

ENA submission to discussion document *Testing our thinking: Developing an enduring National Infrastructure Plan*

Submission to the Infrastructure Commission/Te Waihanga

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1 Introduction

Electricity Networks Aotearoa (ENA) appreciates the opportunity to make a submission to the *Testing our thinking: Developing an enduring National Infrastructure Plan* discussion document. ENA represents the 29 electricity distribution businesses (EDBs) in New Zealand (see Appendix A) which provide local and regional electricity networks. EDBs employ 10,000 people, deliver energy to more than two million homes and business and have spent or invested \$8 billion in the last five years.

ENA has answered the questions of most relevance to the electricity distribution sector (and therefore ENA's members).

1.1 Executive summary

New Zealand homes, businesses and communities have a critical reliance on a safe, secure and affordable supply of electricity for their health and wellbeing. In addition to directly powering communities, electricity is also critical to the operation of many other essential services (e.g. reticulated water supplies, mobile and fixed telecommunications infrastructure, etc). ENA considers that the Infrastructure Commission/Te Waihanga (the Commissions) work on a National Infrastructure Plan is timely, given the imperative to electrify our economy to meet climate change goals, which will require a significant degree of collaboration between infrastructure providers.

2 Section one: Why we need a National Infrastructure Plan

2.1 Q1. What are the most critical infrastructure challenges that the National Infrastructure Plan needs to address over the next 30 years?

We agree with many of the issues that Infrastructure Commission/Te Waihanga have identified in their discussion document. The energy trilemma, balancing the outcomes of affordability, reliability and security in the transition, is a useful way to frame how many of these challenges relate to the energy sector. The National Infrastructure Plan could use the energy trilemma for assessing success and identifying gaps in energy infrastructure.

2.1.1 Workforce

The Boston Consulting Group's Report *The Future is Electric* forecasts that distribution networks will need to invest around \$22 billion per decade to 2050.¹ Electricity Distribution Businesses (EDBs) are already working to facilitate the achievement of New Zealand's low-emissions goals, but to do this successfully our distribution networks must have a workforce to build and operate the networks. The National Infrastructure Plan needs to advocate for growth and diversity in our workforce, otherwise a lack of skilled workers will be a hurdle to electrification.

¹ Boston Consulting Group, *Climate Change in New Zealand*, 2022. Available at: <https://www.bcg.com/publications/2022/climate-change-in-new-zealand>.

It has been estimated that to both grow the sector, and to replace workers who leave, it could require the electricity supply sector to attract 150 engineers, technicians and tradespeople a year. Broadening this to include contractors and consultants in these roles, it's estimated that around 700 engineers, technicians and tradespeople a year are needed.²

When we look at the entire electricity sector (not only the technical roles), women make up a greater proportion of the workforce. However, progress has been slow as the proportion of women hired in New Zealand's electricity sector has not changed significantly in two decades – at 40% in 2000 and 42% in 2018.³ There is also work that needs to be done to better measure and grow ethnic diversity in the sector at all levels.

The proposed Government changes to the Vocational and Education System⁴ are also creating uncertainty and instability in growing the needed workforce, and even once decisions have been made, implementation will slow progress.

2.1.2 Extreme Weather event coordination

The electricity distribution sector has a lot of experience in dealing with occasional wide-scale interruptions to their networks and service, usually caused by severe weather events. The sector has a good grasp of the criticality of its services to individuals, communities and businesses and designs its assets and procedures to ensure that service can be restored in a safe timely fashion following such events. 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.

EDBs put significant effort into working with other lifeline utilities operating in their regions to ensure a coordinated response to extreme weather events. The National Infrastructure Plan should consider the role of the Civil Defence Lifelines Groups which many EDBs are a part of. If an objective of the National Infrastructure Plan is to improve information sharing between lifeline utilities, using existing mechanisms such as these groups would be a good starting point. ENA was pleased to see the Government signal a clear direction of travel for critical infrastructure sectors through the 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, like the government has commissioned from NIWA.

2.2 How can te ao Māori perspectives and principles be used to strengthen the National Infrastructure Plan's approach to long-term infrastructure planning?

ENA supports placing customers and communities at the centre of the Plan so that the approach aligns with a te ao Māori perspective.

² Electricity Supply Industry Training Organisation, *Re-energise: ESI Workforce Development Strategy Report*, February 2022. Available at: [Re-energise-ESI-Workforce-Development-Strategy-Report_FEB2022.pdf](https://www.esi.org.nz/re-energise-ESI-Workforce-Development-Strategy-Report_FEB2022.pdf).

³ Julie MacArthur and Cathrine Dyer, *Policy Quarterly*, 2022. Available at: <https://ojs.victoria.ac.nz/pq/article/download/7130/6286/10014>.

⁴ <https://www.tec.govt.nz/vocational-education/vocational-education/consultation-on-proposed-changes-to-the-vocational-education-and-training-vet-system>

3 Section two: Long-term expectations

3.1 What are the main sources of uncertainty in infrastructure planning, and how could they be addressed when considering new capital investments?

3.1.1 Regulation

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 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.⁵

The operations of EDBs are highly regulated by both the Electricity Authority and the Commerce Commission. Non-exempt EDBs in New Zealand are electricity distribution businesses regulated by the Commerce Commission, which includes determining how much these 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 electrification is highly uncertain, in addition to ensuring our critical infrastructure is resilient.

Regulation must keep pace with New Zealand's transition to a low-carbon, electrified New Zealand. ENA is encouraged by the recently announced review of the Commerce Act 1986, and we look forward to participating in the consultation process in early 2025.

4 Section three: Existing investment intentions

4.1 How can the National Infrastructure Pipeline be used to better support infrastructure planning and delivery across New Zealand?

The National Infrastructure Pipeline could better support infrastructure planning and delivery across New Zealand by improving the visibility of planned investments and the potential electricity load associated with them. Many EDBs already have a range of projects included in the Pipeline, helping to signal future demand and priorities to stakeholders. One opportunity for improvement is to present the pipeline data in geographic form, making it easier to identify opportunities for coordination across infrastructure sectors. Additionally, submitted projects could specify potentially related or impacted infrastructure sectors alongside their primary sector. These changes would enhance

⁵ Boston Consulting Group, *Climate Change in New Zealand*, 2022. Available at: <https://www.bcg.com/publications/2022/climate-change-in-new-zealand>.

transparency for projects affecting multiple sectors, fostering better coordination, reducing duplication, and maximising benefits for communities. For the Pipeline to achieve these outcomes, it any additional features need to be easily accessible and user-friendly. A well-designed interface that allows users to navigate, filter, and analyse data efficiently would ensure that the information in the Pipeline is well utilised.

5 Section four: Changing the approach

5.1 Are we focusing on the right problems, and are there others we should consider?

ENA is not confident that the identified challenges adequately prioritise a customer-centric approach to planning, foster opportunities for market-driven innovation to address customer needs, or fully recognise the critical role customers play in driving improved outcomes and shaping more effective solutions. We encourage greater emphasis on the customer and communities as the approach to the National Infrastructure Plan develops.

6 Theme one: Capability to plan and build

6.1 What changes would enable better infrastructure investment decisions by central and local government?

ENA has no comment to make.

6.2 How should we think about balancing competing investment needs when there is not enough money to build everything?

ENA has no comment to make.

6.3 How can we improve leadership in public infrastructure projects to make sure they're well planned and delivered? What's stopping us from doing this?

ENA has no comment to make.

6.4 How can we build a more capable and diverse infrastructure workforce that draws on all of New Zealand's talent?

There's no 'silver bullet' for this. However, we seek support from the 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.

6.5 What approaches could be used to get better value from our infrastructure dollar? What's stopping us from doing this?

To get better value from our infrastructure dollar, one key area to address is the burdensome consenting processes that currently delay infrastructure projects and increase costs. Streamlining these processes would improve efficiency and reduce administrative burdens, enabling faster delivery of critical infrastructure projects. For example, EDBs are required to trim trees to comply with the Electricity (Hazards from Trees) Regulations 2003, but if those trees are protected under the National Policy Statement for Indigenous Biodiversity (NPS-IB), the EDB must still obtain resource consent. This process can involve significant delays and impose onerous conditions, despite the necessity of the work being universally acknowledged. This seems like a poor use of electricity consumers' money.

EDBs frequently undertake upgrades or maintenance of their infrastructure (e.g., poles and wires) that are sited in the road corridor. EDBs have observed that the cost of the temporary traffic management (TTM) required by road controlling authorities when carrying out these works has become significant and, in our view, unreasonable and not proportionate to the risks present on site. ENA has recently commissioned an analysis of the actual cost to EDBs of carrying out works in the road corridor over the past five years. Early indications from this analysis show that the costs for TTM have specifically increased out of step with inflation and other metrics. ENA would be happy to share the outcomes of this study with you in due course.

The New Zealand Transport Agency (NZTA) Code of Practice for Temporary Traffic Management (CoPTTM) has among other things, led to excessive TTM measures, relative to the risks being mitigated in the road corridor. NZTA is now implementing a risk-based approach to TTM, shifting attention to better manage and mitigate risks as they exist at specific road work sites, rather than applying blanket prescriptive rules. ENA is optimistic that this change will alleviate the excessive cost of TTM implementation (if not immediately, then in the long term), and ultimately lead to getting better value from infrastructure dollar.

The ENA is actively working with the Ministry of Business, Innovation and Employment and the Ministry for the Environment on national direction and standards for the electricity distribution sector. The aim is that the network is developed, operated, maintained, upgraded and protected in a manner that is timely and efficient while recognising its significance at a national and local level. ENA hopes this work will, among other outcomes, streamline consenting processes and ensure that core activities for existing infrastructure are permitted. This will help deliver better value for money invested in distribution infrastructure.

7 Theme two: Taking care of what we've got

7.1 What strategies would encourage a better long-term view of asset management and how could asset management planning be improved? What's stopping us from doing this?

ENA's members' already take a long-term view of asset management. EDB assets, such as transformers, have long lifespans which also necessitates a long-term forecast of asset management. As shown throughout the discussion document, Commerce Act 1986 regulation helps with better asset management planning.⁶ While only some (non-exempt) EDBs are subject to price-quality regulation under Part 4 of the Commerce Act, all EDBs are subject to information disclosure requirements under Part 4. This means they must publish Asset Management Plans (AMPs) and provide detailed information about their operations, expenditure and performance. These requirements provide transparency about the performance of EDB assets for the public and regulators. It's important to note that EDBs' future plans are largely driven by the needs of consumers—they don't build networks just for the sake of it. Predicting future electricity demand is a complex task, particularly when considering regional or local variations. To improve their understanding of future needs, EDBs are working both locally, with authorities and regional stakeholders, and nationally, collaborating with organisations like Transpower and the Energy Efficiency and Conservation Authority (EECA), to enhance their insights.

7.2 How can we improve the way we understand and manage risks to infrastructure? What's stopping us from doing this?

ENA understands the desire to improve infrastructure resilience to the wide range of risks, particularly as extreme weather events are becoming more frequent and severe. EDBs are utilising major event hazard information and climate change impact forecasts to assess the risk of network asset damage and a loss of supply. Obtaining a comprehensive set of hazard information is difficult and/or costly and the Infrastructure Commission may like to consider whether an 'open source' arrangement to hazard and climate change information would better serve the resiliency needs of our communities.

The electricity distribution sector is continuously reviewing and amending standards to improve the resilience of its infrastructure to give the best possible service to its customers while balancing the need to maintain affordability. This ongoing process of review and revision of standards, given the long-lived and expensive nature of the infrastructure managed and the geographical spread, can only occur over time, rather than 'all at once'. The distribution sector is already regulated by the Commerce Commission to ensure that an appropriate balance is struck between service (including resilience) and cost to customers – the price-quality trade-off. Adding additional targets to the sector can be unnecessary and potentially counterproductive, if these conflict with or confuse the well-

⁶ New Zealand Infrastructure Commission (2024). Testing our thinking. Developing an enduring National Infrastructure Plan. Wellington: New Zealand Infrastructure Commission/Te Waihangā.

established price-quality targets set by the Commerce Commission. There are already significant incentives on EDBs to ensure an appropriate level of resilient infrastructure, not least of which is to maintain their social licence to operate.

Electricity consumption data and power quality data, alongside other smart meter data, are important tools for EDBs to understand and manage risks to their infrastructure. Many EDBs have limited access to smart meter data via electricity retailers through their Default Distributor Agreements as set out in the Electricity Industry Participation Code 2010. Access to customer and consumption data under the DDA is vital to EDBs for business-as-usual purposes and for managing risk in planning of flexibility services, asset replacement and renewal, and system growth. Some EDBs have also struck commercial agreements with metering equipment providers (MEPs) for more comprehensive and ongoing access to smart meter data for network management purposes. However, this comes at significant expense to EDBs.

ENA firmly believes that improved access to smart meter data, without compromising existing commercial arrangements, will advance EDB risk management alongside providing other benefits to New Zealanders.

7.3 How can we lower carbon emissions from providing and using infrastructure? What's stopping us from doing this?

The absence of sustainability in the statutory objectives of both the Commerce Commission and the Electricity Authority is a significant shortcoming. Addressing the challenges posed by climate change and decarbonisation in New Zealand will inevitably come with costs. Regulators must make decisions that carefully balance these costs against the three pillars of the energy trilemma—affordability, reliability, and sustainability. Ignoring this balance is not an option.

Amending the Commerce Act to explicitly require the Commerce Commission to consider climate change in its decisions would help address this gap. Such an amendment would ensure the regulatory regime evolves to better support decarbonisation efforts while aligning with societal expectations for climate action. This approach would also enable regulators to make decisions that promote efficiency, affordability, and sustainability in tandem.

Another important consideration is improving demand management and ensuring open access to data to optimise the use of infrastructure. For instance, energy distributors currently lack open access to energy consumption data which would enable distributors to better understand usage patterns, identify opportunities for efficiency, and support customers in making informed energy decisions, ultimately enhancing the performance and sustainability of the energy system.

8 Theme three: Getting the settings right

8.1 Are any changes needed to our infrastructure institutions and systems and, if so, what would make the biggest difference?

ENA has no comment to make.

8.2 How can best practice network pricing be used to provide better infrastructure outcomes?

Retailers have primary responsibility for setting end-pricing for consumers, but it's important to note that this pricing is already reasonably cost-reflective. Almost all EDBs currently offer 'peak' and 'off-peak' tariffs, which help incentivise more efficient electricity use and align pricing with the costs of providing electricity at different times of the day. As the Low Fixed Charge Tariff regulations are phased out entirely, this will create even more opportunities for both EDBs and retailers to develop and offer more innovative and cost-reflective tariffs. These tariff structures can better signal the true costs of electricity supply, encouraging consumers to make more informed decisions and contributing to more efficient infrastructure outcomes in the long term.

8.3 What regulatory settings need to change to enable better infrastructure outcomes?

As mentioned earlier in our submission, enabling better infrastructure outcomes requires regulatory settings that prioritise flexibility to keep pace with technological advancements. ENA recommends principles-based regulation that allows for this flexibility as we transition to an efficient solution that is in the best interests of consumers. Regulation based on hard rules can create unintended consequences that limit EDBs ability to deliver the best outcomes for consumers. Legislation should encourage the integration of new technologies like distributed energy resources, battery storage, and demand-side management, enabling EDBs to optimise infrastructure rather than defaulting to costly new builds. By supporting non-network solutions and reducing reliance on prescriptive rules, the government can help EDBs deliver efficient, sustainable outcomes that meet evolving consumer and environmental needs. ENA has been encouraged by the Commerce Commission's recent announced Innovation and Non-Traditional Solutions Allowance (INTSA). This provides a new funding mechanism for non-exempt EDBs to explore and implement innovative projects. This allowance is designed to support non-network solutions such as demand-side management, flexibility services, and other technologies that could minimise the need for traditional infrastructure investment, thereby reducing long-term costs for consumers.

9 Section five: What happens next?

9.1 Do you have any additional comments or suggestions that you would like us to consider as we develop the National Infrastructure Plan?

ENA has no comment to make.

10 Appendix A

Electricity Networks Aotearoa makes this submission along with the support of its members, listed below.

- Alpine Energy
- Aurora Energy
- Buller Electricity
- Centralines
- Counties Energy
- Firstlight Network
- Electra
- EA Networks
- Horizon Networks
- Mainpower
- Marlborough Lines
- Nelson Electricity
- Network Tasman
- Network Waitaki
- Northpower
- Orion New Zealand
- Powerco
- PowerNet (which manages The Power Company, Electricity Invercargill, OtagoNet and Lakeland Network)
- Scanpower
- Top Energy
- The Lines Company
- Unison Networks
- Vector
- Waipa Networks
- WEL Networks
- Wellington Electricity
- Westpower