Vector Limited
110 Carlton Gore Road
PO Box 99882
Newmarket
Auckland 1149
+64 9 978 7788 / vector.co.nz

16 December 2024

Te Waihanga

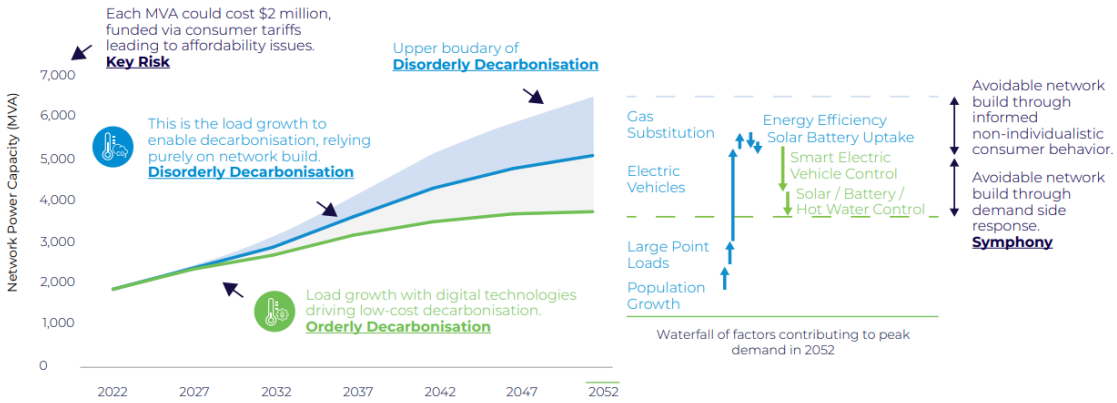
By email: info@tewaihanga.govt.nz

VECTOR SUBMISSION ON - TESTING OUR THINKING: DEVELOPING AN ENDURING NATIONAL INFRASTRUCTURE PLAN

1. We welcome the opportunity to respond to Te Waihanga's discussion document on the national infrastructure plan.
2. Vector is New Zealand's largest distributor of electricity, supplying more than 624,000 electricity connections between Papakura and Warkworth. Our electricity network across the greater Auckland area spans more than 19,000km in length.
3. Vector also operates a gas distribution network that distributes natural gas across the greater Auckland area to over 120,000 customers via 7000 km of pipes.

Question 1: What are the most critical infrastructure challenges that the National Infrastructure Plan needs to address over the next 30 years.

4. Vector's electricity network is undergoing a considerable transformation to enable the electrification of transport and industry. Figure 1 highlights two key scenarios of the future state of the network.
   4.1. The blue scenario, which we call the disorderly scenario, is the network build requirements with existing regulatory and policy settings, where load growth is managed purely with physical infrastructural build.
   4.2. The green scenario, which we call the orderly scenario, uses demand response to better manage the use of electricity (such as charging cars overnight as opposed to at peak). This approach could nearly halve the amount of infrastructure deployed, and would have a notable impact on our customers' electricity costs relative to the disorderly scenario.

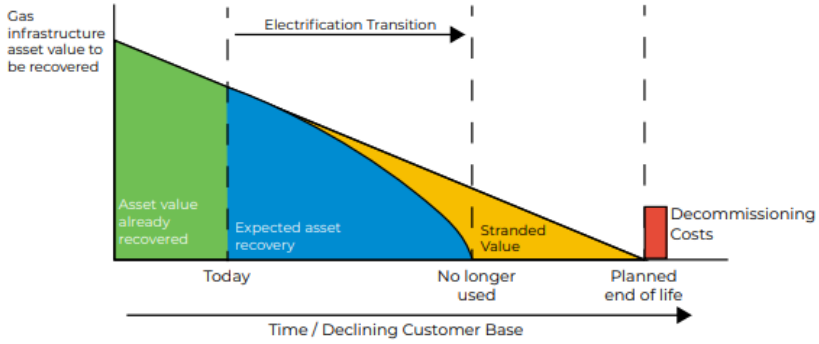


   4.3. While Vector and many other energy companies are developing these smart-grid technologies, the absence of a cohesive energy strategy will likely put Vector, and all other electricity infrastructure companies, on the disorderly trajectory.
   4.4. Vector notes that EECA is currently developing smart EV charging regulations which is one key policy outcome to enable an orderly transition.

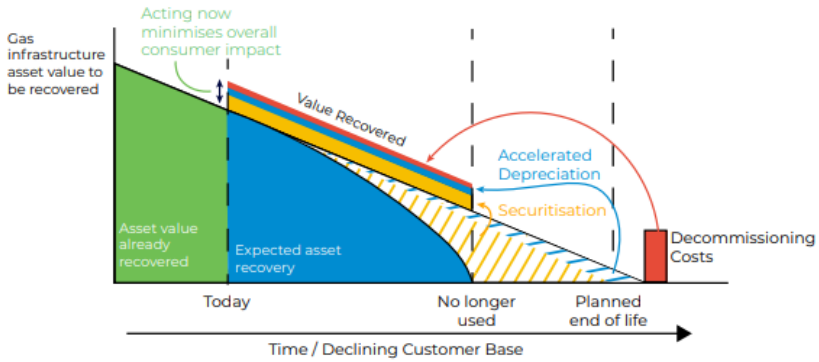
5. With regard to Vector's gas network, there is currently no appropriate regulatory framework to manage de-growth of assets. Vector's economic regulator, the Commerce Commission, still regulates the gas network as if there will be further growth. Gas consumption in Auckland has been steadily declining since 2019.
   5.1. Initial scenario analysis that estimates a wind-down scenario with no government or regulatory intervention would expose gas infrastructure pipelines to a risk of under-recovering costs of $973 million over the period to 2050 and see a gas exit by early 2040.
   5.2. Vector is advocating for a net-present-value = 0 outcome, which is also known as the principle of financial capital maintenance. This is a core role of the Commerce Commission – to encourage investment while balancing financial recovery, allowing normal but not excessive profits, and keeping the customer at the centre.
   5.3. Our chief concern is that the principle of financial capital maintenance, which provides foundational confidence for regulated infrastructure investment, is at risk of being severely undermined. Regulatory failure leading to asset stranding of gas pipeline infrastructure will radically undermine the principles of financial capital maintenance, which will then risk an impediment to investments in other regulated businesses such as electricity networks. This is a serious concern when such large and substantial energy infrastructure investments are required to drive electrification.
   5.4. To mitigate this risk, we recommend a change to Part 4 of the Commerce Act to preserve the principle of financial capital maintenance and promote the net-zero carbon target more effectively. Historically the system has served New Zealand well, but the rules of a de-growth economic paradigm under the influence of climate change are fundamentally different to a growth-based model, and updates to the Commerce Act and associated regulations need to provide greater certainty around cost recovery for regulated infrastructure.
   5.5. For example, a rational unregulated commercial entity would begin pricing de-growth risk, along with provisions for decommissioning into gas prices today. The current regulations do not allow gas infrastructure businesses to do so, leaving a large question as to who pays for decommissioning at end of asset life.
   5.6. For detailed information – refer to Vector's paper 'Managing the Gas Transition'.[1]

[1] https://blob-static.vector.co.nz/blob/vector/media/vector-2024/vector-2023-managing-the-gas-transition.pdf

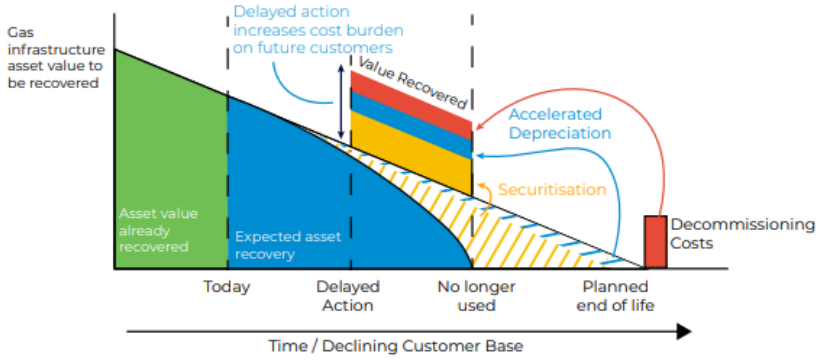
No Action:
No regulated cost recovery leads to a stranded asset risk with consumers remaining on the network absorbing the price increases. In this scenario regulated gas pipelines are exposed to $973 million of regulated cost recovery risk, and may become cash-flow negative earlier, leading to a sudden and unplanned exit.
Disorderly Decarbonisation



Managed Transition:
Future costs and stranded value are proactively recovered through capital recovery models such as accelerated depreciation / securitisation. This minimises consumer impacts as the costs are spread over a larger consumer base. If renewable gases materialise in sufficient quantities, the network can still be repurposed with lower tariffs as the capital investment may have already been recovered.
Orderly Decarbonisation



Delayed Transition:
Delay in implementing capital recovery models increases the cost burden on future consumers. This raises energy equity issues as customers remaining on the network are likely those that are less able to afford the transition.
Disorderly Decarbonisation



Question 3: What are the main sources of uncertainty in infrastructure planning, and how could they be addressed when considering new capital investments

6. As highlighted in Question 2, the primary source of infrastructure planning uncertainty is out-dated regulatory and policy settings.

Question 5: Are we focussing on the right problems, and are there others we should consider

7. Vector agrees with the three key themes.
   - Capability to plan and build
   - Taking care of what we have
   - Getting the settings right
8. Vector also highlights the need to think about end of infrastructure life. Examples as highlighted above are gas network decommissioning whereby Vector currently has no mechanism to price any potential future decommissioning into gas tariffs.
9. Te Waihanga should also consider the impacts of managed retreat on infrastructure investments themselves.

Question 7: How should we think about balancing competing investment needs when there is not enough money to build everything?
Question 10: What approaches could be used to get better value from our infrastructure dollar? What's stopping us from doing this?

10. It is important to understand whole of system infrastructure investments when making decisions.
    10.1. Vector's 2023 modelling highlighted that electric vehicles are responsible for about 70% of Vector's network growth through to 2050.
    10.2. More investment in energy efficient transportation investments, such as public transport or active modes of transport would have a material impact on this network build.
    10.3. The current discussion document does not discuss this whole of systems thinking when making infrastructure decisions.
11. Vector is concerned that an absence of a comprehensive energy strategy may result in poor energy related investments leading to high energy prices for future consumers.

Question 11: 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?

12. Vector produces comprehensive 10-year asset management plans for its electricity and gas networks, published annually on Vector's website.
13. Vector is actively reducing capital expenditure on its gas network where safely possible to reduce exposure to further asset stranding risk.
    13.1. Nevertheless, scenario modelling assuming no change in regulatory or policy settings highlights a risk that gas networks may be cashflow negative by early 2040. This would result in an unmanaged gas exit with customers stranded on the network.
    13.2. Vector submits that there is an orderly way to manage the transition. In particular, accelerated depreciation of assets is a mechanism to minimise investor, consumer and taxpayer risk by accelerating the cost recovery of assets. By doing so, cash-flows are brought forward so that a larger current consumer base can absorb most of the capital costs. As the network contracts, a smaller future consumer base would pay for a smaller remaining asset value. This reduces the risk of exponential price increases for future customers, and a sudden exit if gas infrastructure companies become cash-flow negative. It is important to note that accelerated depreciation does not increase Vector's profits as it is regulated under the net-present-value = 0 principle.
    13.3. Further to this, Vector advocates for the ability to charge gas consumers a decommissioning allowance to cover any potential future end-of-life costs of the gas network. The absence of such a mechanism risks burdening future tax-payers with these costs as opposed to a user-pays model.

Question 12: How can we improve the way we understand and manage risks to infrastructure? What's stopping us from doing this?

14. As highlighted in the discussion document, New Zealand is highly exposed to natural hazards. Vector's climate change modelling indicates that these risks will rise.
15. Vector agrees that a lack of data on natural hazard risks impedes our ability to analyse these future risks. Vector has resorted to private climate change modelling in the meantime to bridge this gap and welcomes the NIWA national flood maps in 2025.

16. Particular focus also needs to be given to landslip risk. Vector is eagerly awaiting the national landslip risk maps that are currently under development for New Zealand.

Question 13: How can we lower carbon emissions from providing and using infrastructure? What's stopping us from doing this?

17. Vector submits that the Commerce Act 1986 needs to be amended to take climate change into account. Vector's view is that the existing economic regulatory regime was designed in and for a business-as-usual regime and is not fit for purpose to manage the complexity of the decarbonisation transition.
18. By way of example, the discussion document speaks of the importance of renewable generation investment in managing New Zealand's decarbonisation pathway.
    18.1. A 2022 report by BCG highlighted that $42billion in investment is required in the 2020s, of which $10.2b is in renewable generation, $8.2b in transmission infrastructure, and $22b in distribution infrastructure.
    18.2. The distribution infrastructure component is forecast to increase to $25b in 2030 - 2039, and $24b in 2040-2050.

Question 16: What regulatory settings need to change to enable better infrastructure outcomes?

19. As highlighted in Vector's submission, regulatory and policy settings must change to enable better infrastructure outcomes. In summary actions and changes needed are:
    19.1. Amendment to the Commerce Act 1986 to direct the Commerce Commission to take climate change into account.
    19.2. Preservation of the principle of financial capital maintenance that supports infrastructure investment in New Zealand, noting that regulatory failure leading to stranded gas distribution assets will have contagion impacts on electricity distribution companies' access to debt and equity to fund the transition.
    19.3. Mitigating risk that customers become stranded on the gas network by accelerating cash flows and depreciation. A clear policy statement that steers the Commerce Commission is needed to implement no-regrets financial mechanisms to mitigate stranded asset risks and impacts on consumers.
    19.4. Deciding who pays for decommissioning at end-of-life. If gas infrastructure companies are to pay for the decommissioning of gas networks, then regulations need to change to enable gas networks to start collecting an end-of-life fund from customers while there are still sufficient customers on the network. No decommissioning regulatory allowance is provided for in the current regulatory regime.
    19.5. Infrastructure maintenance can often be impeded by poor regulation. As way of example, vegetation management would cost Vector $196m from 2026 – 2030. Changes in tree regulations that allow Vector to cut a larger distance from the powerlines could substantially reduce this cost.

Yours sincerely

Aimee Gulliver
Group Manager Public Policy and Government Relations