



I wish to respond to the open letter entitled 'Ensuring consumers benefit from efficient investment in non-network solutions' jointly published by the Commerce Commission, the Electricity Authority and EECA.

I am currently Chair of Waipa Networks, a Director of Network Waitaki, a Director of Counties Energy, a Director of Horizon Energy, and an advisor to Energy Trusts of New Zealand (ETNZ). I was previously independent Chair of Electricity Networks Aotearoa's Smart Technology Working Group. **The views expressed in this response are my own and do not represent the views of those organisations.**

I have concerns around the direction and underlying thinking detailed in the letter. These are outlined in the rest of my submission.

My concerns are not related to an unwillingness from network companies to embrace new approaches and adopt new solutions. I have interactions, both formally and informally, with a number of network companies. What I consistently observe is a desire in these companies to try to find the most cost-effective investments for their customers. Many of these companies are owned by their customers and communities and as such are inherently driven to find these outcomes. The greater the range of tools available to networks the more effective the solutions they can develop.

Flexibility is a risk management tool. It will form an important part of a highly renewable future electricity system. Where it will add the greatest value is for grid balancing to manage intermittent renewable generation such as solar PV and wind. It may add value in other circumstances, especially where there is uncertainty that may be resolved through buying time, however flexibility is not an effective tool for broad spread deferral of grid and/or distribution network investment.

In a world of high and persistent construction cost inflation the underlying value of deferring growth investment is low. Encouraging investment in non-network solutions that are underwritten by network deferment only results in higher costs for customers. The letter is headed 'ensuring customers benefit from efficient investment ...', but within the letter it assumes this is a given and more needs to be done.

<p><b>Encouraging non-networks solutions to try to defer network investment is neither economic, nor is it a strategic priority.</b></p>
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## What's it worth?

How sound are the economics of using flexibility to defer network investment? If the entire \$2B in growth capex noted in the letter could be deferred for five years – a highly optimistic scenario – then the total saving equates to circa \$570m<sup>1</sup>.

Not all this saving will flow to customers. Providers of flexibility services and their agents need to be paid. Payment may be via direct payments or through pricing incentives, but the overall effect is the same – customers who don't provide flexibility will pay for the deferment. If the flexibility payment is less than the saving from not investing then customers are better off. The key question is by how much?

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<sup>1</sup> Net present value (NPV) based on growth capex spread evenly over 5 years and discounted at 7%. The direct costs and benefits from the investments are included.

If we assume that fifty percent of the savings go to flexibility providers, then this leaves net savings to customers of \$285m. At face value this might seem impressive, but it represents around half a percent of customers' bills over the five-year deferment period. Put another way it equates to around twelve dollars per year or a dollar per month for an average residential customer!

Sadly, the above view is optimistic and is unlikely to result. The costs of building and maintaining electricity infrastructure are growing faster than underlying inflation due to a myriad of factors. If the cost of building infrastructure inflates by 3% per year<sup>2</sup> the customer saving is largely eroded, shrinking to under \$100m. We have only succeeded in putting off building something that will be far more expensive when it is finally built.

**Using flexibility to defer network investment is likely to be uneconomic**

## Should this be a priority?

Is a focus on using flexibility to defer network investment the right thing to do versus other options given the savings from deferring network investment are at best negligible. Like other countries our capability and capacity to develop our future energy system is limited. It is important we utilize what we have wisely. Making the right choices requires a clear view of the New Zealand context.

The future electricity system will need to be sustainable, secure and affordable. It will also need to be bigger – roughly double its current size.

We are currently concerned about the level of investment required to expand the system to meet future demand and where these costs might fall but the reality is the future electricity system will enable a significant downward shift in energy costs – clean renewable electricity is much cheaper than imported refined petroleum products. If the light vehicle fleet could be electrified tomorrow this would result in savings of over \$5b p.a. every year based on petrol/diesel prices prior to the US/Iran conflict. At current prices the benefit is closer to \$10b p.a.

We also know that the more we electrify the less tolerant customers are to a loss of supply. A renewable energy system that is highly dependent upon renewable electricity will need to deliver a level of service well above its current levels. We need to improve the resilience of the electricity system. Historically this system has delivered well but to move forward we cannot expose the system to greater risk. We are currently experiencing firsthand what energy security means to a remote island country dependent upon importing energy in the form of liquid fuels.

From an affordability and security perspective there are three other options we should evaluate against that proposed in the open letter,

1. Trying to accelerate the transition (affordability and security),
2. Addressing underlying drivers of construction cost inflation (affordability),
3. Ensuring the future electricity system is secure (security)

**Accelerating the transition** – accelerating the transition is beneficial from both an affordability and energy security perspective.

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<sup>2</sup> There is plenty of evidence to suggest costs are inflating at levels well above this.

The net present value (NPV) of the annual saving from electrifying the fleet is \$14b (at 2050). Accelerating the transition by 5 years adds a further \$6b of value. Delaying it five years results in a loss of value of \$4b. The scale of these numbers far outweighs the meagre savings from deferring network investment. What's more the faster we transition the faster we reduce our dependence on importing refined petroleum products thus improving overall energy system security.

To accelerate the transition we need to build the electricity system, including grid and network infrastructure, ahead of the need – big pipes now not later, and stimulate demand to fill the pipes.

**Addressing cost inflation** – the cost of building electricity infrastructure is rising at rates well ahead of underlying inflation. This is due to factors such as a lack of technical resources, large increases in imported equipment costs due to competition from other economies electrifying, and the ever-increasing cost of regulation such as traffic management.

These costs apply to all network investment. Over the last decade networks have invested on average over one billion dollars p.a. in their networks. Growth capex has been around ten percent of this. Forward projections are for increased levels of spend. Taming construction cost inflation would provide a more significant and enduring reduction in future customer costs in excess of deferral of growth capex in a cost inflating world.

**Strengthening the electricity system** – the letter talks to creating price sensitive load. Doing so requires caution. Reducing peaks and increasing utilization makes greater use of existing networks but it also increases the level of risk. If the level of price sensitive load increases to a point where it exceeds the amount of available capacity at other times then conditions exist to break the system. At the very least work should be being done now in parallel to provide the capability to manage this future risk.

<p><b>A focus on using non-network solutions to defer network investment should be a much lower priority than other initiatives</b></p>
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## What should regulators do?

Your letter asked for feedback on what should be done. The first and most pressing action is to assess whether the direction proposed in the letter is a priority relative to other areas. In making such an assessment I encourage all three regulators to assess whether their current directives from government hinder their ability to contribute to a lower energy cost future. Improving affordability must be focused on energy rather than just electricity.

If there is a reluctance to deviate from the current direction of travel I would urge three things,

1. Review the state of progress on the use of flexibility in other jurisdictions, especially Europe, to ensure any plans are aligned to the current situation. The concept is in its infancy globally and learnings are emerging rapidly,
2. Provide greater clarity on how to value deferment of network investment. There is a tendency to overvalue this. Having a clear and consistent view of the value protects existing customers from subsidising investment in DERs and protects parties considering investing in DER from making inefficient investments, and
3. Move away from a blanket requirement to have networks assess all investments against non-network solutions. Instead work with the sector to develop a guideline to direct effort and focus to situations

where non-network solutions may be viable. Failure to do so creates an additional administrative burden on networks and wastes precious technical resource.

I welcome the opportunity to discuss any of the points raised in my letter.

Yours sincerely

Jonathan Kay

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