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Low-emissions economy inquiry
New Zealand Productivity Commission
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Low-emissions economy draft report

Meridian Energy is New Zealand's largest electricity generator producing energy only from renewable sources and is a major nationwide retailer through our Meridian and Powershop brands. Our hydro stations generate enough electricity to power around 1.4 million homes each year and our wind farms generate enough electricity to power around 152,000 homes each year. In Australia, Meridian owns hydro and wind assets and retails electricity through its Powershop subsidiary. In the UK, the Powershop platform retails to customers via a franchise agreement. Listed on the New Zealand and Australian stock exchanges Meridian is 51% owned by the New Zealand Government.

Meridian is committed to meeting future energy needs with renewable energy and taking action on climate change.

Meridian strongly supports the Commission's work and sees huge value in the independent and robust analysis presented in the draft report. The Commission has succeeded in describing the whole-of-economy pathways to a low-emissions economy and in taking a longer-term view of the policies and institutions that will be required to achieve a low-emissions economy that enhances productivity and wellbeing in New Zealand.

We encourage the government to carefully consider the Commission's report, once finalised, and to take a bipartisan approach in giving effect to its recommendations.

This submission is structured under the following headings:

1. Stable and enduring laws and institutions
2. Emissions pricing
3. Electricity sector policies and regulation
4. Transport sector policies and regulation
5. An inclusive transition
6. Innovation and investment.

Under headings 3 and 4 above we address the Commission's specific questions on:

Q11.1

How could New Zealand signal a commitment to a widespread transition away from fossil-fuel vehicles? For example, should New Zealand explicitly aim to phase out the importing of fossil-fuel vehicles by some specified future date?

Q12.1

Does decision making under the Resource Management Act 1991 unduly constrain investment in renewable electricity generation, particularly wind and hydro generation? In what ways could the National Policy Statement on Renewable Electricity Generation 2011 be strengthened to give clearer direction to regional, district and unitary councils to make provision for renewable electricity generation in their regional and district plans, regional policy statements and resource management decisions?

Stable and enduring laws and institutions

Meridian strongly supports the Commission's statement that:¹

While it is small, New Zealand's size does not justify inaction. Indeed, quite the opposite. Around 30% of global emissions come from small emitters – collectively, small economies do matter and a global, concerted effort by all is needed to solve this issue.

The transition to a low-emissions economy presents an opportunity for New Zealand to lead the world and provide an example for others.

For a successful transition to a low-emissions economy, New Zealand needs stable and enduring laws and institutions that establish clear emissions targets and provide businesses with certainty regarding the framework within which future governments will develop and implement long-term policies to mitigate climate change.

¹ Productivity Commission *Low-emissions economy: Draft report* (April 2018) page 1

Meridian supports legislation that quantifies long-term emissions-reduction targets, informed by science. We also support a system of successive “emissions budgets” that translate long-term targets into clear short-to-medium-term stepping stones and help to reinforce steady action. An independent Climate Change Commission is needed to provide objective, de-politicised analysis and recommendations to government on the short-to-medium-term emissions budgets and economic implications.

The Government has signalled its intentions to introduce a legislative framework along these lines in a Zero Carbon Act. Meridian looks forward to engaging with the Ministry for the Environment and relevant Ministers in the development of legislation to set a 2050 emissions target and the roles, functions, and powers of the Climate Change Commission. We also expect to engage with the Interim Climate Change Committee this year as they undertake preparatory work and consider key issues such as the transition to 100 percent renewable electricity by 2035. We will encourage policy makers, the Interim Climate Change Committee, and Ministers to carefully consider the Productivity Commission’s report as they embark on their work.

Already tensions are apparent between what is politicised and what is independent, evidence-based policy advice. The New Zealand Labour Party and Green Party of Aotearoa New Zealand confidence and supply agreement states that the Government will:

Request the Climate Commission to plan the transition to 100% renewable electricity by 2035 (which includes geothermal) in a normal hydrological year. Solar panels on schools will be investigated as part of this goal.

The Interim Climate Change Committee is a Ministerial Advisory Committee, directly appointed by and reporting to Ministers on a task that is inherently about achievement of a political goal. While this is understandable for the Interim Climate Change Committee, the eventual Climate Change Commission needs sufficient independence to fulfil long-term functions and provide objective advice – it should not be directed to report on the political goals of the Minister of the day. As shown by the Productivity Commission’s draft report, evidence suggests that based on current technology driving towards 100 percent renewable electricity generation is not likely to be the most efficient way for New Zealand to meet its emissions objectives – phasing out the last few percentage points of thermal generation would likely drive up electricity prices and limit emissions reductions in other sectors such as transport. The Climate Change Commission must therefore have the option to advise

against a goal of 100 percent renewable electricity generation and instead recommend economy-wide goals, despite any political agreements and initial work undertaken on the subject by the Ministerial Advisory Committee.

While the current government has signalled its intention to lay the institutional foundations for the transition to a low-emissions economy, future governments cannot be bound by the current. The Productivity Commission's draft report lays down a challenge to all politicians, both now and in the future, to rise above partisan politics and accept the broad consensus amongst New Zealand voters and businesses that stable and enduring laws and institutions are needed to enable:

- planning for the transition; and
- long-term investment certainty and confidence.

Emissions pricing

Meridian agrees with the Commission's finding that:²

The New Zealand Emissions Trading Scheme (NZ ETS) should remain the centrepiece of New Zealand's emissions reduction efforts as it has the potential to provide this much-needed policy certainty. However, the NZ ETS needs to be made credible and effective.

We agree that NZ ETS prices need to rise to send the right investment signals for all sectors of the economy. We accept the evidence presented by the Productivity Commission suggesting that New Zealand's emissions price will need to rise to levels in the order of \$75 a tonne of CO₂ equivalent and possibly over \$200 a tonne over the next few decades to achieve the domestic emissions reductions needed to meet New Zealand's international commitments. These prices are aligned with Meridian's own internal analysis and expectations.

Meridian considers emission pricing signals to be the best policy tool to drive the transition to a low-emissions economy. Well-signalled emissions pricing enables businesses to adapt as they see fit and ensures the most efficient, technology-neutral, and economy-wide transition. Other policy tools such as sector specific targets may not provide the flexibility to most efficiently reduce emissions.

² Productivity Commission *Low-emissions economy: Draft report* (April 2018) page 3

Electricity sector policies and regulation

Electricity generation

New Zealand's largely decarbonised electricity sector is a major advantage, and considerable scope exists to further increase the supply of electricity from renewable sources. With around 85 percent renewable generation, only 6.1 percent of total emissions in New Zealand are attributable to electricity generation. Meridian expects the sector's emissions to reduce further still over the next decade as new wind generation developments become increasingly attractive (see Box 1 below).

Box 1: Meridian Wind Development

Meridian is committed to generating electricity from renewable energy sources and our wind development capability is the major pathway for future generation projects and growth.

Meridian has a long history of wind farm development, construction, and operation in New Zealand and Australia. Between 2003 and 2014 Meridian commissioned Te Apiti (90 MW), Wattle Point in South Australia (90 MW), White Hill (58 MW), West Wind (143 MW), Te Uku (64 MW), and Mill Creek (60 MW).

We also built the three wind turbine project on Ross Island, Antarctica in conjunction with Antarctica New Zealand in 2009. Each of those turbines is 330 kW in capacity and is linked to both Scott Base and McMurdo Station.

Meridian now operates five wind farms in New Zealand (60 percent of the total installed wind generation capacity in the country) and two wind farms in Australia. Meridian holds resource consents for three further wind farms, Maungaharuru, Central Wind and Hurunui. We also continue to investigate other wind development options and monitor the wind conditions at several locations around New Zealand, typically using 80 metre wind monitoring masts.

Our Maungaharuru wind farm project is likely to be the preferred next build option.

Meridian analysis comparing a range of international sources indicates that the levelised energy cost for new wind generation in New Zealand is in the range of approximately NZ\$65 to \$95 per MWh with significant variation from project to project. The cost of wind generation has fallen around 85 percent since 1983 and that trend is likely to continue. Since 2009 turbine costs, which typically comprise 65-85 percent of total development costs, have fallen by around 50 percent.

As detailed in our initial submission to the Commission, Meridian's analysis suggests that the current electricity market settings and technology, paired with an effective emissions price, can deliver an electricity system with up to 95 percent renewable generation by 2028 and up to 97 percent renewable generation by 2035. Yet, as described in the Commission's draft report, providing on-call generation to meet peaks in demand and to provide energy in dry years, will remain a challenge. Based on current technologies, policies that seek to drive

towards 100 percent renewable generation by requiring on-call generation to be from only renewable sources may cause a substantial rise in electricity prices due to the over-building of intermittent generation that would be required. This would be bad for consumers and may delay adoption of electrification in the transport and industrial process heat sectors. We strongly agree with the Commission's conclusion that:³

Given technological uncertainty and the importance of electricity prices for the adoption of low-emissions technologies in other parts of the economy, the Government should not favour particular electricity generation technologies. It should also be cautious about setting stringent targets for electricity-sector emissions before technology becomes available to further reduce emissions at reasonable cost. The Government should, instead, through the NZ ETS, rely mostly on effective emissions pricing to guide investment in new electricity generation.

Over time, improvements in technology and new technology developments, lower costs for renewable generation developments, and improvements to demand response are likely to mean that the last few percentage of on-call thermal generation can be removed from the New Zealand electricity system at a reasonable cost.

Potential barriers to renewable electricity generation

Electricity demand is increasing and is expected to grow significantly in future.⁴ New renewable electricity generation will be required as a result. Owners of older thermal electricity generation plant are also signalling that the plant is likely to be less available in the future. Furthermore, there are major opportunities for New Zealand to reduce emissions in transport and industrial heat processes using renewable electricity generation. It is therefore critical that, alongside effective emissions pricing, New Zealand removes any unnecessary barriers and policy incoherence that would otherwise impact upon the:

- development of new renewable electricity generation, and
- the ongoing ability to operate, upgrade and re-consent existing renewable generation.

In Meridian's view there is a pressing need for decision-makers under the Resource Management Act (RMA) framework to be provided with clear policy direction regarding how

³ Productivity Commission *Low-emissions economy: Draft report* (April 2018) page 7

⁴ Transpower predicts ~90 TWh per annum demand by 2050, see *Te Mauri Hiko – Energy Futures* <https://www.transpower.co.nz/sites/default/files/publications/resources/TP%20Energy%20Futures%20-%20Te%20Mauri%20Hiko%20%202025%20May%2718.pdf>. This is significantly higher than the ~60-70 TWh per annum demand in the scenarios modelled for the Commission's draft report.

New Zealand should provide for and manage renewable electricity generation. As we noted in our initial submission to the Commission, an effective National Policy Statement for Renewable Electricity Generation (NPS REG) which protects, permits, and enables existing and future renewable electricity generation projects would be one way to provide this direction.

On the back of our submission the Commission has asked:

Q12.1

Does decision making under the Resource Management Act 1991 unduly constrain investment in renewable electricity generation, particularly wind and hydro generation? In what ways could the National Policy Statement on Renewable Electricity Generation 2011 be strengthened to give clearer direction to regional, district and unitary councils to make provision for renewable electricity generation in their regional and district plans, regional policy statements and resource management decisions?

Meridian considers decision-making under the RMA to unduly constrain investment in renewable electricity generation because:

- There is weak policy direction in the NPS REG regarding the need to maintain and improve existing renewable electricity generation as well as build new renewables;
- There needs to be effective and efficient processes to enable re-investment in existing renewable generation including wind farms, many of which will reach the end of their lifetime and require investment in new turbines within the next decade;
- There are undue limitations on consent duration. This means that consent lifetimes do not match the lifetimes of the infrastructure for which they are supposedly granted;
- There are short timeframes within which a new consent must be implemented before the consent lapses and a lack of flexibility in how developments are defined, which does not reflect the realities of infrastructure development where technology improves over relatively short timeframes and yet developments can take more than a decade to be build ready;
- There is a lack of policy coherence across policy for climate change, renewable electricity generation, fresh water and land use;
- The provisions in Appendix 3 of the National Policy Statement for Freshwater Management (NPS FM) are incomplete; and
- There is ambiguity regarding application of the NPS REG to water allocation and resource use generally.

We discuss each of these constraints in more detail below.

Meridian has suggested a redrafting of the NPS REG, which is attached as Appendix 1. We hope that the suggested changes will be the start of a conversation with policy makers about better national direction for renewable electricity generation developments.

In the draft, we have attempted to show how the existing and emerging weaknesses of the NPS REG could be overcome. In particular, we have:

- Worked in specific reference to New Zealand's emissions reduction goals and commitments;
- Strengthened the force of the NPS REG by making the language outcome focused rather than process focused;
- Integrated generation outcomes and the necessary resource use and protection;
- Provided specific direction on the management of environmental effects for renewable electricity generation;
- Set out specific direction to support the continuation and enhancement of existing renewable electricity generation; and
- Recognised that the NPS REG must support a significant amount of new renewable electricity generation if the Government is to achieve its aims.

A National Policy Statement under the RMA has an effective life during which it informs and directs the relevant policy and planning documents prepared by councils. Regional and district plans are required to be reviewed by councils every ten years.⁵ There is therefore an effective 'life' of a NPS's which encompasses a planning cycle of at least 10 years to be fully effective in decision making. In the next 10 – 13 years the resource consents for New Zealand's two largest hydro schemes in the Waitaki and Manapouri catchments will need to be re-consented. Additionally, by 2028 it can be expected that many existing wind farms will either need to be repowered or owners of those facilities will need to commit to investment decisions about how, when or possibly whether to repower. The need for New Zealand to enable growth in renewable electricity generation assumes that existing renewable contributions are not undermined.⁶ Given the length of a decadal planning cycle the timeframe for the NPS REG to ensure that outcome via council policy statements and plans is now. Furthermore, it follows that any reduction in existing generation moves the timeframe, cost and likelihood of achieving a low emissions economy in the wrong direction.

⁵ Resource Management Act, section 79(1)

⁶ Productivity Commission *Low-emissions economy: Draft report* (April 2018) page 61, Figure 3.7 shows that under all modelled scenarios existing renewable generation is maintained through to 2050,

Renewable electricity generation is long-lived infrastructure, it also requires additional investment in long-lived transmission infrastructure. Renewable electricity generation is not a network utility operation and accordingly is not able to utilise the requiring authority provisions in the RMA.⁷ In this regard it is unusual when compared to many other forms of infrastructure. Development of renewable electricity generation by resource consent drives a narrow focus on a particular infrastructure layout and configuration in order to make effects assessments specific. Also, the duration of consent approvals before they lapse is often short and is not reasonable given the practical realities and lead in timeframes for development of these types of infrastructure. Greater flexibility and lapsing provisions apply to designations and would be a more effective way in which to enable renewable generation development while still managing impacts and allowing for public participation.

A related issue is that the maximum duration for a resource consent to use a natural resource is limited to 35 years.⁸ Renewable electricity generation assets such as hydro generation have productive lives much longer than 35 years.

Wind farm turbines have a shorter productive life and may require refurbishment or replacement after 20 – 30 years. There is however a significant investment in a wind farm site that has a much longer and more enduring productive life including: roading, cabling, switchyards and other transmission facilities. In this situation flexibility to allow for the upgrading and redevelopment of the site is important to support least-cost emissions reductions for New Zealand.

Many of the effects of renewable electricity generation are distinct for each site or facility. However, some effects are standard. An important instance of such standard effects is wind farm noise. Wind farm noise effects have been codified in an appropriately robust New Zealand Standard (NZS 6808:2010).⁹ Despite the existence of NZS 6808:2010, wind farm noise is frequently a point of debate between witnesses in consent hearings. Wind farm noise is a matter that could be addressed by a National Environmental Standard to ensure consistency and efficiency on this issue. Recently announced consultation on draft National Planning Standards for noise is a positive initial step relating to common definitions of terms. More could be done in a National Environmental Standard or a further National Planning Standard to codify NZS 6808:2010.

⁷ Resource Management Act, sections 166 and 167.

⁸ Resource Management Act, section 123

⁹ Available at: <https://shop.standards.govt.nz/catalog/6808%3A2010%28NZS%29/view>.

In Meridian's initial submission to the Productivity Commission we also highlighted the interconnected nature of energy, climate change, fresh water, and other resource management policy.

Policy development affecting renewable electricity generation needs to be coherent and reflect New Zealand's priorities. Neither the NPS REG nor NPS FM have sufficient regard to the importance of climate change or to New Zealand's commitments under the Paris Agreement.

For example, the NPS FM requires, among other things, objectives to maintain and improve freshwater quality and quantity outcomes for lakes and rivers and to meet national bottom lines for freshwater quality. One of the possible outcomes of this policy could involve increased minimum flows or a reinstatement of flows in rivers with hydro-electric infrastructure. This would impact the levels of hydro generation achievable and any future investment in hydro generation. Hydro generation has the ability to very quickly ramp up or down around falls and rises in other types of generation. For example as wind or solar generation falls away hydro can ramp up to keep overall electricity supply stable and in line with demand. Because of this, hydro is key to enabling New Zealand to integrate large amounts of intermittent renewables without adversely affecting reliability of supply. Accordingly, if the current level of hydro generation in our system is reduced, this may in turn have the unintended consequence of reducing New Zealand's ability to accommodate large additional amounts of intermittent renewables and result in other unintended consequences, including:

- electricity cost and security of supply implications; and
- an increase in greenhouse gas emissions from the electricity sector.

It is therefore essential that the NPS FM Appendix 3 is completed so that councils can make decisions that allow for ongoing operation of existing generation schemes where that outcome best achieves sustainable management taking in to account all relevant factors. Appendix 3 of the NPS FM relates directly to hydroelectric infrastructure and is entirely blank, arguably meaning that outcomes like increasing minimum flows will always and inevitably trump emission reduction, cost, and security of supply outcomes due to any resulting reduction in renewable electricity generation. Yet, existing hydro generation is the foundation on which New Zealand's flexible and low-emissions electricity system is based.¹⁰

¹⁰ As noted by the Productivity Commission New Zealand generates 85 percent of electricity from renewable sources and more than 50 percent from hydro (in some years up to 65%) *Low-emissions economy: Draft report* (April 2018) page 321

The NPS REG is also ambiguous as to how it applies to water allocation, which is essential to the effective operation of hydro generation.

A further example, given the reliance on forestry offsets foreseen by the Commission, will be the need for plantation forestry to be carefully located. Various studies have shown that the conversion of pasture to forestry can reduce the yield in water bodies by 30 percent or more. This reduction in inflows could have significant impacts on other water users. In hydro generation catchments a reduction of this scale would have a corresponding impact on expected generation volumes and therefore could risk a reduction in security of supply and an increase in electricity prices.

Electricity network pricing

The falling costs and increasing efficiency of emerging technologies such as rooftop solar, home battery storage, smart appliances, home energy management tools, and electric vehicles, will see increasing uptake by consumers. Some of these technologies have the potential to flatten peaks in electricity demand and further reduce emissions while providing a range of other benefits. However, more is required to ensure that:

- the right price signals are in place to enable efficient technology uptake;
- there is a level playing field between different technology or service providers; and
- distribution networks can manage increasing complexity on their networks.

Distribution pricing needs to incentivise the use of new technologies and demand response in a way that reflects costs of providing the lines service and appropriately rewards the consumption or supply of energy and ancillary services in particular locations and at particular times. The Electricity Authority refers to this as cost-reflective and service-based pricing.

The Authority has been working on distribution pricing reform since 2009 and in recent years has been encouraging industry-led pricing reform with publication of roadmaps and next steps every six months. Some distributors have published detailed roadmaps and appear up to the task of reforming their pricing structures. Others have not released a roadmap for pricing reform or updated their roadmaps and appear to be making little or no progress, despite support from the Electricity Networks Association and Authority.

Given the rate of technology uptake, Meridian considers distribution pricing reform to be increasingly urgent. Reform should be completed to align with the next Commerce Commission reset of the default price quality path and the beginning of the next regulatory period in 2020. If distributors are not visibly committed to this timing then regulatory intervention may be required.

In the absence of timely pricing reform uptake of beneficial technologies may be stymied or investments made in less beneficial technology. As succinctly put by Transpower “[m]ost end users today have pricing structures that over-stimulate self-production, under-stimulate efforts to moderate peak usage, and overly deter electrification”.¹¹ The 29 lines companies allocate the costs of running, maintaining and expanding their networks to customers in a range of different ways but the dominant methodology is to allocate network costs on a variable, per kilowatt hour basis. Variable charging like this is poorly aligned with the true drivers of network costs (largely based on peak demand and fixed costs) and is not providing realistic or efficient cost signals to customers, particularly the adopters of new technology. This means solar uptake is over-incentivised and the pace of electric vehicle uptake is reduced, with potential costs to the country of billions of dollars¹² and significantly increased greenhouse gas emissions.¹³

As noted in our initial submission to the Commission, the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 have a similar negative effect to current distribution pricing structures.

Efficient pricing structures are also needed at the transmission level to ensure that the right signals are sent regarding the costs of locating large industrial load or generation at certain points on the grid. The current transmission pricing methodology is under review by the Electricity Authority and we encourage the Authority to progress its work. In the absence of reform, transmission pricing will continue to be poorly aligned with the private benefits derived by users of the grid resulting in significant inefficiency in the use and development of transmission infrastructure and of generation and load generally in New Zealand. In particular, the current treatment of the HVDC link is arbitrary and inefficient, creating large disparities between who benefits from the link and who pays. The resulting inefficient

¹¹ Transpower submission on the Productivity Commission’s *Low-emissions economy: Draft report* (April 2018) page 7

¹² See NZIER *Effects of distribution charges on household investment in solar* September 2015; Concept Consulting *Electric cars, solar panels, and batteries in New Zealand Vol 2: The benefits and costs to consumers and society* (June 2016).

¹³ According to Concept Consulting *Driving change* (2018) New Zealand could expect 37 percent higher emissions from the light vehicle fleet in 2050 under a continuation of non-cost-reflective prices.

locational signals for new load and generation increase the long-term costs to consumers of electricity and therefore the costs and speed of electrification and resulting emissions reductions.

Facilitating competition for services on distribution networks

As well as encouraging distribution pricing reform, Meridian supports the Commission's findings regarding competition for services across the distribution system. Distributed technologies like batteries have the ability to flatten demand peaks (assuming the right price incentives) and therefore have the potential to help reduce emissions from the electricity sector in future. These technologies can also be used to support the management of distribution networks, however, these assets are not "natural monopoly" assets like traditional poles and wires as they can be provided by a growing number of industry participants and in many instances by consumers themselves. Treating these technologies as regulated monopoly assets enables distributors to guarantee a regulated return in what is otherwise a potentially high-risk emerging market. Meridian believes that distributors should be required to keep new technology services separate from their regulated businesses and that networks should openly tender for network services based on new technology to ensure that:

- network spending on such technologies is subjected to competitive market forces rather than economic regulation;
- consumers benefit in the long-term through greater competition, innovation and reduced costs; and
- potential emissions reductions from these technologies are realised in the most efficient manner.

Meridian therefore agrees that the IEA's platform for services model may well be the most suitable to:

[M]eet the challenges facing the sector because it will increase competition and innovation, reduce transaction costs and more effectively integrate a diverse range of suppliers and new technologies. In addition, it will maintain a more effective separation of contestable and natural monopoly functions.

We note that the Electricity Authority has identified similar risks and has asked the Innovation and Participation Advisory Group to undertake an Equal Access project to consider potential options to strengthen the equal access framework to further promote competition, reliability

and efficiency in the provision of electricity and electricity related services. The Commerce Commission is also gathering information from distributors regarding emerging technologies and reminding them of their obligation under the Commerce Act to not take advantage of their substantial market power in emerging markets that they are seeking to enter or are already participating in. Meridian will continue to encourage these regulatory developments and technology uptake that is in the best interests of consumers and will most efficiently reduce emissions.

Regulatory frameworks need to support distributors in providing a platform for the different services and technologies that will rely on their networks. Enabling a competitive environment will benefit customers in the long-term and ensure efficient prices and innovative service offers. In the absence of this shift, there may be a case for government to legislate to ensure investment in new distributed technologies is subject to competitive pressure and in the best interests of consumers.

Strengthening capability in distribution

Meridian supports the Productivity Commission's recommendation that the Electricity Authority should also undertake a review of and develop measures to raise the capabilities of the electricity distribution businesses to:

- ensure all power system resources (including distributed energy resources) have competitive access to a well-configured common distribution infrastructure, at a reasonable cost;
- coordinate distributed energy resources (including smart, flexible demand) to meet participants' preferences for security, quality and reliability; and
- provide rewards and allocate costs commensurate with the marginal costs and benefits of each load and generating source.

The Commission's recommendations are consistent with similar concerns raised by the International Energy Agency:

New Zealand's electricity distribution sector is facing a period of rapid change, following the widespread deployment of advanced interval metering and the emergence of new technologies (electric vehicles, battery storage, and rooftop solar PV). These developments ... have the potential to radically transform the distribution system use and power flows, making the systems far more dynamic and complex to manage in an efficient and secure manner. Distribution businesses will be at the forefront of managing these challenges...

...Concerns have been raised about the financial, technical and managerial capability of the distribution sector to respond effectively to this challenge. Concerns have also been raised about the governance and decision-making capability of the distributors and their capacity to manage this potentially complex transition in an efficient and timely manner that will help to realise the potential benefits for consumers.

The 29 distribution businesses in New Zealand range in their size and capabilities. It is at least questionable whether 29 distributors is an efficient number in a country the size of New Zealand. Regulatory options need not focus only on amalgamations and should include encouraging more shared services or the distribution system operator model proposed in the Commission's draft report.¹⁴

Electricity Authority objectives

With an effective emissions-pricing system, a statutory objective for the Electricity Authority to have regard to reducing greenhouse gas emissions in electricity is unlikely to incentivise efficient emissions reductions *across the economy as a whole*. If the Authority's statutory objectives were amended, it would risk driving faster and higher-cost uptake of renewable generation than would otherwise occur. This might in turn drive higher electricity prices. Higher electricity prices would slow the electrification of other sectors like transport and process heat, meaning an overall negative outcome in terms of emissions. By contrast, an effective emissions price would be reflected in the costs of goods and services across the economy according to their relative emissions intensity and thus enabling the most efficient, economy-wide emissions reductions to occur.

Transport sector policies and regulation

The adoption of electric vehicles (EVs) represents the greatest opportunity to reduce transport emissions. There are already several positive government interventions to support EV uptake such as exemption of road user charges, procurement of EVs for government, supporting the roll out of charging infrastructure and a contestable fund of \$6 million per annum to encourage uptake and innovation. As Meridian has stated previously, these policies should continue. However, at some point EV users will need to pay their share of road infrastructure costs. This transition will need to be well managed and signalled early so that consumers can make informed choices.

¹⁴ Productivity Commission *Low-emissions economy: Draft report* (April 2018) page 344

Meridian would also like to see more done in the area of education where ‘range anxiety’ persists, despite the hugely improved performance of recent EV models and the significant increases in the available charging infrastructure.

Research undertaken by Concept Consulting in 2016¹⁵ indicates that the current flat structure of most retail electricity tariffs, along with low carbon costs, constrains the uptake of electric vehicles because of:

- the electricity cost from charging EVs at off peak times (like overnight) generally being too high;
- the payments which future EVs could earn from injecting power back into the electricity grid at times of peak demand being too low; and
- the carbon price that internal combustion engine owners pay from tailpipe emissions being too low.

The Commission has convincingly argued that fast uptake will be critical to achieve a low-emissions economy and that “for the bulk of light vehicles to be electric by 2050, nearly all vehicles entering the fleet would need to be EVs by the early-2030s.” Under all scenarios modelled by the Commission, uptake of light EVs occurs rapidly, reaching between 40 percent and almost 80 percent of the light vehicle fleet by 2050. Meridian supports the additional measures proposed by the Commission, namely:

- Vehicle emissions standards – New Zealand is one of the few developed countries without vehicle emissions standards. Introducing standards is warranted, and will reduce the risk of New Zealand becoming a dumping ground of high-emitting vehicles from overseas.
- A price feebate scheme – through which importers would either pay a fee or receive a rebate, depending on the emissions intensity of the vehicle. A feebate would be technology neutral and fiscally neutral for the Crown.

These measures would need to be carefully designed and to the extent possible any regressive impacts on lower income persons would need to be avoided or mitigated.

¹⁵ http://www.concept.co.nz/uploads/2/5/5/4/25542442/new_technologies_economic_report_v2.0.pdf

The Commission's draft report also asks:

Q11.1

How could New Zealand signal a commitment to a widespread transition away from fossil-fuel vehicles? For example, should New Zealand explicitly aim to phase out the importing of fossil-fuel vehicles by some specified future date?

Meridian considers the transport sector policies proposed by the Commission to be an adequate signal of New Zealand's commitment to a widespread transition away from fossil-fuel vehicles.

An inclusive transition

Meridian agrees that the transition to lower-emission technologies may be difficult for some low-income households, especially if the price premium for low-emissions vehicles over fossil fuel vehicles remains high.

We agree that the government will need to carefully monitor energy, food, and transport price trends to ensure that the welfare system adapts throughout the transition to a low-emissions economy. In particular, EV uptake by different household types will need to be monitored for any negative impacts on the mobility of low income households.

The Commission prefers a combination of welfare benefits and tax credits because such benefits and credits are most affordable and targeted, and existing policies can be used. Meridian supports this approach rather than intervention directly in pricing that can distort markets and have unintended price and emissions consequences that are difficult to unwind and negatively impact the transition to a low-emissions economy.

Innovation and investment

According to the Commission, introducing mandatory climate-related financial disclosures is the most important action the Government can take to encourage investment that supports the transition to a low-emissions economy. These disclosures would enable investors to more accurately value assets or investment opportunities, factoring in emissions risks. The Commission recommends that the Government should officially endorse the recommendations of the Task Force on Climate-related Financial Disclosures and work to incorporate mandatory disclosure into existing regulatory instruments.

Investors increasingly demand climate-related disclosures¹⁶ and this pressure will only increase as emissions prices take on more financial significance. Meridian uses the International Integrated Reporting Council's Integrated Reporting Framework to review our financial, economic, social and environmental performance. Our reporting is prepared:

- in accordance with Generally Accepted Accounting Practice (GAAP) in New Zealand and comply with International Financial Reporting Standards (IFRS) and the New Zealand equivalents (NZ IFRS), as appropriate for a for-profit entity;
- in accordance with the requirements of the Financial Markets Conduct Act 2013; and
- in accordance with the core requirements of the Global Reporting Initiative's (GRI's) G4 Sustainability Reporting Guidelines.

The GRI G4 Sustainability Reporting Guidelines include climate disclosures similar to those recommended by the Commission and the Task Force on Climate-related Financial Disclosures. Meridian fully supports the work of the Task Force and we note that there is increasing alignment internationally about the key elements required for climate-related disclosures and reporting.

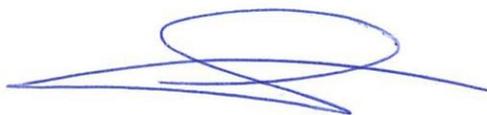
Meridian therefore supports in principle the mandating of climate-related disclosures. We also encourage government endorsement of the recommendations of the Task Force on Climate-related Financial Disclosures. Given the range of frameworks available internationally, we would suggest that firms retain some discretion regarding the use of a particular framework, provided that certain critical information is included as mandatory. The size or type of firms required to disclose would also need to be carefully considered and it is likely that mandatory disclosure would only be appropriate for large or listed firms.

¹⁶ For a recent example see the open letter from the Chairman and CEO of Black Rock, the world's largest investment firm: <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.

We congratulate the Commission on the draft report and look forward to its finalisation.

Please contact me if you have any questions regarding this submission.

Yours sincerely

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

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Suggested Redraft

NATIONAL POLICY STATEMENT

**For Renewable
Electricity Generation**

Preamble

This national policy statement sets out an objective and policies to enable the sustainable management of renewable electricity generation under the Resource Management Act 1991 ('the Act').

New Zealand's energy demand has been growing steadily and is forecast to continue to grow. New Zealand must confront two major energy challenges as it meets growing energy demand. The first is to respond to the risks of climate change by reducing greenhouse gas emissions caused by the production and use of energy. This includes meeting New Zealand's international obligations, most recently the Paris Agreement, to reduce greenhouse gas emissions and transition to a long-term low emission economy. The second is to deliver clean, secure, affordable energy while treating the environment responsibly.

The contribution of renewable electricity generation, regardless of scale, towards addressing the effects of climate change plays a vital role in the wellbeing of New Zealand, its people and the environment. This will include an important role in assisting other parts of the economy, particularly transport and industry, to replace fossil fuels with renewable energy sources.

In considering the risks and opportunities associated with various electricity futures, central government has renewed, and committed to, its strategic target that 100 percent of electricity generated in New Zealand should be derived from renewable energy sources by 2035 (based on delivered electricity in an average hydrological year) providing this does not affect security of supply.

New Zealand has formalised its first commitment under the Paris Agreement to reduce its greenhouse gas emissions by 30 percent below 2005 levels by 2030. The Government has previously notified a target for a 50 per cent reduction in New Zealand greenhouse gas emissions from 1990 levels by 2050 and that a carbon neutral economy is established by 2050.

Development that increases renewable electricity generation capacity can have positive and adverse environmental effects that span local, regional, national and global scales, often with adverse effects manifesting locally and positive effects manifesting nationally and globally. Encouraging electricity generation from renewable energy sources is necessary to achieve long-term reductions in dependence on non-renewable resources and the production of greenhouse gas emissions. The positive effects derived from renewable electricity generation should be recognised when considering provisions, standards or proposals that may affect its development or operation.

Small and community-scale distributed renewable electricity generation, domestic-scale energy efficiency and alternative energy sources will contribute to a reduction of energy consumption and use of non-renewable energy sources. However, large-scale renewable electricity generation will also be required to meet the government's target of achieving 100 per cent renewable electricity generation by 2035 and to satisfy the growing energy demand for renewable electricity for a carbon neutral economy by 2050.

Large scale renewable electricity generation can have adverse environmental effects. For example, wind energy generation, by necessity, are located in open, usually prominent, locations where the wind resource is available and this can give rise to adverse landscape and amenity effects. Hydro-electricity generation can adversely affect ecological, landscape and tangata whenua values within catchments. Facilities for the transmission of the generated electricity to the national grid may also be necessary, with potential for adverse environmental effects. Accordingly, there can be tensions between the values of these areas and the potential adverse effects of large scale renewable electricity generation.

Therefore, the national and global benefits of renewable electricity generation must compete evenly with matters of national importance as set out in section 6 of the Act, and with matters to which decisionmakers are required to have particular regard under section 7 of the Act. In particular, the natural resources from which electricity is generated can coincide with areas of significant natural character, significant amenity values, historic heritage, outstanding natural features and landscapes, significant indigenous vegetation and significant habitats of indigenous fauna. There can also be potential conflicts with the relationship of Maori with their taonga and the role of kaitiaki.

Title

This national policy statement is the National Policy Statement for Renewable Electricity Generation xxxx.

Commencement

This national policy statement will take effect xxxx.

Interpretation

In this national policy statement, unless the context otherwise requires:

Act means the Resource Management Act 1991.

Decision-makers means all persons exercising functions and powers under the Act.

Distribution network means a distributor's lines and associated equipment used for the conveyance of electricity on lines other than lines that are part of the national grid.

Distributor means a business engaged in distribution of electricity.

National grid means the lines and associated equipment used or owned by Transpower to convey electricity.

Renewable electricity generation means generation of electricity from solar, wind, hydroelectricity, geothermal, biomass, tidal, wave, or ocean current energy sources, and the development, operation, maintenance and upgrade of the structures and activities associated with this generation. This includes small and community-scale distributed renewable generation and the system of electricity conveyance required to convey electricity to the distribution network and/or the national grid and electricity storage technologies associated with renewable electricity

Small and community-scale distributed electricity generation means renewable electricity generation for the purpose of using electricity on a particular site, or supplying an immediate community, or connecting into the distribution network.

Terms given meaning in the Act have the meanings so given.

Matters of national significance

This national policy statement is about recognising the national significance of renewable electricity generation, and in particular:

- a) the nationally significant role of renewable electricity generation in the achievement of New Zealand's obligations and targets for the reduction of greenhouse gas emissions;
- b) the need to develop, operate, maintain and upgrade existing, and substantial new, renewable electricity generation throughout New Zealand; and
- c) the benefits of renewable electricity generation and that these cannot be achieved without adverse environmental effects.

Objective

To recognise the national significance of renewable electricity generation by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation that enables:

- a) long-term generation from existing renewable electricity generation, and maintains and where practicable increases its generation output and operational flexibility; and
- b) significant generation output and operational flexibility from new renewable electricity generation;

such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation, and its international obligations for reduction in greenhouse gas emissions.

A. Recognising and providing for the benefits of renewable electricity generation

POLICY A1

Regional policy statements and regional and district plans shall include objectives, policies and methods which recognise and provide for renewable electricity generation including the national, regional and local benefits relevant to renewable electricity generation, and which give effect to the objective of this national policy statement. These benefits include, but are not limited to:

- a) maintaining and increasing electricity generation capacity while avoiding, reducing or displacing greenhouse gas emissions;
- b) enabling other parts of the economy, particularly transport and industry, to transition from fossil fuels to renewable energy sources;
- c) maintaining or increasing resilience, security and reliability of electricity supply at local, regional and national levels by diversifying the type and/or location of electricity generation;
- d) using renewable natural resources rather than finite resources;
- e) the reversibility of the adverse effects on the environment of some renewable electricity generation technologies; and
- f) avoiding reliance on imported fuels for the purposes of generating electricity.

POLICY A2

When considering applications for resource consents for renewable electricity generation, every decision-maker shall recognise and provide for the national, regional and local benefits relevant to renewable electricity generation, including, but not limited to, those listed in Policy A1.

B. Addressing the practical implications of achieving New Zealand's targets for electricity generation from renewable resources and its international obligations for reduction in greenhouse gas emissions

POLICY B

When making or changing policy statements and plans to give effect to this national policy statement, and when considering applications for resource consents for renewable electricity generation, every decision-maker shall:

- a) protect the assets, operational capacity and continued availability of the renewable energy resource of existing renewable electricity generation, in order to maintain and, where practicable, enable an increase in its generation output and operational flexibility; and
- b) maintain the generation output and operational flexibility of existing renewable electricity generation as even minor reductions can cumulatively have significant adverse effects on national, regional and local renewable electricity generation output; and
- c) enable the long-term operation of existing renewable electricity generation; and
- d) encourage existing renewable electricity generation to increase the efficiency of its generation output and operational flexibility; and
- e) provide for the significant development of additional renewable electricity generation, as this will be required for New Zealand to meet or exceed its national targets for the generation of

electricity from renewable resources, and its international obligations for reduction in greenhouse gas emissions.; and

- f) ensure that resource consents for the existing or new renewable electricity generation are granted for the maximum term, in recognition of its national significance and significant value of the investment.

C. Addressing the constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation

POLICY C1

When making or changing policy statements and plans to give effect to this national policy statement, and when considering applications for resource consents for renewable electricity generation, every decision-maker shall recognise and provide for the following:

- a) the need to locate renewable electricity generation where the renewable energy resource is available;
- b) logistical or technical practicalities associated with developing, upgrading, operating or maintaining renewable electricity generation;
- c) the significant value of the investment in existing renewable electricity generation and the benefits from continued and, where practicable, increased renewable electricity generation from that investment;
- d) the location of existing structures and infrastructure including, but not limited to, roads, navigation and telecommunication structures and facilities, the distribution network and the national grid in relation to renewable electricity generation, and the need to connect renewable electricity generation to the national grid;
- e) the long time periods required for the orderly and practical development of new, or maintenance or upgrading of existing, renewable electricity generation and the need for lapsing periods for resource consents that exceed the minimum period;
- f) designing measures which allow operational requirements to complement and provide for mitigation opportunities; and
- g) adaptive management measures.

POLICY C2

When making or changing policy statements and plans to give effect to this national policy statement, and when considering applications for resource consents for renewable electricity generation, every decision-maker shall consider existing renewable electricity generation and its associated use of, and effects on, natural and physical resources as part of the existing environment.

D. Managing environmental effects of renewable electricity generation

POLICY D1

When considering any residual environmental effects of renewable electricity generation, decision-makers shall have regard to:

- a) the extent to which avoidance, remedying or mitigation of adverse effects is constrained by functional and operational needs of renewable electricity generation, and the need for resilient, secure and reliable electricity supply at local, regional and national levels;
- b) the significant scale of generation output and operational flexibility from renewable electricity generation that will be required for New Zealand to meet or exceed its national targets for the generation of electricity from renewable resources, and its international obligations for reduction in greenhouse gas emissions;

- c) an applicant's proposed offsetting measures or environmental compensation including measures or compensation which benefit the local environment and community affected.

POLICY D2

When making or changing policy statements and plans to give effect to this national policy statement, and when considering applications for resource consents for renewable electricity generation, every decision-maker shall:

- a) rely on compliance with a relevant New Zealand standard as demonstrating that the effects on the environment are acceptable and as establishing the appropriate level of compliance;
- b) recognise and promote the use of New Zealand Standards, environmental management codes of practice and best practice methods in energy generation, distribution and use; and
- c) in particular when managing noise effects from wind energy generation, implement any relevant New Zealand Standard.

E. Managing adverse effects on renewable electricity generation

POLICY E

Decision-makers shall, to the extent reasonably possible, manage activities to avoid adverse effects on consented and on existing renewable electricity generation.

F. Incorporating provisions for renewable electricity generation into regional policy statements and regional and district plans

F1 Solar, biomass, tidal, wave and ocean current resources

POLICY F1

Regional policy statements and regional and district plans shall include objectives, policies and methods (including rules within plans) to provide for the development, operation, maintenance, and upgrading of new and existing renewable electricity generation using solar, biomass, tidal, wave and ocean current energy resources to the extent applicable to the region or district.

F2 Hydro-electricity resources

POLICY F2

Regional policy statements and regional and district plans shall include objectives, policies, and methods (including rules within plans) to provide for the development, operation, maintenance, and upgrading of new and existing hydro-electricity generation to the extent applicable to the region or district.

F3 Wind resources

POLICY F3

Regional policy statements and regional and district plans shall include objectives, policies, and methods (including rules within plans) to provide for the development, operation, maintenance and upgrading of new and existing wind energy generation to the extent applicable to the region or district.

F4 Geothermal resources

POLICY F4

Regional policy statements and regional and district plans shall include objectives, policies, and methods (including rules within plans) to provide for the development, operation, maintenance, and upgrading of new and existing electricity generation using geothermal resources to the extent applicable to the region or district.

G. Incorporating provisions for small and community-scale distributed renewable electricity generation into regional policy statements and regional and district plans

POLICY G

As part of giving effect to Policies F1 to F4, regional policy statements and regional and district plans shall include objectives, policies, and methods (including rules within plans) to provide for the development, operation, maintenance and upgrading of small and community-scale distributed renewable electricity generation from any renewable energy source to the extent applicable to the region or district.

H. Enabling identification of renewable electricity generation possibilities

POLICY H

Regional policy statements and regional and district plans shall include objectives, policies, and methods (including rules within plans) to provide for activities associated with the investigation, identification and assessment of potential sites and energy sources for renewable electricity generation by existing and prospective generators.

I. Time within which implementation is required

POLICY I1

Unless already provided for within the relevant regional policy statement or proposed regional policy statement, regional councils shall give effect to Policies A, B, C, D, E, F, G and H by notifying using Schedule 1 of the Act, a change or variation (whichever applies) within 24 months of the date on which this national policy statement takes effect.

POLICY I2

Unless already provided for within the relevant regional or district plans or proposed plans, plan changes or variations, local authorities shall give effect to Policies A, B, C, D, E, F, G and H by notifying using Schedule 1 of the Act, a change or variation (whichever applies) within the following timeframes:

- a) where the relevant regional policy statement or proposed regional policy statement already provides for the Policies, 24 months of the date on which this national policy statement takes effect; or
- b) where a change or variation to the regional policy statement or proposed regional policy statement is required by Policy I1, 12 months of the date on which the change or variation becomes operative.

Monitoring and reviewing the implementation and effectiveness of the national policy statement

To monitor and review the implementation and effectiveness of this national policy statement in achieving the purpose of the Act, the Minister for the Environment should:

- in collaboration with local authorities and relevant government agencies collect data for, and, as far as practicable, incorporate district and regional monitoring information into a nationally consistent monitoring and reporting programme, including monitoring the performance of local authorities against the timeframes for giving effect to this national policy statement;
- utilise other information gathered or monitored that assists in measuring progress towards the Government's national target for the generation of electricity from renewable sources;

- within five years of its taking effect, and thereafter as considered necessary, assess the effect of this national policy statement on relevant regional policy statements and regional or district plans, resource consents and other decision-making; and
- publish a report and conclusions on matters above.