

VECTOR SUBMISSION
FOR THE CLIMATE
CHANGE RESPONSE
(ZERO CARBON)
AMENDMENT BILL



CREATING A NEW
ENERGY FUTURE

16 July 2019

Environment Select Committee
The Beehive
Molesworth Street
Pipitea
Wellington 6011

To the Environment Select Committee

Vector submission for the Climate Change Response (Zero Carbon) Amendment Bill

Executive Summary

Vector supports the introduction of the Zero Carbon Bill as a key mechanism to provide business and consumers with greater certainty of the pathway to a low carbon future.

The electricity industry has a significant role to play in achieving a low carbon future, both through maximising the use of renewable energy and supporting the electrification of the transport sector through greater use of electric vehicles (EVs).

Government policy and the broader regulatory environment has a part to play in ensuring that electricity distribution companies such as Vector can make the greatest possible contribution to a low carbon future.

The purpose of this submission is to outline areas where the Zero Carbon Bill could be improved to better achieve the policy goals behind it, and to brief the select committee on key energy industry considerations that provide useful context for the legislation.

We support the introduction of the Zero Carbon Bill as a way of providing business and consumer certainty of our pathway to a low carbon future.



MITIGATION PROVISIONS

- We support an approach that fairly allocates the costs for action on climate change (including in the New Zealand Emissions Trading Scheme), across all sectors of the New Zealand economy. We believe all sectors should make a concerted effort to achieving net zero emissions by 2050.
- We support having three consecutive five yearly budgets in place at any one time to provide those affected with greater predictability. We believe that this certainty would be strengthened, and budgets more clearly connected with targets (and scientific evidence of emissions' reductions needed to reduce global temperature increases), if budgets were modelled on a pathway for New Zealand's emissions' peak. We believe that the Bill should include provision for this modelling to form the basis of future budgets.
- We support the independent and advisory role of the Climate Change Commission (the Commission) as a critical element of the Bill to ensure that the provisions contained within the Bill take the long-term view necessary to have impact and to provide businesses and consumers with certainty.
- We note that whilst the Bill specifies circumstances under which the Commission can review and recommend amendments to the 2050 targets (and for the Minister to respond to these reviews), there is nothing in the Bill that would prevent the Minister from unilaterally changing the targets outside of this process. To ensure that the targets of the Bill withstand the electoral cycle, we believe that the Bill should be amended to clarify that the Minister cannot change the targets outside of the process specified for the Commission's review and recommendations for amendments.
- We believe that allowing sectors to use international carbon credits from credible sources where required is part of enabling this smooth transition. This also recognises the global reality of climate change – we believe it is important for New Zealand to take responsibility of domestic emissions where viable, whilst recognising that we are part of a wider, global issue.

ADAPTATION PROVISIONS

- We support the national climate change risk assessment and adaptation plan as a way to achieve a coordinated approach to adaptation, and support the provision of information related to our adaptation through a clear, robust and streamlined process.
- We note that section 5ZW of the Bill contemplates the development of regulation to support the Ministerial information gathering powers proposed to support the national climate change risk assessment and adaptation plan. This section includes consideration for reporting organisations' existing disclosure obligations. In the instance that information gathering powers are advanced, we support these considerations and the amendment of section 5ZV to reflect section 5ZW. In addition, we believe that in preparing regulations, the Minister should consider the cost of regulatory compliance, commercial sensitivities and implications for reporting organisations' intellectual property, as well as the need for effective regulatory coordination.



WE SUPPORT A FAIR TRANSITION TO A LOW CARBON FUTURE

Ensuring our transition to a low carbon future is socially, as well as environmentally sustainable is a key priority, and energy affordability is at the centre of this. Whilst overall demand for electricity has decreased by around one percent per annum from 2009-2018, demand peaks have increased by around seven percent per annum. As we increasingly rely on climate dependent, and potentially intermittent, sources of renewable generation, ensuring that this demand can be managed and met affordably for consumers, requires a smarter investment approach for our network.

As well as transitioning from fossil fuels to electricity in end-use sectors (i.e., EVs), greater mitigation efforts on the demand side have also been identified as a key characteristic of pathways to reduce global temperature increases in line with the Paris Agreement by the Intergovernmental Panel on Climate Change (IPCC).¹ Access to half hourly rate (HHR) data will be essential to enable analytics and control to manage demand for electricity – such as, for example, the use of demand response technology which can reduce energy consumption. The use of HHR data can also enable more targeted and efficient network investment which is supported by the use of HHR.

Vector's approach to deliver long term reliability, affordably, in this context of change is our network investment strategy, as reported in our Asset Management Plan (AMP)

Vector's approach to respond to these future challenges and opportunities is the investment strategy outlined in our latest Asset Management Plan (AMP). The investment approach includes investment in 'light' assets which leverage new technology and innovation to gain efficiencies for consumers, as well as investment in traditional network infrastructure. Enabled by the use of digital technologies to cleverly manage energy use, demand, and wider system stability, our approach is about understanding and responding to changing consumer needs and finding new efficiencies as electricity plays an increasingly important role in consumers' lives.

A key enabler of this strategy, and Vector's ability to support the objectives in the Zero Carbon Bill, is an aligned regulatory framework. We support a regulatory approach which strengthens New Zealand's innovation ecosystem and ability to develop new energy technology; which enables greater coordination across the energy market; and which supports better access to consumption data for EDBs and consumers.

PROVISIONS TO CONSIDER THE IMPACT OF DECARBONISATION ON THE ENERGY SECTOR

- We support the proposal in 5L for the Commission to account for current available scientific knowledge, technological change, likely economic impacts and the intergenerational distribution of costs, benefits and risks, in undertaking their analysis and exercising their powers under the Act. We also support the considerations provided for the Minister and Commission in advising on and setting budgets outlines in 5Z. In addition to these considerations we believe that the Commission and Minister should account for factors related to impacts of decarbonisation on the energy supply chain, and support a holistic approach which recognises the linkages between energy related workstreams (including the Electricity Price Review) and decarbonisation. To strengthen this coordination we propose the establishment of a new Ministry for Energy, which recognises the interdependencies between issues which impact energy consumers.



¹Special Report: Global Warming of 1.5 °C; Chapter 2 Mitigation Pathway Compatible with 1.5 in the Context of Sustainable Development, Intergovernmental Panel on Climate Change. 2018.

ELECTRICITY DISTRIBUTION
BUSINESSES HAVE A KEY
ROLE TO PLAY ENABLING
NEW ZEALAND TO MEET
ITS EMISSIONS REDUCTION
TARGETS, AFFORDABLY.

1. The electrification of transport is key to transitioning to a low carbon future in New Zealand and globally. The energy sector – including electricity generation and road transport – was the largest contributor to New Zealand’s gross emissions in 2017 (the latest year for which emissions data is available), accounting for 41 percent of New Zealand’s greenhouse gas emissions.² Of this, road transport was the single greatest driver of emissions, accounting for 44 percent of the Energy Sector’s emissions. Emissions from road transportation grew by 93 percent from 1990 to 2017 in New Zealand.³
2. The IPCC has also identified switching from fossil fuels to electricity in end-use sectors as a key characteristic of pathways to ensure global warming does not exceed 1.5 degrees,⁴ and it is likely to play a role in future budgets and emissions reduction strategies to meet the proposed emissions’ reduction targets in New Zealand’s Zero Carbon Bill. Enabling the uptake of EVs requires the right infrastructure and Vector has already installed 29 EV chargers around Auckland and developed the EV charging station app which shows where EV chargers are in New Zealand. However, a key part of this infrastructure challenge is ensuring that the load on the network associated with the use of EVs is managed efficiently and reliably.
3. As reported in Vector’s latest AMP, energy consumption has decreased by an average of around one percent per annum between 2009-2018. This is supportive of another key characteristic of IPCC pathways to prevent global temperature increases beyond 1.5 degrees – reducing demand for energy.⁵ However, alongside this overall reduction, demand peaks have increased by seven percent. This indicates that in spite of gains in energy efficiency consumers still rely on electricity during particular parts of the day – and, if anything, reliance on electricity has increased during these times. The uptake of EVs could exacerbate this further without the right demand-side management and network technology. Some fast EV chargers installed in residential homes can add the equivalent load of seven houses to the electricity grid.
4. The cost of investment and expansion of traditional network assets to meet these demand peaks is currently a significant driver of cost for Electricity

Distribution Businesses (EDBs) accounting for up to 50 percent of EDBS’ costs in some cases.⁶ These costs will increase with demand peaks, and be passed on to consumers through lines’ charges, unless deferred. Similarly, the ‘dry year problem’ associated with a transition to renewable generation – of how to meet peak demand when supply is uncertain – will also be exacerbated by higher demand peaks. Managing this demand efficiently is even more critical in high-growth areas like Auckland. Vector connected over 11,000 homes in the last year alone, and there were 205 new subdivisions, up from 84 in 2013. This trend of growth will continue over coming years.

5. Distributed Energy Resources (DER) such as solar panels and batteries can flatten these demand peaks gaining efficiencies for consumers. This is exemplified by the Kāinga Tuatahi initiative delivered in partnership between Vector and Ngati Whatua. As part of this initiative, Vector has provided solar panels and Tesla powerwall batteries for 30 iwi homes in Auckland, reducing some residents’ bills to as little as \$13 a month.



² Ministry for the Environment, New Zealand’s greenhouse gas inventory, 1990-2017. <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/snapshot-nzs-greenhouse-gas-inventory-1990-2017.pdf>

³ Ibid.

⁴ “Special Report: Global Warming of 1.5 °C”, Chapter 2 Mitigation Pathway Compatible with 1.5 in the Context of Sustainable Development; Intergovernmental Panel on Climate Change. 2018. “...1.5 degree pathways generally show lower energy demand, a faster electrification of energy end-use and a faster decarbonisation of the carbon intensity of electricity and residual fuel mix”. pg 30.

⁵ Ibid., pg 129.

⁶ Electricity Price Review Discussion Document; Electricity Pricing Review Panel. 2019. pg 55.

Ensuring that our transition to a low carbon future produces the intended long-term outcomes requires a holistic, circular economy approach, which accounts for a range of social and environmental outcomes across the whole supply chain. We believe that this wider view needs to be reflected in the considerations specified for the Commission in exercising its powers under the Act in Section 5L. This whole of systems approach also needs to be reflected in stronger coordination across Government and an aligned regulatory framework.

6. Ensuring that our transition to a low carbon future is socially, as well as environmentally sustainable, and results in the desired outcomes long term, requires a holistic approach which takes into account a range of factors across the whole energy supply chain.
7. As described in our Asset Management Plan (AMP) sustainability underpins the delivery and management of our network assets, and we recognise that every decision made in respect of the network must take into account the environmental, social and economic impacts, both positive and negative. Underpinning this approach, we have committed to helping achieve the United Nations' 17 Sustainable Development Goals (SDGs).
8. We know that creating a platform to enable a sustainable energy future requires collaboration across the sector and energy supply chain. For example, the electrification of transport will only produce the intended emissions reductions if our electricity generation is also carbon neutral. The interdependency of these different aspects of our energy system in contributing to a low carbon future is reflected in the work of the IPCC – pathways to reduce global warming to 1.5 degrees show both 'an increasing share of electricity accompanied by a rapid decline in the carbon intensity of electricity'.⁷ We appreciate the work undertaken by the Interim Climate Change Commission (ICCC) into the impact of a transition to renewable generation on emissions reductions, electricity capacity requirements, and the cost of emissions reductions. This work highlights the distinction between renewable and low carbon generation – New Zealand's power generation is currently 85 percent renewable but is only around 60-65 percent low carbon. Modelling and analysis of our transition to a low carbon future which accounts for impacts across the energy system should continue to form the basis of future budgets and emissions reduction plans.
9. We support the considerations provided for the Commission in exercising its powers under the Act in 5L and for the Commission and Minister in advising on and setting emissions reduction budgets specified in 5Z. In addition, we believe that the Commission and Minister should account for energy security and reliability; the capacity of energy systems to cope with more distributed energy; and optionality and flexibility of mitigation options, in developing our emissions reduction pathway.
10. The inclusion of these considerations recognises the impact of decarbonisation on our whole energy system. As we noted in our Electricity Price Review (EPR) submission, the interdependencies between issues which impact energy consumers requires strong coordination across Government, as well as an

aligned regulatory framework. We think that the policy agenda being advanced by the Bill and the work of the ICCC, and future Climate Change Commission, needs to be strongly linked with other workstreams which impact the energy sector, including the EPR. To support this aligned thinking and coordination we propose the establishment of a new Ministry for Energy. We note the State Services Commission's plans to reform the State Sector Act to enable different leadership arrangements to allow stronger coordination in the public sector. We see the establishment of a Ministry of Energy as being supportive of this intent to enable a coordinated approach to overlapping issues.



⁷ Ibid., pg 30.

We support the national climate change risk assessment and adaptation plan as a way to achieve a coordinated approach to adaptation. Climate change adaptation is critical to ensuring security of supply in the future. Investing in long term network reliability, and consumer resilience, is key to upholding our adaptation role.

11. As noted in our first submission we support a clear signal from Government to provide businesses and consumers with certainty as we transition to a low carbon future. This transition requires a proactive approach to both climate change mitigation and adaptation, and we support the inclusion of both in the Bill.
12. We support the national climate change risk assessment, adaptation plan and progress reports provided for in the Bill. Vector's core purpose is the reliable distribution of electricity to consumers, and our ability to adapt to the physical effects of climate change directly impacts our ability to continue delivering to this purpose in the future.
13. As New Zealand's largest Electricity Distribution Business (EDB) and as a leading technology solutions provider we also have valuable insight and capability to contribute to this national understanding of risk and to inform an adaptation strategy. In 2017 and 2018, Vector commissioned modelling to better understand how climate change could impact on our electricity network out to 2050. The climate model developed suggests that occurrences of high-wind speeds are likely to increase significantly, putting Auckland's energy distribution network increasingly at risk unless adaptive and remedial action is taken. The network is also expected to continue to be at potential risk from flooding (including coastal flooding), landslides and soil erosion. In the longer term, sea level rise, particularly in combination with storm surges, will impact on assets in coastal areas both in terms of direct, physical risk, and in changing availability of finance and insurance that could lead to stranded assets.
14. In section 5ZV the Bill proposes to give the Minister the power to gather information from reporting organisations to support the development of national climate change risk assessments, adaptation plans and progress reports. We note that section 5ZW of the Bill contemplates the development of regulations for these information gathering powers including considerations that the Minister must make in preparing these regulations – this includes the avoidance of unnecessary duplication of information provided within existing reporting frameworks.
15. Should any information gathering powers be advanced through 5ZV, we hold that this provision should be amended to give effect to 5ZW, and that 5ZW be broadened to include consideration for the cost of regulatory compliance; commercial sensitivities and implications for reporting organisations' intellectual property; as well as the need for effective regulatory coordination. We are not clear which regulator would be implementing these information gathering

powers under 5ZW. As EDBs are already subject to regulation implemented by both the Electricity Authority and Commerce Commission, we value the development of future regulation which is streamlined, rather than fragmented.

16. We note the Explanatory Note of the Bill which says that "voluntary, informal reporting was considered and remains a viable option" – we would favour this option, supported by clear reporting guidelines, as being more aligned with a partnership, rather than compliance driven approach, between Government and industry.



Vector has a critical role to play supporting wider public outcomes and policy objectives, including, but not limited to, our transition to a low carbon future – however, enabling us to support the purpose expressed in primary legislation such as the Zero Carbon Bill, requires an aligned regulatory framework.

Vector can play a key role supporting our transition to a low carbon future, by supporting carbon emission reductions required through the electrification of transport, as well as by strengthening the resilience and reliability of the network as consumers rely more on electricity and as our network requirements change. In this changing future, Vector's purpose remains to deliver long-term network reliability, affordably.

Customer focused data analytics

17. New cost-effective sensors, sophisticated data analytics, and advanced control capability can enable effective demand side mitigation efforts which, as mentioned above, are a key characteristic of pathways to ensure that global warming does not increase beyond 1.5 degrees identified by the IPCC. Demand side response technology and investment will support energy efficiency, and affordability, as reliance on electricity increases.
18. The EPR proposed a number of options to increase the ability of both consumers and industry to leverage consumption data for greater efficiency – including to streamline the process for consumers to access their own consumption data from retailers, as well as to ensure EDB access to smart meter data on reasonable terms. We support both of these options and further discussion and analysis to support the use of this data to deliver better services to consumers. Consumers should be at the heart of this process and we support greater data access and sharing, including through authorised third parties, to enable greater innovation, including to support demand-side mitigation initiatives.

Technological disruption and innovation partnerships

19. Whilst New Zealand's emissions profile is relatively small on a global scale, we believe that new energy technology and innovation is what we can contribute to the international response to climate change. This technology and innovation can support a just transition to a low carbon future and can strengthen New Zealand's innovation ecosystem.
20. Technology and innovation tends to cut across market segments, and requires coordination across the market to enable uptake. Given the role that EDBs currently have in maintaining costly network infrastructure, we have a clear and unique incentive in the electricity market to enable the uptake of DER.
21. As we mentioned in our submission for the EPR Options Paper, we are deeply concerned about the impact that one of the proposals would have on network reliability and affordability as our economy electrifies. This option proposed to

restrict the relationships EDBs can have with new distributed energy services, such as batteries and solar panels. This would have uncertain implications for our future ability to invest in this innovation and technology and would deter investment in new energy R&D and innovation. Inhibiting the opportunity to innovate through an untimely expansion of regulation would cost consumers and does not align with the objectives reflected in the Zero Carbon Bill. We welcome a joined-up approach of considering the implications of the EPR for the Zero Carbon Bill and wider efforts to reduce carbon emissions.

Vegetation management regulation

22. Vegetation which is close to network assets is a key cause of risk and vegetation management regulation plays a central role in supporting our climate change adaptation. There are a number of factors which contribute to the risk of a tree causing an outage or health and safety incident - including the distance of a tree from powerlines ('fall zone'). 'Of all reported tree related incidents, fall zone and overhanging trees have the most significant impact on electricity network reliability, although these trees are not covered under the current regulations.'⁸ We support the review of tree regulations currently underway to ensure that these regulations respond to the drives of risk, and enable a preventive, partnership based approach which delivers greater network reliability and public health and safety outcomes.



⁸ "A review of the effectiveness of the Electricity (Hazards from Trees) Regulations 2003"; Opus; 2010.