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Submission On MBIE's Discussion Document Accelerating Renewable Energy & Energy Efficiency



1. Introduction

Northpower Limited (**Northpower**) welcomes the opportunity to make a submission on MBIE's Discussion Document "Accelerating Renewable Energy and Energy Efficiency" (**Discussion Document**) including the focus on:

- the need to unlock investments in innovation and infrastructure to reduce the long term cost of the transition to a new energy future and ensure it is just and inclusive; and
- the energy trilemma: affordability, security of supply and environmental sustainability.

We have limited our comments on the specific aspects of the Consultation Paper where we have direct experience or concerns. We support the submission of the Electricity Networks Association, on behalf of electricity distribution businesses, and the TPM Group (in relation to issues raised in Section 10).

2. Background

Northpower owns, operates and maintains both the electricity and fibre networks in Whangarei and Kaipara. The electricity network includes 6,380 kilometres of overhead lines and underground cables; approx. 54,000 power poles; approx. 60,000 connected customers; and 5MW hydroelectric Wairua power station.

At Northpower, we work together to ensure our customers' critical electricity infrastructure is always on. We're constantly looking to the future and planning now for how our network will be used, so we can cater for growing demand. This includes building in capacity for ever-changing energy environments and technical innovations - like electric vehicles (further evidenced by Northpower's vehicle to grid trial (V2G)

<https://northpower.com/articles/2020/northpower-vehicle-to-grid-trial-wins-eeca-funding>).

Northpower's electricity network is the power behind Whangarei and Kaipara's rapidly growing economy - helping people to live, work and holiday in a spectacular location while remaining globally connected. Every year we invest in our network. This expenditure and expansion provides another boost to our economy. We recognise the critical importance of reliable electricity supply in servicing Northland's ever growing economy and communities, and the role we have in continuing to open up new opportunities for the future.

Our Wairua Falls hydroelectric power station was commissioned in 1916 and is one of New Zealand's oldest hydro schemes still in operation. The station has a catchment area of 348km² and uses the head available from the Wairua Falls. Water from an intake upstream of the falls feeds into a canal which runs for down the right bank of the Wairua river to the head pond where two penstocks feed the water down to the powerhouse. The station has a total capacity of 5MW, enough to power 675 houses.

Northpower Fibre, a joint venture with the Crown, delivers world class ultra-fast broadband connectivity to customers in Whangarei and 12 other towns across the Kaipara and Whangarei districts. Our investment in fibre has removed many of the traditional barriers to collaborating and communicating globally while living outside of the main cities.

We're continually shaping our networks to provide safe, reliable electricity and communications infrastructure both now and for future generations.



Map of Northpower's electricity distribution network

3. Renewable Electricity Generation & NPSREG

Northpower is currently involved in re-consenting its 5MW Wairua Falls hydro power station with the Northland Regional Council.

It is clear from Northpower's experience, that amendment is needed to the NPSREG to give the benefits of renewable electricity generation more weight. Northpower supports the Discussion Document's proposal to revise the NPSREG as a priority of the Renewable Energy Strategy work programme, and the development of a National Environmental Standard for Renewable Energy Facilities (**NESREFA**) where its development would significantly and directly reduce costs and uncertainty in the consenting and re-consenting process.

Northpower generally supports stronger national direction under the RMA on the importance of renewable energy, through revisions to the National Policy Statement for Renewable Electricity Generation (**NPSREG**) and would support any development of complementary National Environmental Standards (**NES**) to help deliver renewable electricity generation.

Northpower supports revising the NPSREG as a priority of the Renewable Energy Strategy work programme. In principle, Northpower supports the development of a NESREFA where its development would significantly and directly reduce costs and uncertainty in the consenting and re-consenting process. The NPSREG needs to reconcile the national benefits of renewable energy with its local impacts.

The NESREFA could give strong and consistent direction on the required level of consideration under the RMA for both the specific renewable energy activities and the necessary enabling networks, transmission and distribution.

Part A: Encouraging greater energy efficiency and the uptake of renewable fuels in industry (process heat)

Sections 1-6

No comment.

Part B: Accelerating renewable electricity generation and infrastructure (renewable electricity generation)

Section 7: Enabling development of renewable energy under the Resource Management Act 1991

Proposal 7.1 – Amend the National Policy Statement for Renewable Electricity Generation, including potential expansion of its scope to cover a broader range of renewable energy activities

Q7.1 Do you consider that the current NPSREG gives sufficient weight and direction to the importance of renewable energy?

A stronger national direction under the RMA focussed on the importance of renewable energy is required through a significant amendment to the NPSREG. The amendments need to primarily focus on the benefits derived from renewable electricity generation.

In Northpower's experience, the NPSREG has not made a significant impact on the time and cost of the consenting process for renewable energy generation projects. When the NPSREG is weighed alongside other instruments in RMA decision making it needs to be more directive to ensure it receives a similar priority to other RMA instruments such as the NPSFM.

Q7.2 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 council's regarding matters listed in points A-I mentioned on page 59 of the discussion document?

The preamble of the NPSREG states that in some instances the benefits of renewable electricity generation can compete with matters of national importance in section 6 of the RMA, and with matters to which decision-makers are required to have particular regard under section 7 of the Act. In particular, the natural resources from which electricity is generated, can coincide with areas of significant natural character, significant amenity values, historic heritage, outstanding natural features and landscapes, significant indigenous vegetation and significant habitats of indigenous fauna. It goes on to say that there can also be potential conflicts with the relationship of Maori and their taonga and the role of kaitiaki. However, it is Northpower's experience that the NPSREG has not benefited the Wairua Falls hydro station re-consenting project, nor has it had any significant effect on reducing the time, complexity or cost of consenting renewable electricity generation projects.

Northpower is an electricity distribution business. Northpower supports any amendment to the NPSREG that provides clearer direction for the need for regional and district plans to support the development of electricity distribution networks to enable connection to renewable electricity generation facilities. While the transmission network can rely on the NPSET and the NESETA, electricity distribution networks have to rely on ad hoc provisions in council plans.

Consideration should also be made to revise the NPSFM so that all hydro schemes are exempt from its obligations rather than the six large hydro schemes.

Q7.3 How should the NPSREG address the balancing of local environmental effects and the national benefits of renewable energy development in RMA decisions?

More weight should be given to recognising at a national directive level, the national and local benefits of renewable electricity generation activities and the benefits of renewable energy versus non-renewable electricity generation. In comparison, the NPSFM is more directive in that it has limits imposed that have to be met and has prescriptive requirements for councils to adopt.

Q7.4 What are your views on the interaction and relative priority of the NPSREG with other existing or pending national direction instruments?

As seen in *Blueskin Energy Limited v Dunedin City Council* [2017] NZEnvC 150 more national direction needs be given to the benefits to be derived from the use and development of renewable energy to aid projects. The NPSREG needs to have more weight for decision makers than the NPSFM, as it is easier to argue for protection of water than protection of hydro electricity generation.

Please see Q7.1 above.

If the NPSREG was amended to provide for more directive policies, and with a number of other national direction instruments in development, there is a risk of clashing priorities between the different instruments. Any amendment to the wording of the NPSREG will need to be carefully drafted in consultation with other agencies which have developed, or are developing, RMA national direction instruments.

Q7.5 Do you have any suggestions for how changes to the NPSREG could help achieve the right balance between renewable energy development and environmental outcomes?

More weight is needed in the NPSREG so that it is considered a matter of national importance along with the other environmental protection matters. Beefing up its national importance will achieve the right balance between renewable energy development and environmental outcomes. Any planning instrument needs to provide for both renewable electricity generation and also the transmission and distribution grid upgrades that support it (particularly with more distributed energy resources connecting to distribution networks).

There should be some facility to recognise the benefits of renewable generation and have this offset some of the obligations the environmental impacts give rise to.



Q7.10 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?

For a project to become viable for a business, significant investment analysis is undertaken including rigorous costings. While most new technologies improve environmental outcomes, they are usually more costly to the business. Any direction on facilitating renewal of lapsing consents for renewable energy projects that require updated technical specifications that would allow the latest, most efficient technologies to be deployed needs to be at the discretion of the applicant due to potential increase of costs. However, should the applicant wish to update its technical specifications of the energy project it should be supported by the council.

As the statutory lapse period is five years, the applicant shouldn't be put to onerous cost and time to review all available technologies when looking to extend its lapse period.

Q7.11 Are there any downsides or risks to amending the NPSREG?

If the amended NPSREG provides more directive policies and in practice reduces the cost and uncertainty of investment in renewable generation, there is little downside to renewable electricity generation projects. Such amendments could improve consistency in planning and consenting decisions on renewable energy facilities and activities; enable more weight to be given to renewable energy in these decisions; and encourage councils to plan strategically for renewable energy development.

An amended NPSREG would provide stronger direction on how to weigh renewable energy generation against potential competing values under the RMA (e.g. amenity or biodiversity values). Its potential impact on competing values will depend on the details of the scale of the NPSREG amendments.

Scope National Environmental Standards or National Planning Standards specific to renewable energy

Proposal 7.2

Option A: Scope National Environmental Standards for Renewable Energy Facilities and Activities

Option B: Scope additional renewable-energy – related content for inclusion in the National Planning Standards.

Q7.12 Do you think National Environmental Standards (NES) would be an effective and appropriate tool to accelerate the development of new renewables and streamline re-consenting? What are the pros and cons.

Northpower would support the development of an NES for (the proposed National Environmental Standards for Renewable Energy Facilities (**NESREFA**)) in the following areas:

- Developing new renewable energy generation projects;

- Standardising the consent process for re-consenting and repowering (upgrading) of existing renewable energy generation facilities; and
- Setting out the consenting framework for high voltage lines that are connected to renewable electricity generation facilities but that are not part of the National Grid.

Northpower would support the development of the NESREFA if it could significantly and directly reduce the costs and uncertainty in the process for renewable energy facilities and activities through standardising the consenting process.

Q7.13 What do you see as the relative merits and priorities of changes to the NPSREG compared with work on NES?

To deliver the Government's Renewable Energy Strategy both an amended NPSREG is required to provide stronger direction on the national importance of renewables, but also an NES is required specific to renewable energy to develop a nationally consistent approach to achieve certainty and reduction of costs through the resource consenting process.

Q7.14 What are the downsides and risks to developing NES?

Due to the wide-ranging renewable energy generation types, the development of the NES process could become very protracted, time consuming and complex. The technical requirements will be more detailed within the NES. Any drafting of such NES needs to address technology improvements.

Q7.15 What renewable activities (including both REG activities and other types of renewable energy) would best be suited to NES? For example:

- **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?**

Having national consistency for re-consenting renewable energy generation facilities would reduce costs and achieve consistency through the resource consenting process.

Consideration of developing an NES for high voltage distribution lines that are not part of the National Grid (i.e. not covered by the NPSET and NESETA) will give electricity distribution companies with similar assets (i.e. 110kV lines) a fair, consistent and certain resource consenting framework. It is unfair for one party to have a NPS and NES available when another party with the same assets (which provides the same service to consumers) cannot utilise these provisions.

Q7.16 Do you have any suggestions for what rules or standards could be included in the NES or National Planning Standards to help achieve the right balance between renewable energy development and environmental outcomes?

Q7.17 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?

Aspects of renewable electricity generation could form part of national planning standards. However, it would be better to provide a comprehensive set of objectives, policies and rules through the NPS and NES frameworks due to the array of renewable energy projects and technologies.

Q7.18 Are there any opportunities for non-statutory spatial planning techniques to help identify suitable areas for renewables development (or no go areas)?

Northpower supports and considers there is value in mapping areas suitable for renewable electricity generation and associated network infrastructure.

Q7.19 Do you have any comments on potential options for pre-approval of renewable developments?

Northpower would support a general pre-approval approach, but would remain concerned about the conditions of consent that may be imposed on such an application that may then make the project untenable. More information is required to understand how such a pre-approval process would work.

Section 8: Supporting renewable electricity generation investment

Q8.7 Do you consider the development of the demand response (DR) market to be a priority for the energy sector?

Demand response will have a key role in flattening the demand curve, reducing peaks, and shifting load to overnight when networks and generation is relatively unutilised. It can reduce our reliance in fossil fuelled peaking plants, utilise the output from carbon neutral plant e.g. wind which is relatively untapped in the middle of the night, and defer investments in network expenditure. The role of demand response is recognised in the ENA's Network Transformation Roadmap, which outlines development steps required.

We agree with the ENA that the demand response market is in its early stages, the regulatory settings need to be supportive (removing the Low Fixed Charges Regulations being an important enabler) and that time is need to allow participants including distributors to experiment and learn.

A priority should be for industry learnings to be shared widely to enable greater understanding of how demand response markets could most efficiently and responsively be supported in the New Zealand context.

Q8.8 Do you think that DR could help to manage existing or potential electricity sector issues?

Demand response will play an important role in the future, by helping to reduce the current reliance on diesel, gas, and coal fired peaker plants and deferring the cost of network upgrades to accommodate growing peak demand. However, at a distribution level to be an effective tool to manage congestion or load issues, demand response will need to have sufficient penetration across the network or, where there are localised issues, have sufficient load to control in an area to make an impact. This is likely to evolve over time, with benefits accruing in the future. However, early trials are important to understand how control can be supported, what to control and consumer behaviour.

Most distribution networks already control load, by controlling hot water load. Our experience of consumer behaviour is that consumers are happy for their load to be controlled provided it does not cause them inconvenience (for example, we see a number of complaints in winter when consumers run out of hot water, often due to a combination of high demand, insufficiently sized hot water tanks and hot water load control).

However, consumers are likely to push back on control of loads that require a behaviour shift or cause inconvenience (e.g. controlling their heat pump on a cold night when network peaks are at their highest). However, with the right pricing plans (which are passed through by retailers) and some form of load control, the impacts of EV charging could be managed through encouraging overnight charging.

Consultation with major industrials will be important to understand the extent to which they can reconfigure their operational schedules to shift load and take advantage of demand response benefits. In our experience, while electricity is an important input cost, other factors have greater weight (for example, many industrials are not able to time their annual shut downs to coincide with RCPD peaks, despite this being a major driver of transmission costs for these consumers).

Q8.9 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?

Q8.10 What types of demand response services should be enabled as a priority? Which services make sense for New Zealand?

We support the ENA's comments around the role of local DSOs supporting local energy markets. We consider it is still too early to tell what the best model is for NZ communities and what will deliver the best outcome in terms of an optimised and efficient energy network. There are potentially two roles that will emerge – the management of the physical layer (which may be best to be local) and management of the commercial trading layer (which could be centralised). Given the early stage of market development we would strongly encourage taking an incremental learning approach to any regulatory supporting frameworks.

Potential DSO Frameworks

Physical management layer (DSO)

Registration and visibility of DER, details of their characteristics and location, communication links to respond to market signals, details of physical constraints of networks.

Layer operated the distribution system operator (DSO)

Commercial trading layer (DMO)

Contractually connects the DER to a buyer, defines the services agreement. Confirms DER acted in accordance with instructions, facilitates market settlement.

Layer operated by the distribution market operator

Section 10: Connecting to the National Grid

Section 10 discusses potential risks associated with benefits based allocation of connection assets but does not address the same risks with interconnection assets which is a far bigger issue. We support and endorse the submission by the TPM Group, of which Northpower is a member.

We recognise that the transition to renewables poses a significant investment challenge. When also considering the other areas of infrastructure deficit it is clear that both public and private capital will be needed. In order to attract private capital on both demand and supply side, investment settings need to be stable, intuitively predictable and well justified.

For this reason, this is not the time to embark on experiments such as benefits based transmission pricing (which is not used overseas at the transmission customer level) or the removal of the peak charge which could trigger a surge in peak demand and new system costs.

As we have raised in the current TPM consultations, great care needs to be taken about distributional issues. The removal of RCPD charges is likely to trigger new costs as distribution, transmission and generation is built to serve new peak demand. This will further disadvantage Northland, which has some of New Zealand's most disadvantaged communities.

Shifting to benefits based charges is likely to favour those with the resources to engage in lengthy cost allocation discussions. For example, Fonterra (NZ largest company) in its recent oral submission to the EA said it did not have the resources to engage in lengthy consultations on such issues. Further, benefits based charging could also discourage economic growth in areas, such as Northland, where it is sorely needed.

We understand that a primary trigger for the reform is that socialised pricing might lead to early investment. However, in the context of electrification where demand is growing this seems less of a problem than its opposite where disputes over costs lead to delays in essential infrastructure including in the regions where investment has been slow to occur.

We think it is important that new transmission investment is right sized for a region's needs taking into account affordability, supply security and environmental considerations. This might involve building ahead of demand to take advantage of scale economies.

When considering the size of the challenge to electrify our economy, and the investments needed to support that, and the impacts that those costs could have on local communities, careful consideration needs to go into the approval of new grid investment, the complex trade-offs between the needs of current and future beneficiaries, reliability preferences and environmental issues. Once this has been determined the costs should be recovered by socialised pricing to reflect the essential nature of the services provided.

The EA's reform has not been well justified and its CBA widely criticised. We are concerned that the ongoing controversy and complexity of the Authority's approach will continue to be a distraction to the core issues: timely investment in infrastructure which will support a transition to a low emissions economy at the lowest possible cost. We would urge the Government to intervene and provide firm policy guidance on its priorities.

Section 11: Local network connections and trading arrangements

- Q11.1 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?**
- Q11.2 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?**
- Q11.3 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?**

We support the ENA's submission on section 11. We are not aware of any significant barriers to connection to the network, with well established technical, design, and construction processes in place. We have recently revamped our customer facing functions, to provide greater responsiveness, transparency and information to customers, including the new connection process. This is being supported by digital tools, including a CRM system, supporting website information and customer portals.

However, we agree with the ENA that there is a need for greater clarity around the financing and cost recovery for new connections or significant upgrades to existing connections, particularly where capacity is being provided to service future generations (as generally it is most cost effective to size assets for future demand). This is likely to be a significant issue as the economy electrifies and distributed generation expands its footprint, forcing network upgrades. This needs careful consideration to ensure the charges ultimately borne by different connected customers are fair.

There is an emerging issue around the connection of large scale DER and the charges that they should pay for access to distribution networks. Distributors are limited under the Electricity Industry Participation Code to charging only the marginal cost to connect, which enables new distributed generation to utilise the capacity in the existing network at no cost. Similar to the experience overseas, enquiries often specifically size their proposal based on existing capacity, to avoid having to invest in lines and substation upgrades. However, once that capacity is taken up (at no cost to the DER), then additional incremental growth pushes the cost of future upgrades (e.g. a new substation, upgraded lines) to network consumers (a



cost they would not have incurred as quickly but for the DER). Further, once that capacity is reached on the distribution network, then further renewable generation may be dissuaded due to the expense of the network upgrades required (i.e. the first mover disadvantage, but on the distribution network).

Q11.4 What changes, if any, to the current arrangements would ensure distribution networks are fit for purpose into the future?

We support the two points raised by the ENA in relation to changes to support distribution pricing and access to smart metering data. However, in relation to smart metering data, we think there is a wider issue that needs to be considered around the development of a technical specification for advanced metering equipment and supporting platforms that would enable the collection and access to the critical information needed by all parties (distributors, consumers and retailers, and possibly even demand response providers) to enable an efficient market. As noted the by ENA, with widespread DER across their networks, distributors will need greater visibility at the LV level, which can be achieved by widespread deployment of LV monitoring and/or access to a range of advanced metering data (much of which cannot be currently provided by existing smart meters). Avoiding duplication of assets will ultimately reduce cost to end consumers.