



28 February 2020

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Discussion Document: Accelerating renewable energy and energy efficiency

Meridian appreciates the opportunity to make a submission on the Ministry of Business, Innovation and Employment (**MBIE**) discussion document *Accelerating renewable energy and energy efficiency*.

All the energy that Meridian generates comes from 100 percent renewable sources – wind, water and sun. We're New Zealand's largest generator, making power through our wind farms, hydro stations and solar arrays. Meridian is committed to meeting current and future energy needs with renewable energy and taking action on climate change.

As a renewable generator, Meridian in this submission is focused on:

- Section 7: Enabling development of renewable electricity generation under the Resource Management Act 1991 (**RMA**); and
- Section 8: Supporting renewable electricity generation investment.

Meridian has for a long time supported several of the options in the discussion document, particularly those in section 7 that would strengthen national direction under the RMA to:

- remove barriers and unnecessary costs in respect of new renewable generation developments; and
- simplify the consenting of existing renewable generation.

Meridian advocated for these options throughout the consultation processes for the Productivity Commission's *Low-emissions economy* report and the Interim Climate Change

Committee's (**ICCC**) *Accelerated electrification* report. Meridian supports the conclusions that both agencies reached, and we are now pleased to see that revising the National Policy Statement for Renewable Electricity Generation (**NPSREG**) is a priority of the Government's work programme.

In considering the options in the discussion document it is important to keep sight of the problem that the options seek to address. Meridian considers the fundamental objective to be the reduction of greenhouse gas emissions across the economy to:

- meet the 2050 emissions target in the Climate Change Response Act 2002;
- in the short-term, meet the proposed interim emissions budget to 2025; and ultimately
- contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above preindustrial levels.

The discussion document seems to identify a secondary, “aspirational” goal of 100 percent renewable electricity generation by 2035 as an objective in and of itself. An aspiration has no effect on its own, however, active policy interventions that flow from that aspiration can have effects that are inconsistent with the emissions objectives noted above. Renewable generation is one of many moving and interlinked pieces of the New Zealand economy and interventions that raise electricity prices in order to accelerate investment in renewable generation are likely to result in worse emissions outcomes because of the reduced incentives to electrify transport and industrial process heat. Any increase in electricity prices to support investment in renewable generation would also run counter to the recommendations of the Electricity Price Review, which seek lower electricity prices for consumers. It is worth reiterating the ICCC recommendation that the Government:¹

“Prioritises the accelerated electrification of transport and process heat over pursuing 100% renewable electricity by 2035 in a normal hydrological year because this could result in greater greenhouse gas emissions savings while keeping electricity prices affordable.”

Meridian also strongly agrees with the Productivity Commission's key recommendations that:²

“Given rapid changes in electricity-generation technology and potential effects of rising electricity prices on adoption of low-emissions technology in other parts of the economy,

¹ ICCC *Accelerated electrification* p98.

² Productivity Commission *Low-emissions economy* p537.

the Government should not use subsidies or regulation to favour particular technologies that generate low-emissions electricity.”

“The Government should rely on an effective emissions-pricing system as the main instrument to achieve an efficient trade-off between emissions reductions in electricity and emissions reductions in other parts of the economy. The Government should be cautious in specifying targets for emissions within the electricity sector, and make sure that technology is available to meet them without significantly increasing wholesale electricity prices above the levels achieved with current technology.”

Many of the options in section 8, and elsewhere in the discussion document appear to involve direct intervention in markets in an attempt to speed the uptake of renewable generation at the expense of consumers or taxpayers. Not only do these options risk worse emissions outcomes, they are also unnecessary. Modelling by MBIE, the ICCC, Meridian and others consistently shows that even under business as usual scenarios, renewable generation will increase to between 90 and 97 percent market share by around 2035.³ Renewable options are already the most economic form of electricity generation and uptake will therefore occur at an efficient rate without any changes to the market. In the longer term, improvements in technology and new technology developments, lower costs for renewable generation developments, and improvements to demand response are likely to mean that any remaining thermal generation can also be removed from the New Zealand electricity system without raising prices. Meridian considers the current market alongside a reformed New Zealand Emissions Trading Scheme (**ETS**) capable of achieving this long-term outcome while also achieving the ultimate objective of reducing emissions at least cost.

If the Government wants to achieve more rapid reductions in emissions or more rapid uptake of renewable generation, there are tools available to efficiently achieve this outcome. Meridian considers the ETS to be the centrepiece of New Zealand’s emissions reduction efforts. The ETS and proposed reforms currently before Parliament have been designed so that emissions volumes can be restricted over time by the Government and if the Government wants to move faster it can. Annual restrictions on the volume of emissions units will increasingly drive higher market prices for the units available and more emissions mitigation to avoid ETS liabilities. In the words of the Productivity Commission:

“Emissions pricing is a powerful policy instrument to reduce emissions. Emissions pricing provides strong incentives to reduce emissions at least cost. It decentralises

³ For example, MBIE *Electricity demand and generation scenarios* p29; ICCC *Accelerated electrification* p47; Meridian *Wholesale market outlook 2020* extract in Figure 2 below.

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 discussion document states that the options in the paper are intended to be complementary to the ETS. Many are complementary; however, some options would regulate to pick winners amongst different technology options or create additional financial incentives to avoid emissions. These options would therefore be duplicative of the incentives under the ETS and/or distort the market for emissions units, in general by targeting specific activities to bear the cost of emissions reductions and simultaneously suppressing emissions prices across the rest of the economy. Rather than add further regulation and risk market distortions, Meridian recommends that the Government implement the ETS reform proposals currently before Parliament and monitor the impact of the resulting higher emissions prices. Over time the Government will need to be increasingly willing to accept higher market prices for emissions units and be prepared to make decisions to restrict unit volumes and lift the cost containment reserve price in the ETS.

Like the Productivity Commission⁴, Meridian accepts there are exceptions to the principled, ETS-centric approach and that there is a case for prioritising complementary policies where those policies are targeted to avoid investments that lock in emissions for an extended period, for example:

- recent Ministry of Transport proposals to introduce emissions standards for vehicle imports and a feebate scheme to accelerate the uptake of low-emission vehicles; and
- limits on the installation of new fossil-fuel powered heating systems (as per option 4.1 in the current discussion document).

The discussion document states that, “We seek your feedback on both the *sequencing* and the *optimal package* of policies outlined in the document”. To that end, the table below indicates in summary the options that Meridian supports as a priority (in green), options that Meridian does not support (in red) and the remaining options (unmarked) where Meridian does not have a strong opinion or has a more nuanced opinion.

⁴ Productivity Commission *Low-emissions economy* p506.

Section 1: Addressing Information Failures	
Require large energy users to publish Corporate Energy Transition Plans (including reporting emissions) and conduct energy audits.	
Develop an electrification information package for businesses looking to electrify process heat, and offer co-funded low-emissions heating feasibility studies for EECA's Large Energy User partners.	
Provide benchmarking information for food processing industries.	
Section 2: Developing markets for bioenergy and direct geothermal use	
Development of a users' guide on the application of the National Environmental Standards for Air Quality to wood energy.	
Section 3: Innovating and building capability	
Expand EECA's grants for technology diffusion and capability-building.	
Collaborate with EHI industry to foster knowledge sharing, develop sectoral low-carbon roadmaps and build capability for the future using a Just Transitions approach.	
Section 4: Phasing out fossil fuels in process heat	
Introduce a ban on new coal-fired boilers for low and medium temperature requirements	
Require existing coal-fired process heat equipment supplying end-use temperature requirements below 100°C to be phased out by 2030.	
Section 5: Boosting investment in energy efficiency and renewable energy technologies	
No new options are proposed at this time.	
Section 6: Cost recovery mechanisms	
Introduce a levy on consumers of coal to fund process heat activities.	
Section 7: Enabling development of renewable electricity generation under the RMA	
Amend the NPSREG to provide stronger direction on the national importance of renewables	
Scope National Environmental Standards or National Planning Standards specific to renewable energy	
Other options	
Section 8: Supporting renewable electricity generation investment	
Introduce a Power Purchase Agreement (PPA) Platform	
Encourage greater demand-side participation and develop the demand response market	
Deploy energy efficiency resources via retailer/distributor obligations	
Develop offshore wind assets	
Introduce renewable electricity certification and portfolio standards	
Phase down thermal baseload and place in strategic reserve	
Other options	
Section 9: Local and community energy engagement	
Ensuring a clear and consistent government position on community energy issues, aligned across different policies and work programmes	
Government supports development of a small number of community energy pilot projects, through options including financial support, 'handholding' and facilitating of projects, or assisting with regulatory approvals and access to land	
Section 10: Connecting to the national grid	
Encourage Transpower to include the economic benefits of climate change mitigation in applications for Commerce Commission approval of projects expected to cost over \$20m	
Put in place additional mechanisms for, or encourage, Transpower, first movers and subsequent customers to agree to alternative forms of cost sharing arrangements by contract	
Shift some of the cost and risk allocation for new and upgraded connections from the first mover through mechanisms within the Commerce Commission's regulatory scope, with the Crown accepting some of the financial risk.	
Provide independent geospatial data on potential generation and electrification sites (e.g. wind speeds for sites, information on relative economics and feasibility of investment locations given available transmission capacity)	
Extend the data and information provided in MBIE's EDGS and increase the frequency of publication, and potentially recover the cost through the existing levy on electricity industry participants.	
Produce a user's guide on the current regulations and approval processes relating to getting an upgraded or new connections to the grid	
Provide a "map" or database of potential renewable generation and demand sources, location and potential size (e.g. wind, geothermal, milk plant).	
Introduce measures to enable coordination regarding the placement of wind farms to ensure they are more likely to be better distributed around the country	
Section 11: Local network connections and trading arrangements	
No new options are proposed at this time.	

The remainder of this submission highlights Meridian’s key comments under each of the section headings from the discussion document. Responses to the detailed consultation questions are appended at the end of this submission.

Section 1: Addressing Information Failures

Meridian supports a requirement for large energy users to publish Corporate Energy Transition Plans (including reporting emissions annually) and to conduct regular energy audits. Ideally these plans would be linked to investments in energy efficiency or clean energy – discussed further in Section 5 below. Meridian considers the costs of such regulation to be justified in respect of large businesses. While some individual businesses may be concerned about the increased transparency, Meridian considers climate related disclosures to be best practice corporate governance for all large businesses. Disclosure would help to build trust and enable market analysts, researchers, investors and the Government to form a more complete picture of New Zealand’s greenhouse gas emissions and energy transition. This option would be consistent with other climate related transparency measures that have recently been implemented or proposed, for example:

- the Climate Change Response (Emissions Trading Reform) Amendment Bill currently before Parliament includes a new section 89A that would require the Environmental Protection Authority (**EPA**) to publish participant data on net emissions and removals by activity and by period;
- in December 2019, the Ministry for the Environment and MBIE consulted on proposed legislation for mandatory climate-related financial disclosures;
- in 2019 large sections of the business community through the Climate Leaders Coalition committed to voluntarily assessing and disclosing climate change risks;⁵
- in early 2019, the Reserve Bank contacted registered banks and licensed insurers requesting information about how they identify, manage and disclose climate risk;
- the NZX has issued a guidance note relating to environmental, social and governance reporting; and
- under existing section 5ZW of the Climate Change Response Act the Minister or the Commission may require a range of organisations to report on climate change risks and how those organisations identify, assess, and manage those risks.

The coverage of these climate related disclosures is broad and there are many overlaps between the types of information to be provided. Meridian encourages government

⁵ <https://www.climateleaderscoalition.org.nz/about/2019-statement>.

departments to work together to understand and rationalise the range of climate related information disclosure obligations and to whom they apply. There will be opportunities to standardise reporting methodologies and align timing, thus reducing compliance costs for businesses.

In general, Meridian also supports the development and provisions of information resources by the Government. The provision of information can help to overcome barriers, is low cost, and does not risk unintended consequences or market distortions. We therefore support the options to:

- develop an electrification information package for businesses looking to electrify process heat, and offer co-funded electrification feasibility studies for EECA's business partners; and
- provide benchmarking information for food processing industries.

Section 2: Developing markets for bioenergy and direct geothermal use

Meridian does not have expertise in markets for bioenergy or direct geothermal use. However, we consider the option to develop a users' guide on application of the National Environmental Standards for Air Quality to wood energy another example of a low risk, low cost option for the provision of information by Government. Meridian supports such options to the extent that an audience and need for the information is identified.

It is unclear to Meridian how the Government would facilitate development of bioenergy markets or support direct geothermal use. Meridian questions whether the Government had greater knowledge and expertise than the industry and can achieve anything more than what contracting between industry participants might deliver. Investments in bioenergy and direct geothermal use need to be made by businesses and must be economic for the life of an investment. If a project looks viable then it seems likely that businesses will invest in studies to prove the business case, regardless of what role the Government decides to play in this space.

Any direct Crown investment in wood processing should only proceed where the Crown sees a viable business case that would deliver returns for tax payers. If the Crown invests directly in uneconomic developments there will not only be a cost to taxpayers but a crowding out of private investment.

Section 3: Innovating and building capability

Meridian tentatively supports the option to expand EECA's grants for technology diffusion and capability-building. However, we note that funding for these grants is currently derived in part from the electricity levy⁶ and therefore an increase in funding would increase electricity prices for end consumers. This, on top of other levy funded options from the Electricity Price Review could see a significant increase in the levy over the next few years. We suggest this potential should be avoided.

Regarding the option to collaborate with emissions-intensive and highly integrated industries to foster knowledge sharing, develop sectoral low-carbon roadmaps and build capability for the future – it is not clear what benefits such studies and strategies will deliver and what expertise Government would bring to such collaboration. Any investment in energy efficiency or renewable energy would need to be based on a sound business case and individual businesses are best placed to understand the costs and benefits of potential energy investments. With the right financial incentives, businesses will do this without any support from Government. Meridian therefore considers the role of Government to be to create financial incentives for businesses to make economic decisions that are both in their own interest and deliver emission reduction. The ETS, by altering the relative costs of different fuels and the benefits of efficiency improvements is the primary tool to deliver the outcomes sought and can do so without costly, hands-on, collaborative studies into what businesses 'should' be doing in the opinion of the Government.

Section 4: Phasing out fossil fuels in process heat

Meridian supports the option to ban new coal-fired process heat equipment for low and medium temperature requirements. While a ban does pick winners and may suppress emissions prices under the ETS, reducing abatement in other areas, this option would ensure New Zealand avoids locking in new long-lived and emissions intensive coal boilers. This is the sort of policy intervention recommended by the Productivity Commission as a priority to complement the ETS.⁷ Meridian agrees that a ban would be simple to administer, involve minimal costs to Government, and could be introduced quickly. The Government would need to consider the scope of any ban and whether to target only new industrial process heat coal users or to also look more broadly at other new investments in coal boilers, for example to heat large buildings, schools, or hospitals (many of which are Crown owned).

⁶ In 2019/20 EECA's funding from the electricity levy totaled \$5.2 million.

⁷ Productivity Commission *Low-emissions economy* p506.

While a ban on new investments might be justifiable, the position is less clear for the option to phase out by 2030 *existing* coal-fired process heat equipment supplying end-use temperature requirements below 100°C. In this case investments have been made in the assets already with a reasonable expectation of being able to use those assets. Investors in those assets could reasonably have foreseen and factored into their decision-making an increasing emissions price and therefore higher fuel costs over time. However, they would not likely have expected regulation to prevent the use of the asset in which they had already invested. Such foreclosure by regulation seems heavy-handed and Meridian encourages the Government to instead consider reduced emissions unit volumes and therefore higher emissions prices under the ETS to provide coal users with the incentives to discontinue use.

Section 5: Boosting investment in energy efficiency and renewable energy technologies

Meridian agrees that at this stage the Government need not consider additional regulation to force or incentivise investment in clean energy. Meridian considers the ETS with the reforms currently before Parliament to provide adequate incentives for businesses to make investments in clean energy and energy efficiency. If however, the Government does decide to further consider the options in Section 5, Meridian suggests one viable pathway might be to leverage the Corporate Energy Transition Plans and energy audits so that when an energy audit reveals energy efficiency or clean energy investments that have a payback time of less than two or three years then there would be an obligation to either invest in that change or disclose in the Corporate Energy Transition Plan that the investment has not occurred and provide reasons why. Transparency of this kind will encourage businesses to prioritise energy projects that are privately profitable, but which might otherwise remain unimplemented as other, more attractive, more easily quantifiable, or essential to core business projects are prioritised. A comply or explain transparency measure such as this would also not entail the same high costs to Government or to industry as the regulatory requirements or incentives outlined in the discussion document.

Section 6: Cost recovery mechanisms

Meridian supports a levy on coal consumers to the extent that the revenue is of a similar scale to other existing fuel levies and is used to fund policy initiatives to benefit coal consumers, for example co-funding of a low emissions heating feasibility study to switch

away from coal and trial a new technology under an expanded EECA Technology Demonstration Fund.

A levy should not be set high in an attempt to create financial incentives to lower coal consumption. That is the role of the ETS and setting too high a levy rate would duplicate the incentives and revenue gathering functions of the ETS.

Section 7: Enabling development of renewable electricity generation under the RMA

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

- There is weak policy direction in the NPSREG 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, indigenous biodiversity, and land use.
- The provisions in Appendix 3 of the National Policy Statement for Freshwater Management (**NPSFM**) are incomplete and the proposal to recognise and protect the generation output of six identified large hydro schemes is not finalised.
- There is ambiguity regarding application of the NPSREG to water allocation and resource use generally.

We discuss these constraints in more detail below.

Improvements to the NPSREG

Meridian strongly agrees that the NPSREG should be amended to provide stronger direction on the national importance of renewables. This should be a priority for the Government.

Meridian would welcome further policy development and would be happy to provide expertise and assist with any policy process considering detailed changes to the NPSREG.

Meridian's submission on the Productivity Commissions *Low emissions economy* report suggested a redrafting of the NPSREG, which we have also attached to this submission as Appendix 2. 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 NPSREG 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 NPSREG 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 NPSREG must support a significant amount of new renewable electricity generation if the Government is to achieve its aims.

A National Policy Statement (**NPS**) 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.⁸ 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 to 13 years the resource consents for New Zealand's two largest hydro schemes in the Waitaki and Manapōuri catchments will need to be renewed. 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. New Zealand must not only enable growth in renewable electricity generation but also ensure that existing renewable energy contributions are not undermined. Given the length of a decadal planning cycle, changes to the NPSREG are needed as soon as possible to ensure

⁸ Resource Management Act, section 79(1).

that the outcomes needed from policy statements, plans, and consenting and re-consenting decisions are delivered. Any reduction in existing renewable generation moves the timeframe, cost and likelihood of achieving a low emissions economy in the wrong direction.

Meridian agrees that amendments to the NPSREG could usefully clarify the relationship with other NPSs and competing national priorities. Policy development affecting renewable electricity generation needs to be coherent and reflect New Zealand's priorities. Neither the NPSREG nor NPSFM have sufficient regard to the importance of climate change or to New Zealand's commitments under the Paris Agreement.

For example, the NPSFM 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 hydroelectric 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 at certain times of the day or year, 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 and integrate large additional amounts of intermittent renewables into our electricity system 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 (for example from retention of thermal generation like gas peakers to cover the flexible ramping up and down role played by hydro).

It is therefore essential that the NPSFM Appendix 3 is completed so that councils can make decisions that ensure ongoing operation of existing generation schemes where that best achieves sustainable management taking into account all relevant factors. Appendix 3 of the NPSFM relates directly to hydroelectric infrastructure and is entirely blank, arguably meaning that outcomes like increasing minimum flows will always and inevitably trump the adverse emission reduction, cost, and security of supply effects resulting from any reduction in renewable electricity generation. Yet, existing hydro generation is the core, backbone, or

foundation on which New Zealand's flexible, highly renewable, and low-emissions electricity system is based.⁹ The NPSREG is also ambiguous as to how it applies to water allocation, which is essential to the effective operation of hydro generation.

A further example is the proposed National Policy Statement on Indigenous Biodiversity (**NPSIB**), which requires each territorial authority to identify and map all Significant Natural Areas (**SNA**) within its district and classify the SNAs as high or medium. The proposed NPSIB includes an exception to allow a range of activity including nationally significant infrastructure developments in medium class SNAs, acknowledging that some infrastructure like renewable electricity generation is essential to the nation and often constrained to specific (and generally remote and undeveloped) areas. There is no similar exception for renewable generation in high class SNAs, meaning that territorial authorities will be required to identify and map areas throughout their districts where it will effectively be impossible to develop renewable electricity generation. Most SNAs will be classed as high value and therefore any effects must be avoided, effectively creating a "no effects" regime. Therefore, the NPSIB could adversely affect the transition to a low emissions economy because of the lack of consenting pathway for renewable energy developments. Geothermal ecosystems are all likely to be identified as high-value SNAs so a specific approach is proposed to accommodate renewable electricity developments in geothermal areas. However, the same issue will arise for many of the remote, exposed ridgelines around New Zealand that offer high quality wind resources. Meridian encourages the Government to consider the impact of blunt 'no-go-zones' around New Zealand for renewable generation developments, and whether in fact a case by case approach as under the status quo might enable renewable generation and significant biodiversity to co-locate where any effects can be avoided or mitigated.

Various national planning tools such as the New Zealand Coastal Policy Statement, NPSFM, proposed NPSIB and NPSREG create competing and conflicting direction in respect of the same natural resources. The framework is further compounded by the Supreme Court's decision in *King Salmon* where it was held that generally there was no need to revert back to Part 2 of the RMA to make an overall judgment (i.e. a balanced decision) since that must have been a matter considered at the time of drafting the planning provisions and that the specific overrules the general. Since the *King Salmon* decision, policies such as 'avoid', 'protect' and 'safeguard' literally mean exactly that – clear, directive, and unequivocal policies on outcomes will prevail over less directive policies. Therefore, without directive

⁹ New Zealand generates 85 percent of electricity from renewable sources and more than 50 percent from hydro (in some years up to 65%).

and outcome focused language in the NPSREG, Meridian's view is that the impact of the NPSREG will further diminish relative to other priorities, exacerbating the challenges involved in developing renewable generation and reducing greenhouse gas emissions.

In general decision-making under the RMA is heavily reliant on value judgements. Where there are competing resource management choices, value judgements are required. The role of policy as expressed through instruments (such as plans, regional policy statements and NPS) is to guide and direct those value judgements. NPSs sit at the top of the RMA plan and policy instrument hierarchy and therefore it is appropriate to address such matters via an NPS and reduce the costs and complexity at the local government and Court level when attempting to consent renewable energy projects. If not, there is the significant risk of failing to meet the challenges of climate change because national priorities are not given sufficient weight at the local level.

Efficient and effective processes to manage both existing and new renewable development

For new developments there are issues with consent lapsing timeframes, and the flexibility of consents once granted. For example, section 125 the RMA provides a default lapsing period for resource consents of 5 years from the date of commencement. If this timeframe is not met then the consent will lapse, and a new application is required. There are many factors for renewable generation developers to consider that influence timing, including ensuring demand, prices and other market conditions support the business case for the project. In the time between consenting and construction, technology can also improve, altering the most economic options of configuration of technology for a site and often requiring a new consent application or variation to accommodate the new technology. The lack of flexibility in terms of timeframes and technologies adds costs and complexity to renewable generation projects and makes investment in renewable generation a lot harder than it could be. Overall this lapsing period is generally not sufficient for the orderly investment of capital into new renewable generation projects. As a result, many new renewable development projects seek longer lapsing periods at the time of the resource consent application.

The discussion document proposes National Environmental Standards for Renewable Energy Facilities and Activities to cover a broad range of matters, including:

- standardising the consent process for re-consenting and repowering (upgrading) existing renewable energy generation facilities;

- standardising the consent process for re-consenting consented but unbuilt renewable energy generation facilities, where the existing consent is due to expire and/or consent variations are needed to allow the use of the latest technology;
- prescribing standards for shadow flicker from wind turbines;
- standardising the consent process for small-scale renewable energy projects;
- standardising the consent process for new renewable energy generation proposals; and
- setting out the consenting framework for high voltage lines that are connected to renewables but not part of the National Grid.

Many of these suggestions may have merit and Meridian would welcome further consideration of these options. Standardisation of approach to a specific effect like shadow flicker or windfarm noise is a good idea and warrants further concept development. However, we note that standardisation of process could be very unhelpful where standardisation of processes could risk making consenting and re-consenting processes more difficult in situations where developers have worked hard with local authorities to provide an appropriate enabling planning environment for specific activities. In the context of the discussion document “streamlining” is a better phrase and approach than “standardising”. Meridian therefore considers the priority focus of further policy efforts in this space to be on streamlining processes, so it is simpler and more efficient for renewable developers to carry out their work.

A further option to consider is a form of requiring authority status for renewable electricity developers. Renewable electricity generation is long-lived and nationally significant infrastructure. However, renewable electricity generation is not a network utility operation and accordingly is not able to utilise the requiring authority provisions in the RMA.¹⁰ 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 this 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. Some form of designation process would enable projects to be approved in principle with conditions to manage environmental

¹⁰ Resource Management Act, sections 166 and 167.

effects being specified closer to construction once the given technology and specifications of the project are fully scoped. The main point for public participation would be in the initial designation process. Approval of mitigation and conditions could be direct with the relevant council if they are generally in accordance with what was approved in the designation decision. Materially different approaches to mitigation and conditions could require a further public participation step. This would remove many of the barriers to a market led process to identify and develop renewable generation sites. Developers would bear the costs of identifying sites and would have the flexibility needed to develop the most efficient option while still managing adverse effects. An option like this would also avoid many of the pitfalls of a spatial planning and consent-based process such as the picking of winners (and the trade competition issues inherent in picking winners), distortion of land value, higher planning costs being borne by local authorities, lack of flexibility and higher costs for developers.

Consent durations

A related issue is that the maximum duration for a resource consent to use a natural resource is limited to 35 years.¹¹ Renewable electricity generation assets such as hydro generation have productive lives much longer than 35 years.

Existing hydro schemes are deeply embedded in the environment and are expected to continue in operation for many decades to come. Parts of an existing hydro scheme (i.e. the physical components, dam structures, weirs, ancillary structures) are permitted activities and may lawfully continue to exist as of right in perpetuity. To imagine that nationally important infrastructure is not to be there is unrealistic and fanciful and indeed its removal or significant alteration could only take place in accordance with resource consents (that do not exist). Accordingly, we consider that there is merit for hydro infrastructure being subject to reviews pursuant to section 128 of the RMA as opposed to the necessity of re consenting *per se*. The recognition of the existing scheme when replacement consents are applied for means that any adverse effects are entirely capable of management through the imposition of appropriate, lawful conditions. Overall the NPSREG fails to give proper direction to decision makers as to the importance of maintaining existing investment in renewable generation. If existing renewable generation is eroded then the challenge of decarbonising the economy will become even greater.

¹¹ Resource Management Act, section 123.

Wind farm turbines have a shorter productive life and may require refurbishment or replacement after 20 to 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.

Pre-approval options

The discussion document puts forward a number of options that would in some way pre-approve new renewable developments, either through permissive spatial planning, Crown acquisition and transfer of consents, or a statutory allocation process. Meridian does not support any of these options and we agree with MBIE recommendation that these options not be developed further.

Meridian considers that market participants investing capital will have better specialist capability than central or local government when it comes to identifying potential renewable development sites. Considerable expenditure would be required to build a government development capability. The suitability of generation sites is a complex multi-criteria equation factoring in matters such as quality of the renewable resource, proximity of transmission and load, understanding of the existing technology options, nodal electricity prices, land access, geotechnical suitability for development, and access and transport options – to name a few. There would also be many risks if someone other than a developer was to identify appropriate sites, including the picking of winners between different developers with interests in different areas and the raising of expectations and land values in respect of preferred locations (and therefore the costs of any development). Meridian does not see any problems arising from the identification of sites by market participants and agrees with the observation in the discussion document that the effectiveness of these options would be limited because many potential renewable energy sites have already been investigated and many options are already owned by developers.

Section 8: Supporting renewable electricity generation investment

Problem definition

Section 8 of the discussion document begins with identification of a problem that electricity spot prices are simultaneously:

- too high to incentivise accelerated electrification of process heat (or Transport we suggest) on the demand-side; and
- too low to incentivise accelerated deployment of renewable electricity generation on the supply-side.

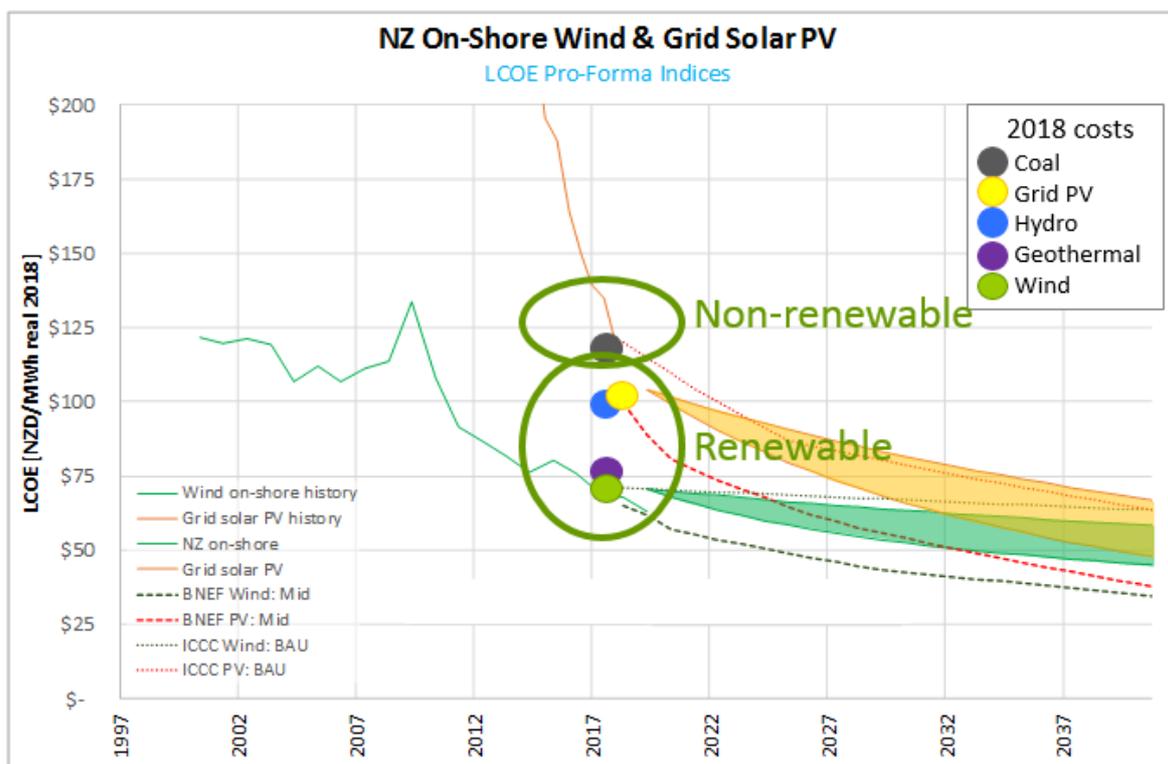
This is simply not the case. On the supply side, market prices and the ETS provide a strong signal to build new renewable generation and renewable options are currently the lowest cost. There are several renewable generation plants currently under construction or in the late stages of being readied for construction, for example:

- Meridian's 160 MW Harapaki wind farm northwest of Napier;
- Tilt Renewable's 130 MW Waipipi wind farm in Taranaki;
- Mercury's 119 MW Turitea wind farm in the Manawatu;
- Contact's drilling campaign at the Tauhara steam field near Taupo, to support a final investment decision on new generation at the site; and
- Construction is underway to expand the Ngawha geothermal power station and more than double the power station's generation capacity to 53 MW.

Nova's 100 MW gas peaking plant at Junction Road in Taranaki has also recently been completed. Gas peaking plant of this kind will help to deliver security of supply in the medium-term and allow for the retirement of thermal baseload generation.

Figure 1 below shows historic and forecast costs for different generation types on a levelized cost of energy basis. As can be seen, renewables are already the least cost development options. With renewable technologies getting cheaper and emissions prices increasing renewables will outcompete thermal generation options by an even wider margin over time.

Figure 1: Generation costs by technology



As has been the case throughout the history of the market, new generation infrastructure will be built to meet demand growth and as older, less efficient plant retires. These investments will be made in a timely and efficient way such that:

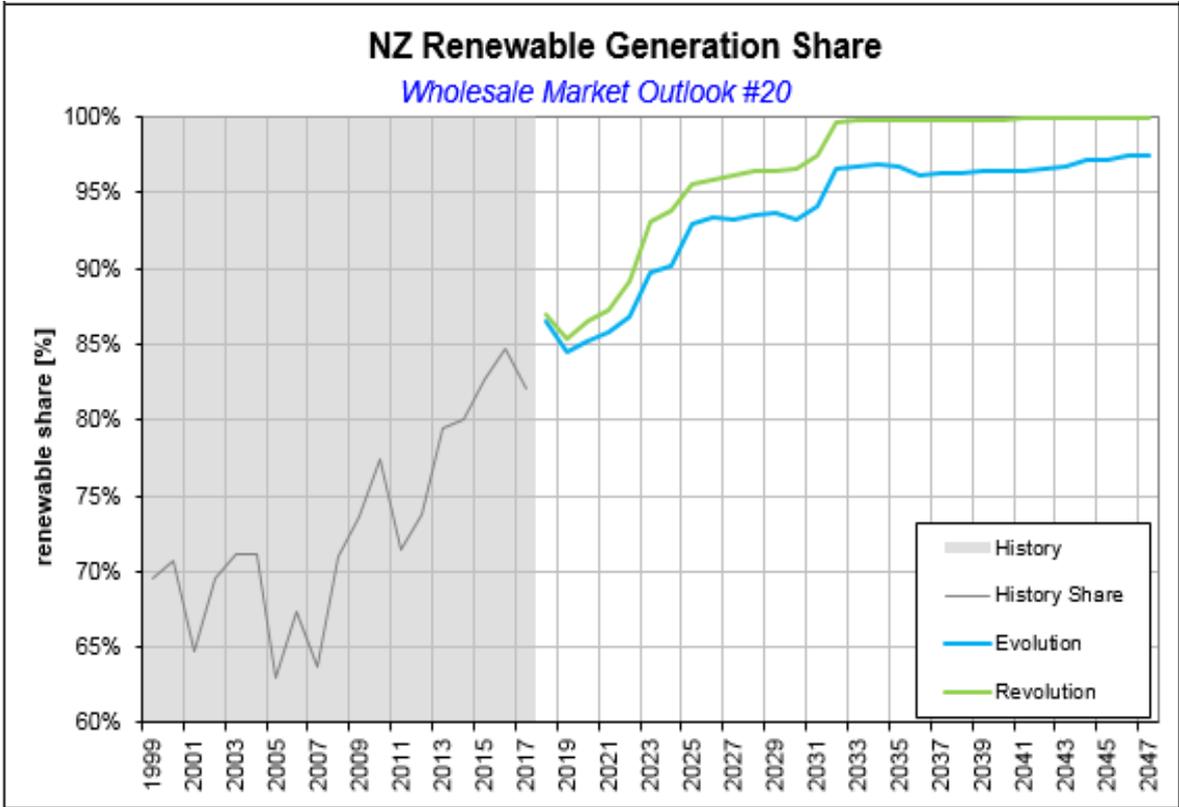
- power prices do not increase on average over the long term (consistent with the findings of the Electricity Price Review); and
- security of supply is maintained – New Zealand has not had a country wide interruption to supply since 1992 (well before the establishment of the market) despite several record setting dry years in the period since then.

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 are borne by private investors rather than directly by taxpayers. We note:

- 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 commissioned over 400 MW of wind generation.

Modelling by MBIE, the ICCC, Meridian and other parties suggests that the market with no additional intervention will deliver between 90 and 97 percent renewable generation over the next fifteen years and that this can be achieved without significant increases to average power prices.¹² Figure 2 below shows Meridian’s evolution and revolution modelling scenarios. The evolution scenario includes an emissions price of \$50/t CO₂e (consistent with the proposed cost containment reserve price in the ETS for the period of the first interim emissions budget). As can be seen this scenario forecasts around 97 percent renewable generation by 2032. Under the revolution scenario with an emissions price of \$100/t CO₂e and higher penetration of demand response 100 percent renewable generation is achieved.

Figure 2: Meridian modelling of New Zealand renewable generation share



If the Government wants to drive investment in renewable generation more rapidly, then it has all the levers it needs in the ETS and the reforms to it that are currently before Parliament.

¹² For example, MBIE *Electricity demand and generation scenarios* p29; ICCC *Accelerated electrification* p47; Meridian *Wholesale market outlook 2020* extract in Figure 2.

On the demand side, it is true that “electricity does not currently compare well with other fuel options on a cost per gigajoule (GJ) basis.”¹³ However, this is not a problem with electricity prices but a problem of other fuels not adequately factoring in the cost of externalities, specifically their greenhouse gas emissions. Again, if the Government wants to increase the rate of electrification then it has levers available in the ETS and the reforms to it that are currently before Parliament.

The remaining Meridian comments on Section 8 address each of the options in the discussion document. For all these options the fundamental misstatement of the problem definition needs to be kept in mind – Meridian is confident that the market and ETS will deliver increased renewable generation without lifting power prices, ensuring incentives to electrify transport and process heat remain strong.

Introduce a Power Purchase Agreement (PPA) Platform

Meridian does not see any market failure that requires intervention by way of a PPA platform of any kind. There is already a healthy market for PPAs. Recent examples include:

- Meridian’s commercial solar PPA offer through which Meridian designs, installs and maintains a solar system for a business. The business has no upfront capital cost but purchases the generation output at an agreed c/kWh rate for the lifetime of the PPA (see Figure 3).
- The arrangement between Tilt Renewables and Genesis Energy for the Waipipi wind farm near Waverly.

Figure 3: Examples of Meridian commercial solar PPA projects



**Kiwi Property – Northlands Mall
(Christchurch)**

Solar Power Purchase Agreement - 185kWp

**Lincoln University – Te Kete Ika
(Christchurch)**

Solar Power Purchase Agreement - 102kWp

¹³ MBIE *Accelerating renewable energy and energy efficiency* p68.

There are also active financial markets in New Zealand that can be used to hedge revenue risks for developers of new renewable generation.

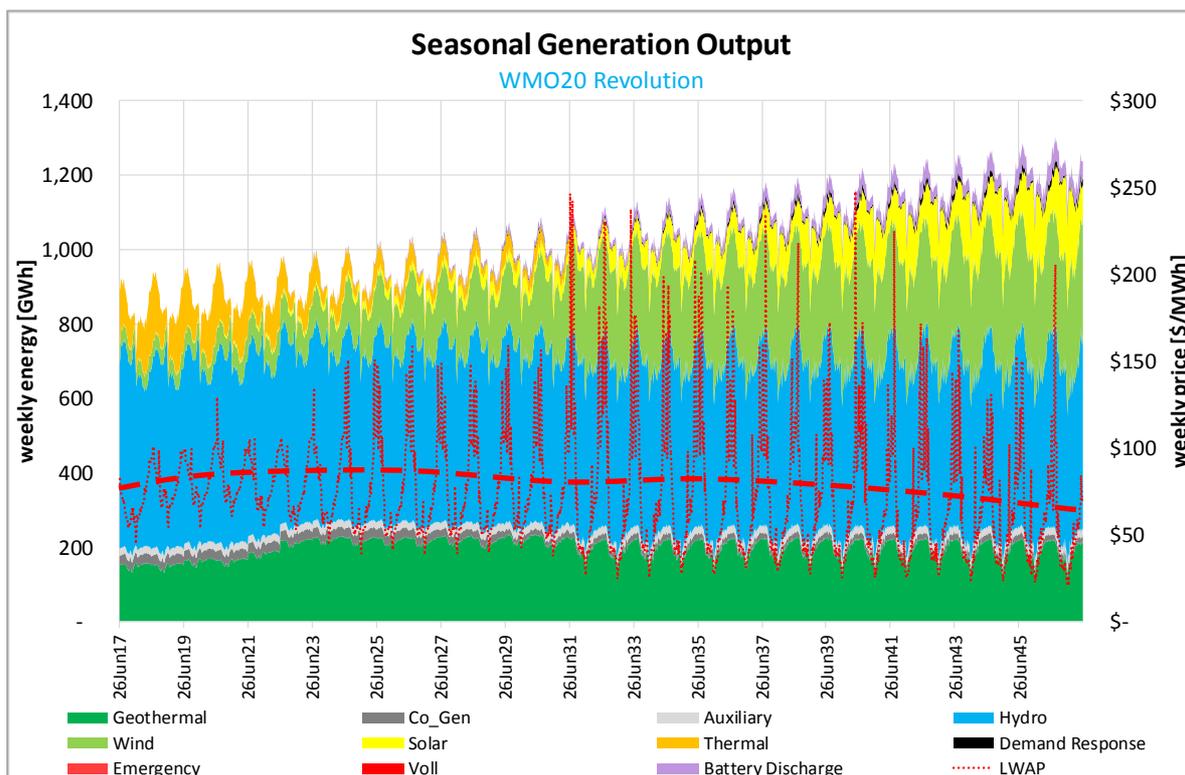
Meridian agrees with the observations in the discussion document that PPA platform options involve financial risk and fiscal impact for the Government and risk crowding out private investment. In the absence of any market failure (and we don't believe there is one) it would not make sense to create an administrative entity to run a platform and take on the costs and risk involved.

Encourage greater demand-side participation and develop the demand response market

Meridian supports the option to encourage greater demand-side participation and develop the demand response market. Meridian's modelling shows that increasing demand response uptake will be required if the New Zealand electricity sector is to achieve 100 percent renewable generation. Demand response will be required, particularly over winter evening peaks to balance supply and demand and ensure security of supply at much lower cost than other options such as the overbuilding of renewable generation.

Figure 4 below shows Meridian's modelling of the revolution scenario, whereby 100 percent renewable generation is achieved in the next fifteen years. Figure 4 shows the most efficient seasonal mix of generation and demand response to deliver security of supply and maintain power prices. As can be seen, on average, prices are projected to be the same or lower as less efficient plant retires. However, the model predicts greater volatility due to the increasing proportion of intermittent renewables in the system. Demand response (whether through batteries or some other mechanism) and hydro flexibility will become increasingly important to manage this volatility.

Figure 4: Modelling the seasonal generation and demand response mix



Many existing demand response programmes, such as Transpower’s and the ripple control systems employed by distributors, are focused on managing peak network demand and reducing the need for further investment in network infrastructure. This may be why the discussion document links the facilitation of demand response markets with the establishment of a distribution system operator (DSO). Meridian certainly sees potential in the idea of a DSO or several DSOs with greater scale and capability than the 29 distribution companies in New Zealand to encourage greater coordination amongst networks and more efficiently coordinate and optimise flexible demand response and other network services. However, Meridian also expects that in future demand response will also likely be the least cost option to manage intermittency and peak energy needs, not just network congestion. We agree that demand response aggregators and virtual power plants will likely need to seek revenue from multiple sources such as the spot market, ancillary services market, electricity retailers, network support service markets, and associated financial markets.

As an example of retailers facilitating demand response – in Victoria, Australia customers of Powershop can join a demand response program whereby Powershop sends a text message in advance of a peak demand event and asks customers to voluntarily curtail usage for a set time. Customers get a \$10 discount if they meet a curtail target of 10 percent reduction against their baseline usage during the event. Around 20,000 customers are in

the programme and uptake in any given event tends to be around 40 percent. For example, in a May 2019 demand response event around 9,000 customers successfully reduced their load by a total of 6 MW over two hours (equivalent to the capacity of approximately 3 large wind turbines like those at West Wind). Retailers have an incentive to pay customers for load reductions if they are exposed to high wholesale spot prices. That incentive will become stronger as the market share of renewable generation increases and wholesale prices become more volatile.

Facilitating the development of demand response markets will take time. Meridian supports the ongoing work of the Electricity Authority to remove barriers to demand response and we believe current market arrangements will generally facilitate the emergence of more sophisticated and varied demand response products. However, targeted support from the Government would be welcome. A range of options exist such as co-funding of feasibility and pilot studies, provision of information about potential markets and business models for demand response providers, and encouraging standardisation of demand response capabilities in new devices as proposed by the Energy Efficiency and Conservation Authority (**EECA**).¹⁴ The focus should be on the provision of information, testing of different models, and removal of barriers so that market participants can develop a range of different products to suit different customers' needs.

The discussion document expresses the view that demand response markets alone will not deliver significant growth in renewables. We disagree. Meridian sees demand response as far more important than the discussion document suggests and considers the encouragement of demand response markets to be the single best option in Section 8 and the best way for the Government to enable a 100 percent renewable electricity system.

Deploy energy efficiency resources via retailer or distributor obligations

Meridian does not support an option to require retailers or distributors to fund the deployment of energy efficiency resources. The discussion document suggests the cost would be passed on to customers incrementally, rather than through large upfront costs. The option would undoubtedly raise electricity prices and require electricity retailers to act more like a bank providing credit to customers. It seems unlikely that customers would be better off doing this rather than sourcing credit some other way. The Government and market already provide funding or cheap credit for energy efficiency and heating products, for example:

¹⁴ <https://www.eeca.govt.nz/standards-ratings-and-labels/equipment-energy-efficiency-programme/products-under-the-e3-programme/measures-under-consideration/smart-appliances/>.

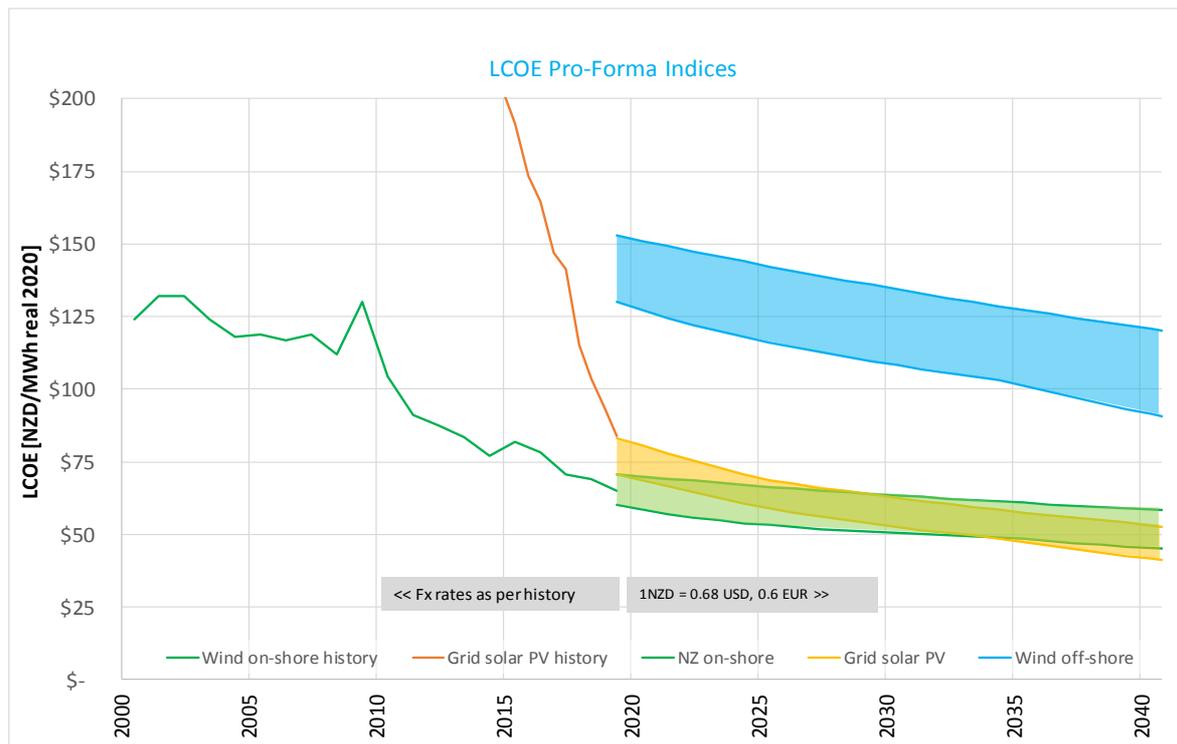
- community services card holders can apply for insulation and heating funding through Warmer Kiwi Homes grants;
- EECA contestable funding for business energy efficiency improvements;
- the healthy homes insulation standard will require landlords to install insulation and efficient heating starting from 1 July 2021;
- Work and Income accepts applications for Advance Payments of Benefit or Recoverable Assistance Payments to non-beneficiaries;
- banks allow energy efficiency improvements to be included on a mortgage and some do so on an interest free basis;
- many local councils allow individuals to pay for insulation and heating investments via rates bills.

Some retailers may choose to offer energy efficiency products and recover the cost through power bills in the same way that some retailers currently offer home appliances with long fixed-term contracts. However, it would be unusually intrusive for the Government to say businesses *must* offer a completely different product to what they currently do or to require customers to purchase that product.

Develop offshore wind assets

Meridian does not support any regulatory or economic requirements to develop offshore wind assets in New Zealand. As indicated below in Figure 5, offshore wind developments are at least double the cost of onshore wind in New Zealand.

Figure 5: Offshore and onshore wind costs and grid solar PV



Building and maintaining an offshore wind development would require a fleet of vessels and helicopters, offshore living quarters for maintenance personnel, and measures to counter the harshness of the marine environment, meaning far higher capital and operating costs. Unlike Europe, New Zealand has outstanding, undeveloped onshore wind resources, making offshore developments unnecessary and reducing any relative advantage offshore developments might have in terms of the quality of the wind resource. Offshore developments would also be novel and would require regulation under both the RMA (within 12 nautical miles) and Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act (beyond 12 nautical miles). The scale required would also not be well suited to the New Zealand market. With wind farms of around a gigawatt necessary to minimise costs, the transmission requirements and effect on the wholesale market would be significant with a binary impact on wholesale prices depending on whether the wind was blowing or not in that one location.

It is unclear how the Government would develop offshore wind unless through direct subsidies, as has been the case in many European jurisdictions. Meridian would not support taxpayer funding of less efficient renewable options given that existing renewable options are already being built by market participants without any support or intervention from the Government. Subsidies would not deliver any better outcome in terms of emissions reduction, would impose significant costs on taxpayers, and would distort the electricity

market by crowding out more efficient renewable options and creating massive volatility in wholesale prices.

The discussion document seems to suggest that linking offshore wind developments with green hydrogen production could be an option, for example in Taranaki. A long-term contract price on the back of an offshore wind development would be much higher than for onshore renewable energy options and would in no way deliver cheaper electricity for green hydrogen production.

Introduce renewable electricity certification and portfolio standards

The discussion document describes renewable electricity certificates (**RECs**) consistent with their use in Australia, i.e. a mandatory scheme with retailer targets and links to only recently built renewable generation. However, RECs have evolved in Australia as a secondary option to encourage renewable development in the absence of an effective emissions pricing policy. By contrast, in New Zealand we already have:

- around 85 percent renewable generation and renewables are the least cost option for new generation developments; and
- an emission price under the ETS and proposals currently before Parliament that will strengthen the ETS to be a genuine cap and trade system with higher emissions prices likely to be the outcome over time.

The RECs seen to date in New Zealand therefore are a fundamentally different thing and serve a very different purpose. As noted, RECs of the Australian kind are not needed in New Zealand to incentivise renewables or disincentivise emissions. However, there is strong customer demand in New Zealand for products that leverage New Zealand's existing base of renewable electricity generation. The purpose of the RECs seen to date in New Zealand is to take advantage of our renewable advantage both:

- domestically by enabling energy users to match the quantum of their electricity consumption with generation from specific sources; and
- internationally by attracting multinationals to base their operations in New Zealand.

For example, RE100 is a group of major companies¹⁵ committed to sourcing 100 percent renewable electricity globally. Those companies that have, or are considering locating, offices in New Zealand, demand certified renewable generation. As a nation we would be

¹⁵ <http://there100.org/companies>.

foolish not to enable global firms like these to take advantage of New Zealand's renewable electricity base and attract businesses, jobs, and potential tax revenues here to our shores.

It is unclear what premium might attach to RECs in New Zealand. However, given the scale of renewable generation in New Zealand, RECs are likely to become more widely available. Any price advantage that renewable generators receive will help to further improve the already strong case for investment in new renewable options relative to thermal options.

The market in New Zealand has delivered certification schemes through NZECS or carboNZero.¹⁶ The Government need not develop a mandatory scheme from scratch. All it need do (if anything) is endorse the existing REC scheme or purchase and operate it. If instead the Government tried to develop an Australian-style mandatory REC scheme in New Zealand the business of the existing schemes would be foreclosed. There would also be significant set up costs, as well as on-going administrative and compliance costs for the Government with little, if any resulting benefit. Renewables are already the least cost option and the Government can adjust the ETS settings if it wants to increase the pace of change. The likelihood of negative interactions between any mandatory, Australian-style REC scheme and the ETS is high, with the potential to drive higher cost emissions abatement at the expense of consumers or taxpayers. Therefore, while Meridian supports Government endorsement of the existing schemes in the market, we are strongly opposed to the adoption of an Australian-style RECs scheme in New Zealand.

Phase down thermal baseload and place in strategic reserve

Meridian does not support any option that seeks to regulate the phase down of baseload thermal generation and place it in strategic reserve controlled by a central planner or market operator. We do not consider there to be a market failure to address as the current market has already proven a success in managing the retirement of thermal plant and its replacement with renewable generation.

This option would likely have significant implications including:

- fundamentally altering the design of the electricity market and signalling far more Government intervention;

¹⁶ We note that the carboNZero scheme is not a REC scheme as described in the consultation document but enables an organisation or product to be marketed as "zero carbon" by measuring, reducing and then offsetting residual greenhouse gas emissions to achieve a net zero balance. In the case of an electricity product, this may factor in contracts with renewable energy generators or RECs to lower offsetting requirements of the scheme.

- creating binary market price signals dictated by decisions of the central planner or market operator to offer in or hold back the baseload thermal plant in reserve;
- the stifling of competition for the provision of thermal generation capacity;
- curtailment of investment in the New Zealand electricity market as a result of the above;
- high implementation costs for Government and taxpayers;
- the potential to lock-in existing baseload thermal generation for far longer than would otherwise be the case in the absence of reserve capacity payments to the operators of that plant; and
- higher costs of emissions abatement relative to what abatement could be achieved via the ETS and current electricity market design.

This strategic reserve option is proposed to address the problem identified in the discussion document that there are no firm commitments to retire thermal baseload and therefore replacement by renewables could happen slowly without intervention, i.e. the Government may want to replace thermal baseload generation with renewables faster than what the market might deliver. Meridian considers the current energy only market, supported by the ETS to be the best way to encourage renewable generation market share. The ETS alters the relative profitability of different types of generation by pricing emissions and therefore increasing the fuel costs of thermal generators. The changes before Parliament will likely increase emissions prices from the current \$25/t CO₂e fixed price option upwards to the proposed \$50/t CO₂e cost containment reserve price – a doubling of emissions prices that thermal generators face.

Meridian also agrees with the Electricity Authority’s comments noted in the discussion document:¹⁷

“For over 20 years the spot market has operated effectively in providing signals for efficient generation investment, including to manage dry years. This has been supported in more recent years by well-functioning hedge and futures markets that provide parties with the means to enter into forward contracts ... without the prescription of a formal capacity mechanism that can be readily gamed.”

Meridian’s modelling forecasts the retirement of baseload thermal generation between 2023 and 2032 under the evolution scenario at an emissions price of \$50/t CO₂e and with the current energy only market. If the Government wants to see the phase out of thermal

¹⁷ Productivity Commission’s *Low-emissions economy*, p 390.

generation sooner then it need only lift the cost containment reserve higher and/or constrain the supply of emission units auctioned under the ETS.

If, despite industry feedback, the Government decides to cut across the ETS and intervene more directly in the design of the New Zealand electricity market, then Meridian considers a contestable process for the procurement of reserve capacity to be preferable to an arbitrary decision that locks in existing baseload thermal plant. A contestable process would likely deliver better outcomes for electricity consumers. As noted in the discussion document the strategic reserve option is a variant on a capacity market, but with only two existing baseload thermal plants able to participate in the capacity market.

Meridian commissioned Concept Consulting to consider international experience of both energy-only markets (**EOM**) and capacity markets (**CM**) and compare performance of the two models. The Concept report is attached to this submission as Appendix 3. The report characterises the essential point of difference between the two market designs is that a CM imposes a compulsory contracting obligation on parties who purchase electricity in the spot market. Under this mechanism, a central party forecasts future demand and requires wholesale buyers to hold sufficient forward contracts to meet their net share of projected demand. Concept finds that while CMs provide a high level of assurance that sufficient generation or demand response will be built, they provide less assurance that resources which have been built will actually be available when required. EOMs on the other hand, have performed well in ensuring sufficient capacity is built while also performing better to incentivise resource availability when actually required.

The biggest difference between CMs and EOMs is the level of ex ante assurance they provide, with CMs providing a higher degree of ex ante assurance about the level of built capacity because that factor is under the direct influence of a central planner or market operator. This however comes at a cost and electricity system costs to consumers are higher under CMs than EOMs because:

- CMs are prone to over procurement;
- CMs create weaker incentives to select the most cost-effective mix of supply and demand response options (the reserve mechanism in the discussion document would make no attempt at all to identify the most cost-effective mix of generation and demand response);
- CMs are less able to facilitate and reward innovation – the most important source of cost savings in the long-run – because of the higher level of centralised decision-making and prescription.

Before a CM is seriously considered the Concept report also encourages policy makers to first monitor whether investment adequacy concerns actually emerge and, if they do, whether they can be addressed through tweaks to the EOM rather than through complete redesign of the electricity market, with all the implementation and transition costs that would entail. Meridian sees no need for either a thermal strategic reserve or any broader form of capacity market in the next ten years and considers further consideration of capacity markets in any form undesirable for consumers in the absence of any established problem with security of supply. This is particularly so given already established tools like the ETS exist and disincentivise emissions including those produced by baseload thermal generation.

Other options

The discussion document raises several other options “to demonstrate [MBIE’s] wide ranging assessment of possible policy options”. Meridian agrees with MBIE’s assessment that these options not be recommended for further investigation. Meridian’s brief comments on each of these options are set out below.

- Government-sponsored storage facility for firming hedge products: A subsidised hedge product to firm independent and small-scale investment in variable renewables would cost taxpayers, crowd out private investment, distort competition between generators, and displace investment in more efficient renewable options that are economic now without any subsidy. Hedge products are already available to be traded over the counter and via futures markets enabling market participants like intermittent generators to readily and quickly build a portfolio of hedge contracts to stabilise revenue and manage risk.
- State-owned enterprise (**SOE**) for renewables investments: A new SOE would involve high costs to taxpayers. It may also lead to inefficient investment. An SOE would crowd out private investment and transfer investment risk to taxpayers. Any subsidies or other benefits enjoyed by an SOE would weaken competition in the market and result in higher cost investments than the market would otherwise deliver, ultimately at the expense of taxpayers and consumers.
- Co-ordinated procurement of new generation (single market buyer): Government control of investment decisions would result in higher transaction costs and higher risk associated with a loss of diversity of investment. Having diverse procurement of generation by a range of buyers bringing diverse views regarding future supply needs, making it easier to maintain security of supply at least cost to consumers. In

contrast, the political incentives of a single-market buyer would likely drive it towards conservatism, hinder innovation, and likely result in over investment in security of supply at the expense of consumers. Meridian considers the high costs and disruption of such fundamental market reform to be high with no resulting benefits.

- Tax incentives for renewable electricity generation or subsidies via auction: As New Zealand's largest renewable generator, Meridian would be well placed to receive the subsidies described. However, Meridian firmly opposes this option. Renewable generation options are already the least cost options and do not require subsidies or incentives to ensure they are built to meet demand and ensure security of supply and return on investment for developers. Subsidies of any kind for renewable generation would be unnecessary, costly for taxpayers, and would likely distort investment leading to the development of less efficient renewable generation plant and higher cost emissions mitigation.

Section 9: Local and community energy engagement

A clear and consistent Government position on community energy issues would be welcomed. Economies of scale mean that small scale renewable developments are higher cost than utility scale. However, Meridian acknowledges individuals and communities have an interest in the transition to a low emissions economy and in greater energy independence and we support this.

Any policy measures targeted at community energy will need to be careful to define the types of projects to support. At one level, the only differences between community energy and any other energy project seem to be scale, and ownership and governance structures. As described in the discussion document, shareholders in a utility power company would also be a "community of interest" – they have a say in and own part of a company and have a shared interest in the success of the company's investments. Otherwise, renewable generators like Meridian and small-scale renewable projects seek the same outcome – investment in new renewable electricity generation.

At a grid scale, companies will invest in the lowest cost renewable generation options. Individual households or communities on the other hand will invest to meet a broader set of objectives including greater independence and resilience or a desire to support renewable generation directly. If the Government is going to invest taxpayer resources in community energy, it needs to be clear why it is doing so. Meridian does not consider investments in community energy will generally be an efficient way to decarbonise the economy or increase

the market share of renewable generation in New Zealand (although there may be exceptions). However, if there are other social objectives to be met then support for community energy might be justified.

Support for community energy might also be justified in situations where there is no connection to the national grid, for example to support wind energy developments on Rakiura / Stewart Island or other offshore islands where there is significant diesel generation. In those situations, support for community renewable energy projects will reduce emissions and there will often be no viable option to connect to the grid to access cheaper utility scale renewables. Care should be taken to distinguish such projects from those that remain reliant on the grid for reliability or choose to invest in batteries as well as intermittent renewables to facilitate disconnection from the grid and avoidance of network costs. Community energy projects of these latter types will only displace lower cost utility scale renewable generation and raise power prices for those remaining on the grid, who are likely to be those less able to afford investments in community energy.

Section 10: Connecting to the national grid

The discussion document seeks views on options to address 'first mover disadvantage', 'gaps in publicly available and independent information' and 'lack of information sharing for coordinated investment'. Meridian's view on these matters is that the supposed 'disadvantage,' 'gaps' and 'lack of information' are overstated. The biggest issue in this context in connecting to the national grid is the current method for allocation of grid costs which, as the Electricity Authority has found, is a driver of significant inefficiency and cost across the broader electricity system and is inefficiently disincentivising more use of the existing grid. Addressing deficiencies in the current Transmission Pricing Methodology should be the primary focus of any assessment of how reforms related to the grid can assist in accelerating investment in renewable energy. In particular, we need to adopt a TPM that allows for more optimal use of the current grid and which sends better signals in terms of investments in load and generation that will in future make use of the grid.

We note that discussion document persists in drawing the discredited distinction between connection assets, interconnection assets and HVDC assets. The HVDC assets are merely one particular type or species of interconnection asset and there is no basis, in terms of their role in the electricity system, for drawing a distinction between them and other types of interconnection asset.

We also note the statement that “Because [Transpower] has a regulated income, it generally avoids taking undue risk with grid investments, preferring certainty that its costs will be recoverable.” This makes no sense to us and seems to misunderstand how Transpower is regulated. Because Transpower is a regulated entity it actually faces zero risk on the grid investments it makes. It always has complete certainty that its investment costs will be 100 percent recoverable – to ensure this section 44(4) of the Electricity Industry Act 2010 in fact obliges industry participants to pay “any amounts that Transpower charges” that participant and clause 12.78 of the Code states that the purpose of the Transmission Pricing Methodology is to ensure that “the full economic costs of Transpower’s services are allocated” to transmission customers. The ultimate check on the prudence or otherwise of Transpower’s grid investments, as a regulated entity, is the Commerce Commission and the requirement that the Commission must approve major grid investments, and not uncertainty as to whether grid investments that are unduly risky will be recoverable.

This point is important because the discussion paper seems to proceed on the basis that in order to transition to a low emissions economy Transpower may need to accept a ‘higher level of risk’ and refers also to risks to Transpower from overspending.¹⁸ Given that Transpower always recovers its investments we suggest the better question to ask is whether, in order to facilitate greater investment, Transpower and ultimately its shareholder (the Crown) are willing to accept a lower level of return in recognition of the need to transition to a low emissions economy.

To illustrate this point, the consultation paper says this in respect of contracted assets:¹⁹

“Transpower has indicated that a common ‘sticking point’ in negotiations is that the budgets and project plans it provides for new connections are indicative and the costs are uncapped. This is because Transpower seeks to avoid the risk of the new connection costing more than it can recover (construction cost over-runs cannot be recovered through TPM charges).”

This seems to say that the reason that Transpower does not cap costs is because if it did so and the actual costs exceeded the cap they would be irrecoverable. This would in turn reduce the return to Transpower on that contract and ultimately, if spread across all

¹⁸ Pages 102 and 103 of the discussion document. Reference is also made to efficiency incentives but the economic impact of these is negligible in the context of Transpower’s overall spend and in fact such incentives can lead to Transpower over-recovering or outperforming against its regulated rate of return.

¹⁹ Page 103

contracts, the return to Transpower's shareholder. Obviously for the party on the other side of that contract this increases the risk (compared to a capped scenario) of doing a deal with Transpower to build the contracted asset.

Our comments on the options discussed in section 10 are below.

Encourage Transpower to include the economic benefits of climate change mitigation in applications for Commerce Commission approval of projects expected to cost over \$20m

This option would involve the inclusion of the (avoided) emissions price cost incurred by consumers calculated on a consistent basis. Guidance or direction about the emissions price and trajectory would be needed to support this option.

As we understand it the market benefit test applied already includes emissions costs incurred by generators and other parties that are internal to the electricity market. The issue considered here is whether the test should be extended to include emissions costs incurred or avoided by parties beyond the electricity market. If we have understood the proposal correctly, this would convert the current 'net electricity market benefit' test into a 'net electricity market benefit + non-electricity market ETS-related benefit' test. The question this begs is why other types of non-electricity market benefit (i.e. not just environmental or ETS-related) should not also be included if the desire is to have a more holistic test of the pros and cons of grid investment. Meridian's concern is that, either way, once the test is extended to include non-electricity market benefits, this potentially creates quite a difficult test for the Commerce Commission to apply. Further it's not clear to us that a market benefit test that was adjusted in this way would necessarily result in accelerated renewable generation investment.

Options to address first mover disadvantage

The discussion document outlines several options to address the first mover disadvantage with respect to connection assets. Meridian considers the simplest option to be option 10.3.2, which would provide for Transpower to build larger capacity connection asset or a configuration that allows for growth, but only recover full costs once the asset is fully utilised, with the Crown covering the risk of revenue shortfall, i.e. from a reduced dividend.

Central planning options

Several of the options in the discussion document propose the provision of independent geospatial data on potential generation and electrification sites or maps or databases of potential renewable generation and demand sources and their potential size. All these options imply more of a central planning and coordination role for Transpower or some other Crown organisation. One of the options explicitly suggests a coordination role to force the distribution of wind farms around New Zealand.

Meridian does not support Transpower or any other Crown organisation taking on this sort of role. As a renewable generation developer, we consider there to be sufficient information available to inform our investments. There is also a lot of publicly disclosed information on consented options and options under investigation. Transpower can just as easily access this information and speak to generation developers (through public consultation or informally) if further input into transmission investment decisions would be beneficial.

Any option that seeks to centrally direct or plan when or where generation investments occur in the market would be a significant intervention and would risk a chilling effect on investment. Renewable generation developers are best placed to understand wind and other renewable resources and identify the most economic sites. There are already natural incentives for generators to manage their own portfolio and balance generation to match load across the country.

Section 11: Local network connections and trading arrangements

Meridian agrees that the work programmes already underway across government are adequate to enable connections to, and trading on, distribution networks and that no further policy development is necessary at this time.

Conclusion

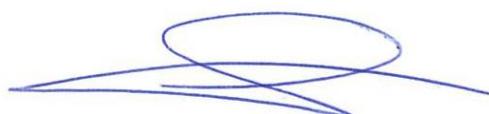
Meridian strongly supports further work to strengthen the NPSREG and other options that will streamline consenting and re-consenting processes for renewable electricity developments. We also encourage facilitation of demand response markets as the least cost technology to manage increasing intermittency alongside New Zealand's existing flexible hydro generation.

With respect to energy efficiency measures, Meridian supports Corporate Energy Transition Plans and low-cost, low-risk options such as the provision of better information to energy users and other. We also support the option to ban new coal-fired process heat equipment for low and medium temperature applications. Like the Productivity Commission, we consider options that avoid locking in long-lived and emissions intensive investments to be the priority complementary measures to the ETS. The same level of priority should be given to complementary policies to incentivise electric vehicle uptake and avoid locking in long-lived investments in emissions intensive light transport.

In respect of many of the other options in the paper, Meridian does not consider there to be a problem that needs to be addressed and that the current market, supported by a fully functional ETS, will deliver the outcomes sought by the Government in the most efficient fashion with the least cost to taxpayers and consumers.

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

Yours sincerely



Sam Fleming
Regulatory Counsel



Appendix 1: Responses to consultation questions

	Question	Comment
1.1	Do you support the proposal in whole or in part to require large energy users to report their emissions and energy use annually publish Corporate Energy Transition Plans and conduct energy audits every four years? Why?	Yes. Meridian supports the proposal in whole. Corporate Energy Transition Plans would ideally report on GHG emissions from all energy related Scope 1, 2, and 3 sources. Reporting would be audited and published. See Meridian's comments on Section 1 and Section 5 in the body of this submission, where we also suggest that identified energy efficiency or clean energy initiative with short payback periods either required to be implemented or the lack of implementation explained in the Corporate Energy Transition Plans.
1.2	Which parts (set out in Table 3) do you support or not? What public reporting requirements (listed in Table 3) should be disclosed?	We recommend a different measure of scale to annual energy spend which would fluctuate (potentially dramatically) year on year due to changes in energy costs or operating hours. A measure of annual revenue could be an alternative.
1.3	In your view, should the covered businesses include transport energy and emissions in these requirements?	Yes. All emissions from energy related activities should be covered using the principles of the GHG Protocol accounting methodologies.
1.4	For manufacturers: what will be the impact on your business to comply with the requirements? Please provide specific cost estimates if possible.	Not applicable.
1.5	In your view, what would be an appropriate threshold to define 'large energy users'?	We consider MBIE and EECA best placed to make this economy wide assessment factoring in different fuel types.
1.6	Is there any potential for unnecessary duplication under these proposals and the TCFD disclosures proposed in the MBIE-MfE discussion document on Climate-related Financial Disclosures?	Yes, there is potential for duplication across various reporting requirements. For further detail see Meridian's comments on Section 1 in the body of this submission.
1.7	Do you support the proposal to develop an electrification information package? Do you support	Meridian supports this option. However, it would not be of use to our business.

	customised low-emission heating feasibility studies? Would this be of use to your business?	
1.8	In your view, which of the components should be scaled and/or prioritised? Are there any components other than those identified that could be included in an information package?	Businesses seeking to electrify will be better placed to respond to this question.
1.9	Do you support benchmarking in the food processing sector?	Yes.
1.10	Would benchmarking be suited to, and useful for, other industries, such as wood processing?	We are uncertain of the value of benchmarking for other industries.
1.11	Do you believe government should have a role in facilitating this or should it entirely be led by industry?	Yes, government may have a role.
2.1	Do you agree that councils have regional air quality rules that are barriers to wood energy? If so, can you point us to examples of those rules in particular councils' plans?	We are uncertain whether this is the case.
2.2	Do you agree that a NESAQ users' guide on the development and operation of the wood energy facilities will help to reduce regulatory barriers to the use of wood energy for process heat?	If feedback reveals a perceived barrier then information provision is a low-cost, low-risk option to help overcome any barriers.
2.3	What do you consider a NESAQ users' guide should cover? Please provide an explanation if possible.	We have no comment at this time.
2.4	Please describe any other options that you consider would be more effective at reducing regulatory	We have no comment at this time.

	barriers to the use of wood energy for process heat.	
2.5	In your opinion, what technical rules relating to wood energy would be better addressed through the NESAQ than through the proposed users' guide (option 2.1)?	We have no comment at this time.
2.6	In your view, could the Industry Transformation Plans stimulate sufficient supply and demand for bioenergy to achieve desired outcomes? What other options are worth considering?	We have no comment at this time.
2.7	Is Government best placed to provide market facilitation in bioenergy markets?	We are unsure whether there is a role for the Government to facilitate bioenergy markets.
2.8	If so, how could Government best facilitate bioenergy markets? Please be as specific as possible, giving examples.	We have no comment at this time.
2.9	In your view, how can government best support direct use of geothermal heat? What other options are worth considering?	We are unsure whether there is a role for the Government to support direct use of geothermal heat.
3.1	Do you agree that de-risking and diffusing commercially viable low-emission technology should be a focus of government support on process heat? Is EECA grant funding to support technology diffusion the best vehicle for this?	Yes. EECA is well placed to do this. However, Meridian suggests avoiding further increases in the electricity levy where possible. An alternative to grant funding would be the provision of interest free Crown loans (currently only available to public sector organisations and administered by EECA).
3.2	For manufacturers and energy service experts: would peer learning and on-site technology demonstration visits lead to reducing perceived technology risks? Is there	Not applicable.

	a role for the Government in facilitating this?	
3.3	For EIH stakeholders: What are your views on our proposal to collaborate to develop low carbon roadmaps? Would they assist in identifying feasible technological pathways for decarbonisation?	Not applicable.
3.4	What are the most important issues that would benefit from a partnership and co-design approach?	We have no comment at this time.
3.5	What, in your view, is the scale of resourcing required to make this initiative successful?	We have no comment at this time.
4.1	Do you agree with the proposal to ban new coal-fired boilers for low and medium temperature requirements?	Yes.
4.2	Do you agree with the proposal to require existing coal-fired process heat equipment for end use temperature requirements below 100 degrees Celsius to be phased out by 2030? Is this ambitious or is it not doing enough?	The settings of the ETS can be adjusted to incentivise phase out by existing coal users and achieve this outcome.
4.3	For manufacturers: referring to each specific proposal, what would be the likely impacts or compliance costs on your business?	Not applicable.
4.4	Could the Corporate Energy Transition Plans (Option 1.1) help to design a more informed phase out of fossil fuels in process heat? Would a timetabled phase out of fossil fuels in process heat be necessary	We have no comment at this time.

	alongside the Corporate Energy Transition Plans?	
4.5	In your view, could national direction under the RMA be an effective tool to support clean and low GHG-emitting methods of industrial production? If so, how?	We have no comment at this time.
4.6	In your view, could adoption of best available technologies be introduced via a mechanism other than the RMA?	We have no comment at this time.
5.1	Do you agree that complementary measures to the NZ-ETS should be considered to accelerate the uptake of cost-effective clean energy projects?	Yes. However, complementary measures should not duplicate ETS incentives or distort the market for emissions units under the ETS. Like the Productivity Commission, we consider options that avoid locking in long-lived and emissions intensive investments to be the priority complementary measures to the ETS.
5.2	If so, do you favour regulation, financial incentives or both? Why?	Neither, at least in the way described in the discussion document. However, Meridian would support a comply or explain regulatory regime linked to Corporate Energy Transition Plans. For further detail see Meridian's comments on Section 5 in the body of this submission.
5.3	In your view what is a bigger barrier to investment in clean energy technologies, internal competition for capital or access to capital?	Anecdotally, the champions of clean energy or energy efficiency projects are often not in positions of influence and have difficulty communicating the value of energy projects to senior leaders. This indicates internal competition for capital could be an issue. Other stakeholders will be better placed to respond to this question.
5.4	If you favour financial support, what sort of incentives could be considered? What are the benefits, costs and the risks of these incentives?	We have no comment at this time.
5.5	What measures other than those identified above could be effective at accelerating investment in clean energy technologies?	See our response to question 5.2 above.

6.1	What is your view on whether cost recovery mechanisms should be adopted to fund policy proposals in Part A of this document?	Meridian supports a coal levy to fund policy initiatives that benefit coal users like fuel switching feasibility studies. A levy should not attempt to create incentives to lower coal consumption – that is the role of the ETS. For further detail see Meridian’s comments on Section 6 in the body of this submission.
6.2	What are the advantages and disadvantages of introducing a levy on consumers of coal to fund process heat activities?	We have no further comment at this time.
7.1	Do you consider that the current NPSREG gives sufficient weight and direction to the importance of renewable energy?	No.
7.2	What changes to the NPSREG would facilitate future development of renewable energy? In particular, what policies could be introduced or amended to provide sufficient direction to councils regarding the matters listed in points a-i mentioned on page 59 of the discussion document?	See Meridian’s comments on Section 7 in the body of this submission.
7.3	How should the NPSREG address the balancing of local environmental effects and the national benefits of renewable energy development in RMA decisions?	See Meridian’s comments on Section 7 in the body of this submission.
7.4	What are your views on the interaction and relative priority of the NPSREG with other existing or pending national direction instruments?	See Meridian’s comments on Section 7 in the body of this submission.
7.5	Do you have any suggestions for how changes to the NPSREG could help achieve the right balance between renewable energy	See Meridian’s comments on Section 7 in the body of this submission.

	development and environmental outcomes?	
7.6	What objectives or policies could be included in the NPSREG regarding councils' role in locating and planning strategically for renewable energy resources?	See Meridian's comments on Section 7 in the body of this submission.
7.7	Can you identify any particular consenting barriers to development of other types of renewable energy than REG, such as green hydrogen, bioenergy and waste-to-energy facilities? Can any specific policies be included in a national policy statement to address these barriers?	See Meridian's comments on Section 7 in the body of this submission.
7.8	What specific policies could be included in the NPSREG for small-scale renewable energy projects?	Meridian has no comments specifically on small-scale renewable energy projects. The NPSREG should apply to all renewable electricity generation regardless of scale.
7.9	The NPSREG currently does not provide any definition or threshold for "small and community-scale renewable electricity generation activities". Do you have any view on the definition or threshold for these activities?	We have no comment at this time. Meridian's comments on community energy projects are in Section 9 of the body of this submission.
7.10	What specific policies could be included to facilitate re-consenting consented but unbuilt wind farms, where consent variations are needed to allow the use of the latest technology?	See Meridian's comments on Section 7 in the body of this submission.
7.11	Are there any downsides or risks to amending the NPSREG?	No.
7.12	Do you think National Environmental Standards (NES) would be an	See Meridian's comments on Section 7 in the body of this submission.

	effective and appropriate tool to accelerate the development of new renewables and streamline re-consenting? What are the pros and cons?	
7.13	What do you see as the relative merits and priorities of changes to the NPSREG compared with work on NES?	Amendments to NPSREG should a high priority. See Meridian's comments on Section 7 in the body of this submission.
7.14	What are the downsides and risks to developing NES?	See Meridian's comments on Section 7 in the body of this submission.
7.15	<p>What renewables activities (including both REG activities and other types of renewable energy) would best be suited to NES? For example:</p> <ul style="list-style-type: none"> • What technical issues could best be dealt with under a standardised national approach? • Would it be practical for NES to set different types of activity status for activities with certain effects, for consenting or re-consenting? For example, are there any aspects of renewable activities that would have low environmental effects and would be suitable for having the status of permitted or controlled activities under the RMA? 	See Meridian's comments on Section 7 in the body of this submission.
7.16	Do you have any suggestions for what rules or standards could be included in NES or National Planning Standards to help achieve the right balance between	See Meridian's comments on Section 7 in the body of this submission.

	renewable energy development and environmental outcomes?	
7.17	Would National Planning Standards or any other RMA tools be more suitable for providing councils with national direction on renewables than the NPSREG or NES?	See Meridian's comments on Section 7 in the body of this submission.
7.18	Are there opportunities for non-statutory spatial planning techniques to help identify suitable areas for renewables development (or no go areas)?	See Meridian's comments on Section 7 in the body of this submission.
7.19	Do you have any comments on potential options for pre-approval of renewable developments?	See Meridian's comments on Section 7 in the body of this submission.
7.20	Are the current NPSET and NESETA fit-for-purpose to enable accelerated development of renewable energy? Why?	The current NPSET and NESETA could benefit from improvements. However, we consider there to be higher priorities. We have no further comment at this time.
7.21	What changes (if any) would you suggest for the NPSET and NESETA to accelerate the development of renewable energy?	We have no further comment at this time.
7.22	Can you suggest any other options (statutory or non-statutory) that would help accelerate the future development of renewable energy?	See Meridian's comments on Section 7 in the body of this submission. A further non-statutory option may be to publicly fund campaigns and media on the importance of renewable energy and its role in climate action. This could help to create community and council acceptance of renewable developments, for example by telling the story of communities that have embraced and benefited from renewable developments.
8.1	Do you agree there is a role for government to provide information,	No.

	facilitate match-making and/or assume some financial risk for PPAs?	
8.2	Would support for PPAs effectively encourage electrification and new renewable generation investment?	No. We do not consider there to be any market failure in respect of PPAs. See Meridian's comments on Section 8 in the body of this submission.
8.3	How could any potential mismatch between generation and demand profiles be managed by the Platform and/or counterparties?	We have no further comment at this time.
8.4	What are your views and preferences in relation to different options A to D above?	We have no further comment at this time.
8.5	For manufacturers: what delivered electricity price do you require to electrify some or all of your process heat requirements? And, is a long-term electricity contract an attractive proposition if it delivers more affordable electricity?	Not applicable.
8.6	For investors / developers: what contract length and price do you require to make a return on an investment in new renewable electricity generation capacity? And, is a long-term electricity contract an attractive proposition if it delivers a predictable stream of revenues and a reasonable return on investment?	Financing and hedging arrangements will vary by project and are commercially sensitive. Risk appetite of a developer will vary based on a range of factors. There are various ways to manage revenue and risk for a renewable generation development. Meridian does not consider there to be any market failure.
8.7	Do you consider the development of the demand response (DR) market to be a priority for the energy sector?	Yes. See Meridian's comments on Section 8 in the body of this submission.

8.8	Do you think that DR could help to manage existing or potential electricity sector issues?	Yes. See Meridian's comments on Section 8 in the body of this submission.
8.9	What are the key features of demand response markets? For instance, which features would enable load reduction or asset use optimisation across the energy system, or the uptake of distributed energy resources?	See Meridian's comments on Section 8 in the body of this submission.
8.10	What types of demand response services should be enabled as a priority? Which services make sense for New Zealand?	See Meridian's comments on Section 8 in the body of this submission.
8.11	Would energy efficiency obligations effectively deliver increased investment in energy efficient technologies across the economy? Is there an alternative policy option that could deliver on this aim more effectively?	There would be investment in energy efficiency but at high cost to consumers. See Meridian's comments on Section 8 in the body of this submission.
8.12	If progressed, what types of energy efficiency measures and technologies should be considered in order to meet retailer/distributor obligations? Should these be targeted at certain consumer groups?	See Meridian's comments on Section 8 in the body of this submission.
8.13	Do you support the proposal to require electricity retailers and/or distributors to meet energy efficiency targets? Which entities would most effectively achieve energy savings?	No.
8.14	Could you or your organisation provide guidance on the likely	Costs would be high, reflecting the full capital cost of any efficiency investment plus credit risk. Costs would be passed on to consumers.

	compliance costs of this policy?	Enforcing compliance with any obligation would also cost the regulator.
8.15	Do you consider the development of an offshore wind market to be a priority for the energy sector?	No. See Meridian's comments on Section 8 in the body of this submission.
8.16	What do you perceive to be the major benefits and costs or risks to developing offshore wind assets in New Zealand?	See Meridian's comments on Section 8 in the body of this submission.
8.17	This policy option involves a high level of intervention and risk. Would another policy option better achieve our goals to encourage renewable energy generation investment? Or, could this policy option be re-designed to better achieve our goals?	The Government could simply endorse the existing NZECS scheme, or purchase and operate it as a government scheme. See Meridian's comments on Section 8 in the body of this submission.
8.18	Should the Government introduce RPS requirements? If yes, at what level should a RPS quota be set to incentivise additional renewable electricity generation investment?	No. See Meridian's comments on Section 8 in the body of this submission.
8.19	Should RPS requirements apply to all retailers and/or major electricity users? What would be an appropriate threshold for the inclusion of major electricity users (i.e. annual consumption above a certain GWh threshold)?	No. See Meridian's comments on Section 8 in the body of this submission.
8.20	Would a government backed certification scheme support your corporate strategy and export credentials?	Government endorsement or operation of the existing NZECS scheme would support Meridian's business and that of our customers and provide some assurance regarding policy stability going forward.

		An Australian-style scheme would be counter-productive
8.21	What types of renewable projects should be eligible for renewable electricity certificates?	The existing NZECS scheme enables certification for all generation. An Australian-style scheme with eligibility limited to renewable generation developments after a certain date would provide no benefit in New Zealand. See Meridian's comments on Section 8 in the body of this submission.
8.22	If this policy option is progressed, should retailers and major electricity users be permitted to invest in energy efficient technology investments to meet their renewable portfolio standards? (See option 8.3 above on energy efficiency obligations).	See Meridian's comments on Section 8 in the body of this submission.
8.23	Could you or your organisation provide guidance on the likely administrative and compliance costs of this policy?	See Meridian's comments on Section 8 in the body of this submission.
8.24	This policy option involves a high level of intervention and risk. Do you think that another policy option could better achieve our goals to encourage renewable energy generation investment? Or, could this policy option be redesigned to better achieve our goals?	Meridian does not support this option. See Meridian's comments on Section 8 in the body of this submission.
8.25	Do you support the managed phase down of baseload thermal electricity generation?	Meridian considers the current market capable of managing the retirement of baseload thermal generation. The market has successfully managed many similar periods of generation retirements in the past. See Meridian's comments on Section 8 in the body of this submission.
8.26	Would a strategic reserve mechanism adequately address supply security and reduce emissions affordably during a transition to higher levels	No. See Meridian's comments on Section 8 in the body of this submission.

	of renewable electricity generation?	
8.27	Under what market conditions should thermal baseload held in a strategic reserve be used? For example, would you support requiring thermal baseload assets to operate as peaking plants or during dry winters?	Meridian does not support this option. This question reveals some of the difficulty of a central planner making decisions in the market. See Meridian's comments on Section 8 in the body of this submission.
8.28	What is the best way to meet resource adequacy needs as we transition away from fossil fueled electricity generation and towards a system dominated by renewables?	The current market has already transitioned from 65 to 85 percent renewable and managed the retirement of significant thermal generation. All while maintaining security of supply and without raising long-term average electricity prices. See Meridian's comments on Section 8 in the body of this submission.
8.29	Should a permanent capacity market which also includes peaking generation be considered?	No. See Meridian's comments on Section 8 in the body of this submission and the Concept Consulting report appended to this submission.
8.30	Do you have any views regarding the above options to encourage renewable electricity generation investment that we considered, but are not proposing to investigate further?	Meridian does not support these options. See Meridian's comments on Section 8 in the body of this submission.
9.1	Should New Zealand be encouraging greater development of community energy projects?	There may be some scope for targeted Government support for community energy projects. See Meridian's comments on Section 9 in the body of this submission.
9.2	What types of community energy project are most relevant in the New Zealand context?	See Meridian's comments on Section 9 in the body of this submission.
9.3	What are the key benefits and downsides/risks of a focus on community energy?	See Meridian's comments on Section 9 in the body of this submission.
9.4	Have we accurately identified the barriers to community energy proposals? Are there other barriers to community energy not stated here?	Yes. In general, these are not regulatory barriers but rather the result of limited access to capital and expertise. See Meridian's comments on Section 9 in the body of this submission.

9.5	Which barriers do you consider most significant?	We have no further comment at this time.
9.6	Are the barriers noted above in relation to electricity market arrangements adequately covered by the scope of existing work across the Electricity Authority and electricity distributors?	Yes.
9.7	What do you see as the pros and cons of a clear government position on community energy, and government support for pilot community energy projects?	A clear Government position would be useful but is unlikely to persist through multiple terms of government. See Meridian's comments on Section 9 in the body of this submission.
9.8	Any there any other options you can suggest that would support further development of community energy initiatives?	Meridian supports targeted government assistance for community energy projects where connection to the grid is unlikely to be an option and diesel generation is currently relied upon (for example on Rakiura / Stewart Island). Most other community energy projects will simply be displacing lower cost grid scale renewable energy. See Meridian's comments on Section 9 in the body of this submission.
10.1	Which option or combination of options proposed, if any, would be most likely to address the first mover disadvantage?	Option 10.3.2. See Meridian's comments on Section 10 in the body of this submission.
10.2	What do you see as the disadvantages or risks with these options to address the first mover disadvantage?	See Meridian's comments on Section 10 in the body of this submission.
10.3	Would introducing a requirement, or new charge, for subsequent customers to contribute to costs already incurred by the first mover create any perverse incentives?	See Meridian's comments on Section 10 in the body of this submission.

10.4	Are there any additional options that should be considered?	See Meridian's comments on Section 10 in the body of this submission.
10.5	Do you think that there is a role for government to provide more independent public data? Why or why not?	Only to the extent that a need for the information is identified and the benefits of the information exceed the costs of providing it. See Meridian's comments on Section 10 in the body of this submission.
10.6	Is there a role for Government to provide independent geospatial data (e.g. wind speeds for sites) to assist with information gaps?	No. See Meridian's comments on Section 10 in the body of this submission.
10.7	Should MBIE's EDGS be updated more frequently? How often?	We have no comment at this time.
10.8	Should MBIE's EDGS be more granular, for example, providing information at a regional level?	We have no comment at this time.
10.9	Should the costs to the Crown of preparing EDGS be recovered from Transpower, and therefore all electricity consumers (rather than tax-payers)?	We have no comment at this time.
10.10	Would you find a users' guide helpful? What information would you like to see in such a guide? Who would be best placed to produce a guide?	No. But other parties may. See Meridian's comments on Section 10 in the body of this submission.
10.11	Do you think that there is a role for government in improving information sharing between parties to enable more coordinated investment? Why or why not?	No. See Meridian's comments on Section 10 in the body of this submission.
10.12	Is there value in the provision of a database (and/or map) of potential renewable generation and new demand, including location and potential	No. See Meridian's comments on Section 10 in the body of this submission.

	size? If so, who would be best to develop and maintain this? And how should it be funded?	
10.13	Should measures be introduced to enable coordination regarding the placement of new wind farms?	No. See Meridian's comments on Section 10 in the body of this submission.
10.14	Are there other information sharing options that could help address investment coordination issues?	No. See Meridian's comments on Section 10 in the body of this submission.
11.1	Have you experienced, or are you aware of, significant barriers to connecting? Are there any that will not be addressed by current work programmes outlined above?	We are not aware of any barriers to connecting that are not already covered by existing work programmes.
11.2	Should the section 10 option to produce a users' guide extend to the process for getting an upgraded or new distribution line? Are there other section 10 information options that could be extended to include information about local networks and distributed generation?	Such a guide may be difficult to produce given differences between distribution networks and the processes that each follows.
11.3	Do the work programmes outlined above cover all issues to ensure the settings for connecting to and trading on the local network are fit for purpose into the future? Are there things that should be prioritised, or sped up?	Yes, the existing work programmes seem appropriate.
11.4	What changes, if any, to the current arrangements would ensure distribution networks are fit for purpose into the future?	We have no further comment at this time.

Appendix 2: Redrafted NPSREG

Appendix 3: Concept Consulting report on capacity and energy-only markets