

# Electricity Networks Aotearoa Briefing to Incoming Energy Minister

November 2023

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āhuarangi.  
kiritaki.  
mahi ngātahi.

climate.  
customers.  
collaboration.

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# 1 Urgent call to action

The electricity sector, including distribution networks, are at a critical tipping point. Decisions made by the Government and regulators today, and over the next 12 to 18 months, will lock in the agenda for the sector until 2035. Therefore, it is important that the regulatory and policy settings are fit for purpose, otherwise New Zealand will not meet its climate change commitments.

## 1.1 Recommended actions for first 100 days

- Amend the Commerce Act 1986 to enable the Minister of Energy and Resources to recall and review Commerce Commission Input Methodologies (IM) decisions (refer 3.2).
- Don't 'pick winners' on potential electricity generation fuel sources, for example bans on fossil fuels or pumped hydro.
- Ensure the potential risk of electricity blackouts in winter 2024<sup>1</sup> is understood and managed.
- Endorse and support the energy sector and government's decarbonisation framework which establishes the structure for Government and the energy sector to collaborate on the shared challenges in decarbonising the energy system (refer 3.3).
- Improve the co-ordination and interdependencies of the government-led electricity sector policy and regulatory workload, and employee churn in the public sector, so the right structures and capabilities are in the right roles for the energy transition.

# 2 Introduction to ENA and the Electricity Distribution Businesses (EDBs)

Electricity Networks Aotearoa (ENA) represents the 27 electricity distribution businesses (EDBs) in New Zealand (see Appendix A) which provide local and regional electricity networks. EDBs employ 10,000 people, deliver electricity to more than two million homes and businesses, and are expected to spend \$22 billion<sup>2</sup> over the next six years to ensure that New Zealand has reliable, resilient and secure electricity to enable its decarbonisation.

New Zealand has been ranked in the top 10 in the World Energy Council's energy trilemma index<sup>3</sup> since 2015, with a rank of 8th out of 25 countries in 2022, suggesting that New Zealand's energy system is performing well on balancing the trilemma outcomes of security, environmental performance, and affordability.

The electricity sector can improve this ranking by playing a major role in decarbonising the wider energy sector. According to the BCG report *The Future is Electric*<sup>4</sup>, delivering this would require investment of \$42 billion in the 2020s, and specifically for electricity distributors, \$22 billion to prepare networks for rapid electrification and distributed generation.

EDBs are already working to achieve New Zealand's low-emissions goals, but to do this successfully our distribution networks must have:

- The **right regulatory settings** to enable the electrification needed to meet New Zealand's low emission goals and resilience of critical infrastructure. Today's 'just-in-time' approach to transmission and distribution network investment will stall low-cost renewable generation development and electrification, increasing emissions and net prices for consumers<sup>5</sup>.

<sup>1</sup> <https://businessdesk.co.nz/article/markets/power-shortage-risks-in-2024-after-loss-of-gas-fired-power-plant>

<sup>2</sup> <https://www.bcg.com/publications/2022/climate-change-in-new-zealand>

<sup>3</sup> [World Energy Trilemma Index 2022.pdf \(worldenergy.org\)](https://www.worldenergy.org/publications/World-Energy-Trilemma-Index-2022.pdf)

<sup>4</sup> <https://www.bcg.com/publications/2022/climate-change-in-new-zealand>

<sup>5</sup> Ibid

- A **skilled workforce** that can deliver the networks we need today, as well as for the future.
- The assistance of government for a '**just transition**' for communities who will need support during the energy transition.

Together, working alongside generation, transmission, and retailers, as well as government, ENA members seek to provide the best electricity choices for the long-term benefit of consumers.

The ENA Board and Management are provided in Appendix B.

## 3 Strategic issues for the sector

### 3.1 Strategic direction from central government

The industry as a whole is looking forward to delivery of the national energy strategy and receiving direction from central government. ENA stakeholders believe that central government should be leading this activity.

For the electricity sector to effectively and collectively move forwards on the decarbonisation journey, strategic direction from central government is imperative.

EDBs – and indeed, the entire electricity sector and related stakeholders – are very motivated to maximise their roles in delivering the transition in the most effective and affordable way for consumers. However, as this BIM will outline, there are a multitude of challenges – and stakeholders attempting to navigate these in silos will create greater opportunity for misaligned outcomes.

ENA consequently urges the government and its agencies to prioritise delivery of the New Zealand Energy Strategy. Developed through close industry collaboration, this document should outline the overall vision and specific targets, determine what roles each stakeholder should play, and provide a co-ordinated plan for delivery.

### 3.2 Regulation must keep pace with New Zealand's transformation

The operations of New Zealand's electricity distribution businesses are highly regulated by both the Electricity Authority and the Commerce Commission. This oversight includes determining how much EDBs can spend on building and operating their networks and setting the maximum revenue that they can earn.

The electricity distribution sector has been in a relatively steady state for much of the last 40 years with innovation and change occurring at an incremental pace. The prevailing regulatory regimes have suited this steady-state operating environment.

The scale and timing of spending by EDBs needed to facilitate New Zealand's transition to an electrified and decarbonised economy is highly uncertain, in addition to ensuring our critical infrastructure is resilient. To help illuminate the extent of this variety in the pace and drivers of change ENA worked with EDBs to develop a national electricity demand and investment heatmap, which presents the drivers of electricity demand on a per network basis out to 2050.

The heatmap is interactive and can be viewed on the ENA website<sup>6</sup>, and a high-level view is presented below:

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<sup>6</sup> <https://www.ena.org.nz/resources/edbs-investment-driver-heatmap/>

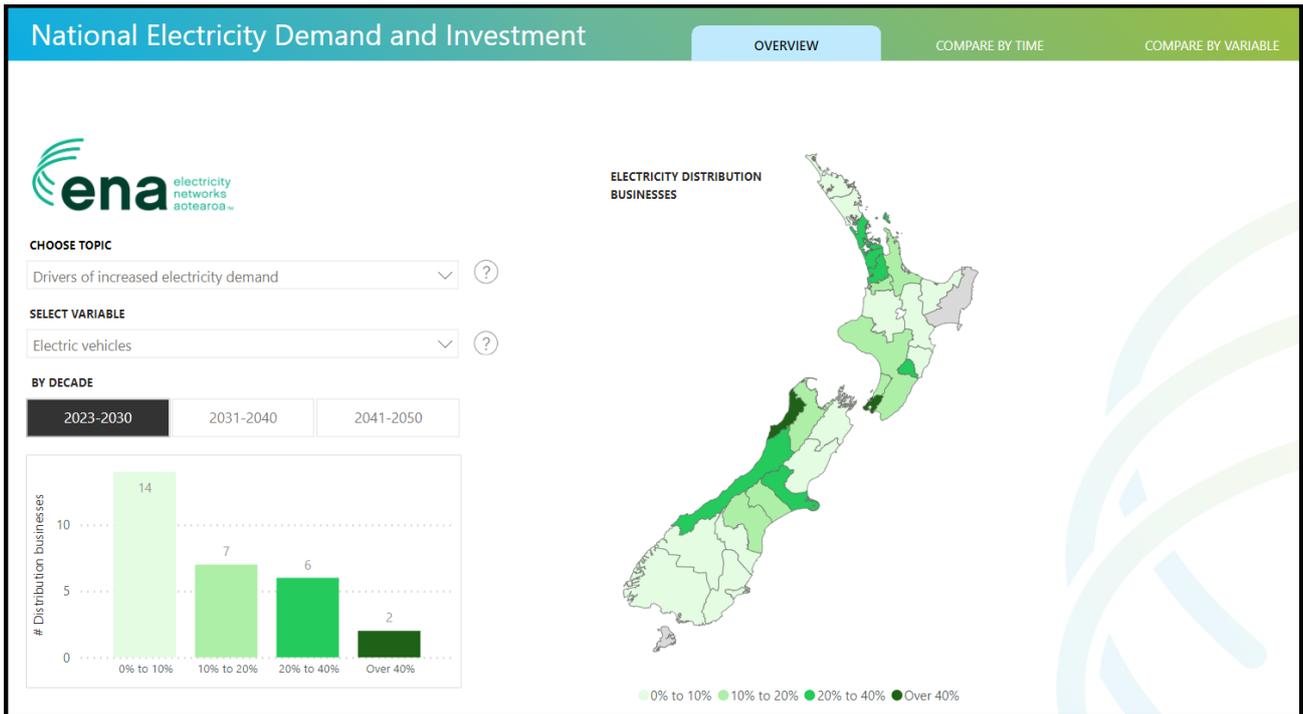


Figure 1 - ENA Electricity Demand and Investment Heatmap: Estimated EV electricity demand, by region, from 2023 to 2030

The Commerce Commission is determining the regulatory framework that will apply to EDBs and Transpower for the next seven years. This regulatory framework must have the flexibility to evolve with the economy over this critical transitional period.

In its draft decision, the Commerce Commission has proposed to lock in the set-and-forget status quo approach. This ‘one size fits all’ thinking and regulation, is ill-suited to the highly variable and localised transition effects that EDBs are experiencing and anticipating as illustrated by ENA’s electricity demand and investment heatmap. ENA believes that more flexibility is needed to ensure the regime can respond in a timely and efficient way while protecting consumers from higher than necessary prices.

EDBs are committed to spending every dollar needed to address the challenges posed by these differing drivers of electrification and resilience, but not a dollar more. However, they require a regulatory regime that has the built-in flexibility EDBs need to address the challenges and opportunities for their networks from electrification and to underwrite the long-term financial health of the sector.

To achieve this, in our submission on the Commerce Commission’s draft decision<sup>7</sup>, ENA recommended a series of amendments to enshrine in the regime the flexibility that would ensure that EDB’s critical infrastructure can meet the challenges of electrification and that they can serve their communities for another 100 years.

### 3.3 Energy Sector & Government Decarbonisation Framework

Given the complex challenge of decarbonising New Zealand’s energy system and the need for public and private sectors to work together to ensure the best outcomes for the country, sector participants and interested parties, including ENA and the Energy Efficiency and Conservation Authority, Ministry of Business, Innovation and Employment (MBIE), Orion, Powerco, Top Energy, Unison, Vector, Wellington Electricity, Transpower, Manawa Energy, Nova Energy, Mercury, Meridian Energy, Contact Energy, ERANZ, Lodestone Energy, Independent Electricity Generators Association, Flick, Far North Solar Farm, Helios Energy, Firstgas and Hiringa Energy have initiated the Energy Sector and Government Decarbonisation Framework.

<sup>7</sup> <https://www.ena.org.nz/submissions/previously-published-ena-submissions/2023-submissions/document/1360>

The Framework represents a united sector view on the key priority topics critical to setting up New Zealand for a successful decarbonisation transition and is designed to be a joint government and private sector partnership to deliver this whole-of-sector change covering generation, transmission, distribution, and retailing. We would welcome the opportunity to brief you more fully on this initiative and seek government commitment to work with the private sector to deliver the country’s net carbon zero emissions goal.

### 3.4 Wholesale electricity market issues and effects

As the graph below shows, futures of wholesale electricity prices have been elevated and highly volatile over the past five years with prices today close to twice what they were in 2017. A key concern is the disconnect between wholesale price futures and the long run marginal cost (LRMC) of generation. This disconnect indicates a failure of the market to function effectively. If it was working properly the futures prices above LRMC of generation would spur a material increase in generation investment which in turn would lead to a decline in wholesale prices.

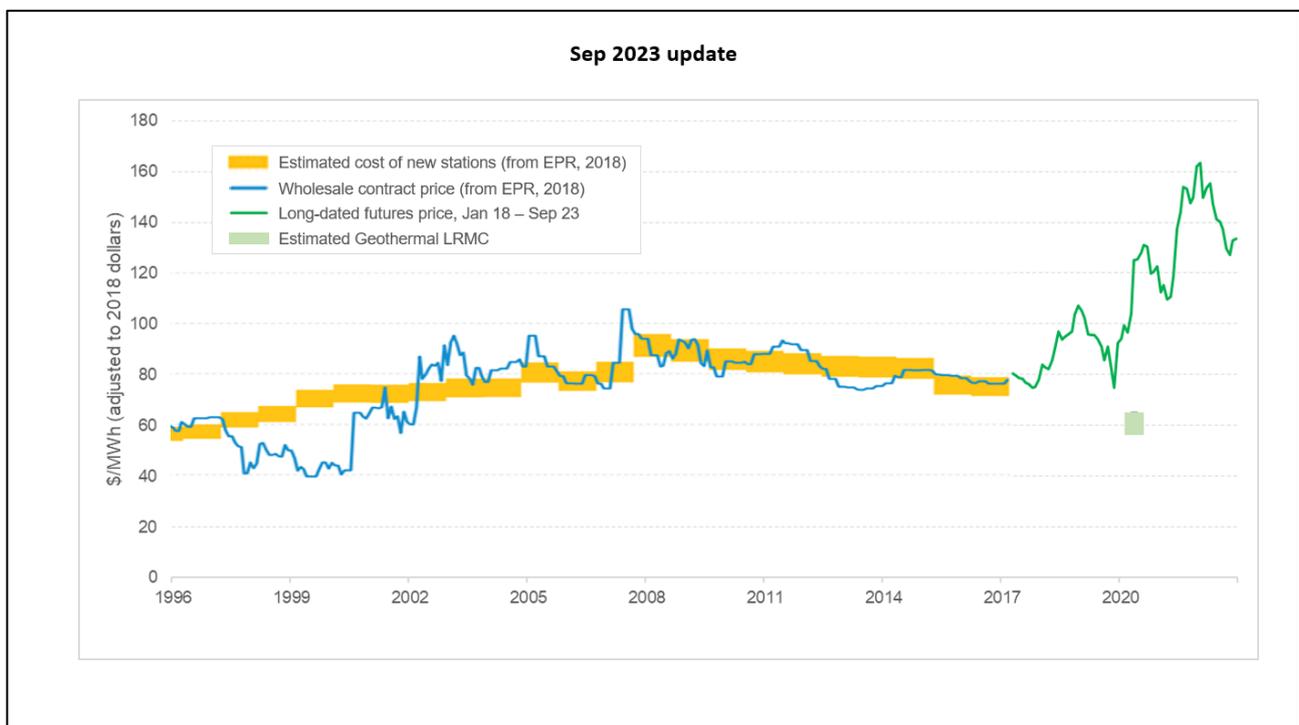


Figure 2 - Electricity price futures versus generation LRMC

The consequences of the market failing to deliver additional generation capacity has manifested itself in elevated risk of generation shortfalls at peak times and unduly high prices to industrial, commercial, and residential consumers at time when general inflation is at the highest level for a generation.

There is no single cause of the failings of the wholesale market and historical under investment in new generation capacity. Nor is there a single solution, only a cohesive approach encompassing market, regulatory and consenting reform can address this market failure and prevent elevated and volatile wholesale prices acting as a handbrake on decarbonisation, electrification, and growth of the New Zealand economy.

### 3.5 Workforce Capability and Capacity

*“The electrical supply industry needs to recruit two people every day for the next five years.”*

*(source: Re-Energise)*

*“One of the biggest challenges is going to be skills...the work is going to be queueing up on the skillsets that are needed. So we’d better double down on training our own and we’d better figure out where we are going to get the skills from to get it done...or we’ll have the strategy, we’ll have the finance, we’ll have the vision, but we will fall woefully short on execution.”*

*(source: Dr Rod Carr, NZ Infrastructure Commission – Symposium 2021)*

Labour shortages are an issue for all sectors, according to Seek<sup>8</sup> job listing numbers hit record levels for the third consecutive month, while applications per job ad fell by 4% month-on-month.

There’s no ‘silver bullet’ for this, however we seek support from government to ensure training and learning institutions are developing people with the skills to plan, build, operate and maintain the electricity networks we need and that immigration settings also support the required talent pipeline. Without this, our decarbonisation efforts will be futile, as we simply won’t have the people we need to get the job done.

Distribution companies are doing what they can to attract and retain talent, and ENA commissioned Allen + Clarke to undertake the scale of the challenge and possible solutions. This report has found that based on current numbers, the sector will need to find an additional 1,100 new employees each year, just to deliver current levels of demand. This means finding another Northpower size group each year and is before increased demand and capacity growth are factored in which, depending on forecasts used, could see the annual number required double by the end of this decade.

### **3.6 Climate change adaptation/electrification/decarbonisation**

EEDs are up for the challenge of supporting and enabling the decarbonisation and electrification of the New Zealand economy and are well aware of the expectations being placed on the electricity system to enable this. We can foresee some challenges associated with this, such as the need to connect new demand at pace and scale, but we’re working now to develop the tools and techniques that will make this transition as effect and cost-efficient as it can be.

Closely associated with the general move to electrification is the need to adapt EED networks and businesses to accommodate and adapt to the impacts of a changing climate. Here again the distribution sector is working closely with its peers, relevant experts and lead government agencies to implement a coherent and effective response to climate change adaptation. ENA was pleased to see the government signal a clear direction of travel for critical infrastructure sectors through the first National Adaptation Plan. This kind of clear strategic direction is welcomed by the sector, as well as the provision of credible, expert assessment of national-scale effects, such as that the government has commissioned from NIWA.

### **3.7 Resilience and potentially increasing outages due to severe weather**

The electricity distribution sector has long experience of dealing with occasional wide-scale interruptions to their networks and service, usually caused by severe weather events. As such, the sector has a good grasp of the criticality of their services to individuals, communities and businesses and designs their assets and procedures to ensure that service can be restored in a safe timely fashion following such events. The recent experience of Cyclone Gabrielle was an extreme example of these sorts of disruptions, and the sector has taken the opportunity to learn the lessons from our response. ENA commissioned Energia to produce an independent ‘lessons learned’ report for the sector<sup>9</sup>, and this has also been shared with the government’s Cyclone Recovery Taskforce<sup>10</sup> and officials at MBIE. Some of the key insights from that report, such as the impacts of vegetation, are referenced in the relevant sections of this briefing.

<sup>8</sup> <https://www.stuff.co.nz/manawatu-standard/news/300613241/tight-labour-market-means-a-struggle-to-find-staff>

<sup>9</sup> <http://ena.org.nz/resources/electricity-distribution-sector-cyclone-gabrielle-review/>

<sup>10</sup> [Cyclone Recovery Unit | Department of the Prime Minister and Cabinet \(DPMC\)](#)

Nevertheless, with the increasing concentration of energy consumption towards electricity (e.g., electric vehicles, home heating, etc) consumers' reliance on their electricity supply can only increase. In parallel, the sector is anticipating an increase in the severity and frequency of extreme weather events. The sector is also aware of the increased interest in resiliency of critical infrastructure services by both consumers and government and is working to provide increased confidence in its resilience.

On behalf of the sector, ENA contributes to government consultations and legislative processes related to the development of New Zealand's emergency preparedness and resilience more generally. This includes the recent Department of Prime Minister and Cabinet's Critical Infrastructure Phase 1 Consultation<sup>11</sup> and Governance and Administration Select Committee's inquiry on the Emergency Management Bill<sup>12</sup>.

## 4 Live sector issues and potential 'pain points'

### 4.1 Just transition – how are the costs of network transformation equitably shared across society?

An independent report ENA last year commissioned<sup>13</sup> from economic consultancy Sapere confirmed that households using purely electric appliances combined with an EV will soon begin to comparatively reduce their total energy spend.

The study found that even when allowing for the up-front cost of an EV purchase alongside transitioning from the use of gas appliances, comparative savings could begin by as early as 2025. By 2040 the expectation is those comparative savings would be over \$2000 a year.

However, there is a significant equity issue in play. As things stand, wealthier households will be the first to benefit from energy savings as they can afford to buy EVs, which is where the major cost savings are found. Whereas, the upfront costs will be a barrier for a lot of New Zealanders – particularly until EVs drop in price and the second-hand market deepens.

While renewable forms of electricity like wind and solar are relatively cheap to generate, there is a cost to both build this new generation and transport it to the places its needed, when its needed. This will in theory make our electricity more expensive, not less. However, if we don't electrify Aotearoa will not meet its net-zero emission aspirations. To navigate this, we need the government and regulator to focus on the affordability challenge as it is not something the electricity distribution sector can influence in any form.

One approach being explored by EDBs is to engage a third party, government-backed funder to provide investment capital for de-carbonisation-driven network infrastructure upgrades. In this way, the electricity consumers on the network will not bear the increased costs of this investment which is serving a wider societal good. This could be analogous to the approach taken by government to finance the rapid and widespread deployment of fibre connectivity in New Zealand. We welcome the opportunity to discuss the framework we are developing on this further.

### 4.2 Repeal of Low user fixed charge regulations – stay the course!

The introduction of the Low Fixed Charge regulations (regulations) in 2004 was well intended and had the admirable goals of encouraging households to use less electricity and to keep the fixed component of bills low for households on lower incomes.

Unfortunately, the low fixed charge regulations did not have the desired effects and ultimately disadvantaged the households that can least afford it.

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<sup>11</sup> [Critical Infrastructure Phase 1 Consultation - Department of the Prime Minister and Cabinet - Citizen Space \(dPMC.govt.nz\)](https://www.dPMC.govt.nz/critical-infrastructure-phase-1-consultation)

<sup>12</sup> [Emergency Management Bill \(bills.parliament.nz\)](https://bills.parliament.nz/bills/emergency-management-bill)

<sup>13</sup> <https://www.ena.org.nz/resources/electrification-of-nzs-energy-needs/document/1231>

Many low-income households live in uninsulated homes and don't have access to energy-efficient appliances or technologies and are larger users as a result. Inversely, the regulations favour wealthier consumers as they can afford the capital investment in solar, efficient lights, insulation and the like. This meant the regulations resulted in the cost-shifting from wealthy consumers to less-well-off consumers.

An amendment made to the regulations in 2021 will see them phased out by 2027. The phase-out was recommended by the 2019 Electricity Price Review and is widely supported by the electricity sector including EDBs. It will remove the disincentives for the use of electricity to keep households warm and healthy, encourage the uptake of low-emission transport and remove the implicit cross-subsidies between low-income and wealthy households.

ENA and the Electricity Retailers Association are supporting households adversely impacted by the phaseout by offering a \$110 power credit to households in energy hardships during each year of the transition.

ENA believes the phase-out of the Low Fixed Charge Regulations will directly benefit New Zealanders regardless of their wealth. It will encourage decarbonisation, innovation and warmer, healthier homes.

### **4.3 Network connections/capacity requests outpacing sector ability to service**

The distribution sector (and electricity system more generally) is facing a significant challenge that will persist throughout the period of the transition from fossil fuels to electricity and other sources of renewable energy. This is the demand from new connecting parties – e.g. process heat users, electric vehicle charging point operators, new urban developments, etc – for access to the electricity distribution network and increased, sometime significantly, capacity of electrical connections. ENA and its members are beginning to see a step-change in the volume of electrical connection inquiries, and demand for significantly greater capacity connections than have typically been the norm.

EDBs are doing what they can to address these challenges by investing in new tools, techniques and greater human resources (e.g. planning engineers, etc) to service this increase in connection activity. Nevertheless, the scale of increase is such that not all these connections will be able to be enabled in the timeframes and at a cost that some stakeholders would prefer. The distribution sector is working collectively through ENA to explore and implement changes to connection processes that will ease the barriers connecting parties are facing, but the scale of change is such that there may still be some dissatisfaction amongst these key stakeholders.

### **4.4 Temporary traffic management (TTM) costs**

In common with many other utilities, EDBs carry out a significant volume of activity in the road corridor, as this is where many of their assets are located. Recent changes to the way in which TTM to enable these works is carried out has driven the costs of this element of EDB work much higher, in some cases increases of 30%. In many instances the costs of TTM will be a very significant component (sometimes as high as 24%) of the overall works cost of a network upgrade project.

The changes are increasing costs to EDBs in two ways. Firstly, the responsibility for approving temporary traffic management plans has moved from Road Controlling Authorities (RCAs) such as Councils to EDB contractors and this requires new systems and commercial arrangements to manage the expanded responsibility. Secondly, the disestablishment of a code of practice requires TTM controls to be developed from first principles. This increases the cost and skill level required for traffic management plans and this has a negative effect on the supplier market for these services, which is especially pronounced in the regions.



Figure 3 - Simple TTM set up for a quiet rural road

The above photo shows the simplest permitted TTM for a quiet gravel road. The cost of this work is around \$1000. For a simple job this TTM will cost more than the actual network job itself. If the work requires the truck doing the work to be parked in any way on the road then the cost increases to be between \$1500 and \$3000 as Waka Kotahi TTM rules will require more cones and people.

The sector would therefore welcome a review of Waka Kotahi's approach to setting guidance and standards for TTM, to ensure that the extent (and therefore cost) of TTM is commensurate with the risk posed by EDB activities. Ultimately these additional costs are passed through to network connectees and existing network customers, increasing the costs of electrification and decarbonisation for all.

## 5 Long-standing sector issues (aka 'old chestnuts')

- Vegetation hazards to electricity lines, and the ineffective management of this via the Electricity (Hazards from Trees) Regulations 2003.
- The need to establish an affordable, sustainable and effective regime for access to smart metering data for use by EDBs to manage their networks, for the benefit of electricity consumers.
- The legacy of consumer owned electricity service lines, that are not being monitored or maintained by their owners, which will increasingly start to fail as they age.
- The desire to review the suitability of the existing settings for low voltage thresholds in New Zealand, as prescribed by the Electricity (Safety) Regulations.

## 6 New and emerging issues

There are few new and emerging issues facing the sector that you and your officials may wish to be aware of. These are (in no particular order):

- a. RMA reform.
- b. Managed retreat/continuity of service obligations.
- c. DER integration/management.
- d. Consumer Data Right.

## 7 Appendix A - ENA Members

Electricity Networks Aotearoa is comprised of the following members, listed below.

Alpine Energy  
Aurora Energy  
Buller Electricity  
Centralines  
Counties Energy  
Electra  
EA Networks  
Firstlight Network  
Horizon Energy Distribution  
Mainpower NZ  
Marlborough Lines  
Nelson Electricity  
Network Tasman  
Network Waitaki  
Northpower  
Orion New Zealand  
Powerco  
PowerNet  
Scanpower  
The Lines Company  
Top Energy  
Unison Networks  
Vector  
Waipa Networks  
WEL Networks  
Wellington Electricity Lines  
Westpower

## 8 Appendix B – ENA Board and Management

### 8.1 ENA Board

The ENA Board are nominated at the annual AGM and are appointed for a two-year term. The current ENA Board is:

#### **Nigel Barbour, Chair**

Nigel leads the Orion Group which comprises Orion's central Canterbury electricity distribution business and its wholly owned subsidiary, Connetics. Prior to joining Orion Group, Nigel was Chief Executive of Powerco, New Zealand's second largest electricity distribution business, based in New Plymouth.

#### **Russell Shaw, Deputy chair**

Russell is the chief executive of Top Energy based in Kerikeri in the Far North. As an electrical engineer with over 25 years' experience in the utility sector, Russell has significant experience in strategy, management, risk and operations with extensive knowledge of asset management, performance improvement and engineering.

#### **Jason Franklin, Board member**

Jason is chief executive of PowerNet, the distribution network delivering power to Invercargill City, Southland, West Otago, parts of Central Otago and Stewart Island. Previously he has worked for Rio Tinto (both internationally and at the Tiwai Point aluminium smelter) and ECNZ. He has been on the executive committee of the Major Electricity Users Group and the Wholesale Advisory Group for the Electricity Authority.

#### **James Kilty, Board member**

James joined Powerco in 2021, bringing over 20 years' experience in the energy industry to the team. He was previously the deputy chief executive at Contact Energy. Having redefined Powerco's purpose – to connect communities – James is leading the business to create a sustainable energy future for Aotearoa New Zealand.

#### **Sean Horgan, Board member**

Sean joined Waipa Networks as CEO in July 2022. He has over 20 years' successful business development, strategic management and operational leadership experience within the energy sectors of Asia, the United Kingdom, Australia and New Zealand, and has worked for entities such as The Lines Company, Northpower, Alstom, Meridian Energy and Mighty River Power.

#### **Mark Toner, Board member**

Vector's chief public policy and regulatory officer, Mark has over 25 years' experience across a range of sectors including energy, telecommunications, aviation and technology. He has consistently navigated market, regulatory and policy changes across industries in disruption, and is responsible for leading the Group's regulatory, public policy, decarbonisation and data insights functions.

## 8.2 ENA Management

The ENA Team entails:

### **Tracey Kai, Chief Executive**

tracey@electricity.org.nz

021 499 681

Tracey Kai joined the ENA in July 2023, and was previously the general manager of operations at Te Waihanga, New Zealand Infrastructure Commission. Prior to this, she was New Zealand Rugby's communications general manager and has held senior brand, marketing and communications roles with The Co-operative Bank, Wellington City Council and Meridian Energy.

### **Richard Le Gros, Policy and innovation manager**

Richard Le Gros joined ENA following eight years with the Energy Networks Association in the United Kingdom. In Britain he gained policy expertise in the areas of health and safety, emergency planning, regulation, climate change – as well as the government's smart meter roll-out programme. In New Zealand, Richard is responsible for policy related to emerging technologies and changing consumer trends.

### **Keith Hutchinson, Regulatory manager**

Keith Hutchinson is responsible for co-ordinating the regulatory aspects of ENA's work. His background is in the development and implementation of regulatory and pricing frameworks for utilities and regulators across New Zealand, Australia, and Papua New Guinea.

### **Lisa Coles, Office and events manager**

Lisa Coles manages the office, as well as ENA's forum, conferences and meetings. She is the all-important face of our Wellington office and the central point of contact for our members and the public. Lisa's career background includes IT support, troubleshooting, management and several years of office administration across all industry sectors.

### **Iain MacIntyre, Communications and stakeholder engagement manager**

Joining the association in February 2023, Iain MacIntyre manages ENA's communications and engagement activities. During a lengthy career in the wider communications industry, he has amassed considerable experience as a journalist, public relations consultant, sub-editor and graphic designer.

### **Sophie Tulley, Policy and innovation advisor**

Sophie joined ENA in October 2023 following study at the University of Otago and work in local government.