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Consultation: ERP2
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2023 Draft advice to inform the strategic direction of the Government's second emissions reduction plan

Introduction

Meridian's purpose is clean energy for a fairer and healthier world. Meridian is Aotearoa's largest electricity generator producing energy from 100 percent renewable sources – wind, water, and sun. 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. Meridian is also a major nationwide retailer through our Meridian and Powershop brands.

Meridian is committed to meeting future energy needs with renewable energy and taking bold action on climate change. Some of our initiatives include:

- construction of a new wind farm (Harapaki in the Hawke's Bay)¹
- construction of a grid-scale battery (Ruakākā Energy Park in Northland)²
- a target of bringing seven new large-scale renewable generation projects into operation around Aotearoa in the next seven years³
- a 100% electric light vehicle fleet

¹ <https://www.meridianenergy.co.nz/power-stations/wind/harapaki>

² <https://www.meridianenergy.co.nz/power-stations/ruakaka-energy-park>

³ <https://www.meridianenergy.co.nz/news-and-events/meridian-energy-targets-seven-large-new-renewable-energy-projects>

- investment in a nationwide network of electric vehicle chargers⁴
- competitive home EV charging plans⁵
- supporting our industrial customers to decarbonise process heat through electrification (examples include Mataura Valley Milk, Alliance Group, Meadow Mushrooms, and Woolworks)⁶
- a proposal to build the world's first large-scale green hydrogen plant in Southland⁷
- a significant investment in permanent native forests⁸
- half by 30 – our target to halve gross scope 1, 2 and 3 emissions by the 2030 financial year (over 95% of our emissions are scope 3 emissions from our supply chain)⁹
- taking a leading role on climate-related financial disclosures since 2019, well in advance of legislation mandating climate-related financial disclosures.¹⁰

Meridian strongly supports the work of He Pou a Rangi and sees huge value in independent and robust climate policy advice to government. When the Commission released its first emissions reduction plan advice in 2021, *Inaia tonu nei*, it concluded that there are achievable, affordable, and acceptable pathways for Aotearoa New Zealand to achieve its emissions reduction goals. Meridian agrees that is still the case. However, the imperative to act with urgency is greater than ever. New Zealand must do its part in the global effort to limit the average temperature increase to 1.5°C above pre-industrial levels. Inaction will only push the burden onto future generations and increase the cost of adaptation.

Meridian and the electricity industry will be at the leading edge of this transformation and will be a key enabler of emissions reductions in Aotearoa. We broadly support the Commission's headline draft recommendations.

We note that this round of advice from the Commission has been framed slightly differently to previous advice and is more focused on the strategic outcomes needed to achieve the second emissions budget and enable future climate goals, leaving policy details up to the Government of the day. While that seems broadly sensible and realistic, Meridian hopes that this does not mean the Commission will shy away from direct criticism of government

⁴ <https://www.meridianenergy.co.nz/ev/zero-charging-network>

⁵ <https://www.meridianenergy.co.nz/for-home/ev-plan>

⁶ <https://www.meridianenergy.co.nz/business/sustainable-options/process-heat-electrification-programme>

⁷ <https://www.meridianenergy.co.nz/news-and-events/meridian-selects-southern-green-hydrogen-partner>

⁸ <https://www.meridianenergy.co.nz/community-support/forever-forests>

⁹ <https://www.meridianenergy.co.nz/good-energy/environment/half-by-30>

¹⁰ <https://www.meridianenergy.co.nz/about-us/investors/sustainability/climate-disclosures>

policy or avoid more specific policy recommendations where current policies appear to be heading in the wrong direction – if not in this advice then in the Commission’s monitoring of progress against budgets.

This submission focuses on the sectors and policies where Meridian has experience or expertise, namely:

- gross emissions targets and the role of forestry;
- the emissions trading scheme;
- an equitable transition;
- energy and industry; and
- transport.

Gross emissions targets and the role of forestry

He Pou a Rangi proposes that in the emissions reduction plan for the second budget the Government must:

- commit to a specific level of gross emissions for the second and third emissions budgets no less ambitious than 362 MtCO₂e and 322 MtCO₂e respectively, and ensure that its policy choices align with delivering this outcome; and
- communicate indicative levels of gross emissions and carbon dioxide removals from forestry out to 2050 and beyond to guide policy development.

Meridian recognizes that Aotearoa is different to most other developed countries because the potential scale of land-based carbon removals via forestry is very large relative to national gross emissions. Government decisions are therefore critical to determine how much to reduce gross emissions instead of using forestry to meet the 2050 net zero target. Meridian agrees with previous analysis by the Commission showing the longer-term risks of too much forestry including:

- the bounce up in emissions after 2050 unless new forests are planted in perpetuity;
- the risk of fires, flood, or other natural disasters releasing carbon into the atmosphere sooner than expected;
- the impact on rural communities of extensive plantation forestry; and
- collapse of emissions prices so that emissions reduction investments do not proceed and ETS revenues (for reallocation to fund complementary policies, equitable transition policies, and adaptation) are greatly reduced.

Meridian therefore agrees that the fundamentals for a successful transition include the prioritisation of gross emissions reductions (rather than relying too heavily on removals). To achieve this, we broadly support the Commission's draft recommendation to make the emissions pricing system consistent with delivering the specific levels of gross emissions for the second and third emissions budgets, and with the 2050 net zero target, by:

- implementing an amended ETS that separates the incentives for gross emissions reductions from those applying to forestry; and
- developing an approach that can provide durable incentives for net carbon dioxide removals by forests through to and beyond 2050.

The Commission has not made specific policy recommendations but instead outlines several options that could be adopted. Those options are similar to government proposals recently released for consultation on 19 June 2023. Of the potential options raised by the Government, Meridian would support policies that change the ETS incentives that apply to forestry, either by:

- restricting the portion of forestry units that emitters can surrender; or
- restricting units earned by forestry e.g. one unit for every two tonnes of carbon dioxide removal; or
- restricting the lifespan of forestry units so they cannot be stockpiled, reducing their value.

However, Meridian's support for such options is subject to the proviso that any restrictions should not apply to the permanent forest category of the ETS, which is simultaneously proposed to be redesigned so that only permanent native forests or forests in transition to native can be registered in the permanent category. This combination of options would retain strong ETS incentives for permanent native and transition forests given the associated biodiversity and social co-benefits and increased resilience as a long-lived carbon sink. At the same time, exotic and plantation forestry would be less incentivised under these options and units from those forests would decrease in value. That would lead to the desired outcomes – ETS unit prices that drive material gross emissions reductions and more indigenous afforestation.

We would not want to see the ETS become purely a forestry tool with any gross emissions reductions instead reliant on complementary policies. Meridian believes that more efficient gross emissions reductions will result if the ETS is used because:

- it is a "polluter pays" framework (as opposed to the taxpayer bearing the cost burden); and

- as stated by the Productivity Commission in the *Low-emissions economy* report:¹¹

“Properly designed and implemented, emissions pricing is a powerful policy instrument to reduce emissions. Emissions pricing provides strong incentives to reduce emissions at least cost. It decentralises decisions to invest, innovate and consume across the economy to people who have the best information about opportunities to lower emissions given their circumstances. An emissions price is also pervasive through the whole economy – shaping resource and investment decisions across all emitting sectors and sources.”

The emission trading scheme

Meridian considers the ETS to be the best policy tool to reduce greenhouse gas emissions in New Zealand and to enable the achievement of emissions targets and budgets. However, to be effective, the ETS must operate to limit unit availability over time in line with budgets and send increasingly strong price signals to reduce emissions. Meridian hopes that the Government and businesses will become comfortable with steady, market-driven increases in unit price – consistent with the Commission’s advice to date on the price pathway.

In the absence of these increases in unit prices, New Zealand will either:

- not meet its emissions budgets and be off track for the 2050 target; or
- to meet budgets and targets the Government will need to intervene more directly and more drastically in markets, generally at higher cost and greater disruption to the New Zealand economy than a transition based primarily on price signals.

In addition to the forestry and gross emissions-related changes to the ETS discussed above, Meridian also strongly supports the Commission’s view that the ETS needs to be correctly calibrated to achieve the desired outcomes – this includes unit volume and price control settings as well as industrial allocation policies.

Meridian strongly agrees that emissions pricing is a powerful and flexible tool for tackling climate change because participants face the costs associated with their emissions while being free to decide how best to make reductions based on their individual circumstances. The ETS also has broad coverage, affecting a much wider range of decisions than would be possible with more targeted policies.

¹¹ https://www.productivity.govt.nz/assets/Documents/4e01d69a83/Productivity-Commission_Low-emissions-economy_Final-Report.pdf

Meridian was pleased to see the first emissions reduction plan indicate the Government expectation that the ETS is central to emissions reduction efforts, while recognising the role of complementary policies where needed. However, more recently, the balance between the ETS and other complementary policies seems to be skewing away from emissions pricing in favour of direct interventions. The Government has given mixed signals about the role of the ETS in reducing emissions. The ETS unit limits and price control settings consultation in late 2022, and the subsequent decisions, seemed to indicate a lack of political appetite for higher ETS prices. Meridian was disappointed that the Government chose to ignore the Commission's advice to:

- reduce unit volumes at auction to reduce unit surplus in the market;
- raise the auction price floor;
- raise the cost containment reserve price and place it in two tranches (to reduce likelihood of oversupply); and
- make cost containment reserve volumes within the total emissions budget rather than in excess of budget volumes.

Those decisions have surely driven (at least in part) the market response that has seen ETS prices collapse significantly since the end of 2022 – the opposite outcome to what is needed if the ETS is to incentivise emissions reduction – and the failure of the last two ETS auctions, significantly reducing the funds available to the Government for complementary emissions reduction policies, equitable transition policies, and adaptation.

Meridian also notes that wider Government decisions on complementary policies (for example recent changes to the biofuels obligation and the Clean Car Upgrade and social leasing scheme) can have an effect on ETS prices if the market perceives them as indicative of the seriousness of the Government's intentions. While the Commission intends to only offer strategic policy recommendations, it could helpfully note that climate policy stability and certainty are important for market confidence in the direction of ETS prices.

Finally, Meridian agrees with the Commission that the Government should consider the costs and trade-offs of continuing to provide support through industrial free allocation. We agree that industrial free allocation is a cost to taxpayers, and in some cases it may be better to redirect these resources towards reducing emissions. The recent announcement of emissions reduction funding for NZ Steel¹² is an example where the cost of emissions

¹² <https://www.beehive.govt.nz/release/nz%E2%80%99s-biggest-ever-emissions-reduction-project-unveiled>

reductions funded by the taxpayer will presumably be offset by reductions in the free industrial allocations to NZ Steel.

Equitable transition

Like the Commission, Meridian recognises that increasing emissions price will have greater impacts on low-income households, as higher income households likely have more capacity to adapt. This should not be an excuse for weak ETS settings or for otherwise delaying climate action. Delaying climate action for cost of living reasons will only put more economic pressure on future generation both for mitigation and through increased costs of adaptation if global mitigation efforts are less effective. Meridian agrees that the Government should utilise social policy mechanisms (funded by ETS auction revenue) to manage transitional impacts and should be explicit about this in the Equitable Transitions Strategy that is under development.

The impacts of emissions pricing on the wider economy are an inherent impact and result in incentives for businesses and consumers to change behaviour. This is the core purpose of emissions pricing. Rather than being wary of higher ETS prices, the Government, in designing social policies, should be alert to distributional impacts if parts of society are more likely to struggle as a result of the transition to a low emissions economy. There will generally be costs associated with emissions reduction and in Meridian's opinion the ETS remains the most cost-effective tool. Favouring alternative direct interventions will not avoid costs, distributional impacts, and equity considerations, it would only shift how costs are recovered from households, i.e. using increased tax revenues instead of consumer prices.

As ETS prices increase so too will the Government's revenue from ETS auctions. In 2021, the Government announced the establishment of the Climate Emergency Response Fund based on ETS revenues. That fund, and any increases to it, should support initiatives to address any distributional impacts as a result of climate change mitigation policies. The Government can help with policies that ensure an equitable transition and reduce the impact on low-income households in particular. Meridian encourages the Government to support low-income households using the existing welfare system. As the Commission suggests, recent initiatives like the COVID-19 support payments and half-price public transport show that the Government can act fast to counter cost of living impacts. Changes to the Winter Energy Payment could also include means testing for recipients of superannuation and expansion to more low-income families.

Meridian also agrees with the Commission’s draft recommendation six, that the Equitable Transitions Strategy should include an equitable approach to climate change adaptation. Social policy measures should be implemented to assist those with less capacity to adapt to climate change impacts.

Energy and industry

Meridian agrees that the largest share of emissions reductions in the second emissions budget period is expected to come from energy and industry. Therefore, getting the settings right to support electrification is crucial. We agree that this includes:

- prioritising and accelerating renewable electricity generation build (primarily through an enabling consenting environment); and
- ensuring electricity distribution networks can support the growth and variability of supply and demand.

Renewable generation build

Aotearoa has one of the lowest emission electricity systems in the world. This low emissions electricity can be used to reduce emissions elsewhere through electrifying transport, process and space heating. To meet the anticipated increase in demand for electricity, companies like Meridian will build new renewable generation. This is an enormous opportunity for Meridian, and we are excited about growing our business while helping to reduce emissions across Aotearoa.

Under the Commission’s demonstration pathway 10.5 TWh of new renewable generation would need to be built by 2030 and 96% of electricity generation would be from renewable sources. This pathway is well aligned with the roadmap commissioned by the electricity sector and developed by the Boston Consulting Group (BCG), which anticipated 10.6TWh of new renewable generation by 2030 and a 98% renewable power system.¹³ Based on information provided by the sector, BCG found that “there is more than enough renewable energy generation in the project pipeline to achieve the roadmap’s aim of 98% renewable generation by 2030.” The Electricity Authority has also observed “evidence of a promising pipeline of committed and actively pursued investment in new renewable generation”.

¹³ <https://web-assets.bcg.com/b3/79/19665b7f40c8ba52d5b372cf7e6c/the-future-is-electric-full-report-october-2022.pdf>

Meridian is pleased to see the Commission's acknowledgement that three large projects at the front end of the development pipeline (Tauhara geothermal power plant, Meridian's Harapaki wind farm, and Turitea wind farm) will collectively displace around 2.2 TWh of fossil gas or coal generation per year, avoiding over 0.9 MtCO₂e of emissions per year. More investment is planned to closely follow those projects, with Meridian alone committing to a target of bringing seven new large-scale renewable generation projects into operation around Aotearoa in the next seven years.¹⁴

The industry has a strong track record of building the necessary renewable generation to support increases in electricity demand. Since 1996, the market has seen the New Zealand electricity sector invest in over 20,000 GWh of new electricity generation at a cost of over \$9 billion. This investment has been diversified and has not been dominated by any particular technology or fuel source or by any single company or companies. The risks of these investments have been borne by private investors rather than directly by taxpayers. We note that:

- ten years ago, around 65 percent of New Zealand's electricity was from renewable sources (compared to around 85 percent today);
- since 2012, 1026 MW of thermal capacity has been retired and replaced by new largely renewable generation; and
- between 2003 and 2014, Meridian alone commissioned over 400MW of wind generation.

We are confident that the market will continue to deliver new generation as and when required to meet the expected growth in electricity demand as we move towards the 2050 target in Aotearoa.

However, there are some impediments that the Government should address to enable more rapid and lower-cost investment in electricity generation.

Meridian agrees with the Commission that policy settings are creating investment uncertainty and delaying build. In particular:

- The current resource consenting system is complex, time consuming, and adds cost to renewable development projects (we would add that there is a risk the proposed reforms will not improve the situation and will create additional uncertainty during the transition).

¹⁴ <https://www.meridianenergy.co.nz/news-and-events/meridian-energy-targets-seven-large-new-renewable-energy-projects>

- The Government has set a target of reaching 100% renewable electricity by 2030, which would require significant market intervention. The Government is investigating intervention options through the NZ Battery Project and this credible threat alongside the aspirational target introduces investment uncertainty for generation developers.

Resource consenting

Consenting costs and delays have long been a cause of concern for the sector. For example, Meridian's June 2018 submission on the Productivity Commission's Low-emissions Economy inquiry noted the potential barriers to renewable generation investment and the pressing need for decision-makers under the RMA framework to be provided with clear policy direction regarding how New Zealand should provide for and manage renewable electricity generation.

Meridian therefore strongly agrees with the Commission's observations that resource management reforms create uncertainty during the transition and include currently unspecified environmental limits and the potential provision of exemptions. We support the recommendation that "a simplified or streamlined consenting process that makes renewable build easier and quicker is needed by the start of the second emissions budget period, if not earlier."

This is consistent with calls from other independent experts, including:

- The Electricity Authority inviting the Government to "promptly complete their work to strengthen national direction for renewable electricity to inform local planning and resource management consenting. This should reflect the government's 100% renewable electricity aspiration, electrification and renewable energy goals, and the implications for the amount of investment in renewable generation that needs to occur".
- BCG stating that "it is imperative that the RMA is improved to support, rather than prohibit, the development of renewable energy and that consenting is easy and fast."

While the Natural and Built Environment Act (NBEA) proposed to replace the RMA may be able to address some of the consenting impediments, Meridian is concerned that the transition to a new legislative framework could make it slower, more costly, and more challenging to consent renewable generation rather than improve the situation. Implementing the protectionist "System Outcomes" in the NBEA from commencement but relying on later national direction to allow for infrastructure and decarbonisation investment

as well as consenting processes is highly fraught. That is especially the case given the concerns discussed below with the proposed national direction under the RMA (which would presumably need to change again following passage of the NBEA and implementation of the proposed national planning framework).

In addition to the Bill, the Government has consulted on a proposed National Policy Statement on Renewable Electricity Generation (NPS-REG 2023). As currently drafted, it is neither sufficiently directive nor enabling to support the pace and scale of renewable electricity investment and development needed to meet the Government's electrification and decarbonisation objectives. In fact, in relation to existing renewable generation, the provisions of the proposed NPS-REG 2023 are a step backwards in relation to the effective consenting of existing hydro generation, which will be essential to the power system to firm increasing levels of intermittent generation and enable emissions budgets to be met. With respect to new renewable generation developments, the NPS-REG 2023 is only a marginal improvement over the status quo and is not the "circuit breaker" or step change in approach required. The Electricity Sector Environment Group has made several recommendations for improvements to deliver on the stated objectives of the NPS-REG 2023 and ensure emissions budgets can be met.

We understand that the Government's intention is for a Spatial Planning Act to sit alongside the NBEA. The spatial planning approach that seems to be intended for the Regional Spatial Strategies (RSS) is problematic because no one knows now what generation development will be most economical in future. Generation developers operate in a dynamic, innovative, and highly competitive environment meaning the technology choices and investment opportunities of the future are not known today. It would be unreasonable, in our view, to assume any government body could anticipate and realistically zone for what needs to be built and where. Planning documents are slow to respond to changing market conditions and consumer needs and tend to be reviewed on a decadal cycle. Furthermore, spatial planning for generation developments would risk picking winners amongst competing generation developers, each of whom has existing options on the ground now and would lobby for recognition of their options in spatial plans.

Even in the best-case scenario where the end state of the reforms delivers an ideal outcome that enables renewable electricity generation and transmission, there will still be a considerable period of uncertainty through the transition that will be challenging to navigate and is likely to increase costs for generation investors. The sooner the Government can provide certainty on the framework as a whole, the better investment outcomes will be. No

one wants to see a 'lost decade' of renewable generation consenting, yet that is a real risk and one that Aotearoa cannot afford if we are serious about emissions reductions.

Other government policy uncertainty

The Commission rightly notes the investment uncertainty created by the Government's aspirational target of reaching 100% renewable electricity by 2030. Significant Crown intervention would be required to deliver on this aspiration and, despite the commitment to review the aspirational target in 2024, the threat of intervention seems real given the progress of the NZ Battery Project.

Meridian agrees with the Commission that although a 100% renewable electricity system is technically feasible, it would come at significant cost and could increase economy-wide emissions if it led to higher electricity prices.

In the Commission's previous advice for the first emissions reduction plan it recommended that the Government set a target that 50% of all energy consumed comes from renewable sources by 31 December 2035 and that the target for 100% renewable electricity should be replaced with achieving 95% to 98% renewable electricity by 2030. The Commission also advised that solving the dry year problem avoids relatively few emissions (0.6 MtCO₂e per year from fossil gas peaking generation in 2050) and would come at significant cost. That advice was true when the estimated capital cost on taxpayers for a pumped hydro investment was closer to \$4 billion and is now all the more pertinent given the updated estimate of a \$16 billion capital cost.

Meridian is not opposed to any particular technology or solution to address dry year risk but does see the need to carefully scrutinise taxpayer costs on this scale when the potential benefits appear limited and there are risks of unintended consequences in the market.

Government policy uncertainty on these issues has persisted for several years despite several rounds of independent advice recommending greater clarity. The Government asked the Interim Climate Change Committee to provide advice on planning for the transition to 100% renewable electricity by 2035. The Committee responded that:¹⁵

¹⁵ <https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Advice-to-govt-docs/ICCC-accelerated-electrification-report.pdf>

“Going from 99% to 100% renewable electricity by overbuilding would avoid only 0.3 Mt CO₂e of emissions at a cost of over \$1,200 per tonne of CO₂e avoided. It is also likely to result in much higher electricity prices than in the business as usual future.”

...

“The Committee therefore recommends that the Government prioritises the accelerated electrification of transport and process heat over pursuing 100% renewable electricity by 2035 in a normal hydrological year.”

The Electricity Authority has also recognised that policy uncertainty can be an impediment to investment and invited the Government to “bring forward the completion of the Gas Transition Plan, Energy Strategy, and NZ Battery project, as reduced uncertainty would contribute to more renewable generation investment, and so lower prices, sooner.”¹⁶

The electricity market relies on significant investment of private capital to deliver generation to meet growing electricity demand and deliver a secure and reliable supply. According to BCG, in the 2020s alone, the industry will need to invest “\$10.2 billion in 4.8 GW of new utility-scale renewable generation capacity—more than a 50% increase on installed capacity in the system today” as well as “\$1.9 billion in new flexible generation and demand resources to cater for peak demand periods and dry years. This represents 4 times the supply-side flexible capacity that was developed in the 2010s.”¹⁷

As BCG makes clear “Lake Onslow’s development, or even speculation that the project may go ahead, could impact investment in both interim and future flexible capacity.” Concept Consulting who partnered with BCG on the report was even more explicit, stating:¹⁸

“A mega-scale flexibility project will ‘crowd out’ other forms of flexibility provision. For example, it will substantially reduce the returns for investing in demand flexibility at the Tiwai aluminium smelter, or in a potential hydrogen production facility. This will reduce the international competitiveness of electricity-intensive commodity industries for whom flexibility is a practicable option. It will also likely crowd-out potential investment in additional fast-start peakers or other equivalent sources of flexibility which our modelling indicates could be required even before 2030.”

¹⁶https://www.ea.govt.nz/documents/3017/Decision_paper_promoting_competition_through_the_transition.pdf

¹⁷ <https://web-assets.bcg.com/18/8c/583cf435404491fdcf5614ddd415/the-future-is-electric-fullreport-october-2022-new-zealand.pdf>

¹⁸ https://www.concept.co.nz/uploads/1/2/8/3/128396759/which_way_is_forward.pdf

The uncertainty of the NZ Battery Project will overhang the investment market until any investment is commissioned (and in the case of pumped hydro, until the reservoir is full, and the scheme is up and running) so well into the late 2030s. This is an extraordinary long-time for investors to manage significant uncertainty at a critical juncture in the evolution of the New Zealand energy system.

In Meridian's opinion, a key driver of the current winter peak capacity risks is that anyone looking to invest in fast-start peakers, or demand response options to address dry year and peak capacity challenges will struggle to make a business case stack up due to the threat of Government intervention with a large-scale pumped hydro investment that would undermine the ability of other flexible resources to earn a return over their operational life. It is very difficult (perhaps impossible) for private investments in peaking or dry year flexibility to compete with a potential government investment designed to operate in the market at a loss.

In Meridian's opinion, the Commission should again directly recommend that the Government set a target that 50% of all energy consumed comes from renewable sources by 31 December 2035 and target 95% to 98% renewable electricity by 2030. The Commission could also helpfully point out that a government investment under the NZ Battery Project is not necessary to achieve the emissions budgets and targets in the demonstration pathway and that the significant taxpayer funding could reduce more emissions elsewhere in the economy with far less risk of unintended consequences.

Hydrogen

The Commission expresses some doubts that "exporting green hydrogen could impede domestic decarbonisation if the required renewable generation comes at the expense of other builds. Although Aotearoa New Zealand's generation potential is considerable..."

In Meridian's opinion such caution is unfounded. We expect to be able to build the new intermittent renewable generation to support hydrogen production without increasing wholesale electricity prices. The Ministry of Business, Innovation and Employment estimates that New Zealand's identifiable remaining on-shore wind resource is between 37 and 42TWh, with another 30TWh of off-shore wind potential also identified.¹⁹ In addition there is an estimated 8 to 12TWh of remaining geothermal resource,²⁰ and 5 to 10TWh of

¹⁹ <https://www.mbie.govt.nz/assets/wind-generation-stack-update.pdf>

²⁰ <https://www.mbie.govt.nz/assets/future-geothermal-generation-stack.pdf>

grid-scale solar potential. It is clear that Aotearoa is not short of affordable new renewable generation options and that some combination of these options could serve 5TWh of additional hydrogen load along with other baseload, industrial and transport electricity demand growth estimated at an additional 10TWh per decade to 2050.²¹

Any scenario with both aluminium and hydrogen production in Southland (i.e. an increase in existing demand) would be contingent on simultaneous generation development and there are many development opportunities in the South Island due to historic underinvestment for various reasons.²² As noted earlier in this submission, there is a strong pipeline of renewable generation development options that exceeds demand forecasts and could reasonably be expected to also supply hydrogen production.

Building the new sources of renewable energy to support hydrogen production is not the issue. The far bigger issue for the future electricity system (that is already emerging) is the need for flexible resources that can alter their supply or demand in harmony with the electricity system to:

- manage dry years without reliance on fossil fuels; and
- ensure peak capacity is available to serve demand on cold, dark, windless winter evenings.

The economics of any investment in hydrogen production in Aotearoa are finely balanced and we consider the key factor to be the flexibility of electrolysis. Financially rewarding that flexibility can reduce the total energy cost and make hydrogen production in New Zealand commercially viable.

Meridian has modelled the potential for flexible electrolysis plant in Southland. We have found that flexible hydrogen production on this scale, combined with other dispatchable demand opportunities, renewable spill, and residual gas peaking generation can deliver 99 to 100 percent renewable electricity generation at no additional cost to taxpayers or electricity consumers. Flexible hydrogen production therefore represents a viable alternative to a large pumped hydro storage investment.

²¹ <https://web-assets.bcg.com/b3/79/19665b7f40c8ba52d5b372cf7e6c/the-future-is-electric-full-report-october-2022.pdf>

²² For example, prior to 1 April 2023 the transmission pricing methodology required South Island generators exclusively to pay the costs of the HVDC cable between the North and South Islands, despite the national benefits of that cable. The Electricity Authority said this “acts like a tax on South Island generation” and “inefficiently discourages investment in South Island generation”.

Meridian is aware of some of the scepticism around the economic viability of hydrogen production but is working with serious businesses to develop the proposition and prepare for a final investment decision. Meridian, with the support of Ngāi Tahu, has selected Woodside Energy as the preferred partner to move forward to the development stage of the proposed Southern Green Hydrogen project. Mitsui & Co., Ltd. is also in discussions to join the project and develop the potential market for ammonia offtake, with the aim of creating a world-class collaboration that covers the full hydrogen and ammonia supply chain.

Markets like Japan are on their own decarbonization journey but do not have the abundance of renewable resources that New Zealand enjoys. We therefore expect the decarbonization of such economies to be heavily reliant on the emergence of a hydrogen and ammonia export market. The effort to mitigate climate change is global. If New Zealand can use its renewable energy advantage to help decarbonize other countries, while growing the New Zealand economy, it will be a win-win. The emergence of an export market could also enable domestic uses of hydrogen in hard to abate sectors like heavy transport.

Industrial decarbonisation

Meridian supports the Commission's draft recommendation to pursue more widespread process heat decarbonisation. We agree that GIDI funding is helping to overcome capital barriers but that ongoing assessment and adjustments to the fund may be required to ensure emissions reductions keep pace with budget requirements. We also agree that an effective carbon price needs to be maintained alongside GIDI funding (to incentivise more diverse emission reductions and help to fund complementary policies like GIDI from ETS auction revenues).

Like the Commission, Meridian is concerned there is a risk that the government has overestimated how quickly emissions reductions from process heat can be achieved. The estimates of reductions in the first emissions reduction plan assume the emissions price in the ETS rises in line with the Commission's demonstration path. As discussed above this is at significant risk.

Meridian also agrees that other barriers may need to be addressed to build the momentum of industrial decarbonisation and that electricity distribution processes and regulation in particular could be improved. In Meridian's experience working with customers on our

Process Heat Electrification Programme²³ the capital costs to overcome distribution network constraints are often the main barrier for electrification. GIDI funding can help with network costs but there are wider regulatory considerations, including:

- Whether there should be increased consistency in pricing methodologies amongst the 29 distribution companies, including a consistent approach to the allocation of network upgrade costs between first movers and other network customers. Issues with first mover disadvantage have been addressed for transmission customers under the new transmission pricing methodology but remain an issue at the distribution level.
- Whether there should be more standardised processes and timeframes for dealing with new connection enquiries amongst distributors.
- Whether more network information should be proactively and easily accessible to network customers, particularly on existing network capacity and constraints to enable more informed decision-making for new connection investments.
- Whether expenditure forecasting approaches and allowable revenues for lines companies support the accelerated pace of investment that is required and are flexible enough to adapt to changes at pace.

These same issues are also faced by investors in electric vehicle charging infrastructure (see below).

Transport

In addition to avoiding transport emissions through changes to urban form and shifting how New Zealanders move, Meridian supports the replacement of fossil-fuelled vehicles with low carbon alternatives like electric vehicles. We agree that transitioning to zero emissions battery electric vehicles (EV) is needed as quickly as possible and note that from 2025 to 2030, the Commission's demonstration path sees annual light EV registrations climb from 11.5% to 67% of the market and reach 100% percent by 2035.

The Clean Car Discount has seen recent EV registrations exceed the demonstration pathway and Meridian hopes that this trajectory will continue. Meridian supports the Clean Car Discount and the Clean Car Standard. Meridian agrees with the Commission that announcing a complete phase-out of ICE vehicle imports would align Aotearoa with the

²³ <https://www.meridianenergy.co.nz/business/sustainable-options/process-heat-electrification-programme>

European Union, the United Kingdom, and other economies that have announced similar policies and would provide certainty for vehicle manufacturers and importers.

Meridian is also investing in public EV charging infrastructure under our Zero brand. Meridian, along with other charging providers and Drive Electric has raised concerns that EV charging infrastructure is likely to limit electric vehicle uptake unless existing barriers are removed. Meridian therefore supports the Commission's recommendation to rapidly resolve the barriers to scaling up vehicle charging infrastructure.

New Zealand lags behind similar countries in terms of public chargers. Public charging gives consumers the confidence to switch to an EV and is a key enabler of uptake. The main constraint for private investment in EV charging is the capacity of electricity distribution lines. As with industrial electrification, there are widely varying pricing approaches and connection enquiry process amongst the 29 distribution networks. In addition, significant new loads like charging hubs can face a first-mover disadvantage as the first to invest and connect new load may also need to fund the upgrade of distribution line capacity with wider benefits to other customers.

Meridian has read and supports the submission of Drive Electric, which provides further detail for the Commission on the barriers currently faced by charging providers and what could be done to overcome those barriers.

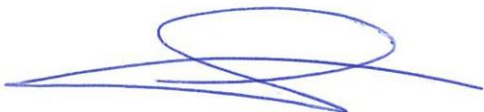
We note the funding allocated in Budget 2023 to address barriers to investment or market failures, particularly to ensure equity of access (e.g. in small or rural locations, or tourist towns with fluctuating demand). Meridian does not think the government should intervene where the private providers are willing and able to make commercially viable investments. We also think that public funding should be allocated in a way that unlocks maximum private investment. This means public funding support should be tied to demonstrated market gaps and enable a pathway to a sustainable market model. Public charging will ultimately be delivered by a competitive market, and we do not think the Government should try to design and procure what it thinks are ideal charging solutions and locations. The funding should instead be open to whichever providers can help to meet the overall charging needs and goals of New Zealand at least cost. The market can solve for the location and charging services that best meet consumer needs and the market will innovate over time to meet needs as they evolve. In allocating public funding it is therefore critical that government agencies should not be prescriptive about precise locations or types of chargers under a false belief that the Government knows now what will be best for future consumers.

Meridian agrees that the transition to an EV fleet must be equitable to the extent possible. In the near-term, to address the likely shortage of second-hand EVs, households are likely to need support to access the new vehicle market. Meridian agrees that policy measures such as car sharing, social leasing, low-cost loans, targeted capital cost subsidies, or policies to enhance fleet turnover may be required. Such policies should sit alongside wider social welfare actions to ensure an equitable transition and could be funded from ETS auction revenues if the ETS is calibrated appropriately.

Finally, Meridian would also like to see increased focus on decarbonisation beyond the light vehicle fleet. We support the proposed recommendation to develop incentives to accelerate the uptake of zero emissions commercial vehicles, including vans, utes and trucks. Meridian's own light fleet is 100% electric and remaining vehicle emissions include diesel use associated with shipping, heavy freight, and machinery used in the construction and maintenance of electricity generation assets. The entire electricity generation sector will have increasing need for these heavy vehicle services as the economy electrifies and there is an opportunity now to support a shift in the second budget period.

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

Nāku noa, nā



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