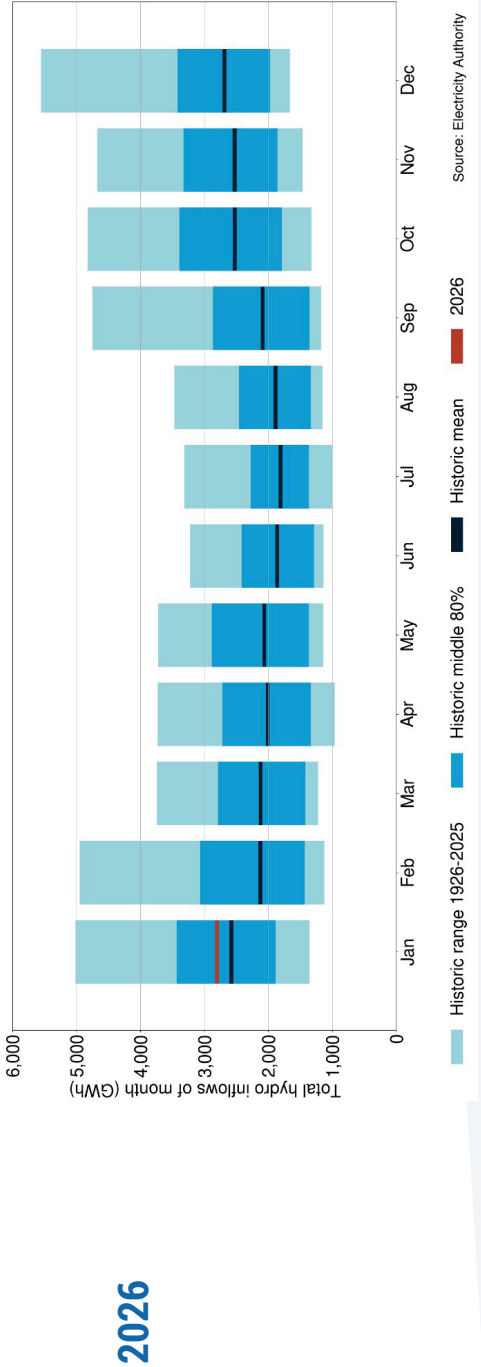
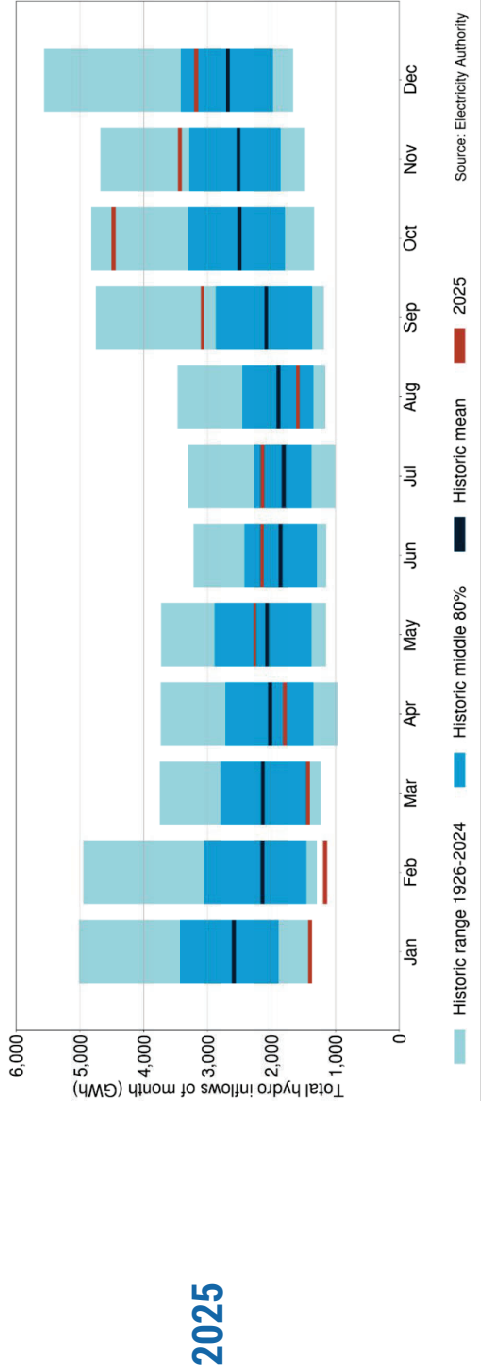
Current Situation

- **Strong hydro storage** - 114% of mean and 93% nominally full as of 12 February
- **Strong thermal storage** - 1,180kt coal + 6.5PJ in Ahuroa at end of January
- **Low thermal generation**
- **Low demand due to summer**

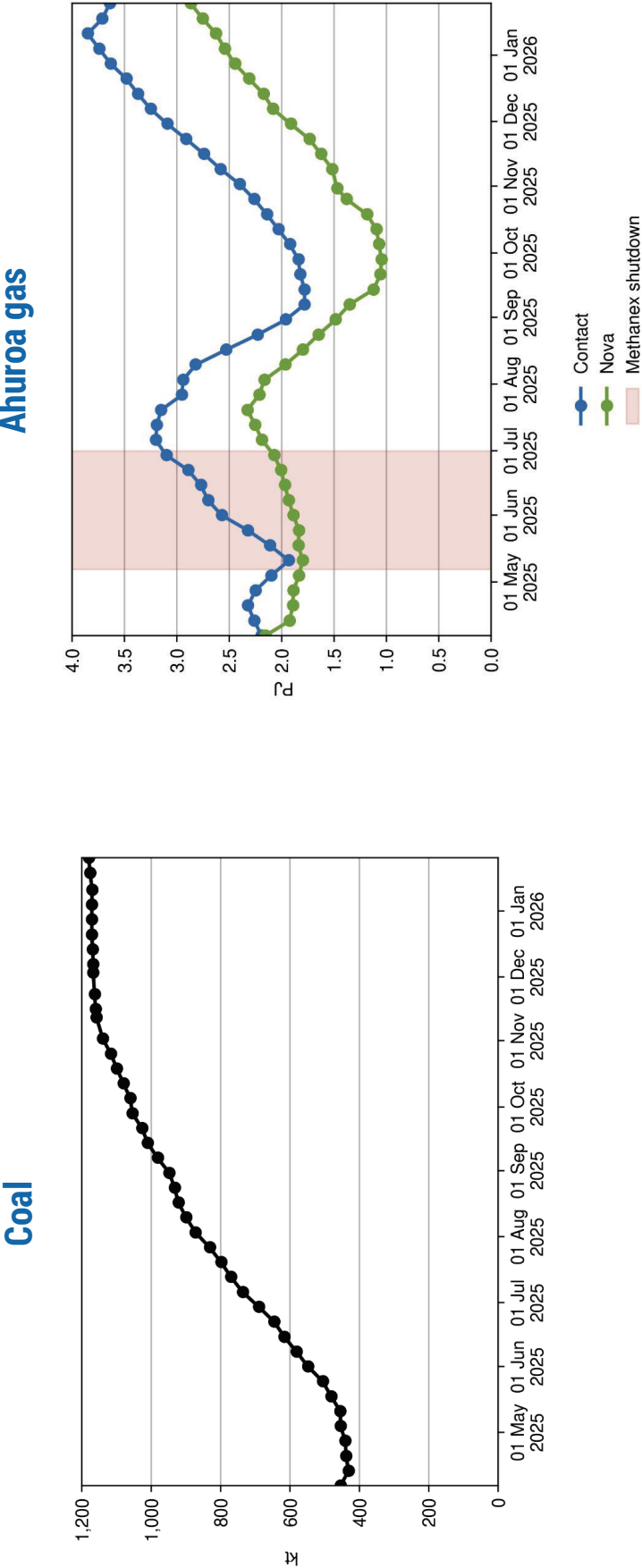
Rainfall and decreasing demand reduced prices from mid-December:

- Average spot price last week was \$17/MWh, compared to \$12/MWh during December and \$3/MWh during January.
- June 2026 winter future prices are ~\$203/MWh at Benmore and ~\$221/MWh at Ōtāhuhu, compared to mid-August peak of ~\$248/MWh and ~\$270/MWh.
- September 2026 future prices are ~\$210/MWh at Benmore and ~\$227/MWh at Ōtāhuhu, compared to mid-August peak of ~\$245/MWh and ~\$268/MWh.

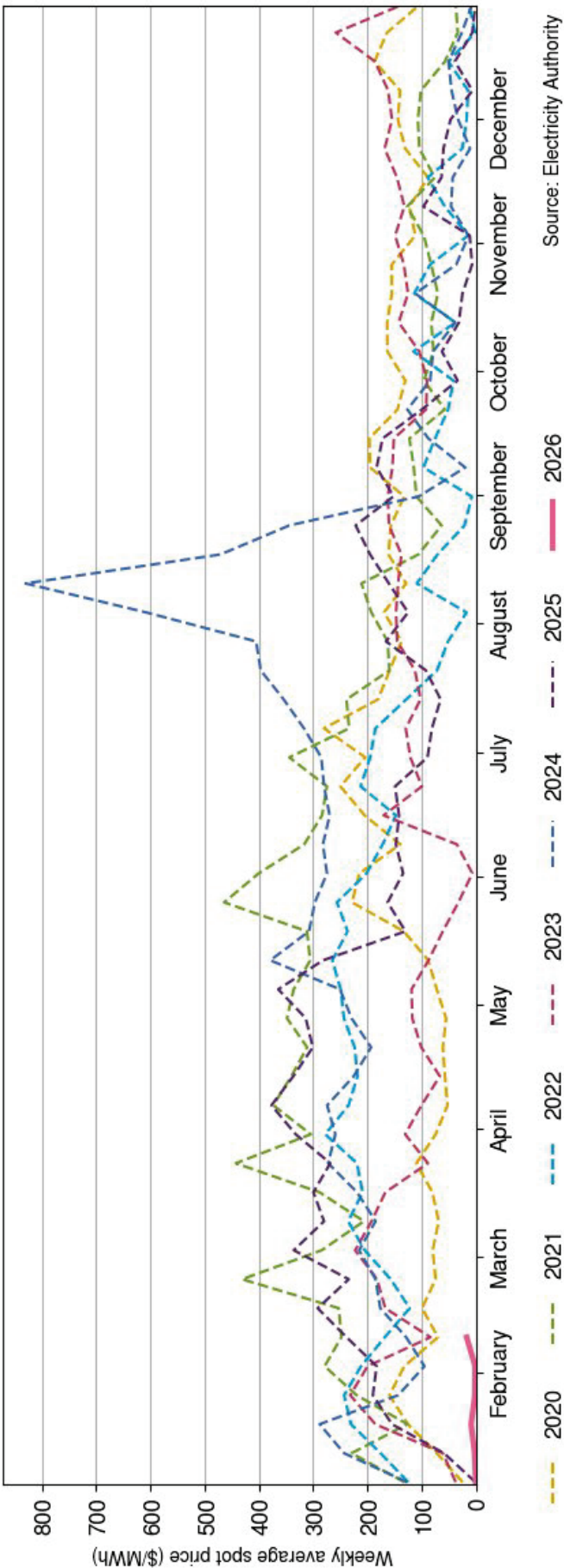
Above average inflows late 2025, returned to near average in January



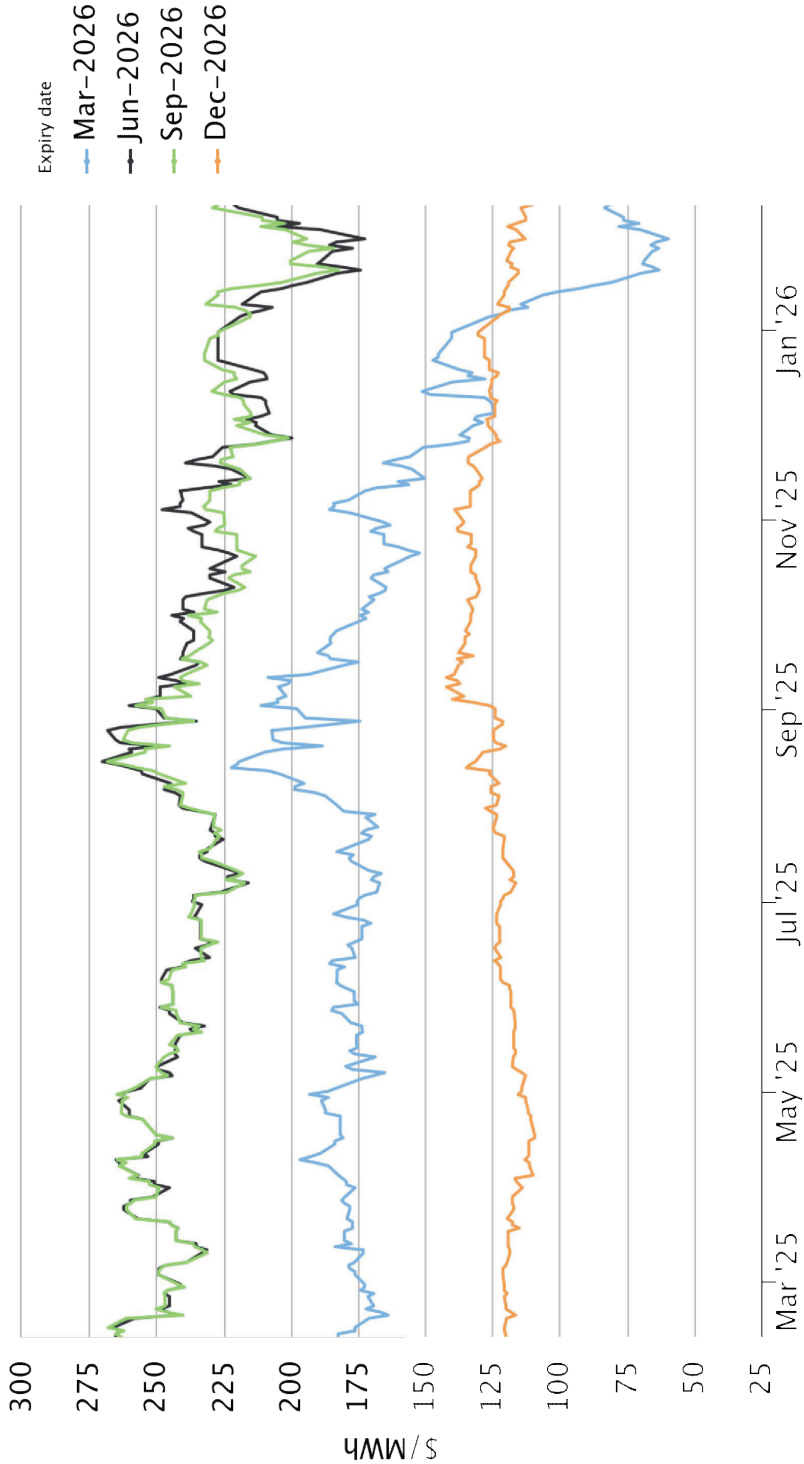
Strong coal and gas storage



Prices remain low due to strong hydro storage



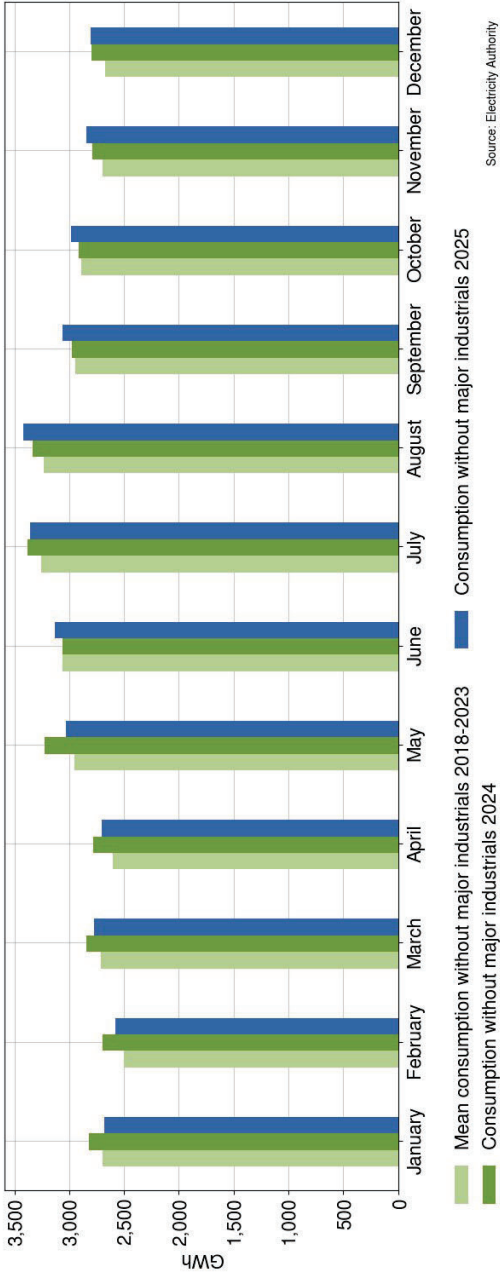
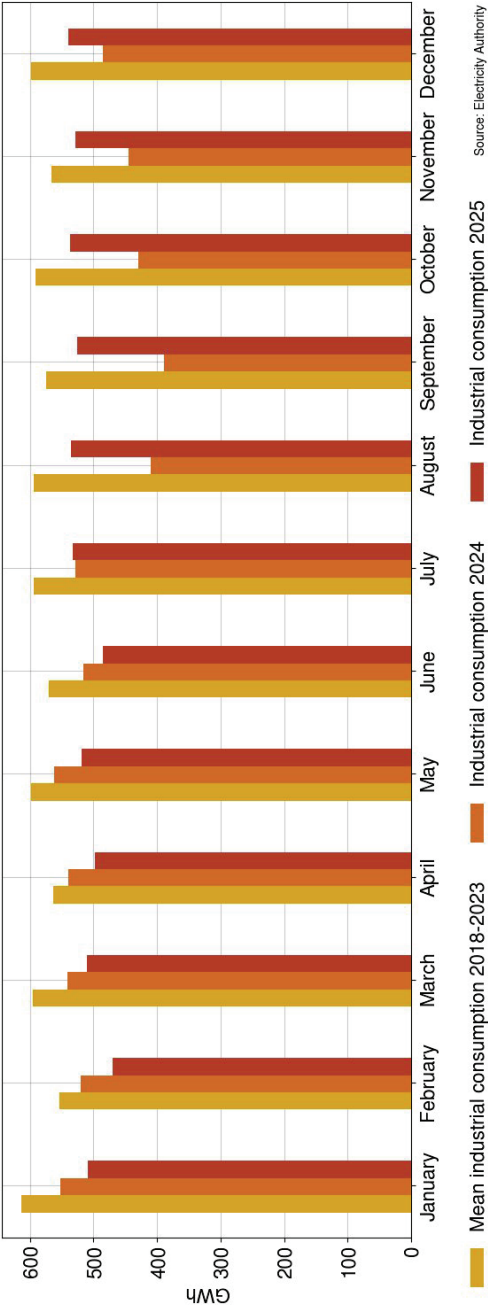
Winter 2026 Forward prices have increased following their decline since mid-August



emi.ea.govt.nz/r/13eab



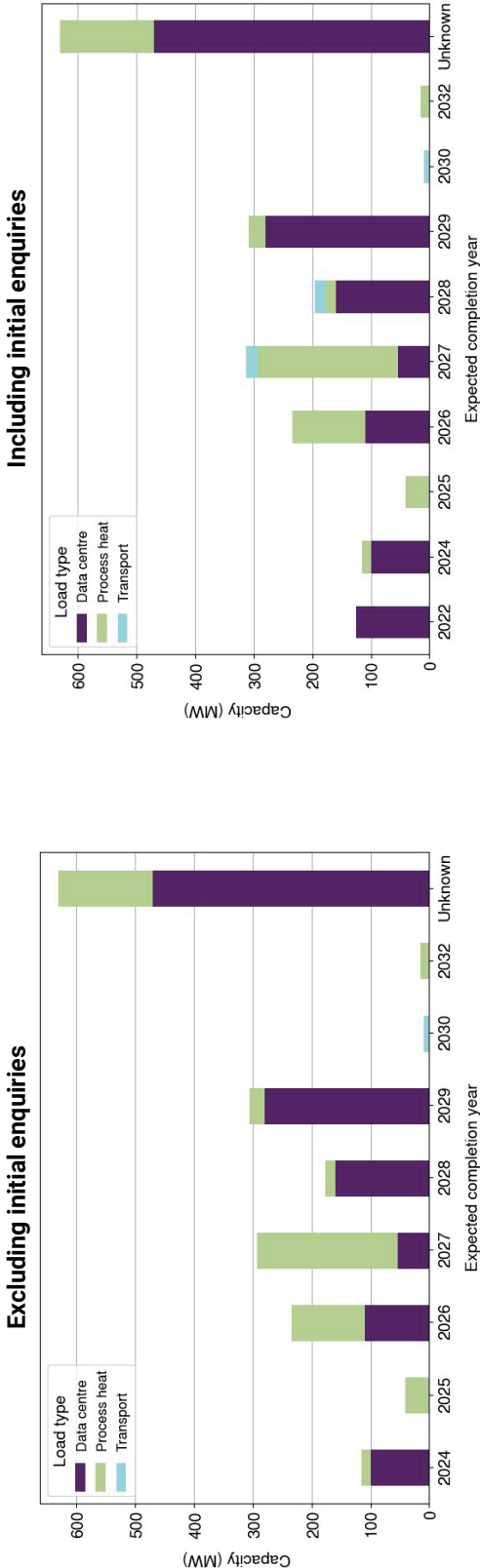
Growing residential demand and falling industrial demand



Generation under construction or commissioning

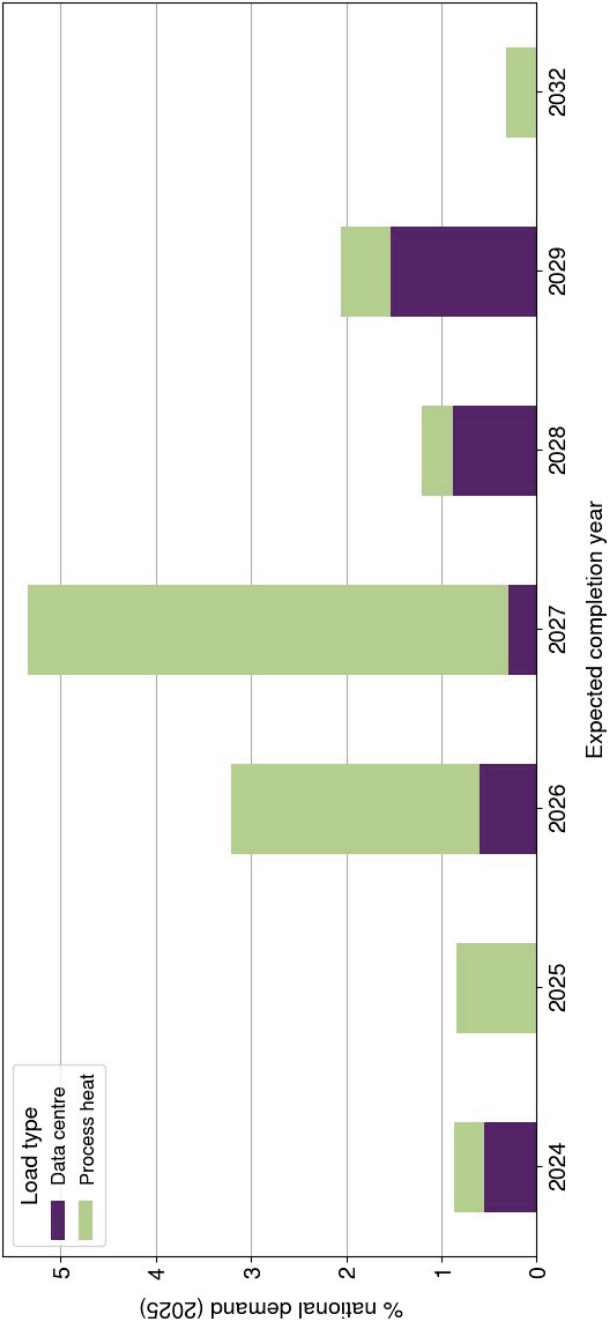


Load pipeline by project type and expected completion year



Load pipeline estimated demand

Total = 13.8% 2025 national demand



Excludes initial enquiries, unknown completion dates and assumes 24/7 running of process heat



TRANSPOWER

System Operator update

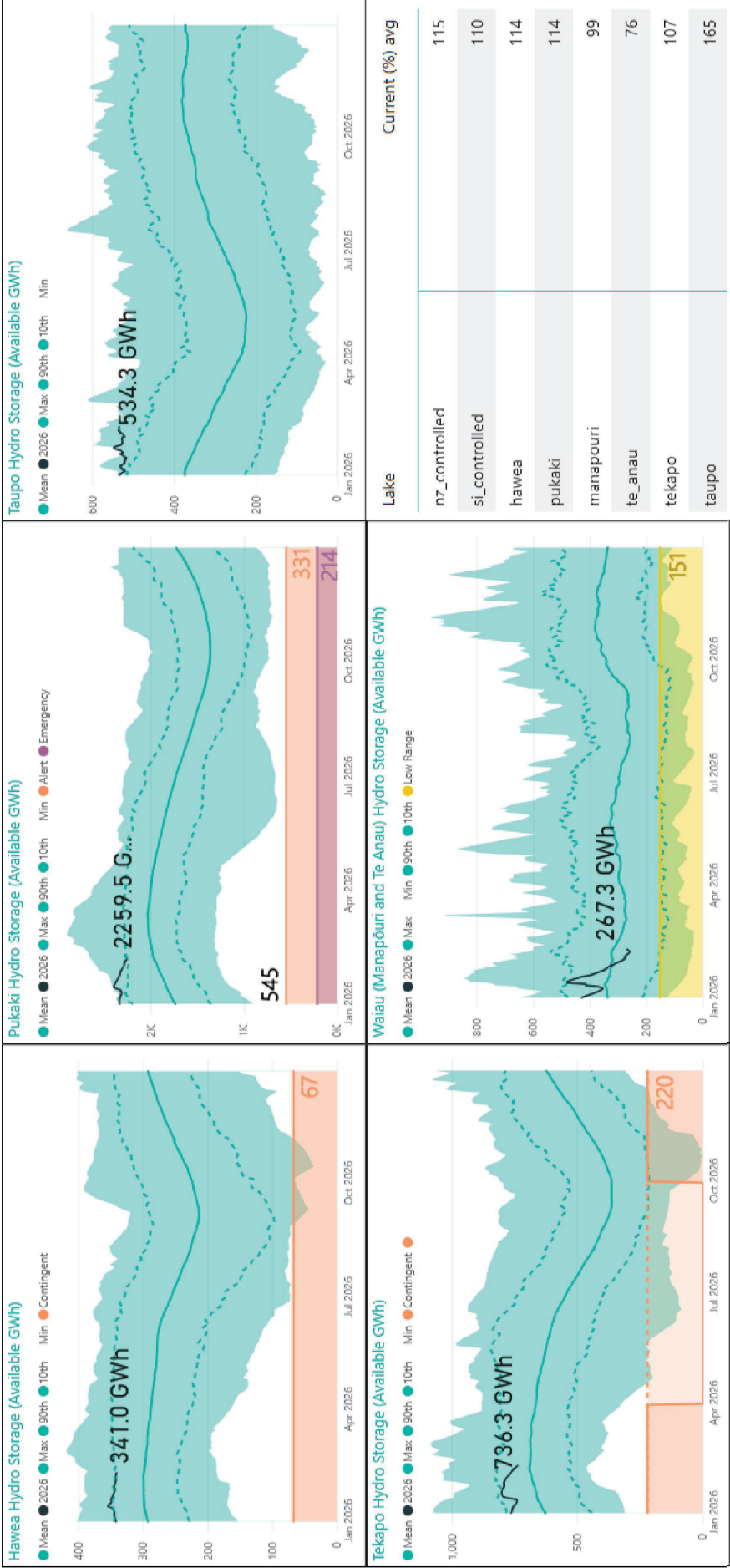
Security of supply outlook



IN CONFIDENCE - ORGANISATION

Hydro storage by catchment

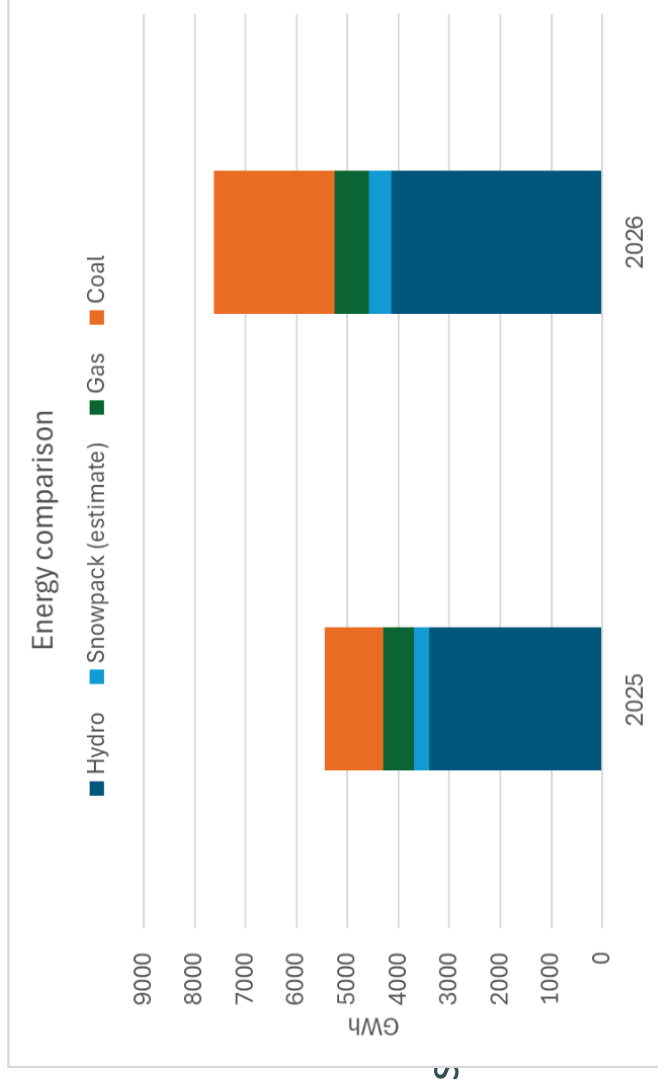
8-Feb



IN-CONFIDENCE: ORGANISATION

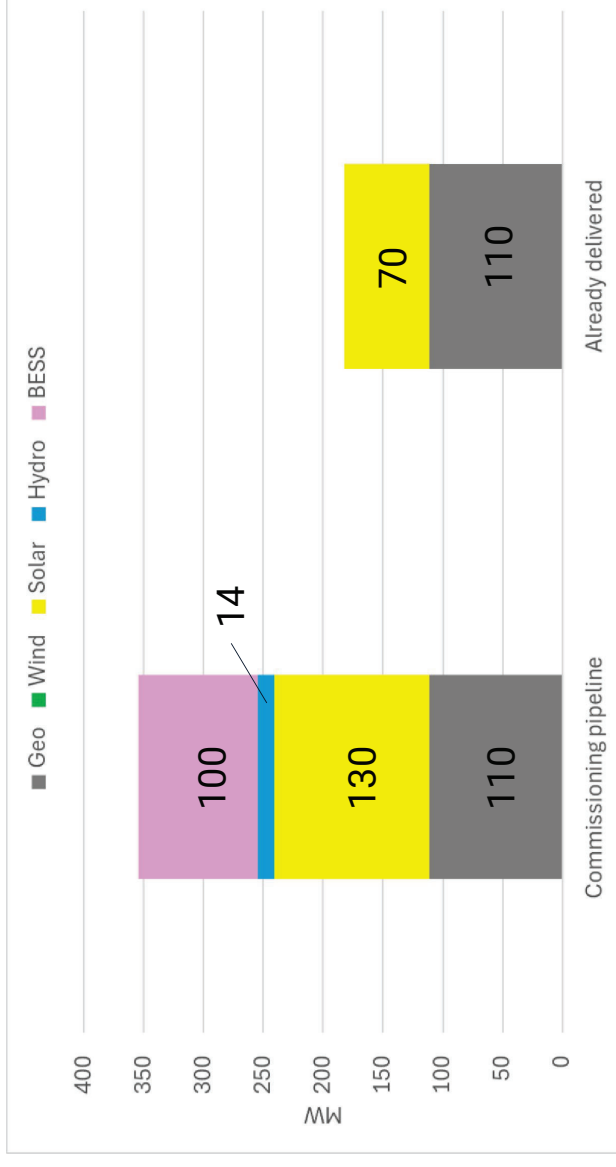
Stored fuel position

- Better fuel position than same time last year
- Largely due to high coal stockpile at Huntly
- AGS is near full
- Increased inflows resulting in above average hydro storage levels across most major catchments



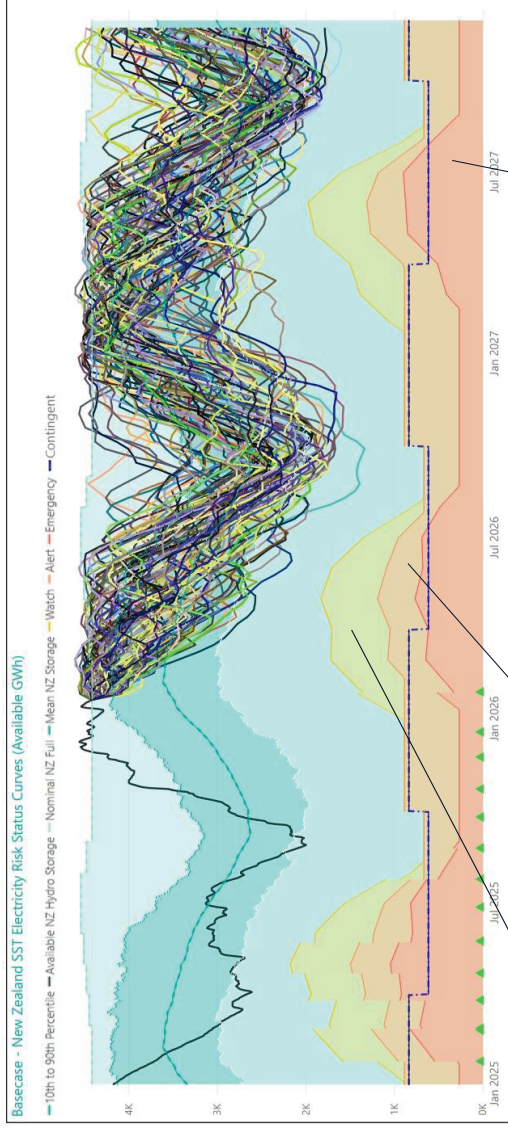
New supply

- ~354 MW of new supply expected to come online by 1-May-26
- Geothermal and most of this solar capacity has already come-online
- Capacity from different tech is not equal when managing the power system:
 - Geothermal provides firm, baseload MW
 - BESS provides flexible MW but limited storage
 - Solar is intermittent and provides minimal support during winter peaks



Energy Security Outlook (ESO)

- Latest ESO update published on 28 January.
- Low energy risk over the next 12 months with no SSTs crossing any of the risk curves. Assumes market replenishes thermal fuel at its maximum rate.
- Contributing factors: increased coal stockpile, gas storage and hydro storage.
- All three Huntly Rankine units modelled as available following ComCom authorisation of the Huntly agreement.
- TCC CCGT (330 MW) modelled as not available. Contact indicated decommissioning of the plant has begun.



Watch

Based on 1% risk. SO triggers additional reporting.

Alert

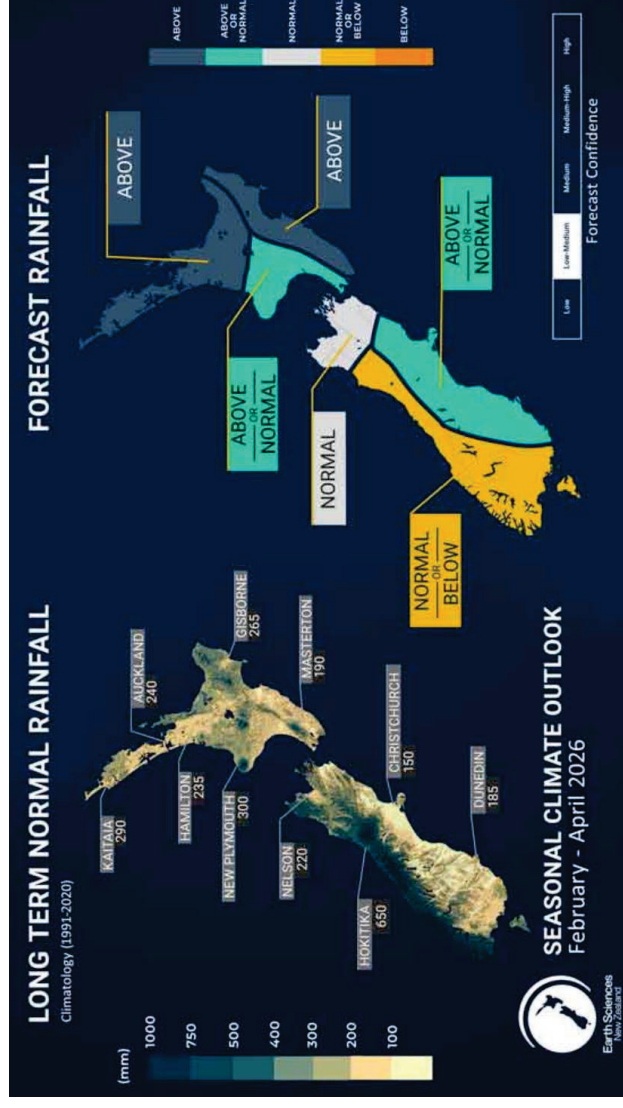
Based on 4% risk with floors for CS. Triggers access to CS in Pukaki, Hawea and Tekapo.

Emergency

Based on 10% risk with floors for CS. Triggers OCC (with other conditions). OCC provides access to additional CS in Pukaki.

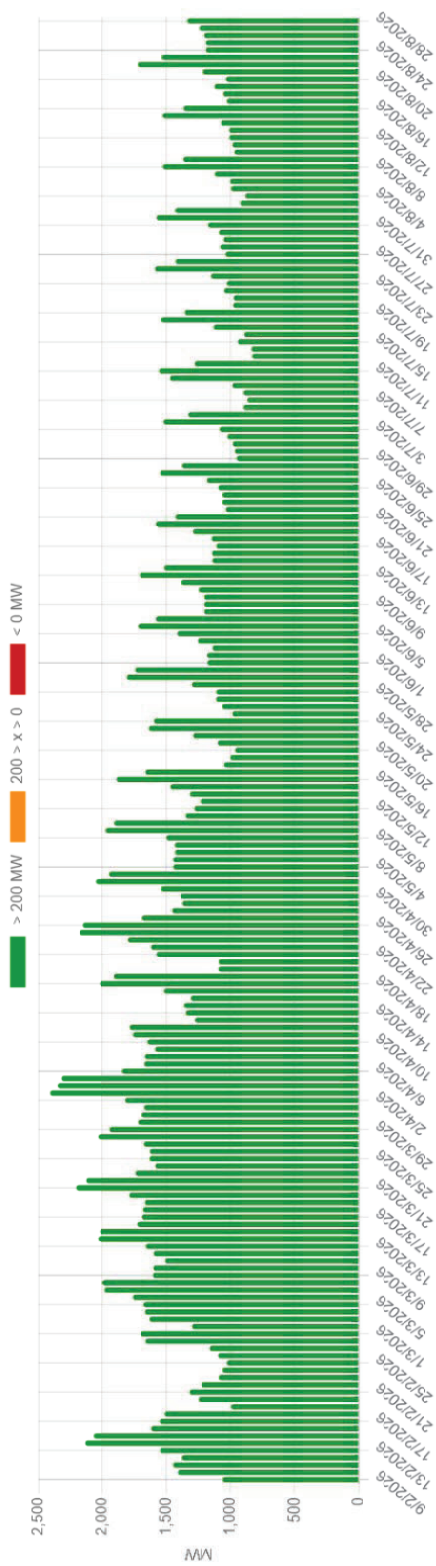
Earth Sciences NZ (previously NIWA) seasonal outlook

- Rainfall outlook for Feb-Apr:
 - 75% chance of normal or above for central NI
 - 60% chance of normal or below normal for west of SI
- Extended periods of low inflows heading into winter can result in rapid decline in hydro storage if thermal generation does not increase.



NZGB update: Base capacity and high demand

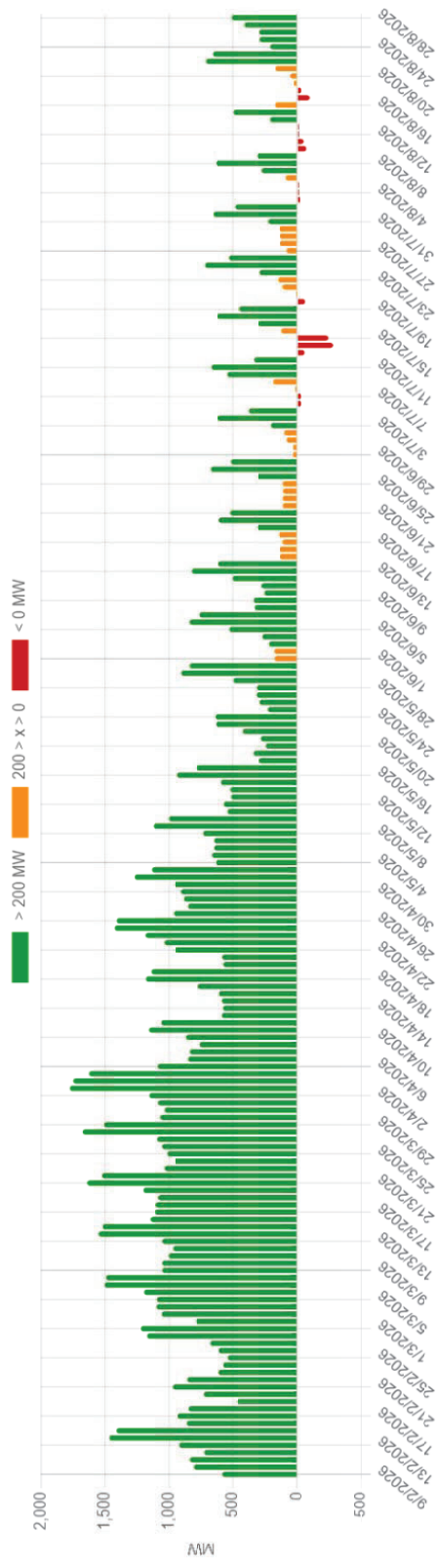
- NZGB looks at national generation capacity available to meet peak demand
- N-1 margins are looking healthy out to winter 2026 provided:
 - Capacity not on outage is offered into the market over peak load periods
 - No other plant fails



IN-CONFIDENCE: ORGANISATION

NZGB update: Colder weather and loss of largest risk

- Impact of downside risks:
 - Colder weather = higher demand (P99)
 - Unplanned outage of the largest risk (Large thermal unit or HVDC pole)
- Increased risks in winter to supply peak load and cover reserves



IN-CONFIDENCE: ORGANISATION

Looking ahead to Summer/Winter 2026

- **Summer/Autumn 2026:**
 - Risk of lower inflows in major hydro catchments in the South Island
 - Can result in rapid hydro decline if thermal generation increase is muted or delayed
 - HVDC annual outage: 19-Feb to 2-Mar. Limited or no ability to share energy and reserves across the islands. Capacity outlook looks okay. Outage could result in price separation. Message to industry is to offer all available Reserves.
- **Winter 2026:**
 - Current fuel stocks are healthy but need to remain so heading into winter
 - If low inflows (as forecast by ESNZ) then increased thermal generation will be required to maintain sufficient hydro storage heading into winter. Thermal stocks would need to be replenished to ensure sufficient thermal fuel available during winter.
 - Keeping a close eye on gas production forecasts and downstream impacts
 - Unplanned outages (especially large thermal plant and/or HVDC) will increase energy and capacity risks
 - Delays in new plant coming online will also increase risks

SO initiatives

- Published thought piece on supporting resource adequacy which discusses the:
 - importance and challenges of resource adequacy in our islanded, energy-constrained power system with changing risks, economics and expectations
 - role contingent storage currently plays and the trade-offs in easing access to it.
 - We can provide a more detailed update to the SRC at its next meeting.
- Engaging with generators to understand operational constraints at low lake levels – *Ongoing*
- Continuing to implement the new SOROP – *In progress*

- SOSFIP review – *Proposed changes submitted to the EA*
- SOSA 2026:
 - Reference Case and Sensitivities – *Published responses*
 - Analysis - *In progress*
 - Following government announcement, will consider the impact of LNG on the margins
- Providing input into the EA's SSAD review – *In progress*
- Looking into wind/solar/hydro correlations and risks – *In progress*
- Starting development work on Emergency Reserve Scheme (ERS) - *In progress*

ELECTRICITY AUTHORITY UPDATE

Regulatory action underway

EA near-term regulatory action underway

Energy risk management

- **Support system operator contingent storage buffer levels review** (SOSFIP review)
- **Support Government's energy package** (strengthen the current regulatory framework for dry-year cover (action 2.5))
- **Ensure security of supply standards are up to date** (review of security standards and security standards assumptions document (SSAD))

Capacity risk management

- **Risk management products are available**
 - standardised super-peak hedge product
 - standardised demand flexibility product
- **Ensure security of supply standards are up to date** (security standards and SSAD review)
- **Reinforce market signals to build and commit flexible resources**
 - Emergency Reserve Scheme (implementation by Q4 2026)
 - peak management ancillary service (Multiple Frequency Keeping (MFK)) review
 - Improve arrangements for [BESS participation](#) (including hybrid plant)





DETA at a Glance

DETA's 10 Year Goal

- To support the removal of **2MT CO₂** annually of **carbon emissions**

Focused on four core offerings

- Sustainability strategy & development
- Decarbonisation pathways
- Project development and delivery
- Strategic Support

Top 5 sectors

- Food & Beverage
- Brewing & Distilling
- Industrial Processors
- Government
- Buildings & Infrastructure



Sustainable action for a better tomorrow

Customer Survey Research – Past and Updated

- DETA completed NZ-wide boiler mapping work between 2020 and 2023, covering a total boiler capacity of ~ 3,000 MW.
- Some of this work has been recently updated through fuel transition research with major industrial customers of Transpower, Unison and Vector.
- The total gas consumption of Transpower/Vector/Unison combined represents ~1/3 of both gas and coal consumption NZ-wide.
- We noticed a significant difference in responses and appetite for fuel switching between the old and updated work. This is informed by a number of factors.



T R A N S P O W E R



vector
electricity



unison



Sustainable action for a better tomorrow

Probable Electricity Increase – Transpower, Unison, Vector

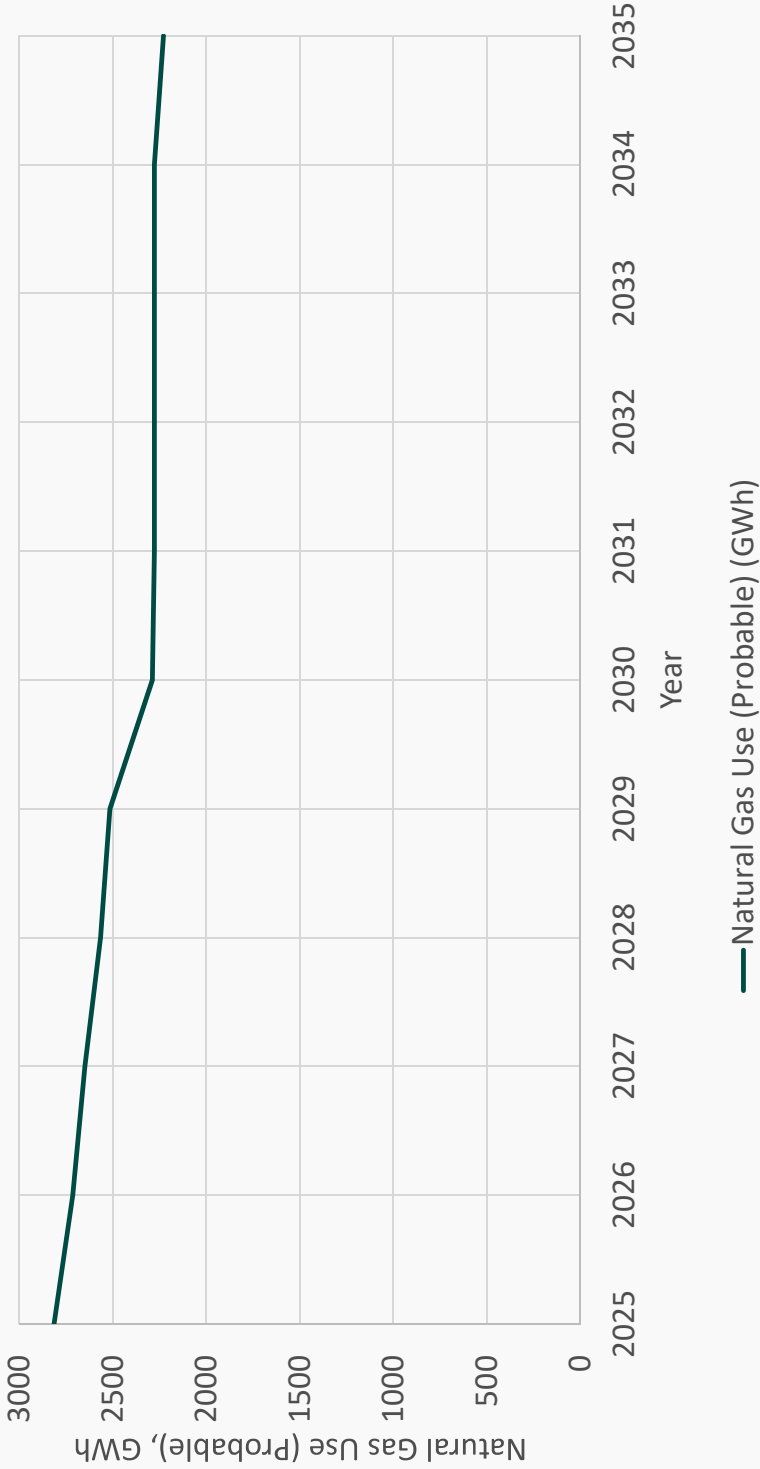


Probable Biomass Increase – Transpower, Unison, Vector



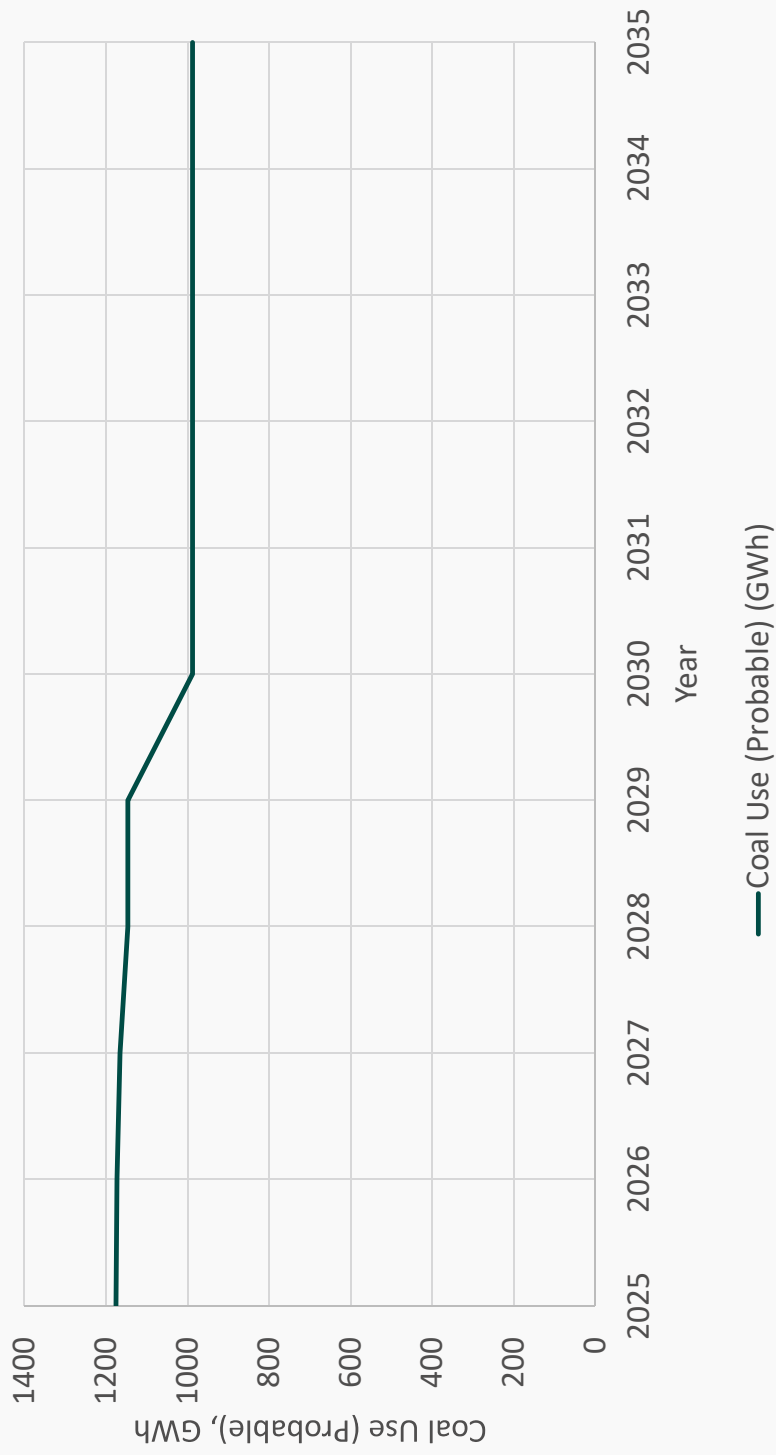


Probable Natural Gas Decrease – Transpower, Unison, Vector





Probable Coal Decrease – Transpower, Unison, Vector





**These trends give a strong indication that
industrials’ plans to transition away from
gas/coal are slowing.**



Sustainable action for a better tomorrow

Why the Lack of Urgency?

- Gas prices have fallen since the high pricing during winter of 2024, and most customers are still being offered gas contracts.
- Increased wholesale electricity prices and line prices.
- Carbon price is low and is projected to remain low into the future.





Sustainable action for a better tomorrow

Why the Lack of Urgency?

- The GIDI (Government Investment in Decarbonising Industry) was discontinued in late 2023, making capital a larger barrier for industrials.
- Many customers have their heads buried in the sand. Waiting for....no more gas or a GIDI.
- Government has announced plan for LNG.
- Many parts of the economy are struggling, in general.
- Customers are yet to demand low carbon food.
- However, NZ's confidence in biomass is increasing, with markets developing for both wood chip and pellets.



Sustainable action for a better tomorrow

Making the Economics Work

- A predominant reason for slowed transition plans is the perception that the economics do not work.
- However, there are several ways to improve economic viability:
 - Make the new electrical load as flexible as possible.
 - Keep the old boiler for dry years and time of network constraint.
 - Convert gas boilers to diesel.
 - Hot water storage.





Sustainable action for a better tomorrow

Challenges

- Who understands the value of electrical loads being flexible?
- Few networks currently reward flexible loads. MDAG work has had very little impact.
- The wholesale market value of this flexibility is difficult to calculate/quantify.
- We need case studies and trials to refer to which demonstrate the value of flexibility.



Sustainable action for a better tomorrow

2 Key Takeaways

We have seen a noticeable slowdown in conversions and plans to move away from coal and gas.

As an industry, we need to collectively encourage flexibility.



Thank you!



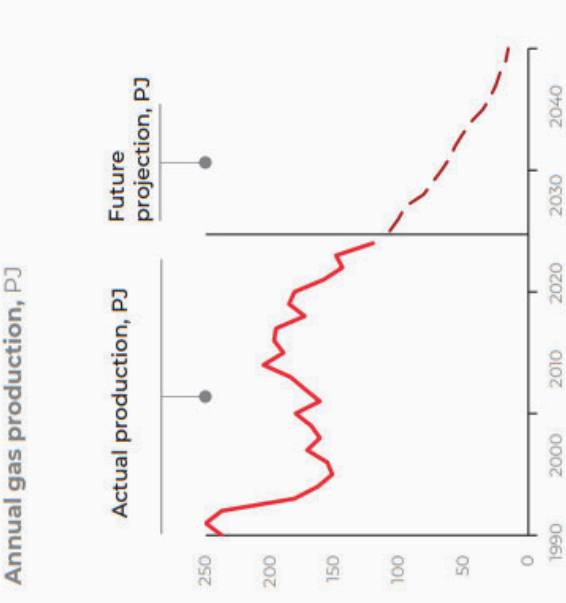
Security and Reliability Council

23 February

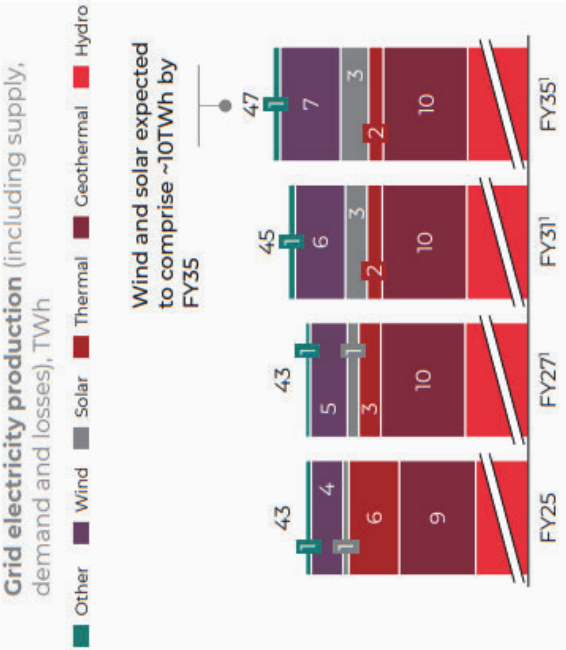


The impacts of the energy transition have become more evident, with increasing wholesale price volatility

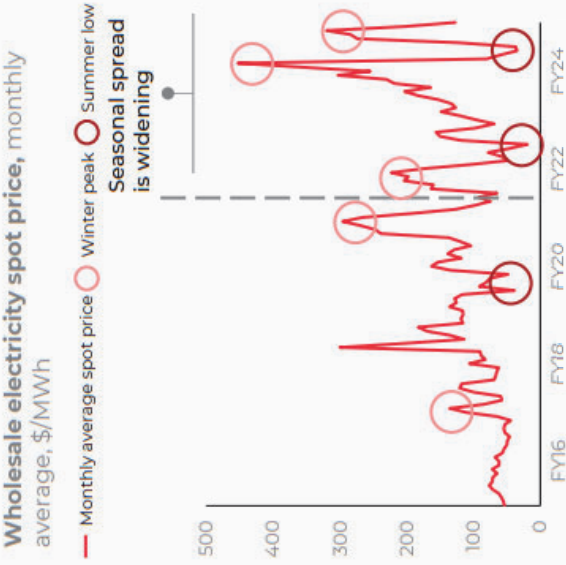
> Gas supply is declining ~20% year-on-year



> There is increasing investment in renewables to meet demand



> This is driving more volatile prices across seasons



Source: EMI wholesale price data (OTA node), MBIE electricity & gas statistics and 2P reserves.
1. Forecast under Contact's disorderly decarbonisation scenario.

Contact31+

Leading New Zealand's renewable energy future



Commitment to explore potential upsizing of Tauhara 2 geothermal development opportunity



Up to +20MW / +165GWh p.a.¹
of additional capacity / annual
output being explored



\$30M
drilling programme
confirmed



10 – 12%^{2,3}
target returns across
geothermal



~\$9M – 18M⁴
potential incremental
EBITDAF in FY31

- Tauhara 2 development update**
- Updated reservoir modelling has indicated that a plant of 50-70MW can be supported (vs. original 50MW identified)
 - Undertaking a \$30M pre-FID drilling programme to advance steamfield development and to confirm these modelling estimates
 - Currently refining conceptual design. Have engaged with suppliers to identify the technology that best optimises available resource and returns
 - Targeting a final investment decision in FY27

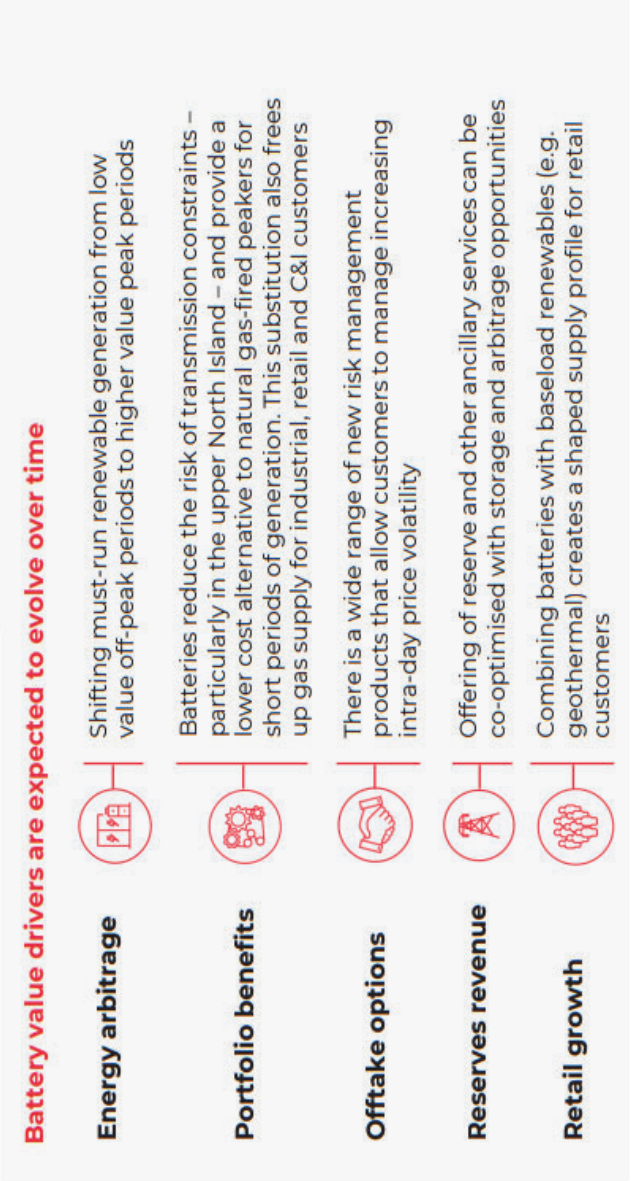
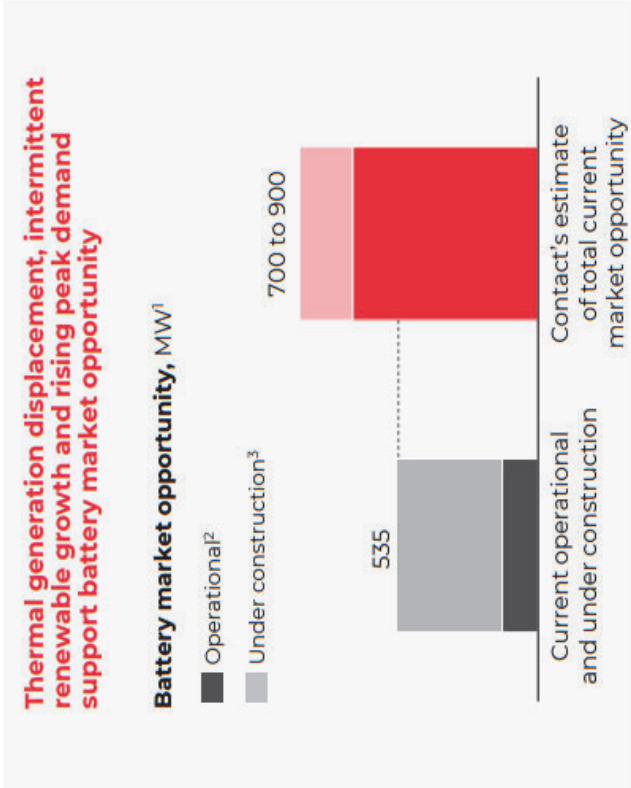


Revised Tauhara 2 development overview	
Location / Type	Tauhara field All new generation
Project status	Fluid take and (steam) plant consented
Capacity / output	~50 – 70MW ~415 – 580GWh ¹
Expected project cost ²	\$6.5 – 7.5M / MW
Timing	Target FID FY27

Note: All capacity, output, uplift and cost figures for pre-FID projects are indicative only and subject to refinement.

1. Assumes 95% capacity factor. | 2. Geothermal projects more generally and not specific to Tauhara 2. | 3. Reflects target unlevered project returns over the life of the project. | 4. Based on 10-20MW of additional capacity, applying Contact's long-run wholesale market price expectation of \$115 - \$125/MWh (2025 real) and an indicative ~\$15/MWh of operating and carbon costs. Of note, total cost of generation including maintenance capex is ~\$20/MWh on average.

2 Batteries will play a critical role in the New Zealand energy system, with sources of value evolving over their life-cycle



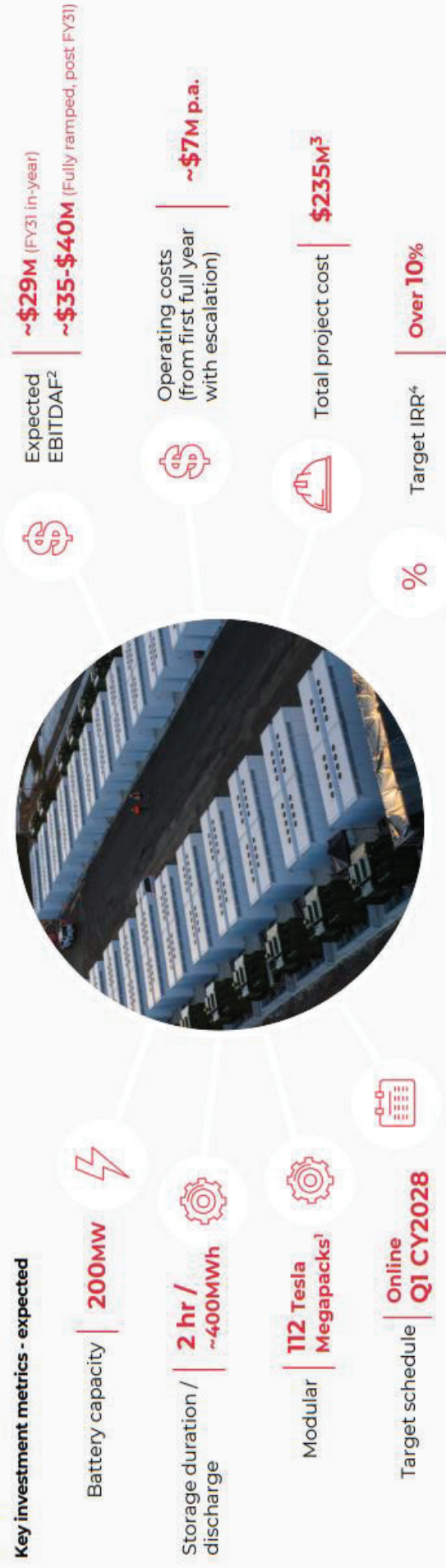
Successful project requirements

Site location (proximity to load)	Availability and cost of grid connection	Cost of deployment (including lithium price cycle)	Shared on-site services (co-location)	Experience in project execution	Targeted sequencing of roll-out (aligned to market need)
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1. Contact's indicative market sizing expectation for batteries is based on Contact's analysis of the thermal generation displacement opportunity, growth in intermittent renewable generation and analysis of recent trends in rising peak demand. Contact draws on a range of sources including its own market modelling (which includes reference to Energy Link data) as well as EMI and Transpower data. | 2. Includes batteries over 30MW where commissioning has been completed. Meridian's Ruakākā BESS (100MW) and NewPower's Rotohiko BESS (35MW). | 3. Includes batteries over 30MW which are under construction and / or not yet commissioned. Genesis's Huntly BESS (100MW) and Contact's Glenbrook-Ohuruua battery (100MW) and Glenbrook battery 2.0 (200MW).

2 Glenbrook battery 2.0 would expand Contact's battery capacity to 300MW, adding new flexibility to help manage market volatility and support further decarbonisation

Responds to market need, demonstrated by increasing spreads in intra-day pricing and rising natural gas prices



Strategic benefits

- | | | | | | | | | | | | | | | | |
|---|---|---|--|---|---|---|--|---|---|---|---|---|--|---|---|
| ✓ | Lowest cost committed grid-scale battery in the New Zealand market ⁵ | ✓ | Replicated technology, design and contracting approach supports cost and delivery confidence | ✓ | Leverages strategic partnership with NZ Steel at Glenbrook, close to Auckland load and transmission | ✓ | Enables shift of must-run generation into peak periods | ✓ | Substitute for natural gas in peaking generation and enables reallocation of natural gas to other customers | ✓ | Strong interest from a range of third party off-takers for battery products | ✓ | Supports supply into new Super-Peak hedge market | ✓ | Contributes to addressing winter peak demand concerns |
|---|---|---|--|---|---|---|--|---|---|---|---|---|--|---|---|

Note: Battery will be located on land, immediately adjacent to the Glenbrook-Churua battery, leased from NZ Steel under a 35-year lease agreement.

Note: Battery will be located on land, immediately adjacent to the Glenbrook-Ontario battery, leased from NZ Steel under a 35-year lease agreement.

2

Investment in Glorit solar is expected to bring new renewable generation to market to meet contracted new demand

Contact has already contracted over 500GWh p.a. of new summer-weighted load in the dairy sector



Strategic benefits											
✓	Upper North Island generation, close to load, benefits GWAP and the settlement under the PPA	✓	Connection into strong point on transmission grid	✓	Speed to market to support >500GWh of contracted new summer-weighted demand	✓	Delivers on the combined strengths within Contact's JV with Lightsource bp	✓	Comprehensive EPC contract with EPC JV holding a strong track record of delivery	✓	JV structure (50/50) and >70% project finance ³ reduces Contact's required total capital outlay

1. Includes joint venture returns and margin on acquired generation. Return on acquired generation will ultimately depend on sales channel and market conditions. | 2. Includes development costs. Indirect overheads and financing costs of \$42M excluded. 3. While the joint venture is well advanced with lenders the final numbers could deviate from those presented here once outstanding activities are completed. Until those activities are completed, adverse movement in market conditions, including interest rates and foreign exchange rates, could result in the project not being confirmed to proceed.



Renewable Heat

Decarbonisation of New Zealand's gas-fired process heat demand

Call for Registrations of Interest (ROI)

ROI released: 5 November 2025
Deadline for Questions: 21 November 2025
Deadline for Registrations: 19 December 2025



Our requirements

Background

This ROI covers the potential supply of renewable electricity or process heat from renewable generation or geothermal steam. Respondents can register interest in one or more of the following options:

Option 1: Electricity Supply Agreement

Contact supplies long-term renewable electricity for process heat once the customer has switched from natural gas. The customer will be responsible for asset conversion and electrical connection. Contact and the customer will explore demand response options, and other contract terms, to find the best contract structure to meet the customer's electricity needs.

Where required, Contact may be able to assist the Customer to navigate the choices of network connection options.

Option 2: Heat as a Service

Contact supplies process heat under a long-term Heat Supply Agreement. Two sub-options are available:

- **Option 2A: On-site Heat as a Service**
Contact funds, installs, owns, and operates the electrical and process heat assets at the customer's site. The customer pays a monthly fee for the heat delivered.
- **Option 2B: Geothermal Heat as a Service**
Contact provides land near a geothermal power station and supplies geothermal heat. The customer pays a monthly fee for the heat delivered. (Contact can also provide electricity).

These options are designed to suit a wide range of process heat needs.

Customers with **complex conversions** may prefer Option 2A.

Those open to **relocating operations** may consider Option 2B.

Customers with **simpler conversions** may opt for Option 1.

9 Contact Energy Ltd. Call for Rot Renewable Heat, November 2025



Challenges

- 1** Maximising the use of stored water
- 2** LNG model and existing insurance assets
- 3** Use of constrained on by the SO
- 4** Market leadership



Hazards from Trees Regulations - Progress update to SRC

23 February 2026

Te Kāwanatanga o Aotearoa
New Zealand Government

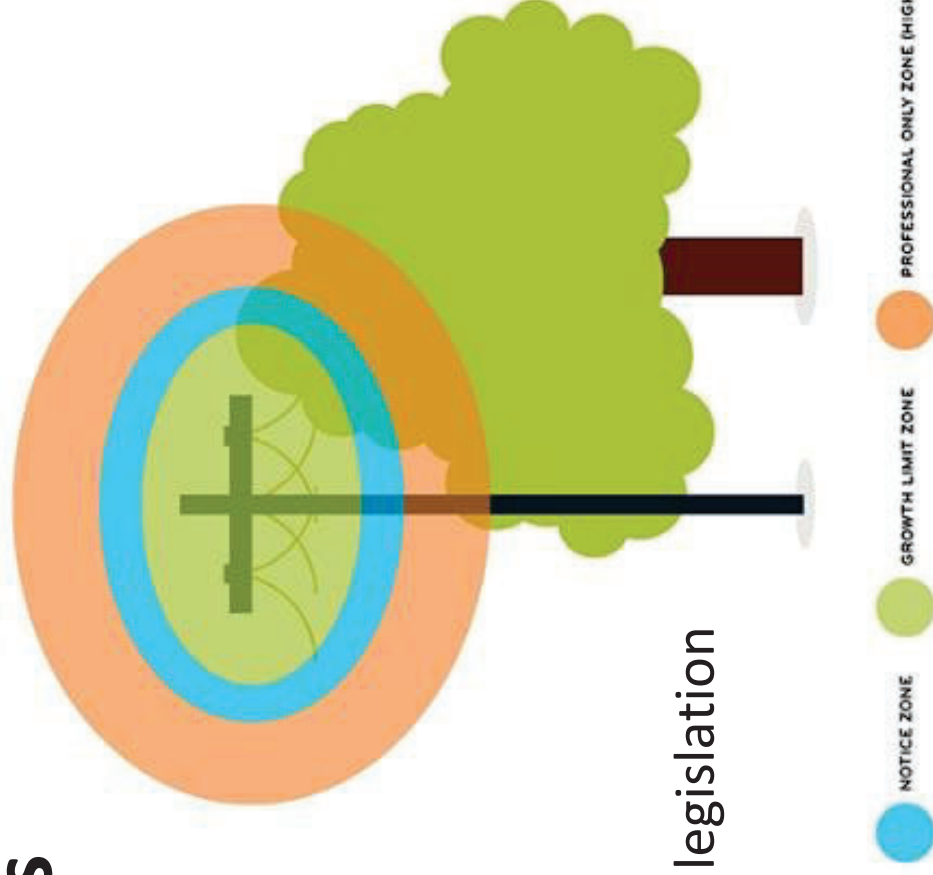


The “Tree Regs” - Background



Goals of the Regulations

- Security of electricity supply
- Safety of the public and workers
- Balance costs and responsibilities
- Interacts with several other pieces of legislation

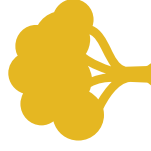


Ministry of Business, Innovation & Employment – Hīkina Whakatutuki

Case for change



Extreme
weather events



Land use
change



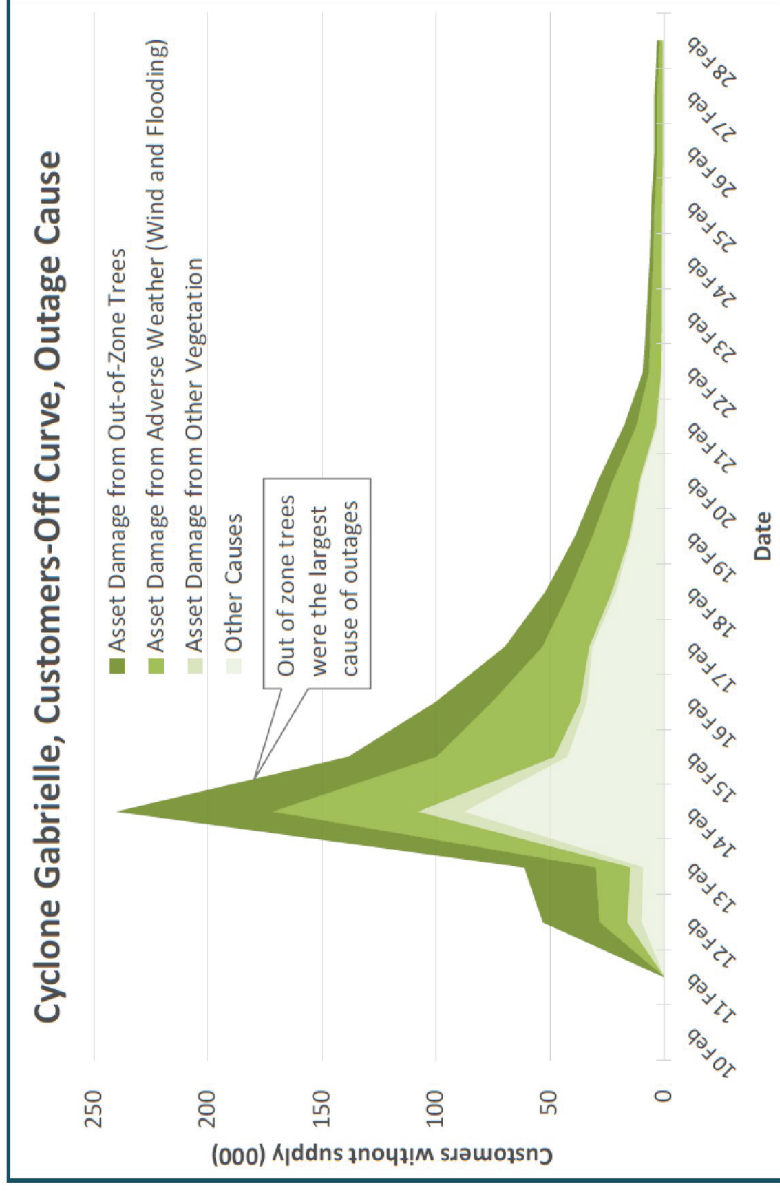
Electrification

- Increased attention following Cyclone Gabrielle
- Priority area for this Government



Impact of Cyclone Gabrielle

- Largest cause of outages
- 68,000 customers interrupted at peak
- Value of lost load ~\$474 million



Summary of the changes

Phase 1 (complete)

Making the donut vertical and earlier warnings

- Make GLZ clear to the sky
- Extend notice zone by 1m
- Gazetted 19 September

Phase 2 (almost there..)

Dealing with trees that are further away

- Address risks from trees outside GLZ
- Consultation on exposure draft
- Aiming for decisions May 2026

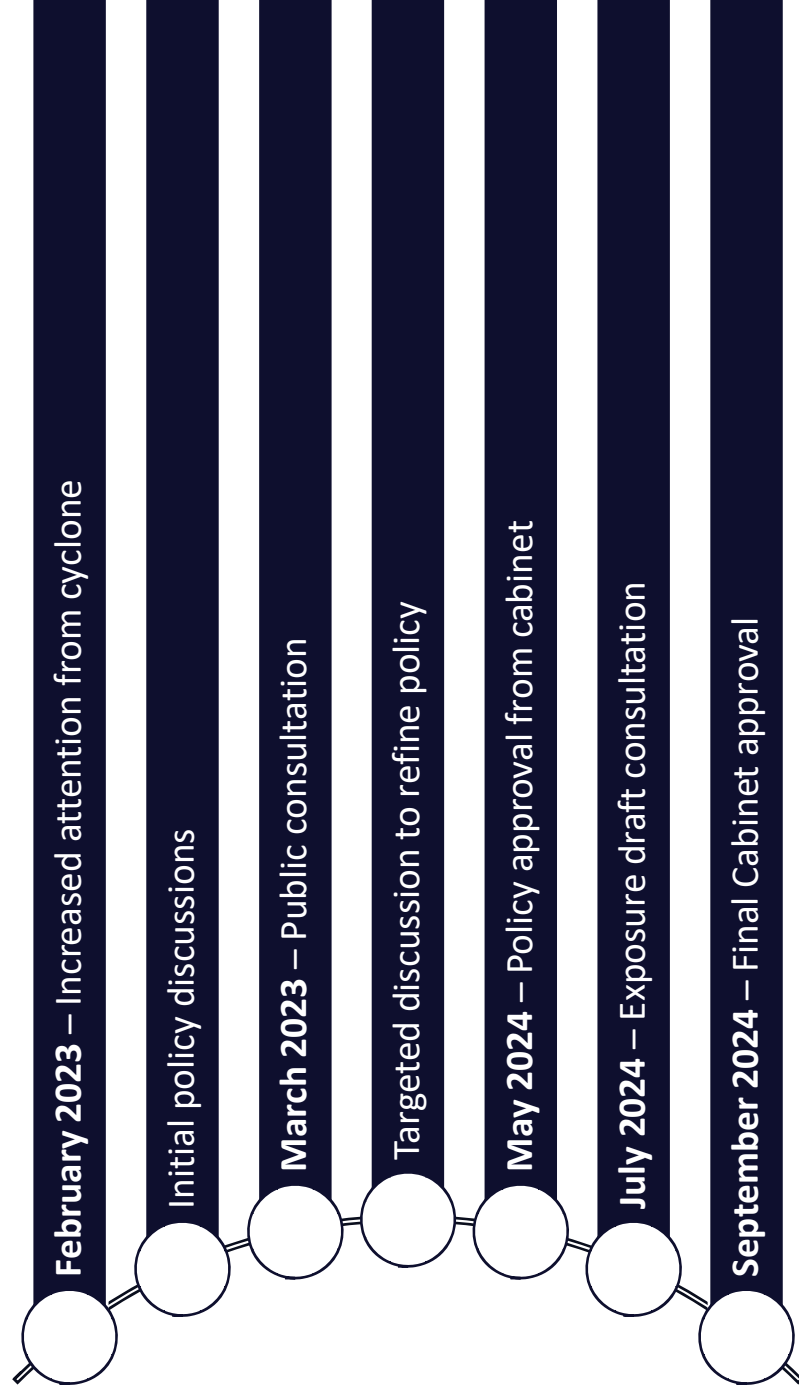


Phase 1) - completed

Making the donut vertical - the GLZ 'clear to the sky'
Earlier warnings - by extending the notice zone



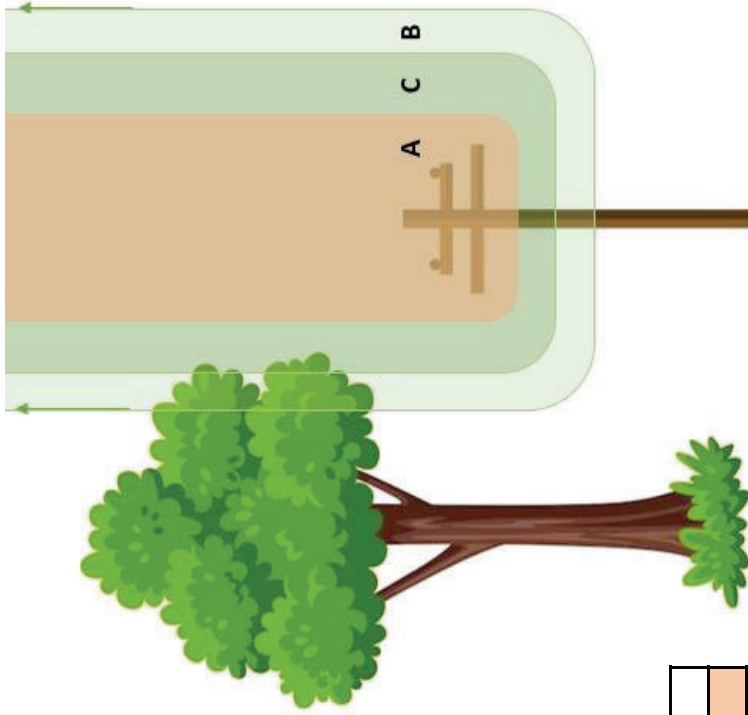
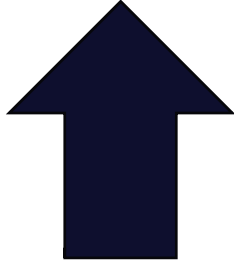
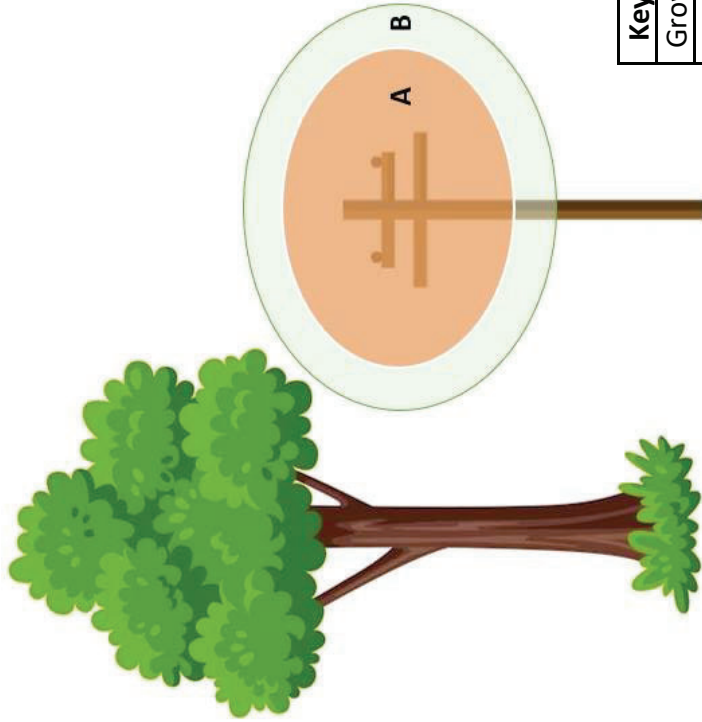
Phase 1 – What our process was



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Phase 1 – What changed



Key	
Growth Limit Zone	A
Notice Zone	B+C
Cut Back Zone	C



Phase 1 - What's now in place, or will be soon

Timeline

- Came into force 17 October 2024
- 2-year transitional period for clear to the sky GLZ (17 October 2026)

Changes from consultation

- Exclusions applied to lower voltages and to specimen heritage trees
- Trimming back to old Notice Zone (Cut Back Zone)

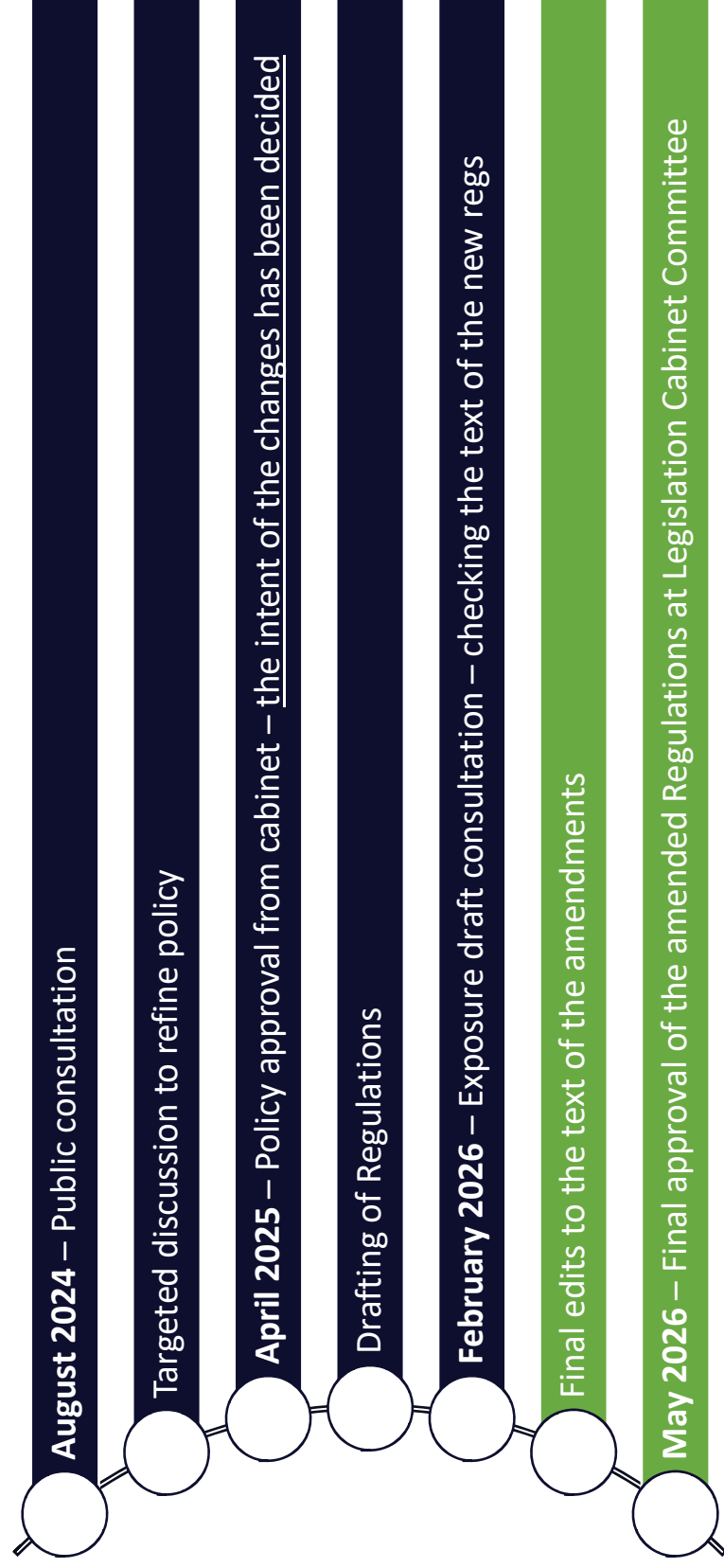


Phase 2 - almost there..

Dealing with trees that might fall on lines



Phase 2 – Our process: almost there

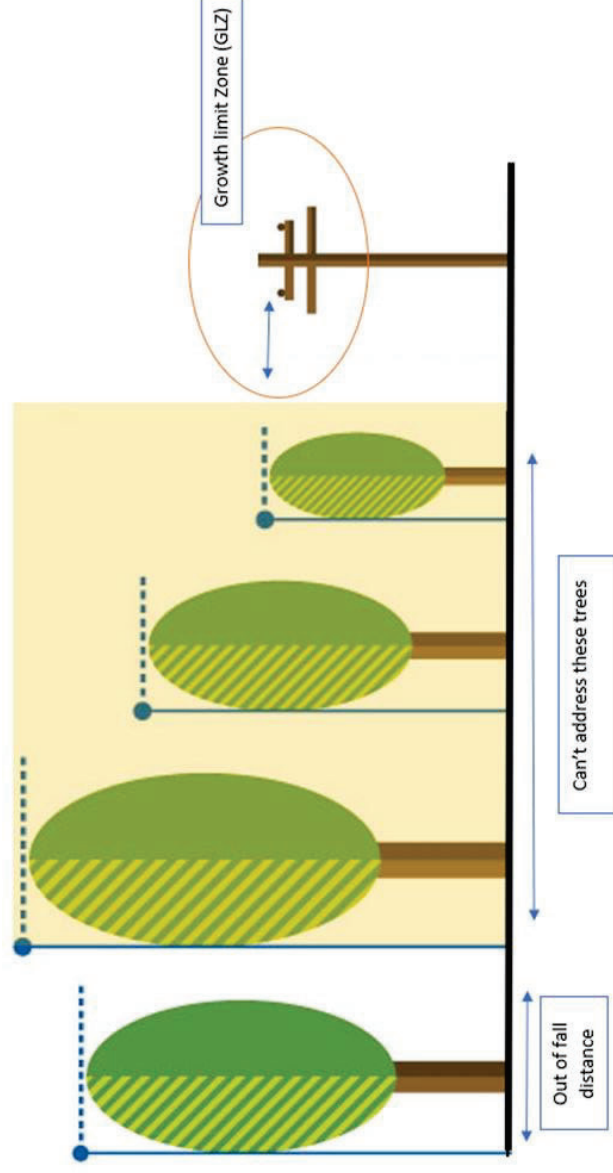


Ministry of Business, Innovation & Employment – Hīkina Whakatutuki



Phase 2 – Out of zone trees

- What is the issue
- How are these trees dealt with currently (before this Phase 2 change)



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Phase 2 – We looked at a range of options

We looked at several ways to make larger clearance corridors viable

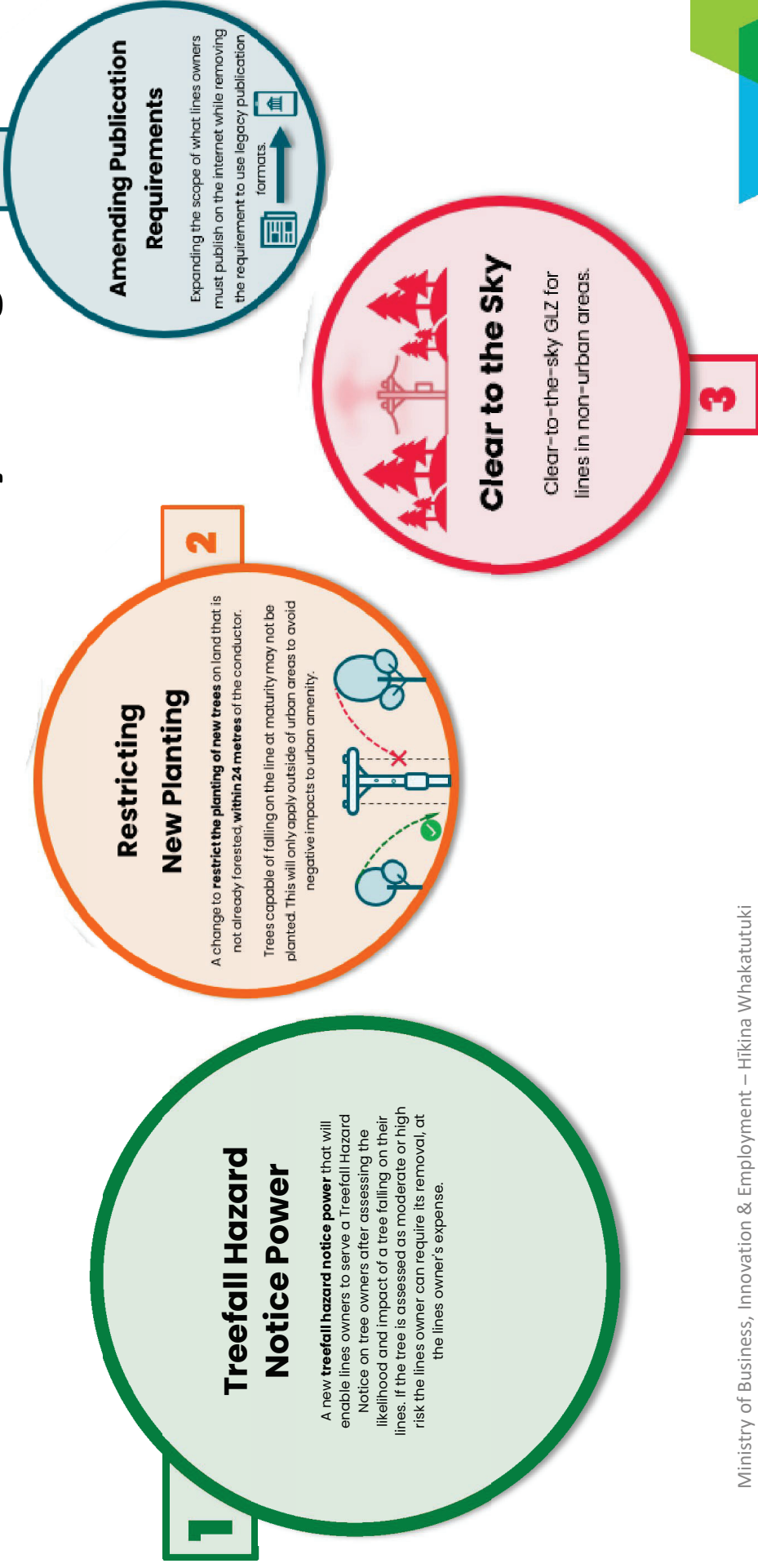
1. All at risk lines in forested areas (24m each side)
2. Transmission lines in forested areas lines only (30m each side)
3. At risk lines in commercial forests (24m each side)

Common issues arose:

- ETS carbon liabilities
- Harvest revenue forgone
- Increased fall risk
- Private property rights
- Treaty settlements
- Climate implications



Phase 2 - Cabinet has decided on 4 key changes



Phase 2 – 1) A new Treefall Hazard Notice

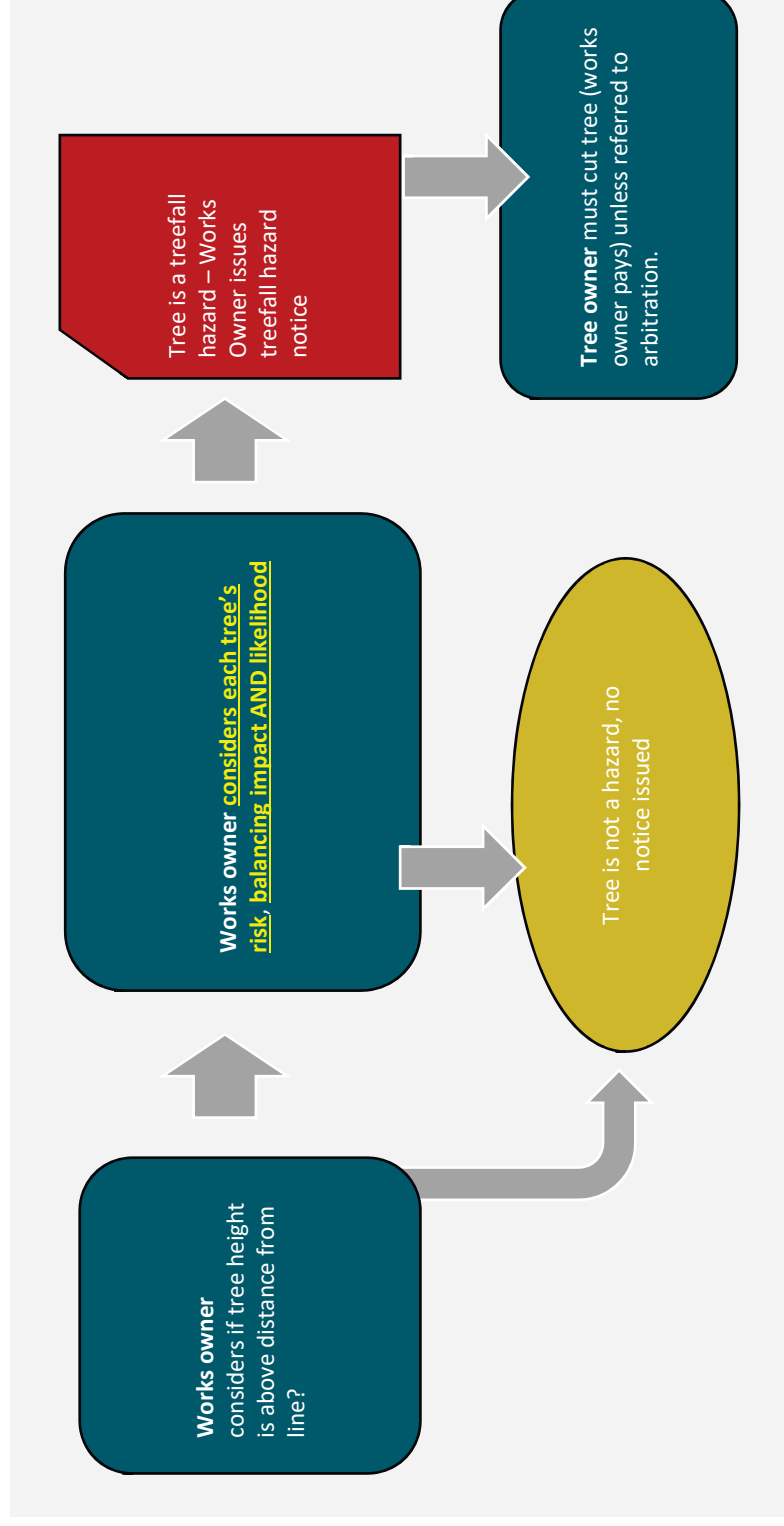
“EDBs can require trees that pose a risk be removed”

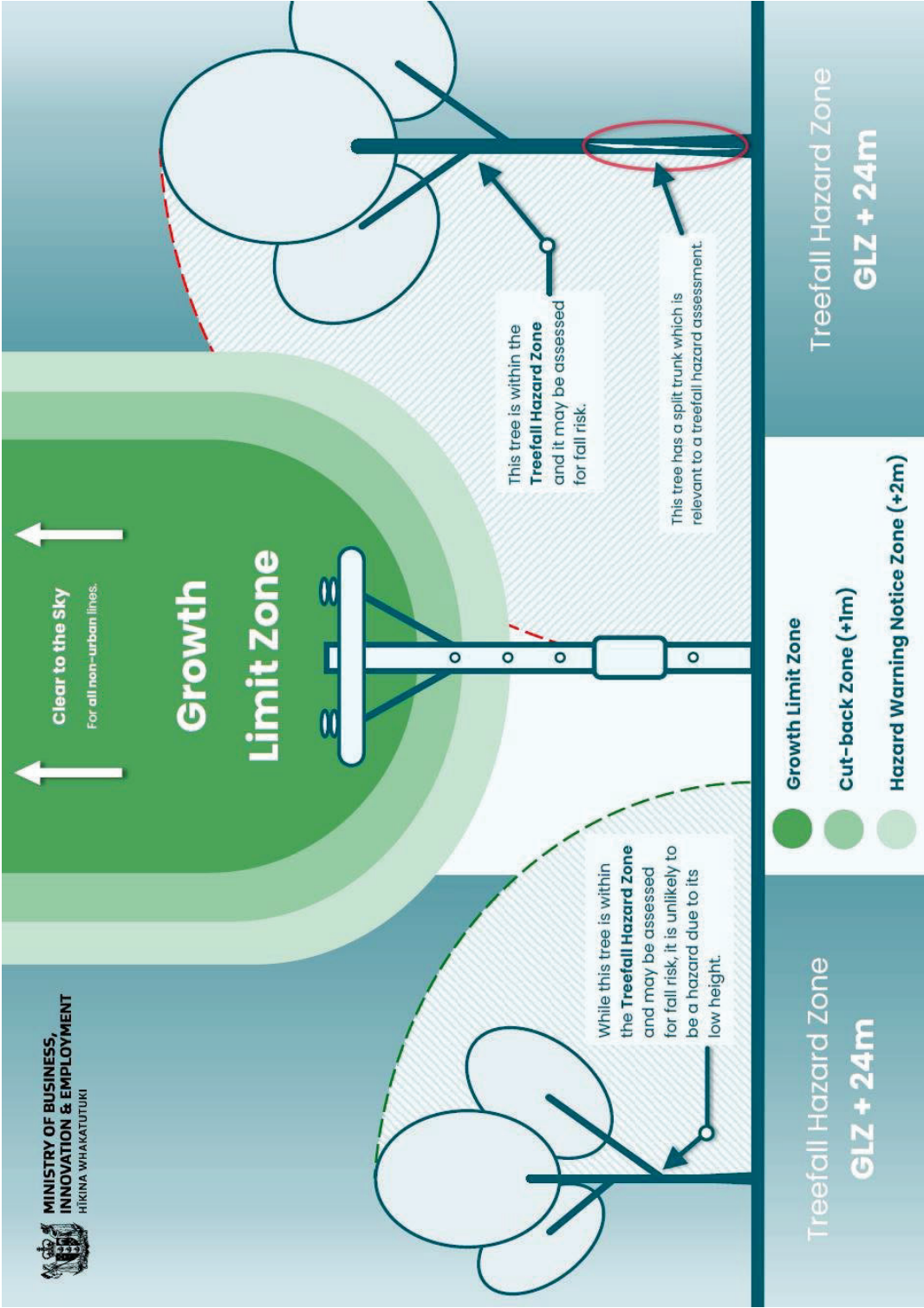
- A risk-based notice power for lines owners.
- Trees with fall distance of lines assessed for ‘likelihood’ and ‘impact’.
- If thresholds reached, lines owners may issue a notice to remove the tree.

	Low impact	Moderate impact	High impact
High likelihood	Not a hazard	Moderate treefall hazard	High treefall hazard
Moderate likelihood	Not a hazard	Low treefall hazard	Moderate treefall hazard
Low likelihood	Not a hazard	Not a hazard	Low treefall hazard



Phase 2 – 1) A new Treefall Hazard Notice



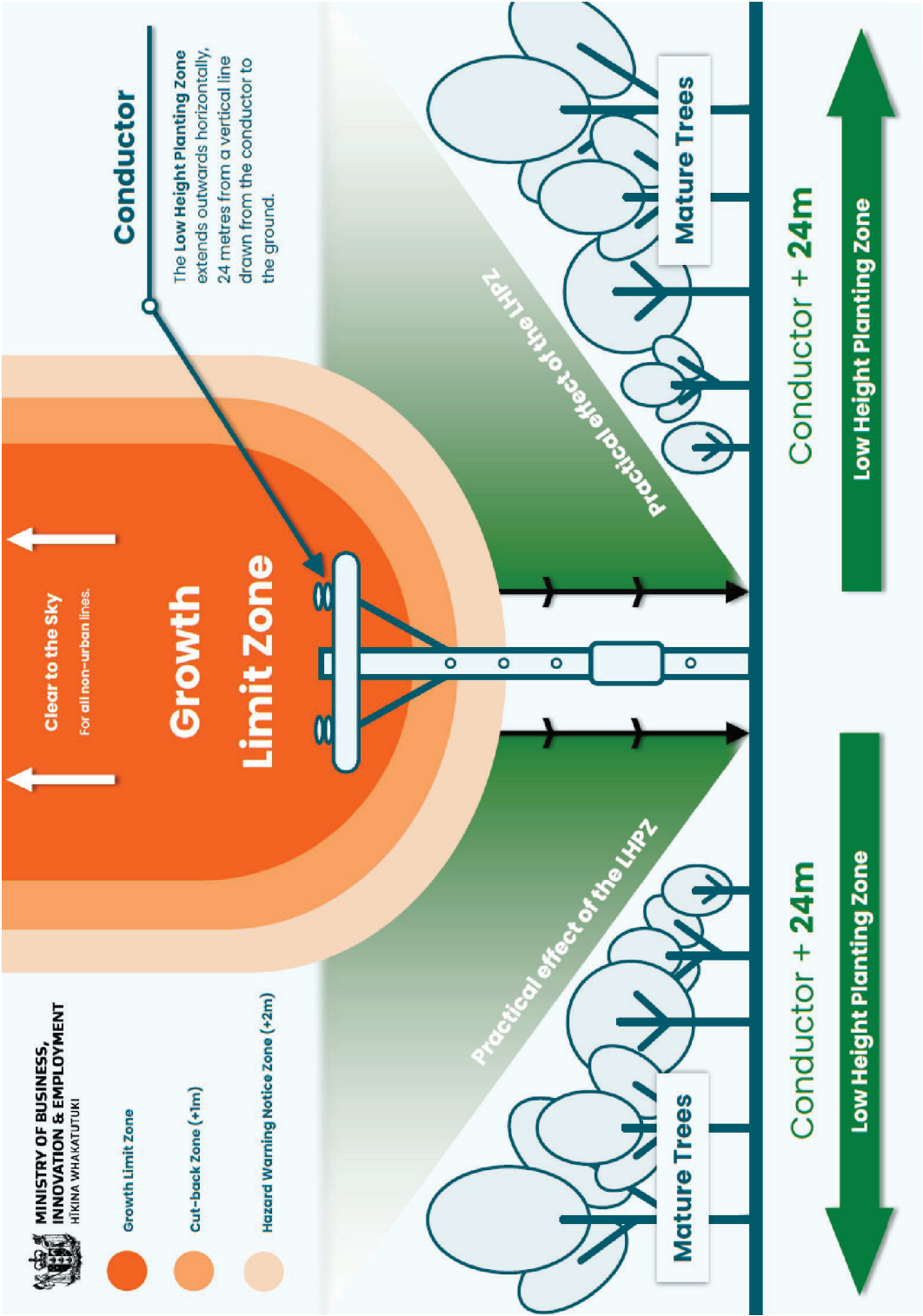


Phase 2 – 2) a new planting restriction

“No new tall trees near lines, in non-urban areas”

- Restriction on planting tall trees up to 24m from powerlines.
- Only applies in rural, unforested areas and excludes shelter belts.





Phase 2 - Minor additional changes

3) Extending clear-to-the-sky

- The Regs currently mandate clear-to-the sky for all lines over 11kV.
- Unchanged in urban areas with high density low voltage networks.
- Expanded to all lines in rural areas.

4) Updating publication requirements

- The Regs currently mandate a written communication to customers or information in two editions of a local paper.
- Changing requirement to publication on appropriate website.



Phase 2 - Timing and Transitional periods

Decisions

- Aiming for LEG agreement on Regulations in May.
- Come into force 28 days after gazettal.

Transitional periods

- 1) 2 years for Treefall Hazard Notice Power – starts May 2028.
- 2) 1 year for planting restriction – starts May 2027.
- 3) 17 October 2026 for GLZ ‘clear-to-the-sky’
- 4) 28 days after Gazettal for publication requirements



Thank you.

Questions?

Ministry of Business, Innovation & Employment
15 Stout Street, PO Box 1473,
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www.mbie.govt.nz



Tree Regs ENA view

Security and Reliability Council
23 February 2026



Outline of today's session



The Why – ENA the extent of the problem, and the need for action (15 mins)



The What – MBIE what's happening: phase 1 changes in place, and phase 2 changes underway (15 mins)



The Reality – PowerCo what Networks currently do to manage tree risks, how the phase 1 and phase 2 tree regs are being operationalised and perceived impact (15 mins)



Discussion

Delivering resilience for customers

International experience aligns with our own. Process-based standards are best to deliver and improve resilience. Arbitrary return to service standards will not affordably address the range of shocks we manage.

Resilience means:¹

- The capacity of the network to absorb a shock; recover from disruptions; adapt to changing conditions; and retain essentially the same function as it had before
- Having the capacity to adapt to those shocks and rapidly recover, even if that means providing services in a new way

Resilience is **not** security of supply.

- Security of supply refers to availability and reliability in reasonable operating conditions.
- The sector manages security of supply in the usual course.

The sector prepares for, responds to, and learns from 'shock' events using the sector approach to resilience noted on this slide. This ensures the system can respond to many potential shock events (eg, earthquakes, volcano, flood, tsunami, etc).

Our sector approach to resilience aligns with the EEA Resilience Guideline (NZ), ISO 22031 (Europe), and the Australian critical assets resilience standards (AU):

- Anticipate (readiness) – modelling to predict the likelihood and impact of disruptive events and have emergency plans and structures ready.
- Withstand (reduction) – developing infrastructure to minimise the impact of anticipated risks; recognising that design standards need to evolve.
- Recover (and respond) – robust response and restoration plans, emergency spares, strong industry collaboration.
- Evolve (learn) – The industry uses previous events to identify opportunities for improvement to get the best result for customers.

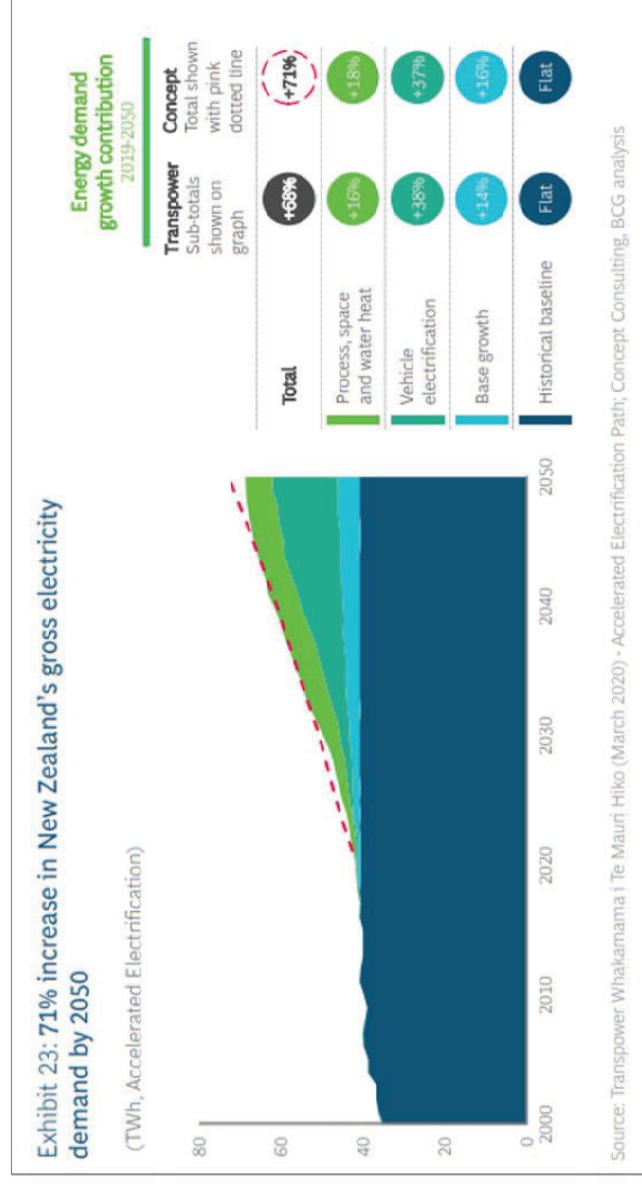
Sector restoration practices align with international approaches.

¹ DPMC, "Strengthening the resilience of Aotearoa New Zealand's critical infrastructure system", June 2023

Resilience is even more important in our context – we have an electrified future...

Resilience needs to keep pace with New Zealand's decarbonisation pathway, else the economic impact of extreme events will increase as electrification increases

- Electrification must accelerate if we are to meet our climate objectives and our green electricity offers an economic growth opportunity while we transition to net zero 2050. NZ can grow to zero.
- As we electrify our economy electricity's share of industrial processes, home and business energy and transport fuels will increase
- **Loss of supply will have more significant community and economic consequences** and impacting more sectors
- Regulatory settings must enable investment (P/Q regulation via ComCom and RMA for resilient build)



Estimated spend on trees...yet we don't own any...

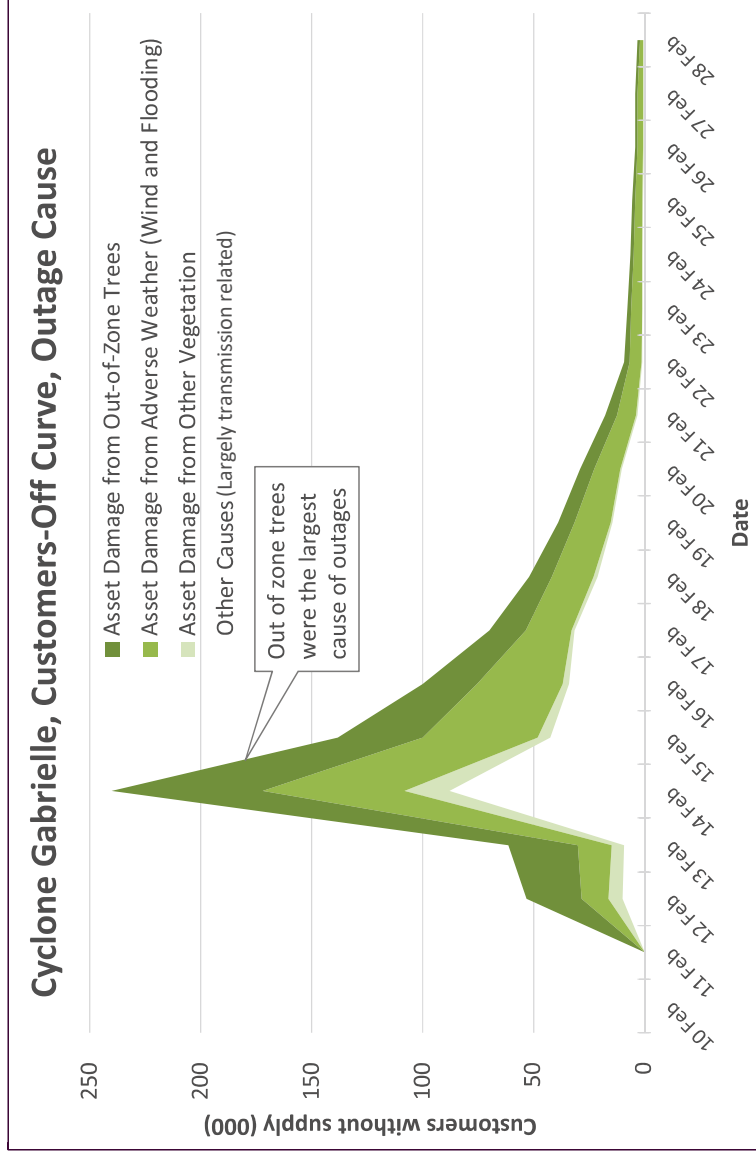


We love trees, just not near our powerlines...



Learnings from Cyclone Gabrielle – February 2023

- At its peak, 240,000 customers lost supply (11% of NZ)
- In relation to the distribution sector
 - **Out-of-zone trees** falling on lines (which are trees outside of EDBs areas of control) interrupted 67,000 customers. This was the largest single cause of outage
 - **Storms conditions above design limits** interrupted a further 63,000 customers
 - **Flooding** was also a material factor, impacting over 62,000 customers



Learnings from Cyclone Gabrielle - causes

- The inability to reduce some risks and not fully recognising others drove the scale of the outage
 - Out-of-zone trees were the largest cause of outages and could not be mitigated prior due to the narrow focus of the current tree regs
 - The flooding damage in Hawkes Bay was significant, and that vulnerability (overtopping flood banks) was not well understood nor mitigated prior. It was also a complex restoration that took time to complete
 - The significant number of outages (that was difficult to anticipate and plan for with foresight) caused resource constraints impacting restoration time—mutual aid was provided but took time to arrive
 - Access restrictions, to the extent they occurred, were not anticipated
 - Pre-2000 overhead lines were designed to a lower standard - the windspeeds experienced in some locations during Cyclone Gabrielle were highly likely to have been above the design limits for pre-2000 lines

Learnings from Cyclone Gabrielle —interdependencies matter

- Interdependencies caused delays...
- The **failure of the roading network** was material on the East Coast, Hawkes Bay and rural areas around Auckland. Roothing damage, and lack of visibility of the roading damage, impacted planning and delayed restoration efforts
- The **communications failure** (due to back-haul fibre damage) on the East Coast was material and prevented customers from reporting faults. This, combined with the access issues and delays in aerial surveys, impacted restoration
- Failure of public telecommunications due to short cell-tower battery backup impacted field and network communications and delayed restoration efforts

Learnings from Cyclone Gabrielle – what could be done to improve resilience

Long-term improvements aimed at reducing the height and shortening the length of the customers–off curve!

Drivers of improvements

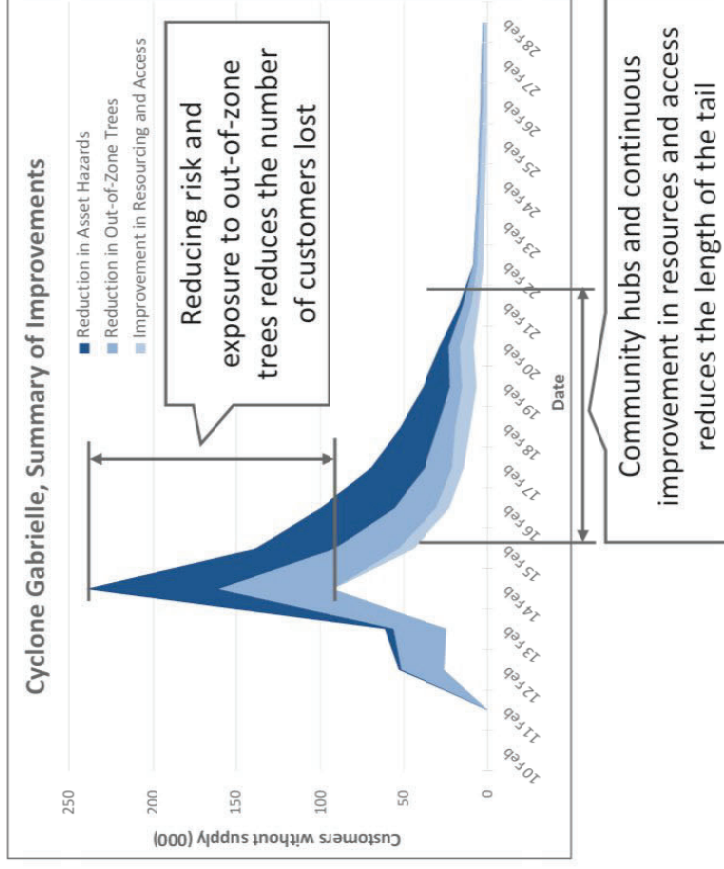
A combination of specific asset upgrades, incremental improvement (as assets are renewed), and alternative arrangement (e.g. micro-grids) will reduce risks—

Regulatory support for resilience investments (balanced against affordability) and reducing the consenting hurdle for route diversity is needed

Greater rights to incentivise landowners / enable EDBs to manage trees—**Better control over lines corridor to improve resilience**

There are hard to access areas where restoration may be delayed—**Community hubs will enhance support**

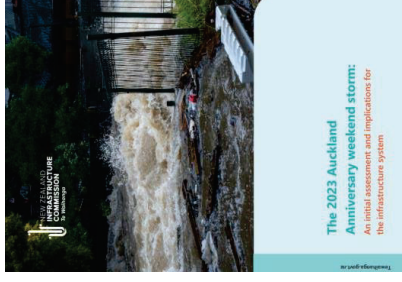
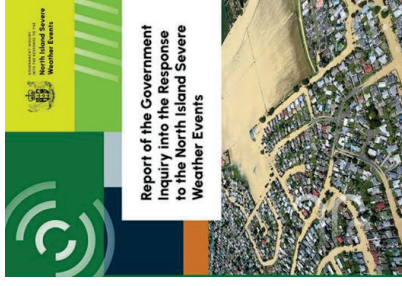
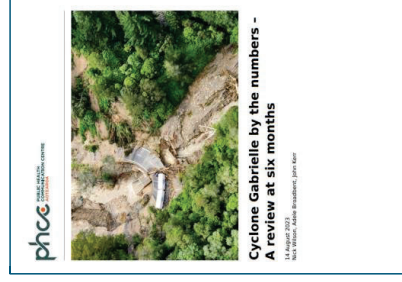
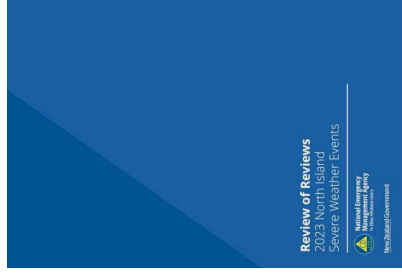
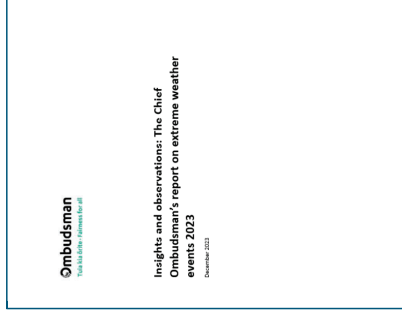
Continuous improvement in resourcing, access, coordination, and communication will improve outcomes for customers



Sector Presentation to DPMC Cyclone Gabrielle Taskforce July 2023

- What could Government help with to improve outcomes for customers?
- Regulatory support (funding allowances for regulated businesses) for optimal resilience investments across (balanced against affordability)
- Reducing the consenting hurdle for route diversity and for hardening of networks
- Better control over lines corridor to improve resilience – **deal with trees**
- Little direct financial support is needed, however funding of Community hubs could enhance support for vulnerable and hard-to-restore communities
- Fine-tuning NEMA response and support expectation of lifeline utilities
- Supporting the improvement of the quality of coordination at the regional/local CDEM
- Triaging of support for vulnerable customers

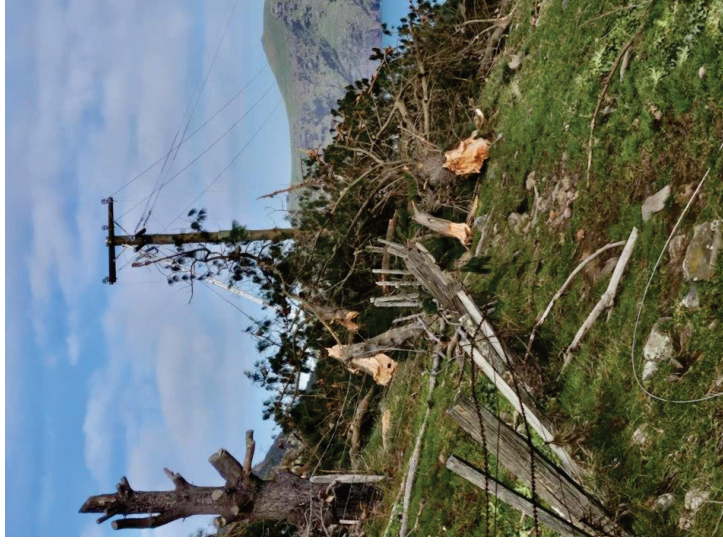
What has happened since then...



- Mar 2023 – Feb 2024 Cyclone Gabrielle Taskforce
- Transferred to Cyclone Recovery Unit – disestablished Jul 2025
- Emergency Management Bill to replace the Civil Defence Emergency Management Act 2002
- Tree Reg changes...

Anecdotal feedback from more recent storms

- July 2025 Network Tasman estimate 60% of outages due to trees
- October 2025 PowerNet estimate 70-80% of outages were due to trees
- October 2025 Mainpower estimate 65-75% of outages were due to trees
- February 2026 WE* - still in recovery mode, but estimated at least 65% of outages were due to trees



We need new laws that....

- Allow us better access to cut high-risk trees that can take out power to communities.
- Share the cost of maintaining trees. Last year, lines companies spent over \$71 million managing vegetation. And that money all gets passed onto consumers' power bills.
- Differentiate between public tree owners and commercial/PCBU tree owners. They latter should have more of an onus to maintain trees that can pose a threat to everyone's power supply.

Planning for a potential Private Members' Bill...

	Task
1	Investigate whether other entities affected by the Tree Regs are interesting in supporting or participating in the proposed Bill – eg: other lifeline utilities
2	Develop a table of changes and effective dates from the 2024 amendment legislation – work with a law firm to do this
3	Review what other legislation needs to be considered – eg: Electricity Industry Act 2010, Commerce Act, Conservation Act, Worksafe NZ, Local Government Act, Forestry Act, Resource Management Act
4	Identify which regulators / officials need to be considered for any possible changes – eg: MBIE, ComCom, EA, Gas Industry Co, Worksafe, Civil Defence
5	Understand the positions of interested parties – eg: SRC, public and consumers, ENA members, local authorities, Federated Farmers, emergency services, forestry owners, Insurance Council, lifeline utilities.
6	Identify the MP to approach – post 7 Nov election
7	Build and tell the story • Include impact of recent weather events • Explain costs and impacts • Impact of future climate change Identify and contact possible friends and supporters
8	Submit the Bill – target 2027

 T R A N S P O W E R

System Operator Strategy

Security & Reliability Council update

23 February 2026



Changing our approach to an SO Strategy

The System Operator produces an annual Strategic Plan to satisfy our contractual obligations with the Electricity Authority. Plans were developed internally with no industry consultation and had limited impact on guiding investment or capability development

Why change?

- Fundamental changes are happening to the power system and the risks on the power system are evolving quickly. We need a way to engage industry on these issues to get alignment on key priorities
- These priorities will drive SO investment and stronger consultation will support more robust investment proposals
- The EA Board has welcomed more proactive engagement from the SO on broader power system evolution and priorities

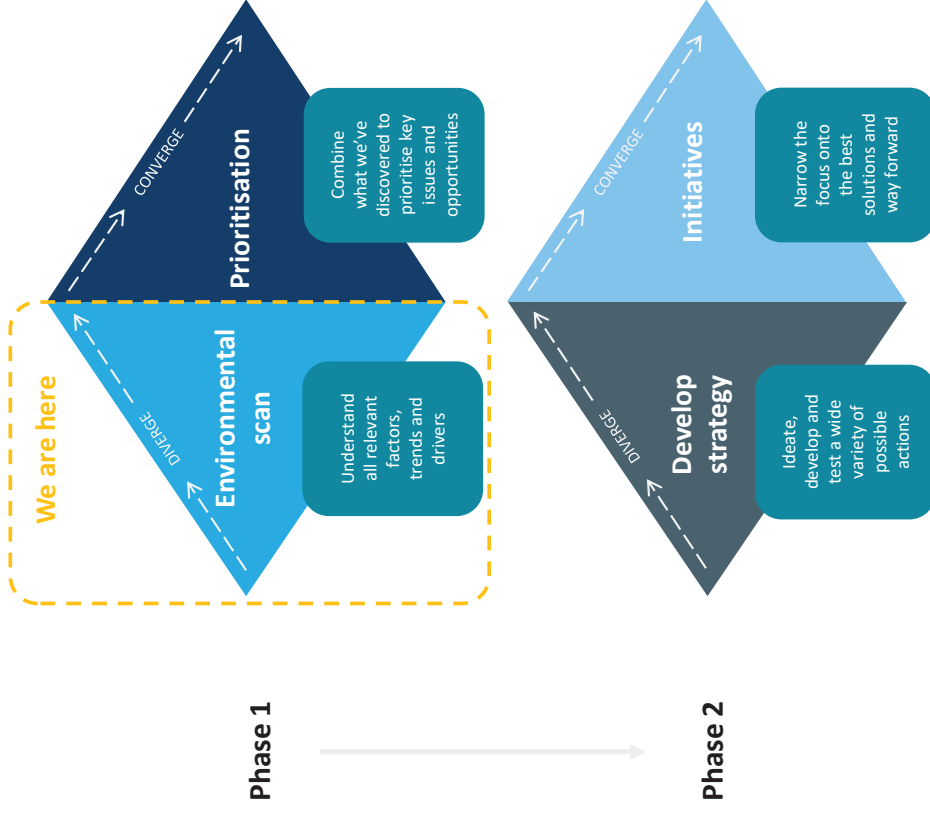
New approach

During recent SOSPA negotiations, the EA and Transpower agreed to evolving the SO Strategy into a true forward-looking strategy, developed in consultation with industry – a major step forward.

Outcome

The SO Strategy development process is designed to:

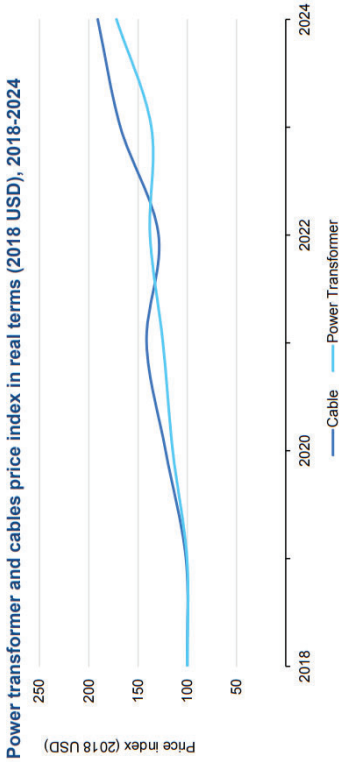
- Contextualise and define the capability and investment needs for the SO to meet the needs of our stakeholders and consumers.
- Provide a platform for required step-changes in investment levels
- Create an opportunity for more proactive market development and prioritisation of the EA's work program



Political and regulatory changes can drive progress but also uncertainty

Geopolitical changes impacting costs

- Global focus on electrification driving major investment in transmission and renewable generation
- Competition for key components such as transformers and cables increasing, driving up costs and expanding lead times
- Political shifts – repeal of the US Inflation Reduction Act, banning of offshore wind – creating uncertainty impacting investment decisions. International portfolios being rebalanced



NZ focus on Security of Supply

- High winter electricity prices in 2024 combined with an unexpected fall in domestic gas reserves has sharpened domestic focus on security of fuel supply
 - At the beginning of 2025 2P gas reserves had fallen from 1,300PJs to 948 PJ compared to 2024
- Aging generation capacity, combined with fuel adequacy concerns, led major retailing businesses to enter into a firming contract to effectively underwrite continued operation of Genesis's Huntly Unit 2
- Frontier Report into Electricity Market Performance currently considering:
 - Regulated solution to managing dry year risk
 - Changes to SO Security of Supply Assessment risk analysis
 - LNG import terminal viability and domestic gas underwriting
- Pace of regulatory change and role of the Electricity Authority also under review

Political and regulatory
environment

Economic and market changes

Environmental

Societal and consumer
evolution

Technological change

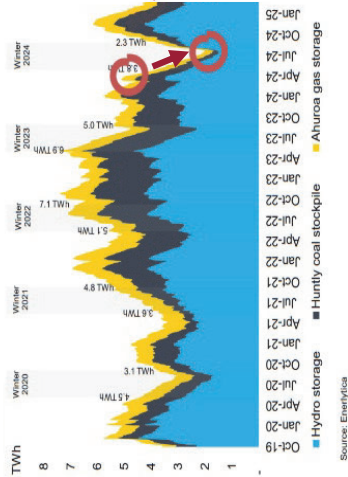
Pricing of firm capacity and uncertainty of demand growth key market challenges

Renewables and dispatchable capacity needs

- In 2024, New Zealand's electricity market experienced significant stress due to a combination of tight gas supply conditions, low hydro inflows, and high demand driven by unusually cold weather.
- There is a direct correlation and causality with low (flexible, firm) generation and electricity prices in NZ

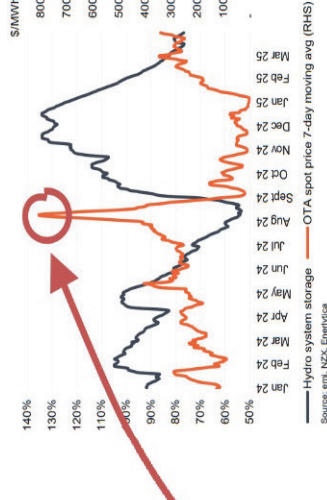
Electricity system storage

Daily, 2019 - 2025



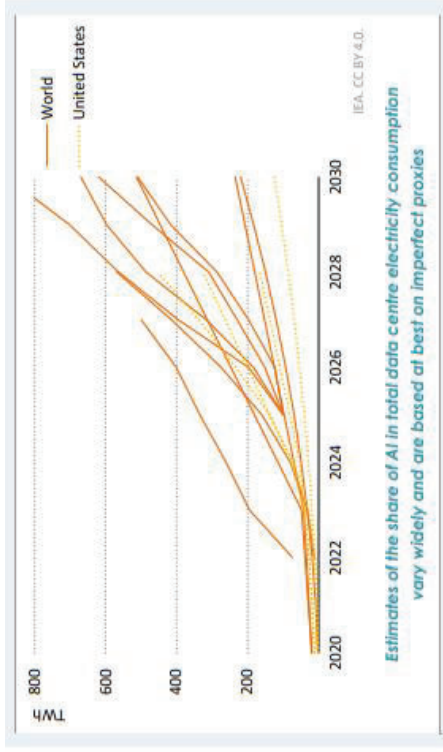
Electricity spot pricing and hydro storage

7-day moving average



Gearing up for demand growth

- Load growth can be uncertain and lumpy – major focus globally on data centre growth which is positioning itself as critical infrastructure
- Data centre electricity demand estimates for NZ range from between 4 TWh and 18 TWh in Transpower's Future Grid scenarios, mirroring the uncertainty seen in other jurisdictions

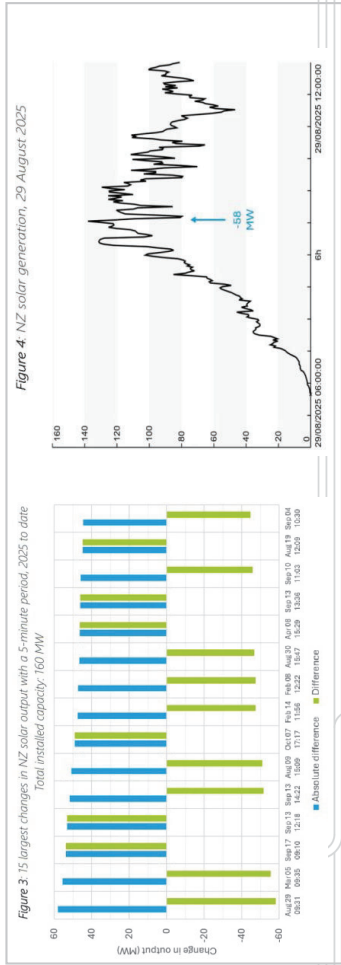
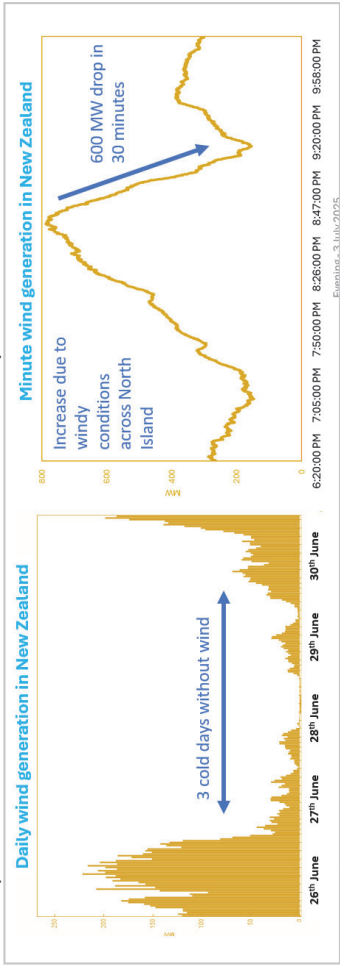


Estimates of the share of AI in total data centre electricity consumption vary widely and are based at best on imperfect proxies

Climate change impacting weather dependent system and event management

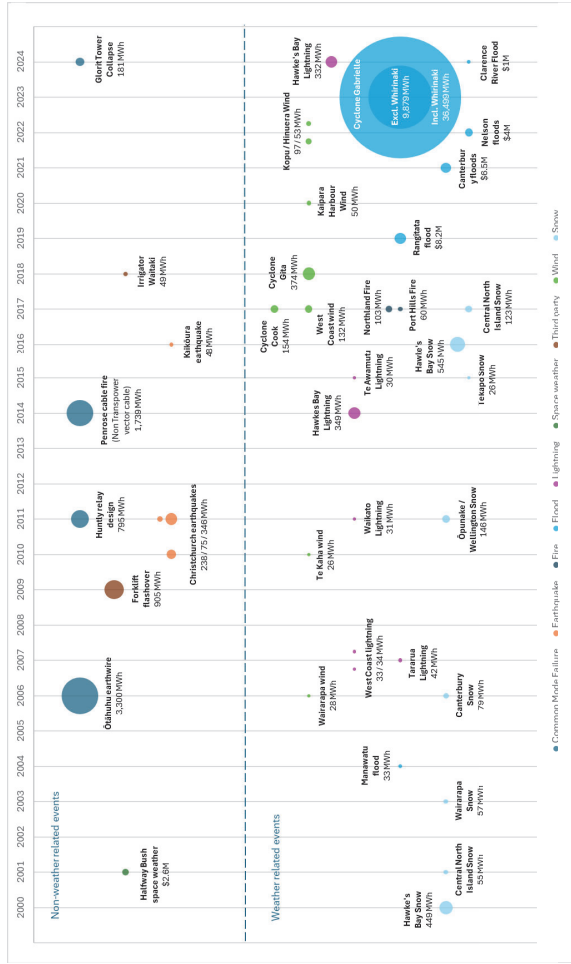
NZ supply mix highly weather dependent

- Rapid shifts in wind speed and direction, as well as solar generation remain challenging for managing supply and demand across days and in real time (minutes), especially when correlated with weather patterns and cold temperatures. This creates fluctuations on the system for both wind and solar.



Weather-related events increasing

- Weather events are increasing in frequency and severity globally, and in New Zealand. Operationally, extreme weather can lead to grid emergencies, with the potential for unexpected asset impacts and involuntary demand reduction. There is an increased need for sufficient capacity in people and systems to manage these events.



Political and regulatory environment

Economic and market changes

Environmental

Societal and consumer evolution

Technological change

Changing consumer expectations and workforce dynamics

Consumers tolerance for outages decreasing

- Affordability and system resiliency remain the two most important issues for New Zealanders over the next 10 years.
- In 2024 the Consumer Advocacy Council found the top concerns for NZ households and businesses are making sure electricity is affordable for all NZ'ers and ensuring NZ's electricity system is resilient to extreme weather events to avoid outages.



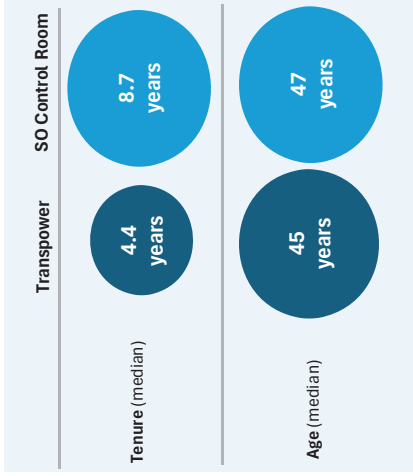
Source: Electricity Authority, Consumer Sentiment Survey

Aging workforce with super competitive segments

- The world is competing for unique and valuable roles, like Power System Engineers.
- Our workforce is aging and we are growing. The tenure of SO control room staff is 8.7 years which is much higher than Transpower's corporate baseline of 4.4 years.
- This requires increased investment in growing capability, knowledge management and operator learning evolution.



Source: IEEE, Transpower System Operator



Political and regulatory
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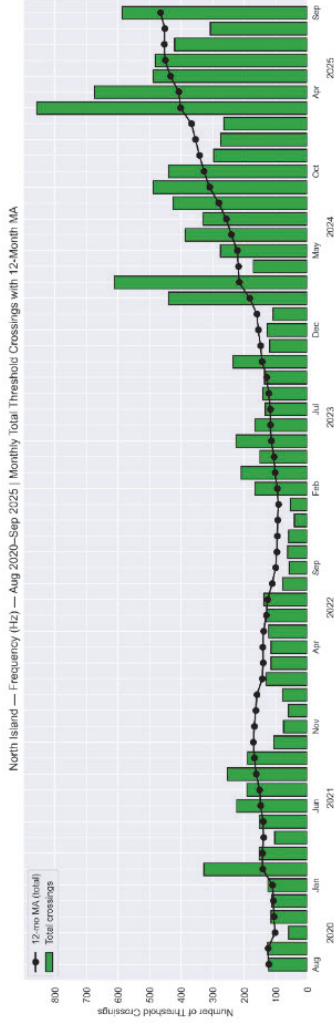
Variable renewable systems drive changing stability requirements

Inertia and System Strength

What is system inertia? System inertia refers to the energy stored in the rotating shaft of generators, motors and other industrial plant as they rotate at a speed that is synchronised to the power system's electrical frequency. Inertia helps the system operator manage the frequency of electricity across the power system. Inertia is particularly important for slowing the rate at which frequency changes due to a disturbance on the power system that affects the electricity demand / supply balance. A low inertia system has an increased rate of change of frequency (RoCoF), which means a faster response from connected machines and systems is required to recover the lost MW following a frequency event.

What is system strength? System strength is a measure of the power system's ability to maintain a stable voltage waveform and recover following a fault or disturbance on the system. Short Circuit Ratio (SCR) is a measure of system strength for a connection point. Low system strength connections make voltage harder to control as the system voltage is more susceptible to being moved around due to changes in reactive power output or absorption. Inverter based resources (particularly grid-following GFL) may have challenges remaining synchronized to the grid following large disturbances in low system strength conditions.

Frequency threshold crossings in the North Island



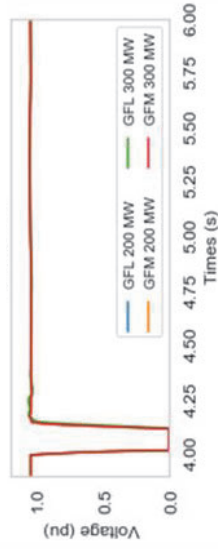
System Strength - preparing for an increasing in inverter based resources

Low system strength or SCR (Weak bus)



Uptake of grid following inverter (GFL) increases -
Weak system, less synchronous generation, lower fault
current capability

High system strength or SCR (Strong bus)



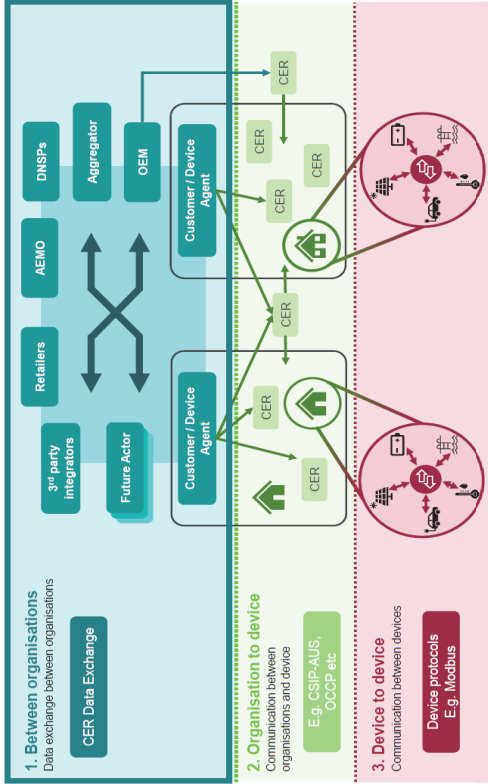
Grid forming inverter (GFM) uptake maintains
stability - strong system, lots of synchronous
generation, high fault current capability

Data availability and technology shifts create opportunities and risks

Challenge of using data to inform decision making

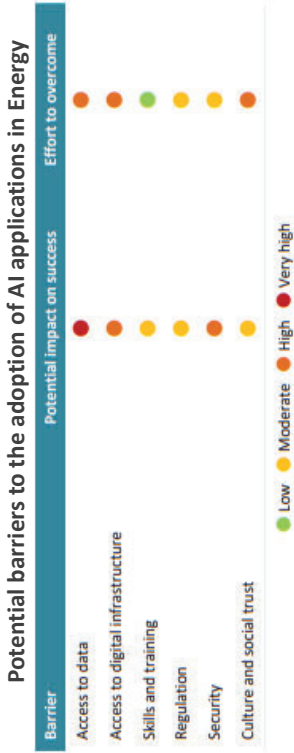
- With the growing number of devices connecting to the grid (e.g. residential PV, EVs), there is increasing value in these entities being able to exchange data with each other for the overall good of power system operations.
- Challenges include fragmented data ownership and importance of visibility, interoperability gaps, cybersecurity risks, complexity in operations and need for advanced tools as well as integrating new technology like AI.

Example of data and information integration in Australia



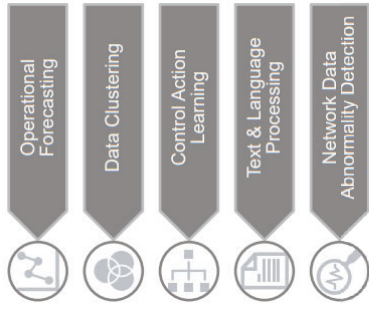
Source: AEMO

New options for managing these risks



Operational use cases for ML/AI

- Control room operations is an ideal environment for the deployment of AI - due to quantity of data available and the control-feedback mechanisms.
- However, three main barriers to deployment:
 - Data quality – lack of data standards and inconsistent structure
 - System criticality – hard to trial solutions when managing critical infrastructure
 - Computer infrastructure – need access to secure high performance computing solutions



Source: G-PST

Timeline and stakeholder engagement

