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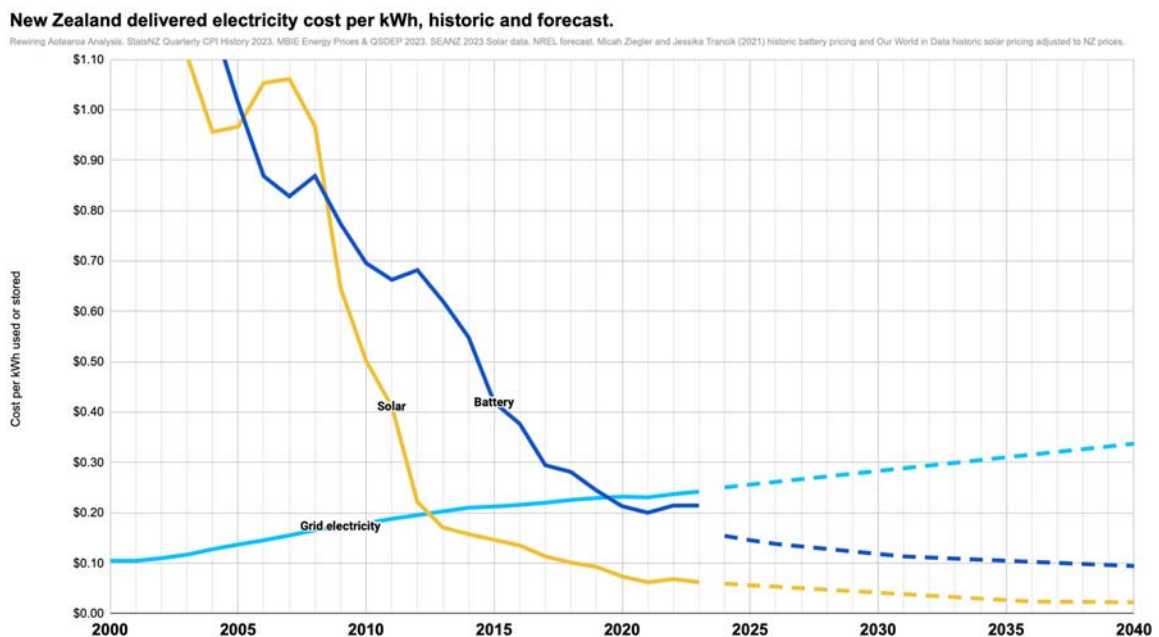
To Commerce Commission

Submission: Default Price Path 2025-2030 (DDP4) cross-submission from Rewiring Aotearoa New Zealand.

Rewiring Aotearoa is a non-partisan organisation with charitable status that believes electrification has major economic and environmental benefits. Our mission is to rapidly reduce New Zealand’s emissions, improve affordability, and increase our resilience by electrifying the millions of small fossil fuel machines in our homes, communities, small businesses and on our farms.

A core characteristic of the future electricity system, one that strikes the best tradeoff between affordability, resilience and decarbonisation, is that households and businesses become part of the system infrastructure. The inevitable uptake of consumer or customer energy resources (CER) - i.e flexible demand, distributed rooftop solar and batteries, as illustrated in Figure 1 – will mean that households and businesses will provide reliable network and market services that perform similar functions to traditional electricity infrastructure (generation and networks).

Figure 1 - New Zealand delivered electricity cost per kWh, historic and forecast. Source: Rewiring Aotearoa.



In this future, consumer infrastructure needs to compete on a level playing field with traditional infrastructure – if a \$10,000 battery on a consumer’s premises can provide the same service as a \$20,000 supply-side asset (a network or generation investment), the consumer’s asset should be selected for the service. However, today there is a systemic bias towards traditional infrastructure largely because it is seen as significantly more

‘dependable’. There are a variety of historical reasons for this.¹ Our primary context to this submission is that many of the assumptions and rationale for this bias are quickly falling away, and DPP4 provides a significant opportunity for the Commerce Commission (the Commission) to reset the assumptions and correct some of this bias.

We recognise that engaging the demand-side of the electricity system in the same or similar ways as the sector treats traditional infrastructure is challenging. It requires the sector to move on from aspirational, national-level estimates of the potential for demand-side involvement, to realistic assessments of what consumer resources exist, or will exist, on their individual networks, and how those resources can be engaged. The work of Electricity Networks Aotearoa’s Future Networks Forum is critical here, as is Rewiring Aotearoa’s own work as we develop what will be the most granular demand-side electrification model available in the country.²

In this context, we emphasise the Commission’s concerns regarding the potential for overly conservative capex forecasts in EDBs Asset Management Plans (AMPs)³, and – specifically – the potential for this to result in declining affordability for households and consumers.

We would describe the tradeoff as two plausible potential futures for NZ consumers:

Scenario 1: Traditional/orthodox demand forecasts, developed by EDBs and endorsed by the Commission, are based on a conservative prediction of the impacts of electrification on network demands. These forecasts also include very conservative assessments of the potential for solar, batteries and consumer flexibility, and thus trigger significant network investment commencing in DPP4.

Scenario 2: EDBs allow for a realistic potential for consumer energy resources and – correctly – see households and businesses as part of the system infrastructure, rather than a source of uncertain behaviours. EDBs understand the value streams, and pursue flexibility through tariffs and other contractual arrangements that correctly reflect the value of that CER.

The risk for New Zealand is not that the future potential of CER is *not* realised, but that it *is* realised, whilst at the same time network investment proceeds as per scenario 1 due to overly conservative forecasts. In that world, consumers will possess the resources that could have reduced the need for network investment, but are also saddled with the full cost burden of the scenario 1 network build. As FlexForum succinctly stated:

“The next DPP needs to encourage actual innovation and pre-emptive investment to avoid the credible and material risk that household and business experiences in the coming years will be typified by ‘my power bills are already going up, my reliability has

¹ A good summary of these issues is outlined in the Market Development Advisory Group’s (MDAG’s) [final recommendations paper](#), Appendix A, page 116.

² We would be happy to brief the Commission on this work that is forthcoming.

³ Paras 3.7 – 3.11. In this submission, where we only reference a paragraph, we are referring to the Commission’s consultation paper.

gotten worse, and now you want me to pay even more to reduce emissions, at the same time as telling me I cannot do my bit by purchasing PV and EV...’’⁴

This has consequences beyond DPP4, and thus quickly becomes an intergenerational issue. Our perception is that – at this point in time – scenario 1 is more likely, if for no reasons other than embedded bias and assumptions, historical inertia and the lack of strong incentives for the owners of traditional system infrastructure to innovate towards a level playing field between supply-side and consumer sources of infrastructure. We observe strong advocacy from the sector that network investment is approved earlier, and under greater needs-uncertainty than is currently the case, whilst appealing to the Commission for assistance in respect of bill shock, energy hardship and financial serviceability. We urge the Commission to be cautious here. We agree that bill shock, hardship and serviceability are critical matters for the Commission (and the sector) to consider. But this should not take any focus away on ensuring that network owners have seriously considered the role of CER in their investment risk-value tradeoffs.

That said, we recognise that a world where reliability and resilience deteriorates through underinvestment is also unpalatable. However, both scenarios 1 and 2 above have the potential to deliver a resilient and reliable service to consumers, but would have materially different affordability and just transition impacts for consumers. BCG and Concept Consulting⁵ have estimated that a “smart electricity system” – of the kind we anticipate in scenario 2 above – could save consumers \$10B⁶ between now and 2050.

The Commission states a belief that *“EDBs are well placed to understand the needs of their customers and communities, and to understand the health of their assets, the risks to delivering safe reliable electricity, and how to manage those risks.”*⁷ We generally agree, but are concerned that some EDBs⁸ (and the sector generally) may not have developed a sufficient understanding of the potential for CER to offset network investment, that would give them the confidence to adjust their network forecasts. We appreciate that relying on CER to defer or avoid investment appears risky for EDBs, especially at this stage of relative immaturity in New Zealand.

However, *not* relying on CER is risky for NZ consumers – potentially a \$10B risk, according to BCG – because, once commissioned, infrastructure investment is largely irreversible. As far as we are aware, the Part 4 regime does not provide for customers to be relieved of the cost burden of an asset that has been constructed, and is later found out to be unnecessary or constructed too early⁹. Again, the decisions made as part of DPP4 will have affordability

⁴ FlexForum submission to DPP4 Issues paper, page 6.

⁵ BCG “The Future is Electric”

⁶ System costs, net present value.

⁷ Para 3.14

⁸ We acknowledge that referring to all 29 EDBs generally is unfair to those businesses who are developing tariffs and pilots for flexibility.

⁹ In many ways, this scenario is likely to unfold in an unfortunate way where price signals that would reward consumers for deploying CER are unlikely to be present. In a sense, the country would “sleep-walk” its way into this scenario, not knowing that an alternative pathway could have been possible.

consequences for the regulatory control periods that follow – as a result, the Commission needs to consider this through an intergenerational lens.

Our observation is that the pace of adoption of CER (as non-network alternatives) will, in part, be a function of EDB risk aversion. For a number of EDBs, adopting CER will only occur when the tradeoff between value and risk is superior to traditional poles and wires. Today, when the use of CER as a non-network alternative is relatively nascent in New Zealand¹⁰, EDBs’ lack of operational experience with CER will inevitably lead to perceptions of higher risk of supply interruptions or unfavourable commercial outcomes. EDBs are risk averse (naturally, especially to outages). Further, EDBs willingness to pay for (or price through network tariffs) CER will be conservative, and ultimately driven by the incentives they face under the Part 4 regime.

We strongly believe that the Commission, through the DPP4 process¹¹, can positively influence the balance of risk and value that EDBs can achieve by partnering with consumers.

The opportunity to materially improve the Kiwi consumer’s world.

We see DPP4 as a potential turning point for the sector, if it were to provide the necessary incentives (and necessary risk management mechanisms) for all EDBs to commit to innovation as a core part of their asset management and investment planning. This commitment will lead to significant improvements in EDB capabilities by 2030.¹² These capabilities, combined with consumer investment in electrification, will see household and business energy bills significantly lower in 2030 than they are today. Energy hardship will be declining and – most importantly – consumers will have agency in respect of their energy bills.

The opportunity for the Commerce Commission to be a significant part of this transformation cannot be understated.

Specific comments on the Commission’s proposed approach

Many submitters, and the Commission itself, has acknowledged that many aspects of its historical approach to DPP reviews are inappropriate given the fundamental changes and uncertainty that the sector is facing. We do not repeat these arguments here other than to reinforce that investment in small-scale distributed generation (rooftop solar and batteries) is gathering pace¹³, and flexibility-based technology has advanced to the point where it can

¹⁰ The exception to this is ripple hot water control, although we note that for much of its 40-year history, the control mechanisms and tariffs for HWC have been owned by the EDB. The prospect for new contracting arrangements, tariffs and flexibility intermediaries results in lower degrees of control, revenue sharing and other contractual consequences which increase the perception of uncertainty and risk.

¹¹ And, as outlined below, reconsidering some of its decisions made as part of the IM review.

¹² See the six EDB capabilities outlined in FlexForum’s submission to the DPP Issues paper, page 4.

¹³ A recent report published by the Electricity Authority showed that small scale rooftop solar (residential and commercial) is expected to deliver 40% (1,000GWh) of national demand growth (2,500GWh) over the next 5 years. See [Concept Consulting \(2024\), Generation Investment Survey: 2023 update, Report for the Electricity Authority](#).

be deployed with little engagement required of the consumer, and little impact on the consumer's enjoyment of the services provided by energy-consuming devices.

As indicated in our characterisation of the two scenarios above, EDBs development of demand forecasts, and their translation into required investment (and thus consumer bills), is a core issue. This is not a blanket criticism of EDBs, but rather reflects the complexity of the task:

- a. There are a number of scenarios relating to the timing of when and how underlying demand and network-connected supply drivers will emerge (e.g., EV uptake, distributed solar and battery installation, distributed flexibility products).
- b. There are a range of scenarios about how these underlying drivers will lead to increases in instantaneous electricity demand on networks, at a network-wide level, let alone at particular parts of the network.
- c. Overlaying these scenarios is different potential characterisations of resilience¹⁴

Each factor is challenging to forecast, and the net impact on network investment (CAPEX and OPEX) requires the forecaster being alive to the degree to which any individual EDB will pursue the investments required to increase LV network visibility, and embrace flexibility and non-network alternatives. This includes any individual EDB's use of dynamic tariffs, direct flexibility procurement, investment in DERMS, collaboration with flexibility service providers (including retailers), and the development of distribution system operator functions.

Our core recommendation – the Commission undertakes a deeper dive on how EDBs have accounted for the potential of CER as a non-network alternative as part of its CAPEX review.

We agree with many submitters that the independent AMP report conducted by IAEng¹⁵ is a critical piece of work, and could help the Commission – and consumers – understand the reasonableness of the investment plans, and their underlying drivers, as laid out in the EDBs in their AMPs¹⁶. However, we are greatly concerned that the scope for IAEng¹⁷ made no reference to any analysis of the AMPs in respect of how each EDB plans to make use of innovative tariffs, pilots or specific contractual arrangements to realise the value of non-network alternatives¹⁸. Given the materiality of the risk that consumers do not enjoy the

¹⁴ We note Vector's comment about the uncertainty regarding what level of resilience expenditure is considered appropriate by EDBs, customers and/or Government.

¹⁵ Para 3.16 – a report on “the reasonableness of EDBs demand and expenditure forecasts for the 2025-2030 regulatory period as disclosed in their AMPs”.

¹⁶ We also agree with Vector that the Commission should take all reasonable efforts to make this report available to EDBs and the sector as soon as possible.

¹⁷ Commerce Commission, “External reviews of electricity distribution businesses’ 2023 asset management plan and of efficiency and productivity”, Attachment A, available at https://comcom.govt.nz/data/assets/pdf_file/0018/327222/Commerce-Commission-Stakeholder-update-on-reviews-of-EDB-2023-AMPs-and-efficiency-31-August-2023.pdf, Attachment A

¹⁸ The Commission itself notes that EDBs have “access to information on factors like...how to efficiently respond to this demand through conventional investment or through innovative or non-traditional

financial benefits of a greater use of CER as non-network alternatives, this is a worrying omission. Without a good understanding of where EDBs are in respect of non-network alternatives, we do not believe it is possible for the Commission to “*give confidence that the forecast expenditure underpinning EDB price increases represents good value for money*”.¹⁹

We are strongly of the view that the Commission, as part of its DPP4 CAPEX and OPEX review, must understand how EDBs are thinking about the use of CER as non-network alternatives. This must include how the EDB has considered the potential for tariffs that incentivise consumers to make choices that reduce network costs²⁰. The ability of network tariffs to drive changes in consumer behaviour that defers or eliminates network investment should be a core tool of EDB asset management. Indeed, the integration of pricing and investment is a fundamental of modern regulatory economics. Yet we are surprised and concerned that it receives very little attention under the Part 4 regime. This is even more concerning at a time where the Electricity Authority has reported that there “*appears to be little progress [amongst EDBs] in establishing price signals that reward flexibility and some regression with respect to controlled hot water*”²¹, let alone the fact that large numbers of households and businesses are – today - investing in new, advanced electricity-hungry devices (such as EVs and heating/cooling equipment) that have the potential to be smartly controlled, should the price signal exist. Further, to the best of our knowledge, very few EDBs offer export tariffs that reward injections from distributed batteries at times of peak network demand²², despite there being at least 4,000 distributed solar/battery installations in the country²³. We strongly support the recommendation of the Market Development Advisory Group that the Commerce Commission should consider the EDB’s performance in respect of deploying advanced tariffs into their wider assessment of the ‘reasonableness’ of CAPEX:

“MDAG Conclusion: The Authority and Commerce Commission to work together to do more to cause more wide-spread and sooner use of efficient pricing signals for flexibility on distribution networks. If possible, use (or enable use of) the Part 4 regime to that end. For example:

- *explicitly as part of its consideration of customised and individual price path applications;*
- *as a variant of the current incentives provided in the input methodologies (IMs) to encourage innovation, energy efficiency, demand-side management, and reduction of losses; and/or*

approaches” (see para E23.2), yet it appears that “innovative and non-traditional approaches” was excluded from the IAEng review, whereas the other matters in E23 were included.

¹⁹ Para 3.9

²⁰ These choices include the consumer investing in “smart” technology that helps them shift demand away from periods with high network loadings, and/or inject (using a battery) power back into the network at peak times.

²¹ Electricity Authority (2023), “Targeted reform of distribution pricing”, para 4.27

²² We are delighted to be working with an EDB on a trial of an export tariff using a number of batteries installed on farms.

²³ Based on distributor disclosed data reported to emi.wa.govt.nz. Informally, we understand the number is significantly larger than this.

- *as an information disclosure requirement (e.g. an independent expert report by each EDB verifying that the EDB has considered the role of pricing to minimise network operating and investment costs).²⁴*

This should become a routine part of the DPP process. We note that the Commission is likely nervous about the costs of deeper analysis of EDB AMPs, as it may be counter to the ‘relatively low-cost purpose of DPP/CPD regulation’²⁵. There may be opportunities to target this analysis towards the networks that represent the most consumers. As observed by MEUG²⁶, over 80% of the regulated asset base is within six EDBs. Deeper analysis – either by IAEng, or by Commission staff – could be focused on these six EDBs.

Network pricing aside, we believe there are also valid improvements that would incentivise the “learning by doing” necessary to understand the full potential of CER to provide least cost resilience and reliability. We broadly agree with FlexForum’s submission²⁷ – in particular that additional incentives for ‘learning by doing’ by EDBs should be provided through the proposed innovation and non-traditional solutions allowance²⁸, or a package of schemes²⁹. FlexForum recommend these incentives are designed to *“avoid unconstrained spending by requiring collaboration and requiring distributors to anchor their spending to the actions in the Network Transformation Roadmap or Flexibility Plan 1.0 (or similar collaborative exercises) [and] reality test the workability of the supplementary incentives in collaboration with distributors and the wider electricity ecosystem to build confidence they will do what it says on the box.”*³⁰ Finally, we emphasise FlexForum’s recommendation that this *“learning-by-doing must be a multi-year, ongoing commitment if we are to maintain and accelerate progress towards enabling electrification and flexibility.”*³¹

We also agree with Vector that the Commission should revisit its decision to not introduce regulatory sandboxing to cater for innovation trials which may impact the EDBs ability to meet quality performance standards. However, it is important that the design of regulations that facilitate sandboxes do not become so overly cumbersome that there is little incentive to use them (as has been the experience elsewhere). A sandbox could simply exist that exempts the EDB from any impact on SAID/SAIFI resulting from consumer interruptions that occur on a part of the network where a trial of flexible consumer resources is being undertaken by the EDB, and the interruption is caused by these resources not responding as expected.

²⁴ MDAG, [Final Recommendations paper](#), Recommendation 4, pages 81-82

²⁵ Para E10.1

²⁶ NZIER’s companion paper to MEUG’s DDP4 issues paper submission. NZIER also make useful observations about the diversity of characteristics exhibited by different EDBs, which also challenges the degree to which the Commission can allow for different network characteristics within the DPP approach.

²⁷ FlexForum submission, page 2

²⁸ Detailed in the IM review

²⁹ Which could include the allowances for demand-side management in the DPP

³⁰ FlexForum, page 3

³¹ FlexForum, page 3, emphasis added.

We generally support Vector's other recommendations regarding "carve-outs" in respect of quality standards where it has been caused by a flexibility provider or failure to comply with a dynamic operating envelope. However, the quid pro quo is that EDBs must not adopt punitive consequences for the flexibility providers in such events.

New Zealand has a rich history of electrical innovation. We created the world's first all-electric home, with the world's first practical electric home water heater, the southern hemispheres first electric public lighting in Reefton; and the works first electric gold dredge; the world's first wet steam geothermal electricity power station; and now the world's first electric fruit farm at Forest Lodge, run by Rewiring Aotearoa's CEO Mike Casey. With the right policies, regulations and incentives in place, New Zealand has a chance to lead the world again. We have always prided ourselves on self-sufficiency and we could become the world's most electric economy.

We're on the cusp of building the energy system we need to power our electric lives. How we build it will determine the cost of living and reliance outcomes for our people, now and into the future. Focusing on the opportunity of demand side electrification can offer savings on energy bills for everyday Kiwis with technologies that exist today.

We would welcome the opportunity to meet with the Commission to explain what we believe is required for the country to achieve that.

Thank you for this opportunity to submit.

Regards

Rewiring Aotearoa - Policy and Research team
<https://www.rewiring.nz/>