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Submissions

Infrastructure Commission

WELLINGTON

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TRUSTPOWER SUBMISSION: INFRASTRUCTURE FOR A BETTER FUTURE

1. Introduction

1.1. Trustpower Limited (Trustpower) welcomes the opportunity to provide a submission to the New Zealand Infrastructure Commission (**Commission**) on its *Infrastructure for a Better Future*, May 2021, consultation paper (**Consultation Paper**).

1.2. The Commission is developing an Infrastructure Strategy for New Zealand. The Consultation Paper seeks stakeholder feedback, ideas and views on a proposed direction for the strategy which will be used to finalise the draft Infrastructure Strategy that the Commission will provide to the Minister for Infrastructure in September 2021.

1.3. The consultation seeks input across a wide range of sectors including urban development, water management, waste management, roading, transport, energy and telecommunications. Our submission focuses on the enabling investment along the energy supply chain to meet New Zealand's net-zero carbon objective by 2050 and promoting innovation in the telecommunications sector. The other sectors may require different infrastructure strategies as the current state of their assets, market performance, drivers for change, and objectives may differ compared with the energy and telecommunications sectors.

About Trustpower

1.4. Since 1994, Trustpower has evolved from a regional vertically integrated electricity business operating in the Tauranga district to a leading nationwide multi-product retailer with a strong history of making significant investments in renewable generation in both New Zealand and Australia.

1.5. Trustpower's current generation business comprises 435MW of installed capacity from 45 power stations installed throughout the country. More than 99% of this capacity is from hydro generation. Trustpower is New Zealand's fifth largest electricity generator and fourth largest electricity retailer.

1.6. Previously, Trustpower has owned other renewable generation assets in New Zealand (Tararua Wind Farm Stage I, II , and III; Mahinerangi Wind Farm Stage I) as well as Australia (Snowtown Wind Farm Stages I and II, Blayney and Crookwell Wind Farms; and the Hume, Burrinjuck and Keepit hydrogeneration assets).

1.7. In the retail market, Trustpower has disrupted the energy and telecommunication industries by creating a new approach to home services: providing bundled home offers of energy, broadband and telecommunications. Our range of products and services has continued to expand, with mobile added last year.

Energy Sector and the Infrastructure Strategy

1.8. Trustpower is committed to contributing to the achievement of the Government's net-zero carbon emissions target by 2050, by investing in renewable energy generation, provided that the right economic signals and regulatory instruments are in place. In order to achieve the target, it is clear that swift and considered action is required.

1.9. We submit that these actions should be guided by the Commission's Infrastructure Strategy that would:

(a) Promote efficient, equitable, sustainable investment in renewable electricity generation infrastructure

(b) Maintain fossil gas generated electricity as a buffer between supply and demand uncertainties

(c) Enable the energy industry to continue to invest in a diverse range of renewable generation technologies

(d) Enable the New Zealand Emissions Trading Scheme (NZ-ETS) to provide a market-determined price signal for CO_2

(e) Support pilot programmes to test new technologies

(f) Investigate additional capacity that could be provided by NZ's existing hydro fleet

(g) Ensure alignment with the Renewable Energy Strategy and the National Energy Strategy

(h) Prioritise the 2050 net-zero carbon target in the resource management legislation framework

Telecommunications Sector and the Infrastructure Strategy

1.10. We submit that the Infrastructure Strategy should promote a further increase in the level of competition and utilisation of telecommunications infrastructure. In particular, we propose greater monitoring of the wholesale market for access to mobile network services to ensure access is available to access seekers on commercially fair and reasonable terms.

1.11. Our submission addresses each of the above points in turn.

2. Infrastructure strategy outcomes and targets

2.1. Trustpower agrees with the Consultation Paper that all decisions about infrastructure must be guided by the principles and obligations of Te Tiriti o Waitangi and they must support the wellbeing of people.

Infrastructure strategy outcomes

2.2. While we also support the proposal that infrastructure investment decisions should promote outcomes that are efficient, equitable and affordable we believe these outcomes can be refined and that the outcome of sustainability should be added.[1]

2.3. Trustpower proposes that the outcomes that should be considered when making infrastructure decisions include:

- **Efficient**: Infrastructure decisions provide value for money, meaning that the benefits of

[1] Infrastructure for a Better Future, May 2021, page 25.

infrastructure for economic, social, environmental and cultural wellbeing are larger than the costs to provide it.

- **Equitable**: Infrastructure decisions, including those that relate to funding, are fair and inclusive of all New Zealanders and recognise the needs of those who are disadvantaged or vulnerable in our society.
- **Sustainable**: Infrastructure decisions are expected to be environmentally, socially and culturally sustainable over the long term beyond 2050 net-zero carbon target.

2.4. The definition of efficient and equitable outcomes noted above are taken from the Consultation Paper. The addition of the environmental, social and cultural sustainability outcome is particularly important as the simple and unavoidable reality is that renewable energy generation and electrification projects – e.g. wind, geothermal, hydro and transmission grid expansion – are large in scale. They often occur in environments where they are more likely to interact and at times conflict with other resource values related to biodiversity, aquatic habitat, and landscape.

2.5. New Zealand's resource management legislation framework aims to promote sustainable outcomes and therefore requires deliberate, clear and firm policy priorities expressing the 2050 net-zero carbon target. As such, we believe the Commission's Infrastructure Strategy should adopt a "climate change first" approach within the proposed new resource management legislation

2.6. A focus on exclusive protection of particular elements of the natural environment would fail to recognise outcomes required to achieve a 'system wide' response to climate change. Clear policy direction is required to deal with situations where consenting a renewable electricity project involves potential conflict with other outcomes such as maintenance of indigenous biological diversity and restoration of viable populations of indigenous species. A specific consenting pathway will be needed to enable the benefits of the project to be brought into the process of decision-making, which we address in our submission below.

2.7. Trustpower also notes that the outcome of 'efficiency' captures the outcome of 'affordability' as defined in as defined in the Consultation Paper.[2] The definition of the affordability outcome suggests that prioritisation of new investments should take into account the alternative of the cost of upgrading or enhancing existing infrastructure to achieve the same outcome. We consider that this analysis of the costs and benefits of supply and demand-side options would be addressed by an analysis of the economic efficiency of an investment.

2.8. Furthermore, the outcomes of efficiency, equity and sustainability capture a more common definition of affordability. That is, if the cost of an infrastructure investment is greater/less than the benefit that would accrue to an individual firm, then it would not/would be affordable for a firm.

2.9. Even though, however, some investments may not be commercially viable for an individual firm to undertake, the investment may still be desirable in order to deliver specific, wider equitable and sustainable outcomes.

2.10. An investment may be efficient once a wider set of benefits that would accrue to the wider economy and society, than could accrue to an individual firm, are taken into account. Affordability, therefore, becomes a question of identifying an appropriate funding model that is aligned with these wider benefits and that would enable an individual firm to invest in infrastructure.

2.11. We encourage the Commission to further consider efficient, equitable and sustainable outcomes

[2] Ibid.

when developing its Infrastructure Strategy.

Infrastructure Strategy targets

2.12. Having a clearly stated target is crucial when comparing the different infrastructure and non-infrastructure options that aim to achieve New Zealand's policy ambitions. If the target is not clearly stated and understood, then there is a risk that a comparison of options will not be like-for-like as they might deliver different outcomes. This then raises the risk that the chosen policy fails to achieve the desired policy ambition.

2.13. The Consultation Report highlights the problem statement, which is "*Climate change is the defining challenge of this century and demands a new approach to infrastructure*".[3] The Government's net-zero carbon emission's target by 2050 provides a clear statement of the target for our actions that would address this problem .

2.14. The merits of the different infrastructure and non-infrastructure options that would contribute to achieving this target should be compared by comparing the expected efficiency, equity and sustainability outcomes of each option. This comparison may conclude with the selection of an option or a range of options that are complementary or that none of the options are feasible, which may lead to changes to the target.

2.15. In this regard, another target that the Government has set is the target of 100 percent renewable electricity generation by 2030. The Consultation Paper notes that it is not currently achievable due to a range of constraints.[4] The Climate Change Commission more recently recommends replacing the 100% target "… with a goal of aiming to achieve 95% - 98% renewable electricity by 2030".[5]

2.16. Even though this recommended goal may be aspirational, Trustpower proposes that this *goal* should be reframed as an *interim milestone* on the path of achieving the target of net-zero carbon by 2050.

2.17. We also suggest that this milestone should be refined and dependencies on the timing of the milestone identified following the finalisation of the Infrastructure Strategy and the National Energy Strategy.

3. Transition energy infrastructure for a net-zero carbon target by 2050

3.1. We consider it will be vital that there continues to be strong incentives to invest across the energy supply chain, including within the existing highly competitive market for renewable electricity generation. Enabling accelerated investment during the transition will be particularly important in order to achieve the Government's ambition of a net-zero carbon economy by 2050. The scale of the electrification task is unprecedented as it requires building in the order of one new Turitea Wind Farm (222 MW) every year along with the associated transmission network capacity until 2035.

3.2. In this section we focus on investment dynamic between supply and demand side of the energy supply chain, and the importance in enabling the acceleration of the renewable generation investment ahead of demand in order to achieve the net-zero carbon target by 2050. The key strategies that would enable accelerated electrification are addressed in the following sections.

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[3] Ibid. page 46

[4] Ibid. page 54

[5] Climate Change Commission's Advice to the New Zealand Government on its first three emissions budgets and direction for its emissions reduction plan 2022-2025: *Inaia tonu nei: a low emissions future for Aotearoa*, dated 31 May 2021, page 279

Investment along energy supply chain leading growth in demand

3.3. Trustpower proposes that the design of the Infrastructure Strategy should start with the basic economic features of the electricity market during the transition. The Climate Change Commission (CCC) advice to the Government touches on two key features of the transition period:[6]

> *" [The CCC] anticipate[s]* ***a steep increase in demand for electricity*** *as the number of electric vehicles (EVs) on the country's roads grows, and industrial demand electrifies. The industry will need to rapidly build more renewable generation to meet this*.
>
> *"****Big changes in demand or supply****, like the Tiwai Point aluminium smelter closing … and the NZ Battery,* ***can create uncertainty*** *in the market and result in generators delaying investment in new renewable generation, transmission and distribution infrastructure. [****emphasis added****]*

3.4. That is, the two key features that the CCC's statement anticipates are firstly a steep increase in demand for electricity, and secondly an uncertainty in the timing of the increase in demand.

3.5. The CCC's demonstration path indicates that this steep increase is accompanied by an even steeper increase in demand for renewable electricity generation because of the additional substitution away from thermal to renewable electricity generation.[7] The demonstration path presents the view that this increase in demand is expected to be meet by substantial investment in wind and solar electricity generation out to 2035.

3.6. There may be, however, positive feedback between the pace of investment in renewable electricity generation and the growth in the number of EVs on the road plus the industry electrification. This dynamic could determine whether New Zealand is on the desired steep growth path or a more gradual growth path that would raise the risk of not achieving the net-zero carbon target by 2050.

3.7. The rate of growth in demand for renewable electricity relies on affordable, reliable renewable electricity being available. Therefore, if the rate of growth in investment in renewable electricity generation lags the rate of growth in the number of EVs on the road and industry electrification, then this may put upward pressure on the price of electricity. This upward pressure on the price of electricity may in turn slow further growth in EV numbers and industry electrification, which in turn would feedback to the rate of investment in renewable electricity generation.

3.8. Alternatively, if rate of growth in the supply of renewable electricity leads the growth in number of EVs on the road and industry electrification, then this may put downward pressure on the price of electricity. This in turn would provide a positive economic signal for the continued growth in EV numbers and industry electrification.

3.9. Trustpower therefore proposes the Infrastructure Strategy should enable a rate of investment along the energy supply chain that leads the growth in demand, placing the economy on a steep growth path toward the net-zero carbon target.

3.10. We propose that the strategies set out in our submission below will enable the acceleration of investment along the energy supply chain.

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[6] Ibid, page 281

[7] Ibid, page 113

4. Maintain fossil gas generated electricity as a buffer between supply and demand uncertainties[8]

4.1. Trustpower submits that fossil gas generated electricity should act as a buffer between uncertain medium to long term electricity demand and supply conditions, and help maintain the supply of reliable, affordable electricity during the transition to a net zero carbon economy.

4.2. The CCC report quote cited above highlights that significant changes in demand and supply conditions create uncertainty, referencing the uncertainty in the timing of the closure of Tiwai Point aluminium point or the commencement of the NZ Battery project. Other sources of uncertainty include the rate of EV uptake, the rate at which industry electrifies, and the rate at which renewable electricity power stations can be built. This is in addition to the timing of other events that raise the risk around adequacy of supply such as dry year events.

4.3. We agree with the CCC that the uncertainty in supply or demand conditions may delay investment in renewable electricity generation. This uncertainty, however, may similarly delay consumers purchasing EVs and industrial end users investing in electrification. As the rate of growth in demand for renewable electricity relies on affordable, reliable renewable electricity, uncertainty therefore has the potential to slow the rate of growth.

4.4. Fossil gas generated electricity has traditionally complemented renewable electricity generation. As the CCC report notes the " *… speed with which Aotearoa reduces fossil gas use for generating electricity needs to be carefully managed to ensure electricity remains reliable and affordable*".[9] Trustpower agrees that it is prudent to carefully manage the reduction of fossil gas use.

4.5. We consider that there should remain an important role for fossil gas in helping to maintain reliable and affordable electricity supply by acting as a buffer between uncertain supply and demand events. This role should continue until the planned reduction in fossil fuel generation that is informed by the performance of the growing renewable energy supply chain.

4.6. This strategy should be coupled with a market-based NZ-ETS price for carbon that is addressed below, which would provide the appropriate signal for the decline in fossil gas generation, ultimately leading to the net-zero carbon target by 2050.

5. Enable the energy industry to invest in a diverse range of renewable generators

5.1. Trustpower submits that the Commission's Infrastructure Strategy should continue to support private sector investment in a diversified portfolio of renewable generators across the country. In other words, the Infrastructure Strategy should avoid "picking winners" or specifying "significant infrastructure" based on a specific emission saving technology.

5.2. The CCC report relies on solar and wind generation to deliver growth in renewable electricity generation. We agree that these technologies complemented with batteries form an increasingly important part of renewable electricity generation portfolio looking forward. We also consider other important solutions should include improvements in the performance of existing hydro electricity generation schemes and investments in new hydroelectricity schemes.

5.3. Hydropower is based on well established, mature technologies compared with current grid scale batteries and solar generation. We submit that hydro generation and its associated storage continues to play important role in supporting New Zealand's low carbon future. Existing assets need to operate efficiently and cost effectively and retain the ability to be further enhanced and

[8] Fossil gas generated electricity follows the terminology adopted by the CCC in its final advice to the Government and covers thermal generation by natural gas.

[9] Ibid. page 69

optimised over time. New hydro generation schemes could also be part of the consideration of New Zealand's future electricity supply mix.

5.4. Each of these technologies have their place and time. New Zealand has diverse range of geographies, which means a particular solution, either hydro, solar, or wind, may be better suit a particular location compared with another.

5.5. With respect to timing of investment, the performance of differing technologies is evolving and improving at different rates, where say the performance of solar electricity generation is improving faster at this point in time than wind or hydro electricity generation. This means that it may be more efficient in the long term to invest in established technologies now and in the near term, and then invest in those technologies that are currently undergoing rapid improvements at a later point in time.

5.6. As noted above, we consider that provided the right economic instruments and price signals are in place, the industry is best positioned to choose the optimal technical solution to match with the underlying needs for the investment. These signals will become even more important in the transition to a net-zero carbon economy.

6. Enable the NZ-ETS to provide a market-determined price signal for CO_2

6.1. Trustpower commends the Government for implementing a cap and trade, NZ-ETS. We consider that it should be the primary tool for achieving emissions reductions. The right level of binding cap determined by the net-zero carbon target with a price of carbon set by the market would ensure the most efficient timing of investment in infrastructure and emissions reductions. Regulation should be used to enhance the NZ-ETS to facilitate emissions reductions, but not be the primary policy driver of change.

6.2. In that regard, the Cost Containment Reserve (CCR) of $50 is too low according to the analysis the CCC has included in its advice to Government. The CCC estimates that the marginal abatement costs likely to be required to meet the budgets and 2050 target will be in the order of around $140 per tonne of CO_2^e abated in 2030 and $250 in 2050. The low CCR means that the price signal provided by the NZ-ETS would be insufficient and additional policy interventions may be required with the aim of meeting the net-zero carbon target by 2050. However, these other interventions raise additional policy complexity, which results in exposure to unintended adverse consequences.

6.3. Trustpower accepts that some degree of broader policy intervention may be appropriate in the initial stages of the budget, over any period when the ETS becomes constrained, or for targeting towards areas where the ETS is not found to have the intended degree of effect. However, Trustpower considers that the ETS should remain the primary mechanism to enable innovation, drive investment in infrastructure and the switch to more efficient technologies.

6.4. There is the risk, otherwise, that the Government might try to "pick winners" or identify "significant infrastructure" and regulate the implementation of particular emission saving technologies. Trustpower believes that such an approach may force the uptake of technologies that fail to deliver the outcomes that are efficient, equitable and sustainable, resulting in unintended consequences and ultimately failing to meet net-zero carbon target in 2050.

7. Support pilot programmes to test new technologies

7.1. The rapid transition to the net-zero carbon economy will involve the deployment of new technologies across the energy supply chain. These technologies may require extensive trial and proof of concept testing prior to a decision on whether to invest in the technologies' development or deployment. Trustpower submits that the Commission's Infrastructure Strategy should recognise the need for innovation and ensure alignment of regulations along the energy supply chain to achieve this purpose (both within the competitive and non-competitive parts).

7.2. For instance, Trustpower's view is that it is appropriate for the next set of price paths of distribution networks regulated under Part 4 of the Commerce Act to recognise the challenges distributors will face as a result of the new technologies. There may be a need for an additional allowance to cover trial and proof of concept costs to ensure that new technologies and opportunities for new forms of demand response are well understood and fit-for-purpose before widespread adoption.

7.3. We consider that the key learnings of any trials funded under Part 4 allowances should be shared publicly as this would result in a more cost-efficient outcome than funding each distributor separately to assess each technology. Such transparency would not only be beneficial to New Zealand, but it may position New Zealand as test bed and potentially a world leader in renewable energy technology development.

7.4. However, funding for this purpose should also be clearly ring fenced from other activity. It would not be appropriate to see deferral of capex and opex required to deliver network reliability during the energy transition in favour of experimental new technology investment.

8. Make better use of existing infrastructure

8.1. As already noted, the CCC's demonstration path places a heavy reliance on solar and wind to achieve the renewable electricity growth target. The CCC's advice to Government seems to suggest that the emissions budgets could be met without the need for new hydroelectric or pumped hydro schemes.

8.2. Better use of the existing systems would help avoid unnecessary cost and should not be dismissed without assessment. Small changes implemented continually and quickly to existing assets are likely to yield better outcomes than a comparable single, large scale, disruptions or interventions.

8.3. In our experience the consent renewal process almost certainly results in more onerous operational constraints being imposed on hydro schemes, as the biophysical limits set out in policy get more and more stringent, while the policy provision for renewable generation becomes progressively weak by comparison. Inadequate protection of the capacity and output of existing electricity infrastructure puts at risk the baseline of electrification on which future modelling and targets are founded.

8.4. Having the ability to relax hydro lake level constraints and gain more flexibility in the way the storage is used would also have wider benefits beyond those created by the generation of electricity and dry year cover.

8.5. A portfolio of renewable generation will be need wind, solar and hydro. There are important synergies between hydro and wind that ensure security of supply whereby hydro is used to support the unpredictable, variable and intermittent nature of wind resources. Furthermore, any significant new wind farm generation would face similar consenting challenges as new hydro under the proposed Natural and Built Environments Act (**NBA**), i.e. potentially conflicting with landscape and biophysical limits.

8.6. Trustpower submits that additional capacity that can be provided by New Zealand's existing hydro fleet should be investigated first. There is unutilised flexibility within hydro storage lakes that are currently constrained. If New Zealand were able to use these storage assets to a greater extent in a dry year, this may unlock additional energy and enable flexible electricity generation to meet demand.

8.7. Some examples of simple consent changes that would lift constraints and increase hydro output without causing negative environmental impact include:

(a) Lake Patea (Patea Hydroelectric Power Scheme) has constraints on lake levels that must be maintained at various times of the year to provide recreational / boating access.

(b) Lake Mahinerangi (Waipori Hydroelectric Power Scheme) has constraints on the number of days, in either 5 year or 1-year period, that lake levels can be within the lower range. The ecological investigations suggest there is no adverse effect of holding at lower lake levels fora sustained period of time. Removing the Lake Mahinerangi consent conditions on the number of days of low lake level would unlock around 50 GWh of storage that could be used in dry periods to potentially displace carbon emitting alternatives.

(c) The Hinemaiaia Hydroelectric Power Scheme has constraints on how fast we can change our generation output, which stems from the ramping rates prescribed by the resource consent. A recent example of this causing inefficiency was where a scheme outage was required for the local lines company to carry out maintenance. For one days' worth of work, it took 3 days to shut the scheme down because the ability to respond is so severely constrained by the resource consent.

8.8. Trustpower also submits that the role of new hydro should be recognised in the Commission's Infrastructure Strategy. Hydroelectric power generation can be a cost-effective and sustainable means of renewable generation, and opportunity remains with respect to low impact schemes. By adopting a scale and design that is appropriate to the catchment, it is possible to construct and operate a hydro scheme that is economically viable, and which is also sympathetic to resource management considerations.

9. Integrated infrastructure institutions

9.1. Trustpower submits that the starting point for ensuring any adjustments to the policy settings do not undermine long-term investment decisions is to ensure that there is alignment between the Commission's Infrastructure Strategy and the existing Renewable Energy Strategy and the future the National Energy Strategy as recently proposed by the CCC.

9.2. To ensure that the necessary global capital is made available for the forthcoming energy transition, New Zealand must strive to have the best regulatory/policy settings to promote scale investment in renewable generation and the uptake of new energy technologies and least-cost abatement opportunities.

9.3. This will require a clear recognition that regulatory certainty is vital for investors making substantial, irreversible investments. Likewise, regulatory certainty is important for ensuring that consumers are provided with confidence that services will be provided reliably and that the prices they pay are reasonable.

9.4. We accept that some flexibility within the regulatory/policy settings will be required to enable adjustments as technological developments occur, new markets emerge, new business models develop, and behavioural changes take place.

9.5. We also note balancing the outcomes of efficiency, equity and sustainability during the transition will likely require ongoing monitoring and potential adjustments as the sector evolves. In some cases, direct Government subsidies may be required to address affordability concerns.

9.6. It is critical that the alignment in the policy intent extends to the decision making by institutions (including at both a national and local Government level) on matters that impact on the delivery of the Government's decarbonisation objectives.

9.7. Achieving alignment will require ongoing coordination between a number of institutions and should be based on a clearly aligning Infrastructure Strategy with the current Renewable Energy Strategy and the future the National Energy Strategy.

10. Reduce costs and improve consenting

10.1. Trustpower submits that the Commission's Infrastructure Strategy should adopt a 'climate change first' approach to the proposed new resource management legislation, by setting deliberate, clear

and firm policy priorities expressing the 2050 net-zero carbon target.

10.2. Trustpower requests that the Commission's Infrastructure Strategy make a number of specific recommendations to Government in the context of the proposed overhaul of the Resource Management Act 1991 (RMA), and its replacement with superseding legislation including the NBA and Climate Change Adaptation Act (CCAA).

10.3. The NBA must reflect that climate change and decarbonising New Zealand's economy is the defining environmental issue of our time.

10.4. To address this challenge there must firstly be greater cohesion of Central Government policy direction under the new legislation than we have seen under the RMA - for example, across the Electricity Transmission, Renewable Electricity Generation and Freshwater National Policy Statements in relation to the value of renewable electricity and decarbonisation to New Zealand. Secondly, greater primacy on decarbonisation and accelerated electrification is needed, particularly where outcomes and limits come into conflict.

10.5. The simple and unavoidable reality is that renewable energy generation and electrification projects are large in scale, particularly wind, geothermal, hydro and transmission grid expansion. These projects inevitably occur in environments where they are more likely than other developments to interact and at times conflict with other resource values related to biodiversity, aquatic habitat, and landscape.

10.6. Since the 2014 Supreme Court decision in King Salmon, the 'environmental bottom line' approach to resource management decision making has prevailed. This approach has been presenting barriers to the consenting of new renewable generation, certainly at the scale and pace needed for an accelerated electrification future. The sector is very concerned that this approach is being further amplified through the use of biophysical limits, now being drafted into the NBA.

10.7. This focus on exclusive protection of particular elements of the natural environment fails to recognise outcomes required to achieve a 'system wide' response to climate change. Clear policy direction is required (through national direction under the new NBA), to deal with situations where consenting a renewable electricity project involves potential conflict with other outcomes (for example, maintenance of indigenous biological diversity and restoration of viable populations of indigenous species). A specific consenting pathway will be needed to enable the benefits of the project to be brought into the process of decision-making.

10.8. The outcomes focus of the proposed NBA will be translated down at regional levels of planning and decision making. The outcomes for climate change and renewable energy need to do the same and be positively expressed, clear and directive. Trustpower doubts whether any renewable energy generation project of scale would be consentable under the proposed environmental statutory framework.

11. Updating the digital strategy to promote innovation

11.1. Trustpower submits that to prepare New Zealand for realising the full benefits of a connected digital society, the updated 2006 digital strategy should enable the development of new innovative business models for delivering digital services to businesses and consumers in New Zealand.

11.2. Enabling a more diverse range of business models to emerge in the service delivery market, would promote competition, provide consumers with additional choice and enhance more efficient utilisation of scarce resources.

11.3. The delivery of digital services to end users in New Zealand is based on fixed-line and mobile broadband access. Competition and innovation in the fixed-line broadband retail market has improved demonstrably as a result of wholesale access to fibre services being made available to

retail service providers on a level playing field basis. However, further service delivery innovation with mobile broadband services is limited because mobile services are delivered by mobile network operators (**MNOs**) that tightly integrate their retail broadband services with key infrastructure resources such as spectrum and cellsites.[10]

11.4. Our view is that the MNOs can provide the economic space for this innovation to occur and to enhance the efficient use of resources.

11.5. We note that the Consultation Paper presents the view that the telecommunications market is competitive. This may suggest that a process of innovation that Trustpower envisages would occur within the present mobile market. Trustpower's concern however is that this conclusion regarding the state of the mobile market is constrained by a view of competition that exists within a market that is dominated by three tightly integrated MNOs that operate essentially similar business models. Trustpower believes this environment can be enhanced to allow a more diverse business models to emerge

11.6. Substantial evidence exists that mobile virtual network operators (**MVNOs**) can help drive innovation, provided that they are able to attain network access on fair and reasonable terms. Therefore, Trustpower submits that the digital strategy should support the Commerce Commission's commitment to provide itself with greater ongoing visibility of the terms being offered to MVNOs, and how the commercial terms compare to key price and non-price dimensions of MVNO access.[11] Greater monitoring of the wholesale market for access to mobile network services would help ensure access is provided commercially, on fair and reasonable terms for both the MNOs and MVNOs. Commercially determined fair and reasonable terms would mean that Trustpower should not be expected to fund an MNO's retail costs nor should MNOs benefit from Trustpower's investment in innovative services. Likewise, Trustpower expects that MNOs should earn a fair and reasonable return on their assets that is determined by a process of competition between the three MNOs.

For any questions relating to the material in this submission, please contact [redacted], Advisor – Strategy & Regulation, [redacted].

Regards,

[redacted]

General Manager, Strategy & Growth

[10] These MNOs include Vodafone, Spark and 2degrees

[11] Commerce Commission, *Mobile Market Study – Findings,* 26 September 2019, Actions on the state of competition A2, Table X6, page 14

Annex: Trustpower response to Consultation Paper questions[12]

Consultation Questions	Trustpower Response
Q1. What are your views on the proposed 2050 infrastructure vision for New Zealand?	Trustpower is committed to contributing to the achievement of the Government's net-zero carbon emissions target by 2050, by investing in renewable energy generation, provided the appropriate economic signals and regulatory instruments are in place, which submission expands.
Q2. What are your views on the decision-making principles we've chosen? Are there others that should be included?	While we also support the proposal that infrastructure investment decisions should promote outcomes that are efficient, equitable and affordable we believe these outcomes can be refined and that the outcome of sustainability should be added. Our submission expands on this.
Q5. How could we better encourage low-carbon transport journeys, such as public transport, walking, cycling, and the use of electric vehicles including electric bikes and micro-mobility devices?	Promoting the incentive to invest in the existing highly competitive market for renewable electricity generation is crucial to achieving the transition to a net-zero carbon economy by 2050. Accelerated electrification through renewable generation and the associated energy supply chain represents our best opportunity to meet this challenge, encourage growth in EVs and the electrification of the industry.
Q7. What infrastructure issues could be included in the scope of a national energy strategy?	It is important that there is alignment between the Infrastructure Strategy, the Renewable Energy Strategy and the National Energy Strategy. These strategies should address the energy supply chain end-to-end, enable the energy industry to invest in renewable electricity generation ahead of the demand and to invest in a diverse range of renewable generation technologies.
Q9. Of the recommendations and suggestions identified in the Ministry of Business, Innovation and Employment "accelerating electrification" document, which do you favour for inclusion in the Infrastructure Strategy and why?	The measures set out in our submission focus on enabling investment in renewable electricity ahead of demand. Of particular note is the importance of enabling the NZ-ETS to provide a market-determined price signal for CO_2.
Q11. What are the most important regulatory or legislative barriers to technology adoption for infrastructure providers that need to be addressed?	As noted in our submission, the rapid transition to the net-zero carbon economy will involve the deployment of new technologies in the energy supply chain. These technologies may require

[12] New Zealand Infrastructure Commission, *Infrastructure for a Better Future*, May 2021

Consultation Questions	Trustpower Response
	extensive trial and proof of concept testing prior to a decision on whether to invest in the technologies' development or deployment. For instance, it is appropriate for the next set of price paths of distribution networks regulated under Part 4 of the Commerce Act to recognise the challenges distributors will face as a result of the new technologies. However, funding for this purpose should also be clearly ring fenced from other activity.
Q23. What infrastructure actions are required to achieve universal access to digital services?	Trustpower submits that to prepare New Zealand for realising the full benefits of a connected digital society, the updated 2006 digital strategy should enable the development of new innovative business models for delivering digital services to businesses and consumers in New Zealand. Our submission sets out an approach for achieving this.